Federal Emergency Management Agency (FEMA)
Finding of No Significant Impact (FONSI)
Proposed Statewide Wildfire Mitigation Project
State of Florida

BACKGROUND

In accordance with FEMA Directive 108-1 and FEMA Instruction 108-1-1, FDEM and FEMA prepared a Programmatic Environmental Assessment (PEA) on Wildfire Mitigation Projects in the State of Florida pursuant to National Environmental Policy Act (NEPA) Section 102, as implemented by the President's Council on Environmental Quality (CEQ) regulations (40 CFR Parts 1500-1508).

FDEM and FEMA prepared this PEA to evaluate in depth the Proposed Action, vegetation Management activities associated with wildfire mitigation projects, and the No Action Alternative's probable effects on the natural and human environment; and to determine whether to prepare a "Finding of No Significant Impact" (FONSI) or an "Environmental Impact Statement" (EIS).

The PEA is intended to address proposed FEMA-funded wildfire mitigation projects throughout the State of Florida. Due to the increase in the quantity of vegetative ground and ladder fuels, surface fires today move easily into the tree canopy and fuel destructive fires. Fuel reduction in areas prone to wildfire reduces the severity of potential wildfires, increases the ability to control wildfires, and minimizes potential damage to property, public safety, and the natural environment. Much of the proposed project funding will be provided to projects under FEMA's Public Assistance and Hazard Mitigation Assistance programs, along with other FEMA programs, as appropriate. Appropriate agency consultation and necessary documentation will be completed to ensure are in compliance with applicable Federal, Tribal, State and local laws, regulations, EOs, etc. The PEA evaluated two alternatives: (1) No Action and (2) Vegetation Management. Specific items of work may include, but not be limited to:

- Creation of defensible space by removing the woody vegetation around a structure; and
- Hazardous fuels reduction including thinning vegetation, removing ladder fuels, and reducing flammable vegetative materials not more than two miles from homes and other structures.

The Applicant and their agents will mitigate the project's potential adverse impacts on or from the environment, by complying with applicable regulatory conditions and applying the following Best Management Practices (BMPs) (as per U.S. Forest Service and Florida Forest Service):

- The project sponsor must obtain and comply with all applicable permit and approvals required by Federal, State, Tribal, and local regulatory agencies.
- FEMA would consult with the State/Tribal Historic Preservation Office (SHPO/THPO) on project specific activities for any project that has the potential to affect previously undisturbed areas or historic properties. If during the course of any ground disturbance related to this project, cultural materials are inadvertently discovered, the project would

be immediately stopped and the SHPO/THPO and FEMA notified.

- FEMA would consult with the U.S. Fish and Wildlife Service on a project specific basis for anyactions that have the potential to affect biological resources, including threatened and endangered species.
- Perform skidding or yarding operations when soil conditions are such that soil compaction,displacement, and erosion would be minimized.
- Suspend skidding or yarding operations when soil moisture levels could result in unacceptablesoil damage.
- Use low ground pressure equipment when practicable, particularly on equipment traveling overlarge portions of units with sensitive soils or site conditions.
- Establish designated areas for equipment staging and parking to minimize the area of grounddisturbance.
- Work with the contractor to locate landings, skid trails, and slash piles in suitable sites to avoid,minimize, or mitigate potential for erosion and sediment delivery to nearby waterbodies.
- Develop an erosion control and sediment plan that covers all disturbed areas including skid trailsand roads, landings, cable corridors, temporary road fills, water source sites, borrow sites, or other areas disturbed during mechanical vegetation treatments.
- Avoid ground equipment operations on unstable, wet, or easily compacted soils and on steep slopes unless operation can be conducted without causing excessive rutting, soil puddling, orrunoff of sediments directly into waterbodies.
- Install suitable stormwater and erosion control measures to stabilize disturbed areas and waterways on incomplete projects before seasonal shutdown of operations or when severe storm or cumulative precipitation events that could result in sediment mobilization to waterbodies are expected.
- Routinely inspect disturbed areas to verify that erosion and stormwater controls are implemented and functioning as designed and are suitably maintained.
- Implement mechanical treatments on the contour of sloping ground to avoid or minimize waterconcentration and subsequent accelerated erosion.
- Minimize skidder and other heavy equipment operation in wetlands during wet conditions toavoid widespread excessive soil rutting.
- To the greatest extent possible: forestry operations in wetlands which exhibit seasonal inundation or saturation should be limited to dry conditions only, and forestry operations inwetlands which are continually saturated or inundated should be limited to low-water conditions.

- When skidding in wetlands with organic soils, concentrate skid trails to as small an area aspossible, and minimize the number of trails on a given site.
- Maintain habitat features by carrying out activity on forest lands, such as harvesting (includingthinning), site preparation, burning, etc.
- Locate concentrated heavy equipment operations (e.g. log decks, landings, main skid trails, ramps, etc.) away from known and visibly apparent active burrows, and especially known concentrations of active burrows. If concentrated heavy equipment operations must be locatedin such areas: a) identify and mark burrows, b) avoid damage to the burrow opening, and c) avoid damage to the gopher tortoise burrow apron during the nesting season (May through September).
- Advise heavy equipment operators to avoid direct contact year-round with all known and visiblyapparent gopher tortoises and burrowing owls, as well as known and visibly apparent burrow aprons for tortoises during the period between May and September.
- When practical, minimize the use of heavy equipment during September and October when gopher tortoise hatchlings are more numerous and less visible due to their size during this time.
- Avoid heavy equipment operation (except for prescribed burning and related activities) within 330 feet of active, known and visibly apparent Little Blue and Tricolored Heron rookeries (two ormore nests) from February through May.
- Avoid heavy equipment operation (except for prescribed burning and related activities) within400 feet of active, known and visibly apparent Florida sandhill crane nests from February through May 9.
- For southeast American kestrels, leave standing snags where they do not pose a safety issue, as per the Silviculture BMP Manual as incorporated in Rule 5I-6.002 F.A.C., and avoid damaging orfelling known nest trees.
- Avoid prolonged heavy equipment operation (generally in excess of one day), except for prescribed burning and related activities, within 490 feet of active, known and visibly apparentkestrel nests from March through June.
- Schedule all vegetation removal, trimming, and grading of vegetated areas outside of the peakbird breeding season to the maximum extent practicable. Use available resources, such as internet-based tools (e.g., the FWS's Information, Planning and Conservation System, Avian Knowledge Network, or the county's existing biological profiles) to identify peak breeding months for local bird species; or, contact local Service Migratory Bird Program Office for breeding bird information.
- When project activities cannot occur outside the bird nesting season, conduct surveys prior to scheduled activity to determine if active nests are present within the area of impact and bufferany nesting locations found during surveys.

- Prepare a vegetation maintenance plan that outlines vegetation maintenance activities and schedules so that direct bird impacts do not occur.
- No open burning would occur. All vegetative debris associated with the project must be disposed of properly and not placed in identified floodway or wetland areas.

The No Action Alternative would be to not fund the proposed project and present conditions throughoutthe state of Florida would continue. This alternative would result in a deterioration of conditions, resulting in a continued wildfire hazard risk in the growing Wildland Urban Interface (WUI) throughout the State of Florida. This would continue to put people and structures in the WUI at risk.

Other Action Alternatives were considered, evaluated, and dismissed from further consideration andevaluation for reasons discussed in the PEA.

A Public Notice was posted on May 6, 2019 The Draft PEA was available for public review for at https://www.fema.gov/medialibrary/assets/documents/178673. The public was invited to comment onthe Proposed Action and Draft PEA. No public comments were received during the 30-day Public Comment period ending June 6, 2019.

FINDINGS

The Proposed Action as described in the PEA would not significantly, adversely impact geology, soils, wetlands, surface waters, floodplains, water quality, air quality, climate, listed species and designated critical habitat, migratory birds, coastal zone management, coastal barrier resources; cultural resources,Environmental Justice, land use zoning, traffic, noise, public services and utilities, public health and safety, or waste and hazardous materials. Typical minor, short-term impacts are expected on soil, nearby surface water, traffic, air quality, and from noise. These impacts require the Applicant and their agents to use Best Management Practices (BMPs), and follow all applicable agencies' approval or permitconditions and guidance; in order to reduce and mitigate adverse impacts as needed and discussed above, for the project site and surrounding greater project area.

CONCLUSIONS

Based on the PEA's findings, coordination with applicable agencies, public comments; and on the condition that the Applicant and their agents follow project conditions as indicated in this FONSI, the PEA, and all applicable agencies' approvals, permits, and guidance; FEMA has determined that the Proposed Action would be a major Federal action that would not significantly, adversely affect the quality of the natural and human environment, nor would it have the potential for significant adverse cumulative effects. Based on this FONSI, FEMA will not prepare an EIS and the Proposed Action as described in the attached PEA may proceed under the project conditions in this FONSI, the PEA, and allapplicable agencies' approvals, permits, and guidance.

APPROVAL

STEPHANIE L MADSON

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Richard Flood
Hazard Mitigation Assistance Branch Chief

Programmatic Environmental Assessment

Wildfire Mitigation Projects for the State of Florida

April 2019

Florida Division of Emergency Management

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TABLE OF CONTENTS

ACRONYMS AND ABBREVIATIONS

Acronym	Meaning
BLM	Bureau of Land Management
BMP	Best Management Practice
CAA	Clean Air Act
CBRA	Coastal Barrier Resources Act
CCCL	Coastal Construction Control Line
CEQ	Council On Environmental Quality
CFR	Code Of Federal Regulations
CO	Carbon Monoxide
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
dB	Decibel
DHS	Department of Homeland Security
EA	Environmental Assessment
EIS	Environmental Impact Statement
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ERP	Environmental Resource Permit
ESA	Endangered Species Act
F.A.C	Florida Administrative Code
FCMP	Florida Coastal Management Program
FDEP	Florida Department Of Environmental Protection
FDOT	Florida Department of Transportation
FEMA	Federal Emergency Management Agency
FHWA	Florida Highway Administration
FIRM	Flood Insurance Rate Map
FNAI	Florida Natural Areas Inventory
FONSI	Finding Of No Significant Impact
FPPA	Farmland Protection Policy Act
FWC	Florida Fish And Wildlife Conservation Commission
HMGP	Hazard Mitigation Grant Program
IPaC	Information for Planning and Consultation
MBTA	Migratory Bird Treaty Act
MCO	Orlando International Airport
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NO_2	Nitrogen Dioxide
NOA	Notice Of Availability
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service

Acronym	Meaning
NRHP	National Register Of Historic Places
O_3	Ozone
OPA	Otherwise protected coastal areas
OSHA	Occupational Safety And Health Administration
Pb	Lead
PDM	Pre-Disaster Mitigation
PEA	Programmatic Environmental Assessment
PM_{10}	Particulate Matter
REC	Record of Environmental Consideration
RCRA	Resource Conservation and Recovery Act
ROW	Right-Of-Way
SEA	Supplemental Environmental Assessment
SFHA	Special Flood Hazard Area
SHPO	State Historic Preservation Office
SO_2	Sulfur Dioxide
Stafford Act	Robert T. Stafford Disaster Relief And Emergency Assistance Act
SWPPP	Stormwater Pollution Prevention Plan
THPO	Tribal Historic Preservation Officer
TSCA	Toxic Substances Control Act
USACE	U.S. Army Corps Of Engineers
USCG	U.S. Coast Guard
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish And Wildlife Service
WMD	Water Management District
WUI	Wildland-Urban Interface

SECTION 1: Introduction

1.1 Overview

The Florida Division of Emergency Management proposes to perform wildfire mitigation actions throughout the State of Florida. Typical actions include:

- The creation of perimeters around residential and non-residential buildings and structures through the removal or reduction of flammable vegetation;
- The application of non-combustible building envelope assemblies, the use of ignition-resistant materials, and the use of proper retrofit techniques in new and existing structures;
- Vegetation management to reduce hazardous fuels, vegetation thinning, and the reduction of flammable materials to protect life and property beyond defensible space perimeters but proximate to at-risk structures.

These actions will be implemented under Federal Emergency Management Agency (FEMA) funding programs, such as, but not limited to, the Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation (PDM) program, and other public assistance grant programs. The HMGP and the PDM programs are authorized by the Robert T. Stafford Disaster Relief and Emergency Assistance Act. Under these funding programs, the State of Florida submits proposed projects for approval and administers approved funds to local entities (sub-applicants).

This Programmatic Environmental Assessment (PEA) has been prepared to analyze the potential environmental impacts associated with the proposed actions while providing a permanent (until the time that this PEA is superseded) framework for the evaluation of Federal and State laws and regulations. This PEA reviews the proposed actions and no action alternative in accordance with the National Environmental Policy Act of 1969 (NEPA), the Council on Environmental Quality (CEQ) implementing regulations, and FEMA Directive 108-1. Additionally, this PEA also reviews environmental laws applicable to the proposed actions such as the Endangered Species Act, the National Historic Preservation Act, the Clean Air Act, the Clean Water Act, Executive Order 11988 Floodplain Management, Executive Order 11990 Protection of Wetlands, Executive Order 12898 Environmental Justice in Minority Populations and Low-Income Populations.

This analysis is programmatic in nature, and is not limited to a specific disaster event or Federal grant program, nor does it address individual site-specific impacts as these will be evaluated individually prior to approval. This PEA is intended to provide the public and decision-makers with the information required to understand and evaluate the potential environmental consequences of these actions and to consider these impacts in decision-making.

1.2 Area of Study

The project area of this PEA encompasses the State of Florida, the Seminole Indian reservations, and the Miccosukee reservation (Figure 1.2-1). Three category III ecoregions exist throughout Florida: The Southeastern Plains, the Southern Coastal Plain, and the Southern Florida Coastal Plain (Figure 1.2-2). These ecoregions define areas that are generally similar in

ecosystems and in the type, quality, and quantity of environmental resources. As this PEA will be used for actions throughout the State of Florida, the three category III ecoregions throughout Florida were used to analyze broad environmental impacts to the different types of ecosystems that exist within the state.

1.3 Background

Wildfires are defined as an unplanned, unwanted wildland fire including unauthorized human-caused fires, escaped wildland fire use events, escaped prescribed fire projects, and all other wildland fires (such as fire caused by lighting or volcanoes) where the objective is to put the fire out (National Wildfire Coordinating Group, 2018). Wildfires often spread through vegetative fuels such as shrubs, grasslands, forests, or organic litter on the surface. They can often cross over gaps in vegetation, such as roadways or rivers, resulting in unpredictable spreading. As wildfires spread uncontrollably they may expose or possibly consume entire structures and impose a threat to human life before they are able to be fully contained.

Florida's population is expected to grow to 33.7 million residents by 2070. To accommodate the population growth and corresponding economic development in Florida there will be about 5.5 million additional acres of land that could be converted from a natural or rural condition to suburban and urban uses (1000 Friends of Florida, 2016). This increase in development pressure will ultimately lead to a larger Wildland-Urban Interface (WUI) than currently recorded in 2010, with more individuals and businesses at risk of wildfire (Figure 1.3-1). As development pushes into natural areas there will be more interaction than ever before between communities and wildland fuels. Using retrofit techniques and creations of perimeters between properties and natural areas there will be lower available fuel loads, and therefore a reduced loss in life and property as a result of wildfires.

Following the devastating fires of 1998 in Florida, a study was done to determine the economic impact of those fires. This study found that damages from the 1998 fires ranged $622-880 million dollars. Although much of the losses was to the timberland owners, there were significant losses to the tourism industry ($138 million dollars) and property losses (10-12 million dollars). In addition to the large economic impact that Florida's historical wildfires have caused, the study also found that there was $1,864 of losses per acre burned. (Mercer et. al, 2000) Since 2013, a total of 451,176.8 acres have been burned because of a fire activity in Florida. Over 42% of those acres burned were caused by lightning igniting existing fuel loads. This percentage increased from the previous 5-year period by 11%. (Florida Forest Service, 2018) The increase in acreage burned by cause of lightning indicates a need for lowering the risk of wildfire spreading using wildfire management techniques aimed to reduce the fuel loads. The high cost of wildfires coupled with the increasing probability of accidental ignition because of a natural occurrence such as lighting is a cause for heightened concern. By reducing fuel loads using of vegetative management and retrofitting structures with ignition-resistant materials so they are less likely to be impacted by wildfires it is possible to reduce the risk of wildfire, and therefore a reduced risk of loss of life and property.

1.4 Process for Use of this PEA

A PEA is utilized to address a group of projects that are similar in scope, scale, magnitude, and the nature of impact that are recipients of Federal funding. This PEA is regional in scope, covers numerous ecosystems and political boundaries, and focuses on a range of wildfire mitigation actions. The use of a PEA can reduce redundant analytical undertakings and identify cumulative impacts created by these actions. In contrast, an EA typically assesses impacts on a specific project site and the immediate surroundings.

For a project to qualify under this PEA, the scope of the project and the nature of impacts must be evaluated by this document and findings documented using FEMA Record of Environmental Consideration (REC) in EMIS. Additional analysis and project-specific analysis may be required by this document as the context and intensity of proposed project impacts become apparent. All projects using this PEA must undergo standard Federal environmental compliance procedures to verify the project is consistent within the scope of this PEA. Federal agencies will use this PEA to determine the level of environmental analysis and documentation required under NEPA for the projects being evaluated. If the description of the site-specific nature of the project and the levels of analysis are fully and accurately described in this PEA, Federal agencies will take no further action other than to document that conclusion using their own Compliance Checklist.

It is expected that some wildfire mitigation projects will be more complicated and involve larger-scale efforts than those contemplated for grouping in this PEA. If a specific action is expected to (1) create impacts not described in this PEA; (2) create impacts greater in magnitude, extent, or duration than those described in this PEA; or (3) require mitigation measures to keep impacts below significant levels that are not described in this PEA; then a Supplemental Environmental Assessment (SEA) would be prepared to address the specific action. The SEA would be tiered from this PEA in accordance with CEQ's NEPA implementing regulations. Actions that are determined during the preparation of the SEA to require a more detailed or broader environmental review would be subject to the stand-alone EA or other applicable process.

SECTION 2: Purpose and Need

The purpose of the proposed action is to reduce impacts of wildfires to communities throughout the State of Florida while adhering to State and Federal regulations. By fully utilizing mitigation funding authorized by FEMA through Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, the proposed action will help to mitigate the risk of loss of life and destruction of property that is associated with wildfires.

Because of future development encroaching into the WUI, and therefore an increased potential for loss of life and property damage, there is an increasing need to lower the wildfire risk at the WUI. Through the use wildfire mitigation projects, such as the use of preventative vegetation management, ignition-resistant retrofits on existing buildings, and creation of perimeters around structures, it is possible to address the increasing need to limit the destructive potential of wildfire throughout the State of Florida. These types of projects address the need to

lower wildfire risk by lowering fuel loads in the areas surrounding communities and building structures that are ignition-resistant.

SECTION 3: Alternatives

This section outlines the alternatives that are being considered for further evaluation within this PEA. These alternatives represent categories of wildfire mitigation projects that may be implemented individually or in combination with one another. Depending on the needs of the community and the action that FEMA determines is necessary to reduce the wildfire hazard, there may only be one viable option to be implemented. Eligible wildfire mitigation projects must clearly demonstrate mitigation of the risk from wildfire to residential and non-residential buildings and structures, including public and commercial facilities. Projects must be in the WUI and must provide protection to life and property from future wildfires. Appropriate best management practices will be implemented, and all actions must comply with applicable Federal, Tribal, State and local regulations and requirements.

3.1 No Action Alternative

The No Action Alternative is defined as maintaining status quo without any federal agency involvement. Under the No Action Alternative, FEMA would not provide funding to mitigate wildfire risk throughout the State of Florida's WUI. Smaller scale projects, in conjunction with local or private entities, may result in communities having to rely on savings, insurance, loans, or other forms of assistance to mitigate wildfire threats in the WUI.

By undertaking the No Action Alternative current management activities, such as maintenance of existing facilities and vegetation management activities, would continue but not address the needs of the communities throughout the state. This alternative would result in a deterioration of conditions, resulting in a continued wildfire hazard risk in the growing WUI throughout the State of Florida. This would continue to put people and structures in the WUI at risk.

3.2 Proposed Actions

The preferred alternative is for communities throughout the state of Florida to pursue community-wide wildfire mitigation activities, as outlined in the FEMA Hazard Mitigation Assistance Guidance Addendum. This alternative includes the use of the following actions to lessen the risk of wildfires to life and property. FEMA recommends that projects use the design guidance in FEMA P-737, Homebuilder's Guide to Construction in Wildfire Zones (2008), or FEMA P-754, Wildfire Hazard Mitigation Handbook for Public Facilities (2008) if the latter presents a stricter standard.

3.2.1 Defensible Space

Defensible space surrounding a residential or non-residential structure results in structures having a lower risk of a wildfire causing damage. Defensible space is created by reducing or removing flammable vegetation around the perimeter of a given structure, resulting in a buffer that limits the spread of a wildfire and provides firefighters with an area to safely

perform fire suppression activities. This activity can include clearing tree branches, vertically and horizontally. Using this practice it is possible to minimize the volume of flammable vegetation while replacing the removed vegetation with less flammable plant species. Defensible space projects are most effective when in accordance with local fire codes; standards and design criteria provided by ICC, FEMA, the U.S. Fire Administration, and the NFPA; best management practices; and Firewise practices. Defensible space projects for residential structures, commercial buildings, public facilities, and infrastructure must be implemented in conformance with local code requirements for defensible space.

The required radius of defensible space around a structure is related to the degree of fire hazard and the radius required for effective protection. Due to projects occurring at locations with varying needs, there is not a single radius that will work for all projects. In addition to variable needs for protection, topography, specifically slope steepness and direction, and the arrangement, amount, and flammability of the vegetation may require extending the perimeter. Projects must provide a description of the proposed defensible space activities for each property when utilizing this alternative. If the proposed perimeter extends beyond the required radius, the effectiveness of the proposed defensible space must be demonstrated.

3.2.2 Hazardous Fuels Reduction

Hazardous fuel reduction projects involve the reduction, removal, or modification of existing vegetative fuels that are nearby buildings or structures that, if ignited, pose a threat to human life and property, especially critical facilities. Actions associated with hazardous fuel reduction projects often includes thinning vegetation, removing ladder fuels, reducing quantity of flammable vegetation, and replacing flammable vegetation with a less flammable alternative. By performing hazardous fuel reduction projects communities will have the opportunity to moderate fire behavior and reduce the risk of damage to life and property in their area.

Wildfire risk will be variable between sites due to differences in topography, vegetation, and climate. Because of this variability there is not a national standard to perform hazardous fuel reduction activities. Instead, activities will conform with the local and state codes, standards, and best practices using certain activities. Activities encompassed by this alternative include community-level vegetation management, vegetation removal, vegetation clearing an thinning, slash removal, and vertical and horizontal clearance of tree branches. Such activities may include, but are not limited to, the following techniques:

- Chemical treatments, including herbicide applications with appropriate safeguards to ensure protection of human life, the environment, and watersheds
- Grazing or biomass conversion
- Mechanical treatments, such as disking, mulching, grinding, mowing, chopping, and removal of such material; material left onsite must meet appropriate depth practices in accordance with applicable codes and best practices
- Biomass removal, including clearing straw, removing dead or dry vegetation, thinning, removal of brush and pine straw, or removing blown-down timber from wind throw, ice, or a combination

Projects associated with these techniques must occur within two miles of structures. Communities may use community-owned equipment, decide to use a contractor to perform the work, or rent the necessary equipment. Any equipment used to perform activities may not pose a risk of fire ignition, such as a spark arrestor.

3.3 Current Projects to be Considered under this PEA

4283-95-R Indian River County, Countywide Wildfire Mitigation

Indian River County in Florida has proposed to implement a countywide program to create defensible spaces and reduce the potential for wildfires to adversely affect residents and businesses throughout the County. The proposed project will be funded through HMGP funds associated with Hurricane Matthew. The program would prioritize reduction of fuels and creation of defensible spaces in areas where county-owned conservation lands abut existing development, other county parks and government-owned lands, and on private lands, such as conservation tracts with existing subdivisions. Work activities will include pruning, chipping and mowing within the designated work areas and in general, removal or mulching of vegetative material. In total, the project area size is approximately 1,388 acres with only 527 of those acres to be cleared

4283-26-R Palm Beach County, Natural Areas Wildfire Mitigation

Palm Beach County in Florida has proposed to implement a countywide wildfire mitigation project to reduce the hazardous fuel load in county owned areas that show the greatest risk for the community. The proposed project will be funded through HMGP funds associated with Hurricane Matthew. The risk assessment that will be performed prior to the beginning of project activities will consider the proximity to structures and roads, the available fuel types, and the amount of time since the last fire or fuel reduction. Work activities will involve mechanical chopping/shredding of vegetation and reducing highly flammable fuel loads of saw palmetto and other shrubs that have encroached and increased in the mid-story of the habitats. The county will utilize an excavator with a drum chopping head to reduce overgrown vegetation in the mid-story to mitigate the rick of wildfire and to allow for lower fire intensity during prescribed burns.

3.4 Alternatives Considered and Dismissed

FEMA hazard mitigation assistance policy[1] clearly states what type of wildfire mitigation activities are not eligible for FEMA funding, and therefore all projects that contain the following characteristics are not retained as viable alternatives for consideration under this PEA.

- Projects that do not protect homes, neighborhoods, structures, or infrastructure
- Projects on federally owned land and land adjacent to Federal lands when the proposed project falls under the primary or specific authority of another Federal agency
- Projects for hazardous fuels reduction more than two miles from structures

[1] [1] *Hazard Mitigation Assistance Guidance Addendum: Hazard Mitigation Grant Program, Pre-Disaster Mitigation Program, and Flood Mitigation Assistance Program*, February 27, 2015 (see Section B, "Wildfire Mitigation").

- Projects to address ecological or agricultural issues related to land and forest management (e.g., insects, diseases, infestations, damage from extreme weather events affecting the forest wide health)
- Irrigation of vegetation to avoid disease or drought-related infestation
- Projects to protect the environment or watersheds
- Projects for prescribed burning or clear-cutting activities
- Projects for maintenance activities, deferred or future, without an increase in the level of protection
- Projects for the creation and maintenance of fire breaks, access roads, and staging areas
- Purchase of equipment to accomplish eligible work (e.g., chainsaws, chippers)
- Projects for vegetation irrigation systems installed on the ground and designed to moisten the surface
- Activities intended solely to remedy a code violation without an increase in the level of protection
- Activities on Federal land

Additionally, FEMA has determined that some actions have no significant effect on the human environment and surrounding natural resources. These actions have been categorically excluded from the preparation of and EIS or EA, except when extraordinary circumstances are presented. Projects that can be funded by FEMA, but fall into a categorical exclusion and therefore were not considered in this PEA include:

- Federal assistance for wildfire hazard mitigation actions involving the creation of defensible space or hazardous fuel reduction for up to 100 feet of at-risk structures which includes the selective removal of vegetation less than 12 inches in diameter through thinning, pruning, limbing, sawing, or brush cutting; removal of downed, dead, or dry vegetation material as part of the overall action. The actions must be limited to less than 100 acres of vegetation removal either individually or when combined with other reasonably foreseeable private or public actions and follow appropriate best management practices through use of Department of Homeland Security (DHS) categorical exclusion N11;
- Structural protection through ignition-resistant construction using noncombustible materials, technologies, and assemblies on new and existing buildings and structures that are in conformance with local fire-related codes and standards (e.g., roof assemblies, wall components, and external water hydration and thermal insulation systems) through use of DHS categorical exclusion N7 and N8;
- Projects for the purchase of fire-related equipment (e.g., vehicles, fire trucks) or communications equipment through use of DHS categorical exclusion N18; and
- Development or enhancement of fire-suppression capability through the purchase of equipment or resources (e.g., water supply or sources, dry hydrants, cisterns not related to water hydration systems, dip ponds) through use of DHS categorical exclusion N18.

SECTION 4: Affected Environment and Potential Impacts

This section addresses the affected environmental (existing environment) and potential impacts (environmental consequences) of the proposed actions. Qualitative analyses have been used to determine the scale and severity of the potential impact. The following terms are used to describe the magnitude of impacts described in this PEA:

- No Effect: The action would not cause a detectable change.
- Negligible: The impact would be at the lowest level of detection; the impact would not be significant.
- Minor: The impact would be slight but detectable; the impact would not be significant.
- Moderate: The impact would be clear; the impact would not be significant.
- Major: The impact would be clearly adverse or positive; the impact has the potential to be significant. The significance of adverse and positive impacts is subject to interpretation and should be determined based on the individual project. In cases of adverse impacts, the impact may be reduced to less than significant using mitigation techniques, design features, and other measures that may be taken.

Resource	Environmental Consequences	Environmental Protection Measures and Required Permits
Geology See Section 4.1 for details.	Alternative 1: No Effect Alternative 2: No Effect	Due to there being no effect on this resource, environmental protection measures related to this resource are not necessary.
Soils See Section 4.2 for details.	Alternative 1: Negligible Impact – Not Significant Alternative 2: Minor Impact – Not Significant	**Protection Measures:** Project activities will take place only when the ground is dry. For projects in which soil erosion potential is determined to be significant, a project erosion control plan to minimize soil loss, including the use of construction practices such as the use of temporary sediment barriers, to isolate the construction site and minimize adverse effects of soil loss and sedimentation on soil and water resources would be implemented.

Resource	Environmental Consequences	Environmental Protection Measures and Required Permits
		Appropriate BMPs could be implemented during construction to prevent and minimize soil erosion and compaction. (See Appendix A)
Wetlands and Surface Waters See Section 4.3 for details.	Alternative 1: No Effect Alternative 2: Minor Impact – Not Significant	**Protection Measures:** For projects where wetland areas would be impacted, FEMA would evaluate individual and cumulative impacts and implement avoidance, minimization, or mitigation measures as necessary to reduce impacts below level of significance. A full 8-step analysis will be conducted for all projects impacting wetlands. Work will only occur in the uplands when water levels are below surface. Project activities shall not occur within 200 feet of a water body or wetland without consultation with the USACE and the appropriate Water Management District. For additional BMPs associated with wetlands, see Appendix A. **Permit(s):** If a project location contains wetlands or surface waters a permit from the U.S. Army Corps of Engineers may be required. If a project will impact state waters a permit from the appropriate Water Management District may be required. If a project will result in discharges, a National Pollutant Discharge Elimination System permit from FDEP will be required.
Floodplains See Section 4.4 for details.	Alternative 1: No Effect Alternative 2: Minor Impacts – Not Significant	**Protection Measures:** For projects where floodplain would be impacted, FEMA would evaluate individual and cumulative impacts and implement avoidance, minimization, or mitigation measures as necessary to reduce impacts below level of significance. A full 8-step analysis will be conducted for all projects impacting floodplains.

Resource	Environmental Consequences	Environmental Protection Measures and Required Permits
		Work will only occur in the uplands when water levels are below surface.
Water Quality See Section 4.5 for details.	Alternative 1: No Effect Alternative 2: Minor Impact – Not Significant	**Protection Measures:** If pesticides will be used for vegetation management, BMPs can be utilized to limit impact to water quality (Appendix A). **Permit(s):** If discharges into U.S. waters are expected, the subrecipient would be required to obtain a National Pollutant Discharge Elimination System (NPDES) stormwater construction permit from the FDEP. An associated SWPPP, which would identify the BMPs and engineering controls to prevent and minimize indirect erosion, sedimentation, and pollution impacts to the water quality, would be required to be prepared and implemented.
Air Quality See Section 4.6 for details.	Alternative 1: No Effect Alternative 2: Negligible Impact – Not Significant	**Protection Measures:** To mitigate for fugitive dust during construction, periodic watering of active construction areas, particularly in areas close to sensitive receptors (e.g., hospitals, senior citizen homes, and schools), would be implemented.
Climate See Section 4.7 for details.	Alternative 1: No Effect Alternative 2: No Effect	Due to there being no effect on this resource, environmental protection measures related to this resource are not necessary.
Listed Species and Critical Habitat See Section 4.8 for details.		**Protection Measures:** Use available resources such USFWS online Information, Planning and Consultation System (IPaC), species action plans outlined in the Imperiled Species Management Plan (Appendix C), or existing county biological profiles to identify protected species in the project area. If a project has the potential to affect threatened or endangered species or critical habitat, consultation

Resource	Environmental Consequences	Environmental Protection Measures and Required Permits
		or coordination with the appropriate authority (USFWS or NMFS) is required. If state-listed species are identified within the project area utilize the Species Conservation Measures and Permitting Guidelines (Imperiled Species Conservation Measures and Permitting Guidelines) to determine conservation measures or permitting requirements. For additional BMPs associated with listed species, see Appendix A. **Permit(s):** If there is potential for take of a state-listed species a Listed Species Incidental Take Permit from the Florida Fish and Wildlife Conservation Commission is required.
Migratory Birds See Section 4.9 for details.	Alternative 1: Negligible Effect – Not Significant Alternative 2: Minor Impact – Not Significant	**Protection Measures:** Use available resources such USFWS online Information, Planning and Consultation System (IPaC), species action plans outlined in the Imperiled Species Management Plan (Appendix C), or existing county biological profiles to identify protected species in the project area. If a project has the potential to affect migratory birds or their habitat, consultation or coordination with the USFWS is required. For additional BMPs associated with migratory or nesting birds, see Appendix A. **Permit(s):** If a protected nest requires removal or relocation a permit from Florida Fish and Wildlife Conservation Commission is required.
Coastal Zone Management See Section 4.10 for details.	Alternative 1: No Effect Alternative 2: Negligible	**Permit(s):** If the proposed project location takes place seaward of the Coastal Construction Control Line

Resource	Environmental Consequences	Environmental Protection Measures and Required Permits
	Impact – Not Significant	consultation with the FDEP Coastal Office, and potentially a CCCL Permit, would be required.
Coastal Barrier Resources See Section 4.11 for details.	Alternative 1: No Effect Alternative 2: Minor Impact – Not Significant	**Protection Measures:** If a proposed project location is within a CBRA Unit, consultation with the appropriate regional U.S. Fish and Wildlife Service Regional Office is required.
Cultural Resources See Section 4.12 for details.	Alternative 1: Negligible Impact – Not Significant Alternative 2: Minor Impact – Not Significant	**Protection Measures:** For each individual project under this Programmatic Environmental Assessment, consultation with the appropriate State Historic Preservation Officer(s) (SHPO) and Tribal Historic Preservation Officer(s) (THPO) will be required. If a project does not fall within an allowance, then the Federal agency would make a determination of effect under Section 106 of the NHPA and consult with the SHPO and THPOs. Stumps will be grounded to just above soil level keeping the mulching head out of dirt. Ground disturbance will be kept to a minimum and less than 3 inches as machines operate on the mulched vegetation while progressing through the project site. The mulch will be left on site and in place to decompose. If prehistoric or historic artifacts such as pottery or ceramics, projectile points, dugout canoes, metal implements, historic building materials, or any other physical remains that could be associated with early Native American, European, or American settlement are encountered at any time within the project site area, the permitted project shall cease all activities involving subsurface disturbance in the immediate vicinity of such discoveries. The applicant shall contact the Florida Department of State, Division of Historical Resources, Review and Compliance Section at (850) 245-6333. Project activities shall not resume without verbal and written authorization. In the event that unmarked human remains are

Resource	Environmental Consequences	Environmental Protection Measures and Required Permits
		encountered, during permitted activities, all work shall stop immediately and the proper authorities notified in accordance with Florida Statutes, Section 872.05. If human remains or intact archaeological deposits are uncovered, work in the vicinity of the discovery will stop immediately and all reasonable measures to avoid or minimize harm to the finds will be taken. The applicant will ensure that archaeological discoveries are secured in place, that access to the sensitive area is restricted, and that all reasonable measures are taken to avoid further disturbance of the discoveries. The applicant's contractor will provide immediate notice of such discoveries to the applicant. The applicant shall contact the Florida Division of Historic Resources and FEMA within 24 hours of the discovery. Work in the vicinity of the discovery may not resume until FEMA has completed consultation with SHPO, Tribes, and other consulting parties as necessary. In the event that unmarked human remains are encountered during permitted activities, all work shall stop immediately and the proper authorities notified in accordance with Florida Statutes, Section 872.05.
Environmental Justice See Section 4.13 for details.	Alternative 1: Negligible Impact – Not Significant Alternative 2: Negligible Impact – Not Significant	Not applicable.
Land Use and Zoning See Section 4.14 for details.	Alternative 1: Negligible Impact – Not Significant Alternative 2: Negligible Impact – Not Significant	Not applicable.

Resource	Environmental Consequences	Environmental Protection Measures and Required Permits
Traffic See Section 4.15 for details.	Alternative 1: Negligible Impact – Not Significant Alternative 2: Minor Impact – Not Significant	Not applicable.
Noise See Section 4.16 for details.	Alternative 1: No Effect Alternative 2: Minor to Moderate Impact – Not Significant	**Protection Measures:** Construction noise levels would be minimized by ensuring that construction equipment is equipped with a recommended muffler in good working order. Impact to noise levels would be minimized by limiting construction activities that occur to between 7 a.m. and 5 p.m.
Public Services and Utilities See Section 4.17 for details.	Alternative 1: No Effect Alternative 2: Negligible Impact – Not Significant	**Protection Measures:** Utilities should be located before construction and coordination with local utility companies may need to occur. If planned outages are necessary, utility customers should be given advanced notice.
Public Health and Safety See Section 4.18 for details.	Alternative 1: Negligible Impact – Not Significant Alternative 2: Minor Impact – Not Significant	**Protection Measures:** Workers should use appropriate Personal Protective Equipment (PPE) and follow applicable Occupational Safety and Health Administration (OSHA) standards and procedures. Work areas should be clearly marked with appropriate signage and secured against unauthorized entry. Standard construction traffic control measures should be used to protect workers, residents, and the travelling public.
Waste and Hazardous Materials See Section 4.19 for details.	Alternative 1: No Effect Alternative 2: Negligible	**Protection Measures:** The subrecipient shall ensure that all debris staging sites are pre-authorized by FDEP. The subrecipient shall ensure that all debris is separated and disposed of in a manner consistent with FDEP solid waste

Resource	Environmental Consequences	Environmental Protection Measures and Required Permits
	Impact – Not Significant	facility disposal at permitted facilities guidelines or at a disposal site or landfill authorized by FDEP. The subrecipient is responsible for ensuring contracted staging and disposal of debris also follows these guidelines. Failure to comply with these conditions may jeopardize FEMA funding; verification of compliance will be required at project closeout. If any "asbestos containing material", lead based paint, or other hazardous materials are found during remediation or repair activities associate with demolition of derelict structures, compliance with all federal, state and local abatement and disposal requirements under the Resource Conservation and Recovery Act (RCRA) will be required. Verification of compliance will be required at project closeout.

4.1. Geology

4.1.1 Existing Environment

Florida's peninsula is a plateau primarily composed of porous karst limestone that lies on a foundation known as the Florida Platform. Limestone, otherwise known as calcium carbonate, is formed as a result of an accumulation of ancient microscopic and macroscopic organisms fossilized at the sea floor and then calcified. The Florida Platform extends offshore, with margins at the base of its continental slope on the east and to the base of the West Florida Escarpment on the west. "The Florida Platform rests on Paleozoic-age to Mesozoic-age igneous and metasedimentary rocks that form its basement (continental crust and thinned transitional crust). Lying on top of this backbone is a 2 to 6-kilometer-thick carbonate (limestone, dolomite) and evaporite-sedimentary rock succession punctured by dissolution features, many of which have surficial expression. Finally, a relatively thin 1 to 150-meter veneer of mostly siliciclastic sands covers these sedimentary rocks." (Hine, 2009). The size and shape of the Florida coastline is continually changing, as it is defined by the elevation of the sea level. Florida has a maximum elevation of approximately 105 meters (345 feet above sea level in Britton Hill, FL). With much of South Florida's flat terrain lying only a few meters above sea-level, the lowest elevation is at sea level along the hundreds of miles of the state's shorelines (see Figure 4.1-1).

Some of the major geological features in Florida form as a result of the karst limestone throughout the state. Limestone is an extremely porous formation that allows for large aquifer systems to form. In areas where the clay and soil layers are very thin the limestone bedrock can

be exposed. “Erosion of the limestone bedrock causes karst development. The karst landscape is largely shaped by the dissolving action of groundwater made weakly acidic as rain collects carbon dioxide from the air and from decomposing organic matter on the ground. Given many thousands of years, this geological process results in unusual surface-subsurface features ranging from sinkholes, vertical shafts, disappearing streams, and springs to complex underground drainage systems and caves” (Allen & Main, 2005). These unique geological features attract thousands of visitors each year to state parks throughout the state.

4.1.2 Environmental Consequences

The threshold level for a significant impact to geological resources is defined as an adverse impact to the existing underlying geological formations of the Florida peninsula.

Alternative 1 – No Action

Under the no action alternative, the existing geological formation would be retained as is and no activities would occur.

> Based on the review conducted, Alternative one would have no effect on the geological formation. The impact would not be significant.

Alternative 2 – Vegetation Management

The proposed action was determined to have no effect on geology because it would not involve any intrusive activity that would affect subsurface geological formations. Construction activities will be conducted by Hazardous Fuels Reduction (mechanical fuel treatments) practices stated within this PEA.

> Based on the review conducted, Alternative two would have no effect on the geology of Florida due to no intrusive activities. The impact would not be significant.

4.2 Soil

4.2.1 Existing Environment

Soil is protected under the Farmland Protection Policy Act (FPPA). FPPA is intended to minimize the impact that federal actions have on the conversion of farmland to non-agricultural uses. It assures that federal programs are administered to be compatible with state, local units of government and private programs and policies to protect farmland. The Natural Resources Conservation Service (NRCS) is the agency responsible for implementation of FPPA. The NRCS state soil scientist has statewide soils responsibilities including technical soil services to other staffs and coordination and quality assurance of soil information in the field office technical guide. In addition to FPPA, Florida protects its soils through the use of the State of Florida Erosion and Sediment Control Designer and Reviewer Manual, administered by the Florida Department of Environmental Protection (FDEP) and the Florida Department of Transportation (FDOT). This manual requires erosion and sediment control measures to be shown as a part of the application process to obtain an Environmental Resource Permit (ERP).

Florida’s state soil is Myakka fine sand, named for the Native American word for Big Waters. The soil occurs uniquely in Florida and has resulted in a long tradition of agricultural

practices throughout the state that has led to agriculture being one of the State's major industries. Myakka, which occurs in more than one-and-a-half million acres of flatwoods, is the single most extensive soil in the state. It has also contributed to Florida having the largest total acreage of Aquods, wet sandy soils with an organic stained subsoil layer, on Flatwood landforms in the nation. (NRCS, n.d.)

4.2.2 Environmental Consequences

The threshold level for a significant impact to soils is defined as (1) significant increases in soil erosion or soil compaction, or (2) a rating of 160 or higher on the Farmland Conversion Impact Rating Form (AD-1006 Form), which would indicate further consideration for protection under the Farmland Protection Policy Act.

Alternative 1 – No Action

The threshold level for a significant impact to soils is defined as (1) significant increases in soil erosion or soil compaction, or (2) a rating of 160 or higher on the Farmland Conversion Impact Rating Form (AD-1006 Form), which would indicate further consideration for protection under the Farmland Protection Policy Act.

> Based on the review conducted, the alternative one would have a negligible impact on soils. The impact would not be significant.

Alternative 2 – Vegetation Management

Fuel reduction practices can affect soil erosion, compaction, or nutrient availability in certain circumstances. Indicators based on soil physical properties (porosity, water infiltration, soil strength, compaction) are most commonly used to identify soil changes following mechanical treatment. Soil properties most indicative of detrimental changes differ between fuel reduction practices, making comparisons among treatment types problematic (Figure 4.2-1). In a study both prescribed fire and mechanical surrogates (forest thinning and mastication), concluded that although mineral soil exposure, pH, and exchangeable cations respond to treatment in the short term, initial changes tend to disappear after only a few years (Busse et. al, 2014). Soil scientists recognize that many soils are fully capable of recovering from disturbance given sufficient time. "Considerable mineral soil exposure may be observed in skid trails and other areas of intensive vehicle activity during mechanical treatments, such treatments typically had little effect on soil exposure" (Stephens et. al., 2012). To limit the impact to soil, project activities will only be limited to when the ground is dry. If there are concerns about compaction or erosion, the BMPs outlined in Appendix A can be utilized.

> Based on the review conducted, alternative two would have a minor impact on soils due to some ground disturbance and compaction. The impact would not be significant.

4.3 Wetlands and Surface Waters

4.3.1 Existing Environment

Executive Order (EO) 11990, Protection of Wetlands, is designed to "minimize the destruction, loss or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands" (Federal Emergency Management Agency, 2018). EO 11990

requires federal agencies to consider alternatives and limit damage when planning their actions. In addition, Section 404 of the Clean Water Act regulates the discharge of dredged or fill material into waters of the U.S., including wetlands. Section 10 of the Rivers and Harbors Act grants the U.S. Army Corps of Engineers (USACE) permitting jurisdiction for structures or works in or affecting navigable waters of the U.S. Florida implements a state permitting program which operates independently of the federal §404 program. The Federal agencies responsible for implementing regulations for the protection of wetlands include the U.S. Army Corps of Engineers (USACE); the U.S. Environmental Protection Agency (EPA); the U.S. Fish and Wildlife Service (USFWS); the National Oceanic and Atmospheric Administration (NOAA); and the Natural Resources Conservation Service (NRCS) (Votteler and Muir, 2002).

Florida wetlands are defined as "those areas that are inundated or saturated by surface water or ground water at a frequency and a duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soils" (Florida Department of Environmental Protection (a), 2018) (shown in Figure 4.3-1). Soils found in wetlands generally are classified as hydric or alluvial. Hydric soils play an integral role in defining wetland limits however, there are some exceptions where hydric soil indicators are absent or difficult to interpret (Gilbert, et. al, n.d.). Florida wetlands generally include swamps, marshes, sloughs, wet prairies, riverine swamps and marshes, tidal marshes, mangrove swamps and other similar areas.

Florida has the most aggressive state-level program of the Gulf Coast States (Texas A&M AgriLife Extension, n.d.). Florida implements a state permitting program and applicants must obtain both a state and §404 permit. The Florida Environmental Resource Permit (ERP) Program is administered jointly by FDEP and four of the five Water Management Districts (WMDs) (Figure 4.3-2). The program regulates activities involving the alteration of surface water flows, including new activities in uplands that generate stormwater runoff, and dredging and filling. "The basic ERP permit standard is that activities must not adversely impact water resources, including water quality, water quantity, and the value of functions provided to fish and wildlife and listed species by wetlands and other surface waters" (Texas A&M AgriLife Extension, n.d.). Permits that cannot be entirely processed by the state are forward to the USACE. An ERP serves as the consistency certification and waiver for the state's water quality (§ 401) and therefore, the USACE cannot issue a §404 permit until the project has received the state permit. In addition to the protection that permits provide, several conservation measures can be taken to ensure a minimal impact to wetlands and surface waters. These measures include:

1. For projects where wetland areas would be impacted, FEMA will evaluate individual and cumulative impacts and implement avoidance, minimization, and mitigation measures as necessary to reduce impacts below level of significance thru the 8-step process.
2. For permitted projects, Water Management Districts or the Army Corp of Engineers approves buffer zones upon submittal of development plans. For non-permitted projects, many counties incorporate a buffer within their ordinances such as Nassau County FL implemented a twenty-five (25) foot upland buffer zone (Nassau County, FL Code of Ordinances 2018). FEMA is concerned with any construction activities

within 200 feet of waters of the U.S. (Federal Emergency Management Agency, 2015).

3. To the greatest extent possible: activities in wetlands which exhibit seasonal inundation or saturation should be limited to dry conditions only, and forestry operations in wetlands which are continually saturated or inundated should be limited to low-water conditions.

FEMA will also prepare an 8-step process for each project in order to document the agency's decision as to the impacts of the floodplain.

4.3.2 Environmental Consequences

The threshold level for a significant impact to surface water and wetlands would be a violation of state water quality criteria, a violation of federal or state discharge permits, or an unpermitted dredge or fill within the boundary of a jurisdictional water body or wetland.

Alternative 1 - No Action

Under the no action alternative, existing conditions of the wetlands and surface water would remain the same due to no activities. However, with no type of fuel reduction maintenance the existing vegetation and woodlands protected by Section 401 and 404 laws and regulations will continue to grow and exceed the fuel load safety level causing a risk of wildfires.

Based on the review conducted, the alternative one would have no effect on wetlands or surface waters. The impact would not be significant.

Alternative 2 – Vegetation Management

Under the proposed alternative, vegetation management activities would be funded. These activities should occur mostly in upland areas to lower wildfire risks, with minimal activities happening within the wetlands. To prevent significant impacts to wetlands or surface waters, vegetation management activities should not occur within 200 feet of a water body or distinctive wetland (Federal Emergency Management Agency, 2015). If a project is to occur within the 200-foot buffer zone, USACE or the appropriate WMD must be consulted to determine the need for a permit. The activities would be limited to understory vegetation to lessen fuel loads with minimal effects, but if project activities must occur within a wetland the applicant will be required to consult with the USACE and the appropriate WMD.

Based on the review conducted, alternative two would have minor impacts on wetlands and surface water. The impact would not be significant.

4.4 Floodplains

4.4.1 Existing Environment

EO 11988 requires Federal agencies to consider the effect of their actions on the floodplain, evaluate alternatives to taking action in the floodplain and to provide opportunity for public comment if there is no practicable alternative. EO 11988, and as implemented in 44 CFR part 9, requires federal agencies to "avoid to the extent possible the long- and short-term adverse

impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative."

Codes and ordinances detail the rules and requirements for flood-prone communities and in cases of conflict, those codes and ordinances must be followed (Florida Division of Emergency Management, 2017). Flood hazard areas on the FEMA Flood Insurance Rate Map (FIRM)are known as Special Flood Hazard Areas (SFHA) (Figure 4.4-1). The 100-year floodplain is the area covered by water in the event of a 100-year flood, which is a flood that has a 1 percent chance of being equaled or exceeded in magnitude in any given year. The 500-year floodplain is the area covered by water in the event of a 500-year flood, which is a flood that has a 0.2 percent chance of being equaled or exceeded in magnitude in any given year. The 100- and 500-year floodplains are mapped on FEMA FIRMs.

Regulatory floodplain boundaries and designations can be found at the FEMA Map Service Center. The eight-step decision-making process, as described in 44 CFR 9, for projects within or that have the potential to impact a floodplain need to be implemented. The Florida Division of Emergency Management (FDEM) 2017 Floodplain Management in Florida Quick Guide can offer details and information on aspects of the floodplain. Under requirements established in 44 CFR Section 60.3, participating communities shall require permits for all development, including temporary development, in the SFHA. FEMA will also prepare an 8-step process for each project in order to document the agency's decision as to the impacts of the floodplain.

4.4.2 Environmental Consequences

The threshold level for a significant impact to floodplains would be an excessive loss of floodplain area with an associated increase in flooding potential.

Alternative 1 - No Action

Under the no action alternative, fuel loads throughout the State would continue to increase, along with the risk of a catastrophic wildfire. Maintaining current practices would not degrade floodplains or wetlands, or alter stream flow. Therefore, the no action alternative would have no impact on floodplain resources.

Based on the review conducted, alternative one would have no effect on floodplains. The impact would not be significant.

Alternative 2 – Vegetation Management

Under the proposed alternative, vegetation management activities could result in vegetation left to decompose in a natural area that in turn becomes a beneficial effect as it restores the natural function of a wetland/floodplain. FEMA projects are required to implement the Eight-step Process to evaluate effects in a floodplain. The Agency would provide any compensatory mitigation that is required for the proposed impacts; mitigation requirements would be determined for each project. Appropriate BMPs and engineering controls would be implemented during construction to prevent and minimize indirect erosion, sedimentation, and pollution impacts to the floodplain.

Based on the review conducted, alternative two may have minor impacts on floodplains. The impact would not be significant.

4.5 Water Quality

4.5.1 Existing Environment

Florida is surrounded on three sides by water and its landmass is underlain by limestone, a highly porous rock formed from shells and bones (Purdum, 2002). The rising and falling sea level is partly responsible for Florida's abundance of sinkholes, springs, rivers, lakes, bays, inlets, and islands. "On average, more rain falls in Florida (53 inches) per year than in any other state in the nation besides Louisiana, which receives an average of 55 inches" (Purdum, 2002).

The Clean Water Act (CWA) "establishes the basic structure for regulating discharges of pollutants into the Waters of the United States and regulating quality standards for surface waters" (U.S. Environmental Protection Agency (a), 2018). The CWA was expanded and significantly reorganized in 1972, but originally, it was enacted as the Federal Water Pollution Control Act in 1948. Under the CWA, the EPA has executed pollution control programs, such as setting wastewater standards for industry, and developed national water quality criteria for pollutants in surface waters (see Figure 4.5-1). The FDEP and the WMDs jointly implement a broad range of programs related to water supply, flood protection, water quality, and natural systems protection. The 1972 Water Resources Act established five WMDs (Northwest Florida, Suwannee River, St Johns River, Southwest Florida, and South Florida) with broad authority and responsibilities (Caesar, 2014).

The CWA made it unlawful to discharge any pollutant from a point source into navigable waters, unless a permit was obtained through the EPA's National Pollutant Discharge Elimination System (NPDES) permit program (U.S. Environmental Protection Agency (a), 2018). Activities that would be performed near or in the waters of Florida will need to adhere to permitting and water quality standards and policies from the EPA Water Quality Standards Handbook along with Florida Water Management District's Applicant's Handbook.

4.5.2 Environmental Consequences

The threshold level for a significant impact to Florida's waters would be a release of contamination that exceeds water quality standards.

Alternative 1 - No Action

Under the no action alternative, existing water quality conditions would be monitored by the EPA and the WMDs and there would be no effect. However, during dry seasons, the floodplains could be susceptible to wildfires that could change the floodplain region.

> Based on the review conducted, the alternative one would have no impact on Florida's water quality. The impact would not be significant.

Alternative 2 – Vegetation Management

Under the proposed alternative, vegetation management activities would be funded and no erosion into streams, lakes, or wetlands is likely. The soils in the project area may have some sand and small surface litter moved a few feet during treatment. If pesticides will be used for vegetation management, BMPs can be utilized to limit impact to water quality (Appendix A). No adverse effects on water quality are likely to take place, if appropriate BMPs are applied.

Based on the review conducted, alternative two would have minor impact on water quality. The impact would not be significant.

4.6 Air Quality

4.6.1 Existing Environment

The Clean Air Act (CAA) requires that States adopt ambient air quality standards. These standards have been established in order to protect the public from potentially harmful amounts of pollutants. The EPA has established National Ambient Air Quality Standards (NAAQS) for six air pollutants: sulfur dioxide (SO_2), particulate matter with a diameter less than or equal to 10 micrometers (PM_{10}), carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), and lead (Pb). The EPA has designated specific areas as NAAQS attainment or non-attainment areas. Non-attainment areas are any areas that do not meet (or that contribute to ambient air quality in a nearby area that does not meet) the quality standard for a pollutant (U.S. Environmental Protection Agency, 2016). Greenhouse gases (GHGs) are emitted by both natural processes and human activities, and their accumulation in the atmosphere regulates temperature. GHGs include water vapor, carbon dioxide, methane, nitrous oxides, and other compounds. There are no established thresholds or standards for GHGs.

In Florida, as of 2018 there are five non-attainment areas (U.S. Environmental Protection Agency, 2018) (see Figure 4.6-1). These include Tampa (Lead), Hillsborough County (Sulfur Dioxide), Hillsborough-Polk County (Sulfur Dioxide), Nassau County (Sulfur Dioxide), and Hillsborough-Polk County (Sulfur Dioxide). A total of 30,000 people live in these non-attainment areas.

4.6.2 Environmental Consequences

The threshold level for a significant impact to air quality is defined as a violation of an ambient air quality standard or regulatory threshold.

Alternative 1 - No Action

Under the no action alternative, fuel loads in the project area would continue to accumulate and the potential for wildfires, including catastrophic wildfires, would increase. Catastrophic wildfires would result in emissions of air pollutants from smoke, including high concentrations of particulate matter, nitrogen oxide, carbon monoxide, and ozone (National Aeronautics and Space Administration, 2006). If a wildfire occurred during unfavorable meteorological conditions (e.g., gusting winds from a thunderstorm), as is often the case, the meteorological conditions would compound the adverse effects on air quality.

Fine particulate matter generated by wildfires can affect the health of people breathing the smoke laden air. Fine particulates are of special concern because of their potential to adversely affect human respiratory systems, especially in young children, the elderly, and people with lung disease or asthma. "Smoke can irritate the eyes and airways, causing coughing, a scratchy throat, irritated sinuses, headaches, stinging eyes or a runny nose…People with heart disease might experience chest pain, palpitations, shortness of breath, or fatigue. People with lung disease may not be able to breathe as deeply or as vigorously as usual, and they may experience symptoms

such as coughing, phlegm, chest discomfort, wheezing and shortness of breath" (U.S. Environmental Protection Agency, 2003).

Based on the review conducted, alternative one would have no effect on air quality. The impact would not be significant.

Alternative 2 – Vegetation Management

During the removal of vegetation, machinery would generate low levels of particulate matter emissions and low levels of vehicle exhaust emissions. These emissions represent a temporary, short-term, negligible impact on air quality in the treatment areas.

Vegetative management has the potential for a long-term beneficial effect on air quality in the project area by reducing the risk of a wildfire and the associated emission of air pollutants. If fugitive dust were to become a problem, it could be mitigated by using standard construction BMPs. Such practices include periodic watering of active construction areas and enclosing or covering stockpiled material.

Based on the review conducted, alternative two would have negligible impact on air quality. The impact would not be significant.

4.7 Climate

4.7.1 Existing Environment

"Climate change is one of the most important determinants of changes in biodiversity. It will have impacts on biodiversity that operate at the individual, population, community, ecosystem and biome scales, altering species distributions, life histories, community composition, and ecosystem function" (Stys, et al., 2017).

Florida is vulnerable to the effects of climate change and sea level rise. "Eighty percent of Florida's residents live in coastal areas, and most of Florida's 80 million tourists visit coastal areas. Florida is especially vulnerable to storms and droughts" (Audubon, 2018). It is estimated that seas in South Florida will rise six inches by 2030 and two more feet by 2060. Sea level rise comes with many concerns such as erosion, saltwater intrusion, and inundation of coastal habitats. "Ocean acidification interferes with the productivity of complex marine ecosystems and organisms such as coral, crustaceans, and mollusks" (Audubon, 2018).

"Florida is home to 45 terrestrial ecosystems that range from small islands of subtropical hammocks and Rocklands to vast dry prairies, Sandhill, scrubs, Flatwoods and floodplain forests that is divided into natural categories such as watersheds, corridors and ecoregions that can help in conservation planning and priority setting" (LandScope America, 2018). To see examples of these ecosystems, see Figures 1.2-2 & 4.7-1. Ecoregions are "geographical regions that are characterized by specific ecological patterns, including soil health, flora and fauna, climatic conditions, among other factors" (Yale, 2018). Climate change is affecting human systems and ecosystems around the world. The following ecoregions are found in Florida:

- The East Gulf Coastal Plain – The ecoregion encompasses areas of Georgia, Florida, Alabama, Mississippi, and Louisiana, and "over 42 million acres from the southwestern portion of Georgia across the Florida Panhandle and west to the

southeastern portion of Louisiana" (LandScope America(a), 2018). It is characterized by subtle topography with a wide range of landforms including Sandhill, rolling longleaf pine-dominated uplands, pine Flatwoods, savannas, seepage bogs, bottomland hardwood forests, barrier islands and dune systems, and estuaries.

- Florida Peninsula - The Florida Peninsula features several large managed areas; the five largest managed areas include the Ocala National Forest (383,180 acres), Merritt Island National Wildlife Refuge (138,263 acres), Withlacoochee State Forest (128,750 acres), Green Swamp (119,365 acres) and Avon Park Bombing Range (106,110 acres) (LandScope America(b), 2018). The ecoregion has been shaped by pronounced wet and dry seasons, once frequent fires, a high water table, and mucky or peaty soils.
- South Florida Coastal Plain - The northern reaches of the ecoregion include Lake Okeechobee, the largest freshwater lake in Florida (The Nature Conservancy, 2004). The Greater Everglades Ecosystem begins to the north at Lake Okeechobee, which provides substantial inflows to the Everglades. Also occurring, are a series of tropical hardwood-dominated forests referred to locally as "hammocks" on the Miami Rock Ridge, and throughout the Everglades and Florida Keys.

Natural ecosystems must constantly adjust to natural variations in climate. The prospect of changes in rainfall, stream flow, and overall water availability makes the Gulf Coast particularly vulnerable to climate change. A map of Florida's average annual precipitation is shown in Figure 4.7-2. In addition, engineering projects and growing water demand will exacerbate climate-driven changes in water flow. Besides the direct impact on water flow, changes in moisture availability will influence the intensity and frequency of fires, which will affect forest, mangrove, and prairie ecosystems.

4.7.2 Environmental Consequences

The threshold level for a significant impact to climate is defined as a permanent change in an area's climate.

<u>Alternative 1 - No Action</u>

Under the no action alternative, existing climate conditions of Florida will continue to change at their current rate. Though alternative one has no permanent impact on the climate, Florida will continue to experience warmer and drier climate that in turn will increase the agricultural forest, decreased soil moisture and increased evapotranspiration (i.e., the combination of evaporation and plant transpiration) due to warmer weather will also affect many species. Fuel loads will become overburdened and contribute high levels of uncontrolled wildfire. The higher the fuel loading, the more heat that will be produced during a fire. Such fires will also burn deeper into the duff and are more difficult to control.

Based on the review conducted, the alternative one would have a minimal effect on the climate. The impact would not be significant.

Alternative 2 – Vegetation Management

Under the proposed alternative, vegetation management activities would have minimal to no permanent effects on the climate. With best management practices and conservational techniques discussed throughout the PEA, vegetation management activities can have beneficial effects for the surrounding ecological environmental resources. Plants also use carbon dioxide during photosynthesis, which slightly offsets the amount of greenhouse gas being released in the atmosphere through the burning of fossil fuels.

> Based on the review conducted, alternative two would have a minimal effect on the climate. The impact would not be significant.

4.8 Listed Species and Critical Habitat

4.8.1 Existing Environment - Federally Listed Species

In 1973 the Endangered Species Act (ESA) was passed with the purpose of protecting and recovering imperiled species and the ecosystem upon which they depend. The ESA is administered by the USFWS and the National Marine Fisheries Service (NMFS). The Service has primary responsibility for terrestrial and freshwater organisms, while the responsibilities of NMFS are mainly marine wildlife such as whales and anadromous fish such as salmon. Under the ESA, species may be listed as either endangered or threatened. "Endangered" means a species is in danger of extinction throughout all or a significant portion of its range. "Threatened" means a species is likely to become endangered within the foreseeable future. All species of plants and animals, except pest insects, are eligible for listing as endangered or threatened. Overall there are 378 mammals, 341 birds, 130 reptiles, 43 amphibians, 184 fishes, and 949 plant species that are currently listed under the ESA throughout the United States (U.S. Fish and Wildlife Service, 2018).

There are 136 species federally listed as Endangered, Threatened, Candidate, or Proposed by the USFWS under the ESA that historically occurred, occur, or may potentially occur within Florida (Appendix C). Thirty-two of these species have designated critical habitat in Florida (Figure 4.8-1). Of the 136 listed species in Florida, there are 16 mammals, 14 birds, 12 reptiles, 3 amphibians, 4 insects, 19 aquatic species, and 67 plant species. Although all species are considered during analyses, the species that are expected to be impacted most as a result of vegetation management activities as a result of fire mitigation activities are animals that are dependent on the understory vegetation for habitat and food. There are instances where the removal may have a beneficial impact certain species, such as particular bird species or burrowing animal species. To avoid significant impacts to the habitats of burrowing animals the Florida Forest Service provides best management practices (Florida Forest Service, 2014) which are listed in Appendix A.

4.8.2 Existing Environment - State Listed Species

Florida contains nearly 700 vertebrate species (terrestrial and aquatic), more than 30,000 invertebrate species, and more than 2,800 native plant species (LandScope Florida, 2018). This level of biodiversity contributes to the Florida Panhandle being considered one of the five richest biodiversity hotspots in North America. Aside from the many threatened and endangered species

that reside within the Florida peninsula, there are additional species and habitats that are protected throughout the state. The Florida Fish and Wildlife Conservation Commission (FWC) is the state agency responsible for managing non-listed species and determining additional protections needed for Florida ecosystems. As a result of FWC's efforts to protect the natural ecosystems that make Florida unique, there are an additional 57 state listed species protected under the Florida Imperiled Species Management Plan (Appendix D). The species listed under the Imperiled Species Management Plan are protected similarly to federally listed species as a result of Chapter 68A-27 in the Florida Administrative Code (F.A.C.). In addition to the statutory protections that Florida offers to its listed state species, there is a required Listed Species Incidental Take Permit that can be required if an action would in any way effect a state listed species. FWC provides species conservation measures and permitting guidelines for all of the 57 imperiled species that can be used to mitigate project impacts to state listed species.

As the Florida ecosystem evolved prior to human development, naturally-occurring fires caused by lightning played a role in forming and maintaining much of Florida's pine lands, sandhills, scrub areas, prairies, and wetlands. As a result of this evolution alongside fire there are several native species that are classified as fire-dependent, including the gopher tortoise, the Florida scrub-jay, the eastern indigo snake, and the fox squirrel. These species can also act as keystone species within their ecosystems, which is why it is of the utmost importance to maintain a healthy fire regiment throughout the state of Florida. Prescribed burning is one of FWC's most extensively-applied habitat management practices.

4.8.3 Environmental Consequences

The threshold level for a significant impact to threatened and endangered species is defined by the take of an individual protected under the ESA or by a loss of individuals that negatively affects the regional population of a species or any violations of Chapter 68A-27 F.A.C.

Alternative 1 – No Action

Under the No Action Alternative, current management activities would continue. These include maintenance of existing facilities and methods of suppressing wildfires, which would result in the further accumulation of hazardous fuels resulting in increased potential for wildfires. The impacts of a potential wildfire on listed species and their critical habitat could be significant and long-term. Depending on the severity of the wildfire, large amounts of habitat could burn, causing wildlife displacement, injury, or mortality.

> Based on the review conducted, Alternative one would have negligible impact on listed species. The impact would not be significant.

Alternative 2 – Vegetation Management

Alternative two consists of an integrated vegetation management process in which targeted trees and other fuels would be removed by hand or mechanical methods in order to create defensible space or reduce hazardous fuels. Impacts could vary among species and ecosystems, as well as the specific method for vegetation management. Although disturbances during vegetation removal may be measurable, minimal impacts to behavior of wildlife would be short-term and

would only last for the duration of the project. Direct injury or mortality of wildlife during commencement of vegetation removal is not anticipated.

Temporary and negligible impacts may occur for biological resources resulting from the creation of defensible space. Fragmentation of continuous habitat may result in negative impacts for species sensitive to such fragmentation. Conversely, the resulting creation of edge habitat may have a beneficial impact for bird species.

Based on the impact significance criteria, any direct injury or mortality of an ESA-listed species or other special status species at the individual level could be potentially significant. Federal agencies are required to consult or coordinate with USFWS if the agency determines that a project has the potential to affect threatened or endangered species or critical habitat. FEMA will determine if consultation or coordination under the ESA is warranted on a project- or site-specific basis. Specific project areas can be searched for presence of listed species or critical habitats through the USFWS online Information, Planning and Consultation System (IPaC) resource or from the county's existing biological profiles and consultation with FWS will occur.

> Based on the review conducted, Alternative two is not likely to adversely affect listed species. The impact would have negligible impact, and therefore would not be significant.

4.9 Migratory Birds

4.9.1 Existing Environment

A migratory bird is any species or family of birds that live, reproduce or migrate within or across international borders at some point during their annual life cycle. The Migratory Birds Treaty Act of 1918 (MBTA) made it illegal for people to "take" migratory birds, their eggs, feathers or nests. Take is defined in the MBTA 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 affords additional protection to all bald and golden eagles. Migratory Birds and Habitat Programs primarily operates under the auspices of the MBTA. In total, 1,027 bird species are protected by the MBTA, 92 of which are listed as either threatened or endangered under the ESA. An additional 274 species are listed as birds of conservation concern (U.S. Fish and Wildlife Service, 2016).

The State of Florida offers a wide range of habitats that are suitable for migratory birds, leading to approximately 83 different species of migratory birds or eagles that are of conservation concern being identified as having a presence in Florida (Appendix B). These migratory birds have been designated as birds of conservation concern as a result of being considered non-game birds, gamebirds without hunting seasons, or ESA candidate, proposed, or recently delisted species. The population distribution of these migratory birds varies for each species throughout the state, but all species of migratory birds use the Atlantic flyway during their annual migrations northward in spring, and southward in the fall.

The USFWS Migratory Bird Program maintains a list of migratory birds protected by the MBTA. The program also provides resources such as conservation measures that can be implemented for vegetation management activities. Although fuel reduction activities such as

vegetation removal have the potential to directly and indirectly affect migratory birds, there can be measures taken to complete eliminate impacts or greatly reduce them. The measures suggested by USFWS for vegetation removal to minimize the impacts to birds and their habitats can be found in Appendix A. BMPs for nesting birds that are state imperiled species are also listed in Appendix A.

4.9.2 Environmental Consequences

The threshold level for a significant impact to migratory birds is defined by the take of birds in violation of the Migratory Birds Treaty Act.

Alternative 1 – No Action

Under the no action alternative, funding for community-wide wildfire mitigation activities would not be available to the communities throughout Florida. The no action alternative would not conduct vegetation management activities, and therefore would not directly affect migratory birds. However, uncontrolled wildfires have the potential to burn at a greater intensity, than that of a fire burning following fuel reduction techniques. As a result, the no action alternative may result in greater habitat loss for migratory birds.

> Based on the review conducted, Alternative one would have negligible impact on migratory birds. The impact would not be significant.

Alternative 2 – Vegetation Management

Under the proposed alternative, applicant communities would receive funding for large-scale vegetation management activities to perform hazardous fuels reduction and defensible space activities. Vegetation management activities associated with wildfire mitigation techniques have the potential to impact the habitat migratory birds may utilize for nesting or other critical purposes. During the design phase of a project associated with the proposed action, the specific area should be examined (using the USFWS IPaC tool) to determine what potential migratory birds could be impacted. Utilizing the resources provided and the conservation measures outlined above should result in minimal impacts to migratory birds or their habitats. FEMA will determine if consultation or coordination under the MBTA is warranted on a project- or site-specific basis. As a result of consultation with USFWS, it may be necessary to receive a permit from the Florida Fish and Wildlife Conservation Commission to remove or relocate nests if there is the possibility of impact to a protected bird nest if a survey has identified nests in the area.

> Based on the review conducted, Alternative two would have minor impact on migratory birds. The impact would not be significant.

4.10 Coastal Zone Management

4.10.1 Existing Environment

The coastal zone is defined by the Coastal Zone Management Act (CZMA) as the coastal waters (including the lands therein and thereunder) and the adjacent shore lands (including the water therein and thereunder), strongly influenced by each other and in proximity to the shorelines of the several coastal states, and includes islands, transitional and intertidal areas, salt marshes, wetlands, and beaches. These areas provide a wide range of social, economic, and

environmental benefits. For example, in some areas of Florida fishing communities utilize the coastal zone as their main source of revenue by creating ports for shipping, selling fresh fish to markets, or appealing to the tourism industry. In addition to the benefits that coastal zones provide to humans, coastal ecosystems are one of the most biologically diverse and rich ecosystem types.

To further protect the coastal zone in the U.S., the CZMA was enacted in 1972. The goal of this legislation was to "preserve, protect, develop, and where possible, to restore or enhance the resources of the nation's coastal zone." To achieve this goal, the CZMA outlined three national programs, including the National Coastal Zone Management program. The program aims to balance competing interests through the use of state and territorial coastal management programs. The Florida Coastal Zone Management program is administered by the FDEP Coastal Office. To remain consistent with federal standards for the program, FDEP and a group of partner agencies administer a set of 24 Florida Statutes. Some of those partner agencies include the Florida Department of Agriculture, the Florida Department of Economic Opportunity, and the Florida Department of State.

The Florida Coastal Office determined in 2011 that 397.9 miles of sandy beaches (out of 825 miles total) were critically eroded. Of those beaches that were classified as critically eroded, 197.8 miles were under active management (Florida Department of Environmental Protection(a), 2017). Management practices include beach and dune restoration, beach nourishment, and other actions to mitigate the erosive effects of inlets to adjacent beaches. Beach erosion, when not addressed, can threaten private or public development, infrastructure, significant cultural resources, or environmental resources. The use of Florida's Coastal Construction Control Line (CCCL) (Figure 4.10-1) is essential to the Florida Coastal Zone Management Program by protecting the state's beaches and dunes while ensuring reasonable use of private property. If a project is proposed that is seaward of the CCCL, the FDEP Coastal Office must be consulted and a permit may be required prior to any activities beginning.

4.10.2 Environmental Consequences

The threshold level for a significant impact to coastal barrier resources is defined as a violation of the Coastal Zone Management Act (CZMA) and the 24 Florida specific statues outlined in the Florida Coastal Management Program Guide or if an action will cause significant erosion within a coastal zone.

<u>Alternative 1 – No Action</u>

Under the no action alternative, the coastal zones would continue to be eligible for funding of mitigation for wildfires. This would not allow for community wide protection from wildfires and would put the people and ecosystems of coastal zones at risk for impacts as a result of wildfires. The management of the coastal zone would not change as a result of alternative one.

> Based on the review conducted, Alternative one would have no effect on the coastal zone management. The impact would not be significant.

Alternative 2 – Vegetation Management

Under the proposed alternative, coastal zones would receive community-wide wildfire mitigation activities. This would ultimately reduce the risk of coastal communities experiencing devastating loss as a result of wildfires. Depending on project location, activities may occur near coastal zones, but would not cross over the designated coastal construction control line without consultation with FDEP Coastal Office. The proposed action would not alter the objectives or plans of current coastal management.

> Based on the review conducted, Alternative two would have a negligible impact on the coastal zone management if projects were to occur seaward of the Coastal Construction Control Line. The impact would not be significant.

4.11 Coastal Barrier Resources

4.11.1 Existing Environment

Coastal barrier resources play a significant role in natural ecosystems, as well as in developed areas. Barrier resources can provide protection from large storm surges by slowing down the velocity at which waves are coming towards shores. This can provide significant protection to human lives, and especially to property. In addition to their protection, coastal barrier resources often act as a natural sanctuary for juvenile wildlife, creating areas of rich biodiversity just offshore. Prior to the early 1980's the federal government often encouraged development, through the use of subsidies, on coastal barriers (U.S. Fish and Wildlife Service, 2017). These actions resulted in a loss of natural resources, increased threat to human life, and an increased threat of property damage. In 1982, Congress passed the Coastal Barrier Resources Act (CBRA) which aims to protect coastal barriers through limiting development on areas designated within the Coastal Barrier Resource System. The projects excepted, under the CBRA, to the federal funding prohibition coastal barrier resources is as follows:

- Maintenance, replacement, reconstruction, or repair, but not the expansion (except for U.S. Highway 1 in the Florida Keys) of publicly owned or publicly operated roads, structures, or facilities that are essential links to a larger network or system (FHWA has determined that all highways on the federal network are essential links in a larger network or system);
- Construction, operation, maintenance, and rehabilitation of U.S. Coast Guard (USCG) facilities and access to them;
- Maintenance or construction of improvements to existing federal navigation channels and related structures, including disposal of dredge materials;
- Expenditures related to conservation, navigation, recreation, scientific research, disaster relief, roads, and shoreline stabilization, providing that the expenditures are consistent with the purpose of CBRA (see 16 U.S.C. § 3505(a)(6)(A) – (G) for specific details);
- Any use or facility necessary for the exploration, extraction, or transportation of energy resources which can be carried out only on, in, or adjacent to a coastal

water area because the use or facility requires access to the coastal water body; and

- Military activities essential to national security.

Florida has 68 units within the Coastal Barrier Resource System with another 63 otherwise protected coastal areas (OPA), as identified in Figure 4.11-1. The combined 131 areas contain a total 466 shorelines and 69,266 acres of upland area. These different coastal barrier resources are regulated by the USFWS. Vegetation management, as outlined in this PEA, is considered to be maintenance of property and therefore would fall within the exceptions described within the CRBA. Any projects that may occur within a designated CBRA Unit may require consultation with USFWS, while projects occurring in the OPA's do not require such consultation.

4.11.2 Environmental Consequences

The threshold level for a significant impact to coastal barrier resources is defined as a violation of the Coastal Barrier Resource Act (CBRA) or if an action will significantly alter a resources ability to provide ecosystem benefits.

Alternative 1- No Action

Under the no action alternative, the areas protected under the CBRA would continue to have vegetation build up causing a higher wildfire risk over time. No vegetation management, aside from the smaller scale activities that local communities perform, would occur on coastal barrier resources.

> Based on the review conducted, Alternative one would have no effect on the coastal barrier resources. The impact would not be significant.

Alternative 2 – Vegetation Management

Under the proposed alternative, vegetation management activities could occur on at-risk coastal barrier resources. By performing such activities on coastal barrier resources some vegetation may be removed to lower the wildfire risk to human life and structures. The impacts would be limited to lessening the understory vegetation on a coastal barrier resource, having a minimal effect on the resources ability to dissipate storm surge and provide habitat to wildlife. If a proposed project were to occur within a protected coastal barrier resource, USFWS shall be consulted and any conservation measures issued would be utilized through the duration of the project.

> Based on the review conducted, Alternative two would have a minor impact on coastal barrier resources if projects were to occur within one of these resources. The impact would not be significant.

4.12 Cultural Resources

4.12.1 Existing Environment

The National Historic Preservation Act (NHPA) was established in 1966 in order to preserve historic properties and archaeological sites in the United States. The historic

preservation review process is mandated by Section 106 of the NHPA and implemented by 36 CFR Part 800. Historic properties are those that are included in the National Register of Historic Places (NRHP) or on the list of National Historic Landmarks. A historic property is defined as any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior (36 CFR 800.16(l). This term includes artifacts, records, and remains that are related to and located within such properties. To be eligible for listing on the NRHP, a property must meet one of four eligibility criteria and have sufficient integrity. The four criteria include (1) associated with events that have made a significant contribution to the broad patterns of our history, (2) associated with the lives of persons significant in our past, (3) embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction, and (4) have yielded, or may be likely to yield, information important in prehistory or history (NPS, n.d.). When historic properties are present, the effect of the undertaking on them must be assessed and ways to avoid, minimize, or mitigate potential adverse effects should be considered.

There are two federally recognized Indian resident tribes in Florida: Seminole Tribe of Florida and Miccosukee Tribe of Indians of Florida (National Conference of State Legislatures, 2016). The Indian Reservation lands are shown in Figure 1.2-1. There are additional Federally recognized tribes who have interest in FL and are non-resident, such as the Alabama-Coushatta tribe, Alabama-Quassarte Tribal Town of the Creek Nation, Choctaw Nation of Oklahoma, Jena Band of Choctaw Indians, Mississippi Band of Choctaw Indians, Muscogee Creek Nation, Poarch Band of Creek Indians, Seminole Nation of Oklahoma, and Thlopthlocco Tribal Town. In Florida, there are also seven non-federally recognized tribes including the Choctaw Nation, Creeks E. of the Mississippi, Florida Tribe of E. Creeks, Oklewaha Band of Seminoles, Perdido Bay Tribe, Topachula Tribe, and Tuscola Unites Cherokee Tribe (500 Nations, 2018).

The Seminole Tribe of Florida has six Reservations including Dania, Big Cypress, Brighton, Hollywood, Tampa and Immokalee (National Conference of State Legislatures, 2016). Overall, there are more than 90,000 acres of Seminole federal trust holdings in Florida (Seminole Tribe of Florida, n.d). The Tribe opened the first high-stake bingo hall in the nation in 1977 and today, gaming is the number one economic enterprise for Indian Nations. Other enterprises include profitable smoke shops, hotels, the Kissimmee-Billie Swamp Safari tourist attraction and recently entry into the citrus market. Some of the best ways to see the expression of Seminole culture is through their artwork, like canvas paintings, basketry, dolls and beadwork, their chickee style of architecture, their ceremonial dancing, their colorful patchwork clothing and more.

The Miccosukee Tribe of Indians of Florida has four Reservation Areas including Tamiami Trail, Alligator Alley and two Krome Avenue Reservations (Miccosukee Tribe of Indians of Florida, 2018). The Miccosukee reservations make up over 250,000 acres of land used for commercial, agricultural, and community needs. Much like the Seminole Tribe, the Miccosukee Tribe operates many public services like a clinic, police department, senior center, and an education system with many levels of service. The programs incorporate both the

traditional Miccosukee ways and non-traditional ways to educate the people on the traditional past while staying a part of the current world today. Some of the economic endeavors of the Tribe include a restaurant, service station, full-service gas station along Alligator Alley, and the gaming facility and tobacco shop on the Krome Avenue Reservation. Both tribes have the continuous pursuit of economic self-sufficiency and self-determination.

In addition to the tribal resources throughout Florida, there are abundant historic properties that are also protected under NHPA. Florida has 1,773 sites listed on the NRHP, 46 National Historic Landmarks, 8 National Natural Landmarks, 1,174 Archaeological Sites, 1 National Heritage Area, and 1 World Heritage Site (NPS, n.d.). A map of Florida's NRHP sites can be found in Figure 4.12-1.

For each individual project under this Programmatic Environmental Agreement, consultation with the appropriate State Historic Preservation Officer(s) (SHPO) and Tribal Historic Preservation Officer(s) (THPO) will be required. Due to government-to-government relations with tribal entities, FEMA will be responsible for any consultation with the Tribes. Even if the project is not located on federally recognized tribal lands tribes both in and out of the state may consider the project area as having historic and cultural significance to their Tribe. The following conditions should be followed:

- Stumps will be grounded to just above soil level keeping the mulching head out of dirt. Ground disturbance will be kept to a minimum and less than 3 inches as machines operate on the mulched vegetation while progressing through the project site. The mulch will be left on site and in place to decompose.
- Work will only occur in the uplands when water levels are below surface.
- If prehistoric or historic artifacts such as pottery or ceramics, projectile points, dugout canoes, metal implements, historic building materials, or any other physical remains that could be associated with early Native American, European, or American settlement are encountered at any time within the project site area, the permitted project shall cease all activities involving subsurface disturbance in the immediate vicinity of such discoveries. The applicant shall contact the Florida Department of State, Division of Historical Resources, Review and Compliance Section at (850) 245-6333. Project activities shall not resume without verbal and written authorization. In the event that unmarked human remains are encountered, during permitted activities, all work shall stop immediately and the proper authorities notified in accordance with Florida Statutes, Section 872.05.
- If human remains or intact archaeological deposits are uncovered, work in the vicinity of the discovery will stop immediately and all reasonable measures to avoid or minimize harm to the finds will be taken. The applicant will ensure that archaeological discoveries are secured in place, that access to the sensitive area is restricted, and that all reasonable measures are taken to avoid further disturbance of the discoveries. The applicant's contractor will provide immediate notice of such discoveries to the applicant. The applicant shall contact the Florida Division of Historic Resources and FEMA within 24 hours of the discovery. Work in the vicinity of the discovery may not resume until FEMA has completed consultation with SHPO, Tribes, and other consulting parties as necessary. In the event that unmarked human remains are encountered during permitted activities,

all work shall stop immediately and the proper authorities notified in accordance with Florida Statutes, Section 872.05.

4.12.3 Environmental Consequences

The threshold level for significant impacts to cultural resources under NEPA would be those impacts that that (1) adversely affect any federally recognized Native American Tribe's resources or sacred sites and (2) adversely affect any historic property that is eligible for or listed in the NRHP under Section 106.

Alternative 1 - No Action

Under the no action alternative, funding for community-wide wildfire mitigation activities would not be available to communities throughout Florida that may have cultural resources in the wildland-urban interface. Over time, as vegetation continues to accumulate, historic properties and other cultural resources would increasingly be at risk.

Based on the review conducted, Alternative one would have negligible impact on cultural resources. The impact would not be significant.

Alternative 2 - Vegetation Management

Under the proposed alternative, communities would receive funding for community-wide wildfire mitigation activities, like hazardous fuels reduction and creation of defensible space. These activities have the potential to affect historic or cultural resources depending on the project location and proposed project methods. Alteration of any site, structure, or object of historic or prehistoric importance (historic property) may occur as a result of wildfire mitigation projects. Activities such as driving vehicles off of established roads (which should be minimized to the extent practicable) and vegetation removal could lead to ground disturbance and, thus, possible impacts to cultural resources. To the maximum extent practicable, project activities that would disturb known locations of historic or cultural resources should be avoided or minimized.

Based on the review conducted, Alternative two may have minor impact on cultural resources that will be determined after consultation with the SHPO/THPO. The impact will be addressed on a case by case basis after consultation is completed.

4.13 Environmental Justice

4.13.1 Existing Environment

On February 11, 1994, the President issued EO 12898, Federal Actions to Address Environmental Justice in Minority and Low-Income Populations. Its purpose is for federal agencies to address disproportionate environmental and human health impacts from federal actions on minority populations and low-income populations with the goal of accomplishing environmental protection for all communities. The President directed all federal agencies to analyze the environmental effects, including human health, social, and economic effects, on minority and low-income communities.

According to the U.S. Census Bureau, Florida's population was 18,804,594 in 2010 and the estimates for 2017 show an 11.6% increase to 20,984,400 (U.S. Census Bureau, 2017).

Currently, 45.1% of Florida residents identify as a minority and 14.7% live in poverty. Compared to Florida's percentages there are some areas in Florida that have more concentrations of minority and low income populations. Currently, there are 7 counties, shown in Figure 4.13-1, with a majority of the population being minority (U.S. Census Bureau, 2016). These counties are all in central and southern Florida and include Orange, Osceola, Hardee, Desoto, Hendry, Broward, and Miami-Dade. Miami-Dade has the highest concentration of minority populations with 87.2%. When looking at percentages of the population living in poverty, specifically counties with greater than 20% of the population living in poverty, there are concentrations in north Florida and the central panhandle, as well as south central Florida (see Figure 4.13-2). Three counties with notable poverty percentages are Desoto with 28.6%, Hamilton with 28.9%, and Madison with 31.9% (U.S. Census Bureau, 2016).

An analysis of low income and minority populations in and around the project area must be completed. This can be done on the U.S. Census Bureau QuickFacts or the American FactFinder websites, comparing the percentages for the city/county where the project is located to the state of Florida percentages. If it is determined that these populations will disproportionately be affected, a supplemental environmental assessment may be required.

4.13.2 Environmental Consequences

The threshold level for a significant impact to environmental justice is disproportionately high or adverse human health or environmental effects on minority or low-income populations.

Alternative 1 - No Action

Under the no action alternative, there would be no community-wide wildfire mitigation funding and present-day conditions would remain. This could potentially result in significant adverse impact to the economics of a community if a wildfire were to occur. The potential negative economic impacts would affect residents with homes in burned areas, particularly in cases in which residents are displaced. The agricultural-based economy could be directly threatened by fires and other businesses could be impacted directly or indirectly by displacement of residents or interruptions to transportation corridors. Likewise, wildfires can mar the landscape and negatively affect tourism.

All populations within a project area would continue to be at risk of a catastrophic wildfire under the no action alternative. Alternative one would not have a disproportionately high and adverse socioeconomic effect on minority or low income populations and meets the requirements of Executive Order (EO) 12898.

> Based on the review conducted, Alternative one would have negligible impact on low income and minority populations. The impact would not be significant.

Alternative 2 - Vegetation Management

The proposed action would have indirect beneficial effects on the economy of communities within Florida. The creation of defensible space and reduction of hazardous fuels would help prevent and control the spread of a wildfire in the project area. If a wildfire occurred, the proposed vegetation management could limit the extent and magnitude of the wildfire. Thus,

Alternative two would have beneficial impacts on socioeconomic resources to residents because direct costs would not be incurred to fight major wildfires, and indirect costs associated with property, business, agricultural, and damages would not occur. These benefits are not expected to shift the real estate or rental market, nor are they expected to result in a change in spending or tourism to the project areas. No disproportionately high and adverse impacts to low-income or minority populations are anticipated from Alternative two.

> Based on the review conducted, Alternative two would have an indirect beneficial impact on low income and minority populations.

4.14 Land Use and Zoning

4.14.1 Existing Environment

Florida is approximately 71,341 square miles (Natural Resource Conservation Service (a), n.d.). Florida's cropland encompasses 9.55 million acres and supports 48,000 farms and ranches that produce a wide variety of food products. The Economic Research Service reports that agriculture products in 2012 totaled $8.25 billion. The leading crop commodities were oranges, greenhouse/nursery, tomatoes, and sugarcane. Forests cover about half of Florida's land area and counties have as much as 90% coverage or as little as 10% coverage. In 2010, 18.6% of land cover was developed with more and more undeveloped land being converted each year (Waymer, 2016).

As lands continue to be converted from wildland to developed land, communities can become more vulnerable to wildfire (Florida Department of Agriculture and Consumer Services, 2010). If proper wildfire management is not done, houses and community settlements, along with vegetation, have the potential to become fuel for wildfires. In fact, 95.5% of Florida's wildland-urban interface area is at risk of wildfire damage.

4.14.2 Environmental Consequences

The threshold level for a significant impact to land use is defined as the disruption or displacement of an existing or planned land use without providing a suitable means to replace or relocate the affected land use.

Alternative 1 - No Action

Under the no action alternative, vegetation management activities would not occur and no impact is expected. However, if a wildfire were to occur due to an abundance of hazardous fuels, it has the potential to significantly affect land use, particularly loss in agricultural and recreational land use.

> Based on the review conducted, Alternative one would have a negligible impact on land use and zoning. The impact would not be significant.

Alternative 2 - Vegetation Management

Under the proposed action, vegetation management activities would be funded for applicant communities. Land use (such as recreation and agriculture) could be maintained or the impact reduced if a wildfire did occur as the vegetation management practices would likely retain land

use in its present conditions. With the creation of defensible space in the WUI, houses and community settlements would be better protected against wildfires.

Based on the review conducted, Alternative two would have a negligible impact on land use and zoning. The impact would not be significant.

4.15 Traffic

4.15.1 Existing Environment

Florida has an extensive and complex transportation system, which includes roadways, railroads, and aviation facilities. There are a total of 12,106 miles in the state highway system: 1,495 miles of interstates, 4,116 miles of U.S. highways, and 6,495 miles of other state roads (see Figure 4.15-1) (Florida Department of Transportation, 2018). Major interstates include I-10 running east/west across norther Florida, I-75 running north/south in east and central Florida, I-95 running north/south along the west coast, and I-4 running east/west across central Florida through Orlando.

Florida has 14 freight railroads, made up of 2,818 miles (see Figure 4.15-2) (Association of American Railroads, 2016). The rail system supports almost 5,000 employees with an average salary of $103,820. The major railroad station hubs are located in Jacksonville, Tamps, St. Petersburg, and Miami.

There are 16 international airports in Florida and the airports with major traffic are located in Orlando, Miami, Fort Lauderdale, and Tampa (Federal Aviation Administration, 2018). Orlando International Airport (MCO) was the busiest airport in Florida is 2017, with a record setting 44.6 million total passengers (Orlando Airport International MCO, 2018). A big driver in the increase in traffic was an increase in domestic travel.

4.15.2 Environmental Consequences

The threshold level for a significant impact to transportation and traffic would be an elimination of a used road without suitable replacement, a permanent increase in traffic volume in a given area, or an increase in road hazards.

Alternative 1 - No Action

Under the no action alternative, the proposed action would not be conducted. Mobility in regional areas is critical for social, recreational, and economic activities. Commuting is a part of daily life and truck transportation plays a vital role in Florida’s economy. If a wildfire occurred, there is potential that roads or railways could be blocked, damaged, or destroyed. This could be detrimental for single ingress/egress roadway areas and could prevent evacuations or prevent firefighters from entering into an area. Alternative one may result in significant adverse impacts due to increased travel times and increasing traffic volumes if travel patterns change as a result of a wildfire. Wildfires also have the potential to disrupt air traffic as smoke reduces visibility.

Based on the review conducted, Alternative one would have negligible impact on traffic. The impact would not be significant.

Alternative 2 - Vegetation Management

Under the proposed alternative, short-term temporary vehicle traffic would be generated by movement of equipment (chippers) to the project area and from work crews traveling to and from work sites. The amount of traffic generated would be minor and would not interfere with local residents or other people traveling in the vicinity the project area.

The proposed alternative would reduce the risk of a wildfire encompassing roads or railroads. The potential for roads or railways to be blocked by a wildfire would be reduced. The proposed activities also would reduce the potential for disruption in air traffic throughout the State due to wildfires.

> Based on the review conducted, Alternative two would have a minor beneficial impact on traffic. The impact would not be significant.

4.16 Noise

4.16.1 Existing Environment

Typical sources of noise that could be detected and described as unwanted sound in urban and suburban areas includes road and rail traffic, industrial activities, aircrafts, and neighborhood sources like lawn mowers, leaf blowers, etc. Sounds associated with vegetation management activities could come in the form of vehicular traffic or machinery used to fell trees or vegetation.

The unit used to describe the intensity of sound is the decibel (dB). Audible sounds range from 0 dB ("threshold of hearing") to about 140 dB ("threshold of pain") (Occupational Safety and Health Administration, 2016). For example, conversational speech is measured at about 55 to 60 dB, whereas a band playing loud music may be as high as 120 dB.

4.16.2 Environmental Consequences

The threshold level for a significant noise impact is defined as a permanent increase in noise or prolonged periods of nighttime noise in noise-sensitive areas.

Alternative 1 - No Action

Under the no action alternative, no construction or vegetation management-related activities would occur. There would be no effect on noise levels in the project area relative to current conditions.

> Based on the review conducted, Alternative one would have no effect on noise. The impact would not be significant.

Alternative 2 - Vegetation Management

Under the proposed action, applicant communities would receive funding for wildfire mitigation activities and depending on the vegetation management techniques used, there may be a minor to moderate effect on noise levels. The operation of chainsaws (92 to 112 dB) and chippers (105 dB) during the creation of defensible space and thinning treatments could potentially create a short-term, temporary increase in noise levels in the vicinity of the treatment areas. Noise associated with operation of equipment would dissipate with increasing distance

from the area of operation, and should be limited to 7 a.m. to 5 p.m. Therefore, noise impacts would be short-term, temporary, and limited to the duration of the proposed vegetation management activities.

Based on the review conducted, Alternative two would have a minor to moderate impact on noise. The impact would not be significant.

4.17 Public Services and Utilities

4.17.1 Existing Environment

Public services and utilities are the essential systems that support daily operations in a community and cover a broad array of public services, such as electricity, water, wastewater, and solid waste. Outside of the built environment, there are usually no utilities and few public services. Public services and utilities within the built environment include fire protection, law enforcement, Emergency Medical Services, schools, water, wastewater, sanitation, solid waste disposal, stormwater drainage, electric utilities, natural gas, and telephone/telecommunications.

The largest forms of energy consumed in Florida are natural gas, motor gasoline (excluding ethanol), and coal (U.S. Energy Information Administration, 2015). In 2014, natural gas accounted for the 61% of Florida's net generation of electricity, with coal accounting for 23%, nuclear power accounting for 12%, and other resources accounting for the rest (Florida Energy Systems Consortium, 2015). Furthermore, the two sectors that consume the most energy are transportation at 36.1% and residential at 28.7%, then commercial with 23.9% and industrial at 11.4%.

Important public services are provided by fire departments, law enforcement, and schools throughout Florida. According to the U.S. Fire Administration, there are 1804 fire stations in Florida, including volunteer stations (U.S. Fire Administration, n.d.). Focusing on local law enforcement, there are 219 police departments throughout Florida and 17 university police departments (Go Law Enforcement, 2018). Finally, there are 4,574 active schools in Florida, minus the colleges and universities (Florida Department of Education, 2018).

Some other utilities that provide important services to the public in Florida include water, wastewater, solid waste disposal, and stormwater drainage. FDEP is responsible for regulating over 3,800 active wastewater facilities, approximately 1,900 of those facilities are classified as industrial (Florida Department of Environmental Protection, 2018). In Florida, there are 23 Type 3 Landfills, which take every day household garbage type waste. In a typical year, Floridians send 4.2 million tons of waste to these facilities, 29.5% of which was recycled (All Things Waste, 2016). Increased development in the WUI can have an effect on stormwater and in some cases may increase runoff (Florida Department of Agriculture and Consumer Services, 2010). Tree protection and proper vegetation management can reduce stormwater runoff and help to protect valuable water sources. If utilities are not taken into account when completing vegetation management activities, they can often hinder wildfire suppression efforts and endanger firefighters and other emergency personnel.

4.17.2 Environmental Consequences

The threshold level for a significant impact to utilities would be an exceedance of the existing utility service capacity or a significant outage in the service area.

Alternative 1 - No Action

Under the no action alternative, no construction or vegetation management-related activities would occur and there would be no impact on public services and utilities. However, without any action, there is the potential to affect public services and utilities because fires could continue to damage infrastructure, which would adversely impact the ability to provide service.

> Based on the review conducted, Alternative one would have no effect on public services and utilities. The impact would not be significant.

Alternative 2 - Vegetation Management

Under the proposed alternative, vegetative management activities could occur around public utilities. In this case, utilities should be located before construction and coordination with local utility companies may need to occur. If planned outages are necessary, utility customers should be given advanced notice. No public services or the response time of emergency responders would be directly affected during the vegetation management treatments in the project area.

However, if vegetation management activities prevented a catastrophic wildfire, damage to utilities may be prevented and emergency responders would be available to respond to other emergencies. In addition, when wildfires are controlled quickly, a smaller area is burned, which results in less sediment and debris being transported downstream during future precipitation events. For the same reasons, alternative two would also help protect and maintain municipal water supplies for communities that obtain their water from the treated watershed.

> Based on the review conducted, Alternative two would have negligible impact on public services and utilities. The impact would not be significant.

4.18 Public Health and Safety

4.18.1 Existing Environment

Firewise Communities "Wildfire Hazard Assessment" lists factors that make a neighborhood more vulnerable to wildfire (Florida Forest Service(a), 2018). Access is an important issue when it comes to evacuation, especially if there is only one road in and out. Vegetation with high/extreme fire potential include dense palmetto, sand pine scrub, and melaleuca. Other issues like access to a water supply, range from a fire department, building materials, and defensible space also contribute to vulnerability.

As the population continues to grow in Florida, more and more people are moving into the WUI, approximately one-third of the population (Florida Forest Service(b), 2018). The buildup of vegetative fuels over time, due to the exclusion of fire from Florida's land management, has put communities around Florida in increasing risk of wildfire damage. "3.9 million acres in Florida are at high or extreme overall wildfire risk based on likelihood of

wildfire, historic suppression costs, and infrastructure" (Florida Department of Agriculture and Consumer Services, 2010).

4.18.2 Environmental Consequences

The threshold level for a significant impact to public health and safety would be creating health and safety hazards that could affect the public and site workers.

Alternative 1 - No Action

Public health and safety issues include one-time and long-term exposure. Examples include short/long-term exposure to environmental conditions, such as smoke inhalation, and injuries or deaths resulting from a one-time accident. Health and safety concerns could impact personnel working on the project and in the surrounding area, as well as travelers using the project sites. Under alternative one, fuel loads in the project area would continue to accumulate and the potential for wildfires, and associated direct impacts, would increase. People living near unmanaged areas would be at an increasing risk to the impacts of wildfires over time. People and structures down gradient of the burn area would be at risk from sediment and debris flows if a major precipitation event occurred prior to revegetation of the burn area. Structures at risk would include houses, roads, bridges, railroads, water intakes, and water treatment facilities.

Under this alternative, people would be at increased risk of experiencing adverse health impacts due to wildfires. Wildfires can generate substantial amounts of fine particulate matter, which can affect the health of people breathing the smoke-laden air. Therefore, the health of people downwind from a wildfire, especially young children and people with lung disease or asthma, could be adversely affected if no action were to occur. At close range, wildfires can generate substantial amounts of carbon monoxide, which can pose a health concern for frontline firefighters.

> Based on the review conducted, Alternative one would have negligible impact on public health and safety. The impact would not be significant.

Alternative 2 - Vegetation Management

The proposed alternative consists of an integrated vegetation management process in which targeted trees and other fuels would be removed by hand and mechanical methods in order to create defensible space and reduce hazardous fuels. This work entails the use of machinery such as feller bunchers, chippers, tractors, brush hogs, skid loaders, and chainsaws, and the use of transport vehicles including all-terrain vehicles. Any equipment is inherently dangerous and could lead to occupational accidents if operators are unprepared, untrained, or do not have the appropriate equipment. Workers should use appropriate Personal Protective Equipment (PPE) and follow applicable Occupational Safety and Health Administration (OSHA) standards and procedures. Work areas should be clearly marked with appropriate signage and secured against unauthorized entry. Standard construction traffic control measures should be used to protect workers, residents, and the travelling public.

Alternative two is designed to reduce the rate of spread and intensity of a wildfire within the treatment areas, which would improve the safety of residents and firefighters and make it easier

to bring a wildfire under control. Wildfires cannot be prevented, but if they can be more readily controlled and contained, the chance that a small wildfire will grow into a catastrophic fire is greatly reduced. Reducing the intensity and frequency of wildfires lowers the risk for people living or working in the urban/forest interface because wildfires would threaten fewer buildings.

Based on the review conducted, Alternative two would have a minor impact on public health and safety. The impact would not be significant.

4.19 Waste and Hazardous Materials

4.19.1 Existing Environment

Hazardous materials have been declared hazardous through various regulations including 40 CFR 302.4 and 355 and 29 CFR 1910.1200. Hazardous waste is any solid, liquid, or contained gas waste that is dangerous or potentially harmful to human health or the environment. In 1985, Florida received authorization from the EPA to administer its own hazardous waste management and regulatory program under the Resource Conservation and Recovery Act (RCRA) of 1976 (Florida Department of Environmental Protection, 2018). The Division of Waste Management group at the Florida Department of Environmental Protection, houses the Hazardous Waste Management program which is responsible for implementing the hazardous waste regulatory portion of RCRA. The program reviews and issue permits and coordinated compliance, monitoring, and enforcement activities at hazardous waste generators, transporters, and treatment, storage, and disposal facilities.

In Florida, there are 54 sites on the National Priorities List for Superfund Sites and 26 sites have been deleted (U.S. Environmental Protection Agency, 2018) (Figure 4.19-1). There are also 452 Designated Brownfield Areas in Florida made up of almost 267,000 acres (Figure 4.19-2). When conducting proposed wildfire hazard mitigation activities such as vegetation management and creation of defensible space, it is possible that hazardous waste and materials may be uncovered. If this were to occur, a permit may be required to dispose of the hazardous waste and the following condition(s) should be placed on the project:

- The subrecipient shall ensure that all debris staging sites are pre-authorized by FDEP. The subrecipient shall ensure that all debris is separated and disposed of in a manner consistent with FDEP solid waste facility disposal at permitted facilities guidelines or at a disposal site or landfill authorized by FDEP. The subrecipient is responsible for ensuring contracted staging and disposal of debris also follows these guidelines. Failure to comply with these conditions may jeopardize FEMA funding; verification of compliance will be required at project closeout.
- If any “asbestos containing material”, lead based paint, or other hazardous materials are found during remediation or repair activities, compliance with all federal, state and local abatement and disposal requirements under the Resource Conservation Recovery Act (RCRA) will be required. Verification of compliance will be required at project closeout.

4.19.2 Environmental Consequences

The threshold level for a significant impact to hazardous materials and waste would include a release of hazardous materials or waste, or a violation of local, state, or federal regulations pertaining to hazardous materials or waste.

Alternative 1 - No Action

Under the no action alternative, there would not be any disturbance to any hazardous materials. There would be no changes to or increases in hazardous material levels in the project area.

However, the potential for a wildfire would not be reduced. The impacts if a hazardous waste site would be in the path of a wildfire could be significant and long-term. Should the waste be flammable, there is the potential for the hazardous waste to ignite or explode, further fueling a wildfire. In addition, a fire could cause the storage materials housing hazardous waste to rupture, causing leaks, spills, and contamination of soils and drinking water.

> Based on the review conducted, Alternative one would have no effect on waste and hazardous materials. The impact would not be significant.

Alternative 2 - Vegetation Management

Under the proposed alternative, wildfire mitigation activities would not disturb any known hazardous materials or create any potential hazard to human health. If hazardous constituents are encountered, appropriate measures for the proper assessment, remediation and management of the contamination would be initiated in accordance with applicable Federal, State, and local regulations. Verification of compliance will be required at the time of project closeout. Federal agencies would ensure appropriate measures are taken to prevent, minimize, and control the spill of hazardous materials.

Post-project impacts are difficult to predict because the actual impacts would depend on whether the project area experiences a wildfire. If a wildfire occurs and the advancement of the fire is controlled due to the creation of fuel breaks and other vegetation management activities, and the fire does not ignite a hazardous waste site, Alternative two would have a beneficial effect, as the hazardous material would remain contained.

> Based on the review conducted, Alternative two would have negligible impact on waste and hazardous materials. The impact would not be significant.

SECTION 5: Cumulative Impacts

The Council on Environmental Quality’s NEPA implementing regulations, as amended, define cumulative effects as:

> "[T]he impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or local) or person undertakes such other action."

Based on these regulations, if the alternative does not have direct or indirect effects, there can be no cumulative effects resulting from the project because there would be no impacts added to past, present, or reasonably foreseeable actions.

CEQ regulations also describe cumulative impacts as impacts that "can result from individually minor but collectively significant actions taking place over a period of time." On a programmatic level and combined with other actions affecting wildfire mitigation projects, Alternative two could lead to cumulative impacts depending on the scale (number of projects) or geography (localized area) in which the actions are performed.

5.1 Summary of Cumulative Impacts

Individual projects proposed under this PEA have the potential to cause significant impacts when compounded and undocumented. To track and mitigate cumulative impacts, any official usage of this PEA must be documented by the completion of the FEMA REC in EMIS. All supporting documentation RECs and SEAs must be submitted to the FDEM.

Cumulative impacts could occur from private development activities throughout Florida, such as residential and business development, new infrastructure expansion and construction (buildings, roads, utilities), as well as vegetation management activities. While private development activities will continue to occur in the WUI, their intensity and magnitude are difficult to foresee. These activities would be required to comply with applicable laws and regulations.

Vegetation management activities throughout Florida have a cumulative impact regarding the location and connectivity of fuel breaks and fuel reduction areas across lands managed by various agencies and individuals. Some of the agencies that also perform vegetation management activities in Florida are:

- The U.S. Fire Administration
- The Department of Agriculture (U.S. Forest Service, Natural Resource Conservation Service)
- The Department of Interior (Bureau of Land Management, U.S. Fish and Wildlife Service, National Park Service, etc.)
- The Florida Forest Service
- The Florida Department of Environmental Management
- The Florida Fish and Wildlife Conservation Commission

In addition, the construction of fuel breaks, creation of defensible space, and thinning to reduce fuel loads would cumulatively affect how a wildfire would advance, how fast the wildfire would advance, and the areas from which firefighters could marshal resources to fight and control a wildfire (Federal Emergency Management Agency, 2012). Vegetation management activities could also include herbicide treatments. A reduction in vegetation following herbicide treatments could temporarily increase soil erosion and surface water runoff in these areas. However, projects including successful herbicide treatments would allow for the reestablishment of native vegetation, thus having a long-term beneficial impact.

When analyzing the cumulative impacts of the proposed vegetation management activities, it is necessary to also consider future projects that could occur because of vegetation management activities. Often the activities described in this PEA can be used as site preparation prior to a prescribed burn. Although FEMA cannot directly fund prescribed burns, the local entities that utilize this PEA may provide local funds to perform prescribed burns in the future. Prescribed burns can result in temporary increases in emissions in the immediate geographical area, but the overall benefit of prescribed burns greatly outweighs the temporary impacts. In Florida, over 26 ecosystems are considered fire-dependent, associated with over 750 plant and 300 animal species require frequent, low-intensity fire to maintain a healthy diversity of plants and animals, as well as keeping fuel loads at a safe level. Ecosystems such as sandhills and pine flatwoods can experience fire frequencies as high as yearly and even biannually. The amount of carbon stored within underground plant components, as well as above ground in the form of charcoal, is currently being tracked by collaborative public agency-university efforts. Preliminary results point to these ecosystems becoming a carbon sink within one month following a fire, offsetting the temporary increase in carbon emissions caused by prescribed burns. To reduce fuel hazard and improve habitat conditions within many pyrogenic ecosystems, prescribed burning can be implemented at a fraction of the cost of wildfire suppression. (Association for Fire Ecology, et. al., 2013).

In addition to the current projects being considered under this PEA, there are two additional wildfire mitigation projects that will be funded through FEMA as a part of the Hurricane Matthew Hazard Mitigation Grant Program. The two additional projects qualify under DHS categorical exclusion for wildfire mitigation activities taking place on less than 100 acres. In one of the projects, Flagler County proposes hazardous fuels reduction activities across Flagler County at areas identified as follows: Daytona North Area, Rima Ridge Area, Woodlands Area, Belle Terre South Area, Lehigh Trail Area, Rymfire Area, Plantation Bay Area, SR100 Winn Dixie Area and Bulow Woods Area, all located in Flagler County, Florida, zip codes 32110, 32174, 32137, 32138, 32139 and 32136. The scope of work for this project is to conduct of hazardous fuel reduction and removal to reduce the wildfire threat to nearby structures within the wildland urban interface. In all areas, target activities include thinning vegetation, removing ladder fuels, and the vertical and horizontal clearance reduction of flammable vegetative materials. Project activities will include pruning, chipping, and mowing vegetation within the fuels reduction area. The area of vegetation management activities is estimated to include 74.3 acres. The second project proposes to create a firebreak in the Oslo Riverfront Conservation Area between 72 homes in the Forest Park subdivision. The area of the firebreak is approximately six acres and averages 125 feet wide. The project is in Vero Beach, FL 32962.

Cumulative impacts can be reduced, and project streamlining realized by (1) coordinating natural and cultural resource compliance review responsibilities with other Federal agency projects in the vicinity, (2) exploring multi-objective project opportunities, and (3) incorporating effective mitigation and long-term planning strategies.

SECTION 6: Public Involvement

The requirements of NEPA in regard to public involvement are outlined in 40 CFR 1506.6 and FEMA's NEPA regulation FEMA Directive 108-1. These require consideration of environmental information in federal decision making, obtaining information from the public regarding environmental concerns, fully assessing and disclosing potential environmental impacts resulting from the proposed action and alternatives, and providing the public with this information and allow it to comment on the findings.

The proposed action will be publicized during a 30-day public comment period in the local newspapers throughout the State. The public notice will also be made available to the public on FEMA's webpage and at select libraries statewide for 30-days. If no substantive comments are received, the Draft EA will become final and this initial Public Notice will also serve as the final Public Notice. Substantive comments will be addressed as appropriate in the final documents.

Projects that will be covered under this PEA have submitted individual public notices to their respective communities. The Palm Beach County Environmental Resource Management provided public noticing through their website on September 8, 2017. Indian River County published a public notice on the county's website on March 20, 2018. There were no comments received on either of the public notices.

Future projects that intend to utilize this PEA to meet NEPA requirements will be required to publish a project specific public notice within the projects' local jurisdiction. The public notice should be included in the packet submitted to FEMA so that it can be documented in the REC in EMIs and will be required prior to funding approval by FEMA.

SECTION 7: Agency Coordination

Coordination with the following agencies will take place prior to the final PEA being published:

- USFWS – North Florida Ecological Services Field Office
- USFWS – Panama City Ecological Services Field Office
- USFWS – South Florida Ecological Services Field Office
- U.S. Army Corps of Engineers, Panama City Permitting Office and the Jacksonville District
- Florida Department of Environmental Protection
- Florida Fish and Wildlife Conservation Commission
- Florida State Clearinghouse
- Florida Division of Historical Resources (SHPO)
- Alabama-Coushatta Tribe of Texas
- Alabama-Quassarte Tribal Town
- Jena Band of Choctaw Indians
- Mississippi Band of Choctaw Indians

- Miccosukee Tribe of Indians of Florida
- Muscogee (Creek) Nation
- Poarch Band of Creek Indians
- Seminole Tribe of Florida
- Seminole Nation of Oklahoma

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APPENDIX

Appendix A: Best Management Practices

Concern	BMPs	Source
Compaction	1. Perform skidding or yarding operations when soil conditions are such that soil compaction, displacement, and erosion would be minimized. 2. Suspend skidding or yarding operations when soil moisture levels could result in unacceptable soil damage. 3. Use low ground pressure equipment when practicable, particularly on equipment traveling over large portions of units with sensitive soils or site conditions.	**U.S. Forest Service:** National Best Management Practices for Water Quality Management on National Forest System Lands
Erosion	1. Establish designated areas for equipment staging and parking to minimize the area of ground disturbance. 2. Work with the contractor to locate landings, skid trails, and slash piles in suitable sites to avoid, minimize, or mitigate potential for erosion and sediment delivery to nearby waterbodies. 3. Develop an erosion control and sediment plan that covers all disturbed areas including skid trails and roads, landings, cable corridors, temporary road fills, water source sites, borrow sites, or other areas disturbed during mechanical vegetation treatments. 4. Avoid ground equipment operations on unstable, wet, or easily compacted soils and on steep slopes unless operation can be conducted without causing excessive rutting, soil puddling, or runoff of sediments directly into waterbodies. 5. Install suitable stormwater and erosion control measures to stabilize disturbed areas and waterways on incomplete projects before seasonal shutdown of operations or when severe storm or cumulative precipitation events that could result in sediment mobilization to waterbodies are expected. 6. Routinely inspect disturbed areas to verify that erosion and stormwater controls are implemented and functioning as designed and are suitably maintained.	**U.S. Forest Service:** National Best Management Practices for Water Quality Management on National Forest System Lands

Concern	BMPs	Source
	7. Implement mechanical treatments on the contour of sloping ground to avoid or minimize water concentration and subsequent accelerated erosion.	
Wetlands	1. Minimize skidder and other heavy equipment operation in wetlands during wet conditions to avoid widespread excessive soil rutting. 2. To the greatest extent possible: forestry operations in wetlands which exhibit seasonal inundation or saturation should be limited to dry conditions only, and forestry operations in wetlands which are continually saturated or inundated should be limited to low-water conditions. 3. When skidding in wetlands with organic soils, concentrate skid trails to as small an area as possible, and minimize the number of trails on a given site.	**Florida Forest Service:** Silviculture Best Management Practices Manual
Burrowing Animals	1. Maintain habitat features by carrying out activity on forest lands, such as harvesting (including thinning), site preparation, burning, etc. 2. Locate concentrated heavy equipment operations (e.g. log decks, landings, main skid trails, ramps, etc.) away from known and visibly apparent active burrows, and especially known concentrations of active burrows. If concentrated heavy equipment operations must be located in such areas: a) identify and mark burrows, b) avoid damage to the burrow opening, and c) avoid damage to the gopher tortoise burrow apron during the nesting season (May through September). 3. Advise heavy equipment operators to avoid direct contact year-round with all known and visibly apparent gopher tortoises and burrowing owls, as well as known and visibly apparent burrow aprons for tortoises during the period between May and September. When practical, minimize the use of heavy equipment during September and October when gopher tortoise hatchlings are more numerous and less visible due to their size during this time.	**Florida Forest Service**: Forestry Wildlife Best Management Practices for State Imperiled Species
Nesting Birds	1. Avoid heavy equipment operation (except for prescribed burning and related activities) within 330 feet of active, known and visibly apparent	**Florida Forest Service**: Forestry Wildlife Best

Concern	BMPs	Source
	Little Blue and Tricolored Heron rookeries (two or more nests) from February through May. 2. Avoid heavy equipment operation (except for prescribed burning and related activities) within 400 feet of active, known and visibly apparent Florida sandhill crane nests from February through May. 9 3. For southeast American kestrels, leave standing snags where they do not pose a safety issue, as per the Silviculture BMP Manual as incorporated in Rule 5I-6.002 F.A.C., and avoid damaging or felling known nest trees. 4. Avoid prolonged heavy equipment operation (generally in excess of one day), except for prescribed burning and related activities, within 490 feet of active, known and visibly apparent kestrel nests from March through June.	Management Practices for State Imperiled Species
Migratory Birds	1. Schedule all vegetation removal, trimming, and grading of vegetated areas outside of the peak bird breeding season to the maximum extent practicable. Use available resources, such as internet-based tools (e.g., the FWS's Information, Planning and Conservation System, Avian Knowledge Network, or the county's existing biological profiles) to identify peak breeding months for local bird species; or, contact local Service Migratory Bird Program Office for breeding bird information. 2. When project activities cannot occur outside the bird nesting season, conduct surveys prior to scheduled activity to determine if active nests are present within the area of impact and buffer any nesting locations found during surveys. 3. Prepare a vegetation maintenance plan that outlines vegetation maintenance activities and schedules so that direct bird impacts do not occur.	**U.S. Fish and Wildlife Service**: Nationwide Conservation Measures

Appendix B: Figures

Figure 1.2-1: ***Map of Tribal Lands within Florida***

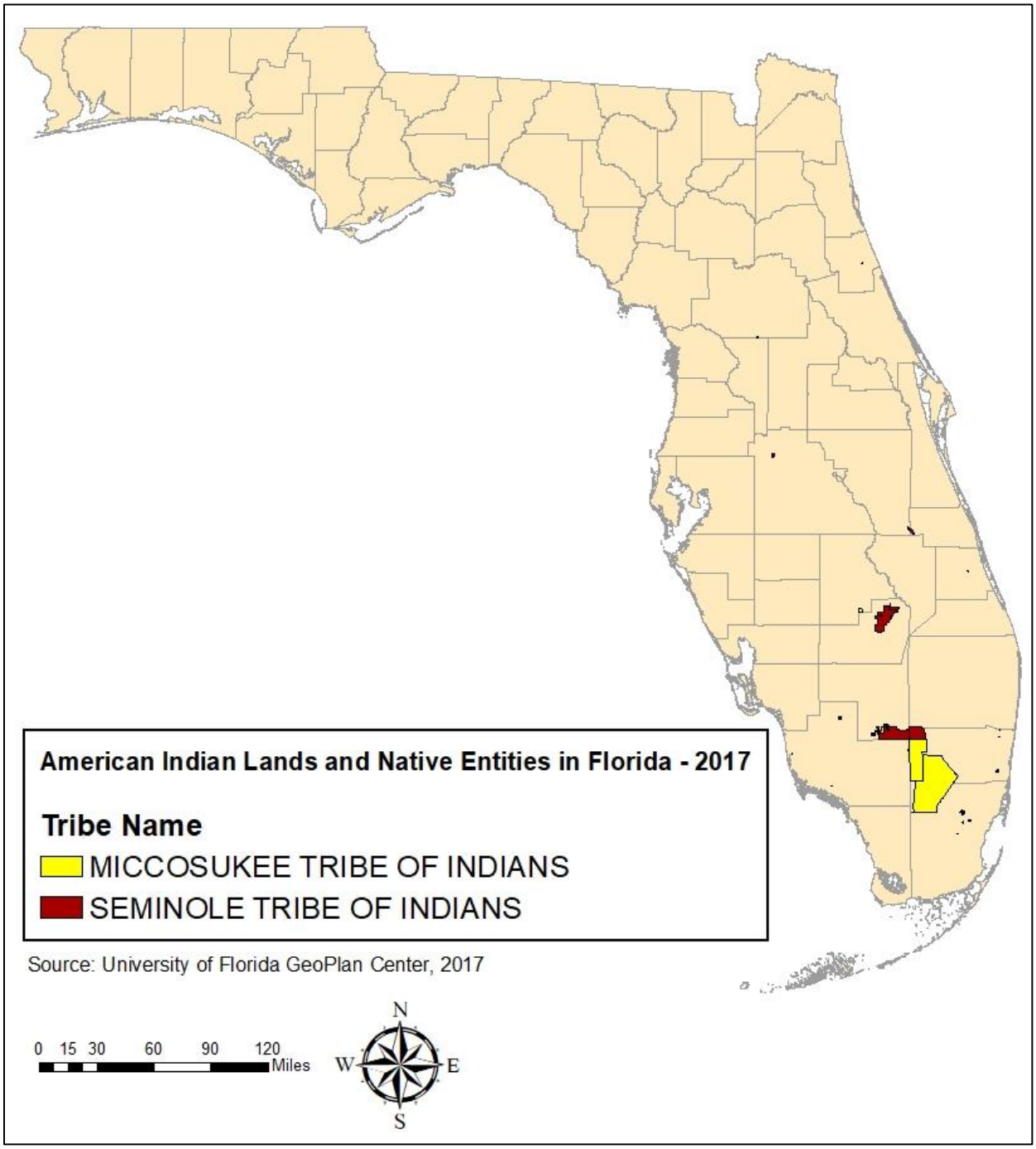


Figure 1.2-2: ***Map of Level III and IV Ecoregions in Florida***

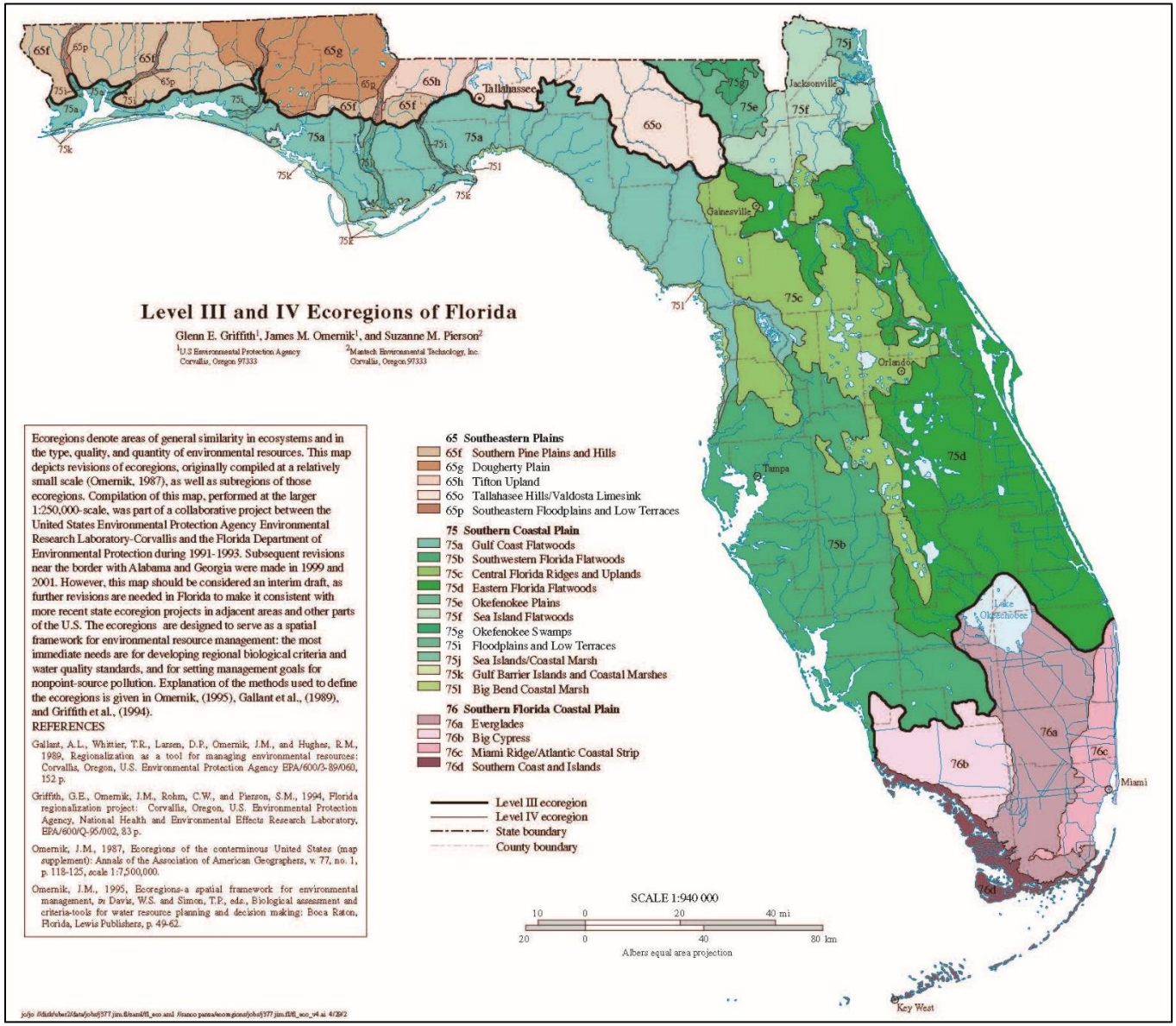


Figure 1.3-1: ***Map of Development in the Wildland-Urban Interface (WUI)***

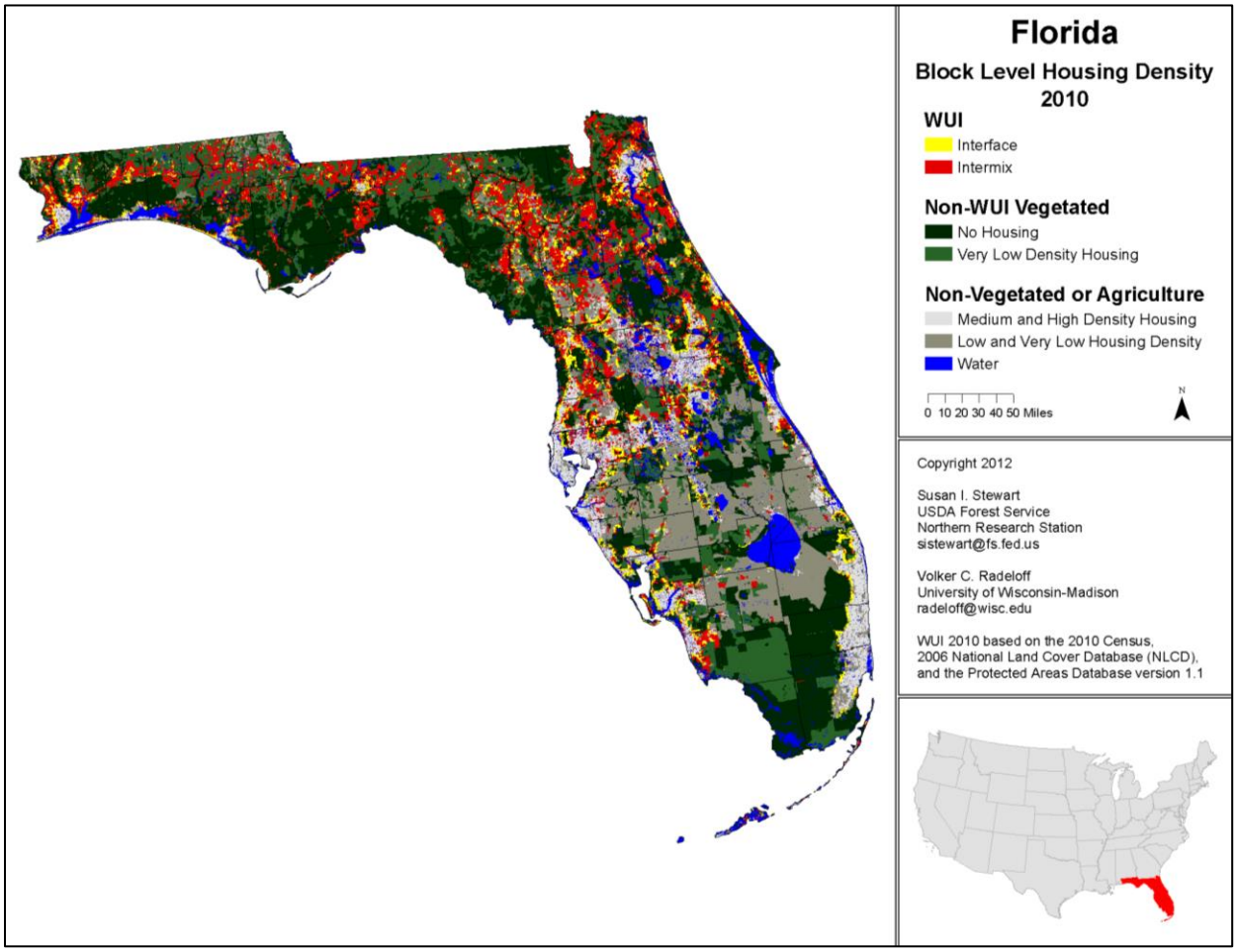


Figure 4.1-1: ***Map of Florida's Elevation***

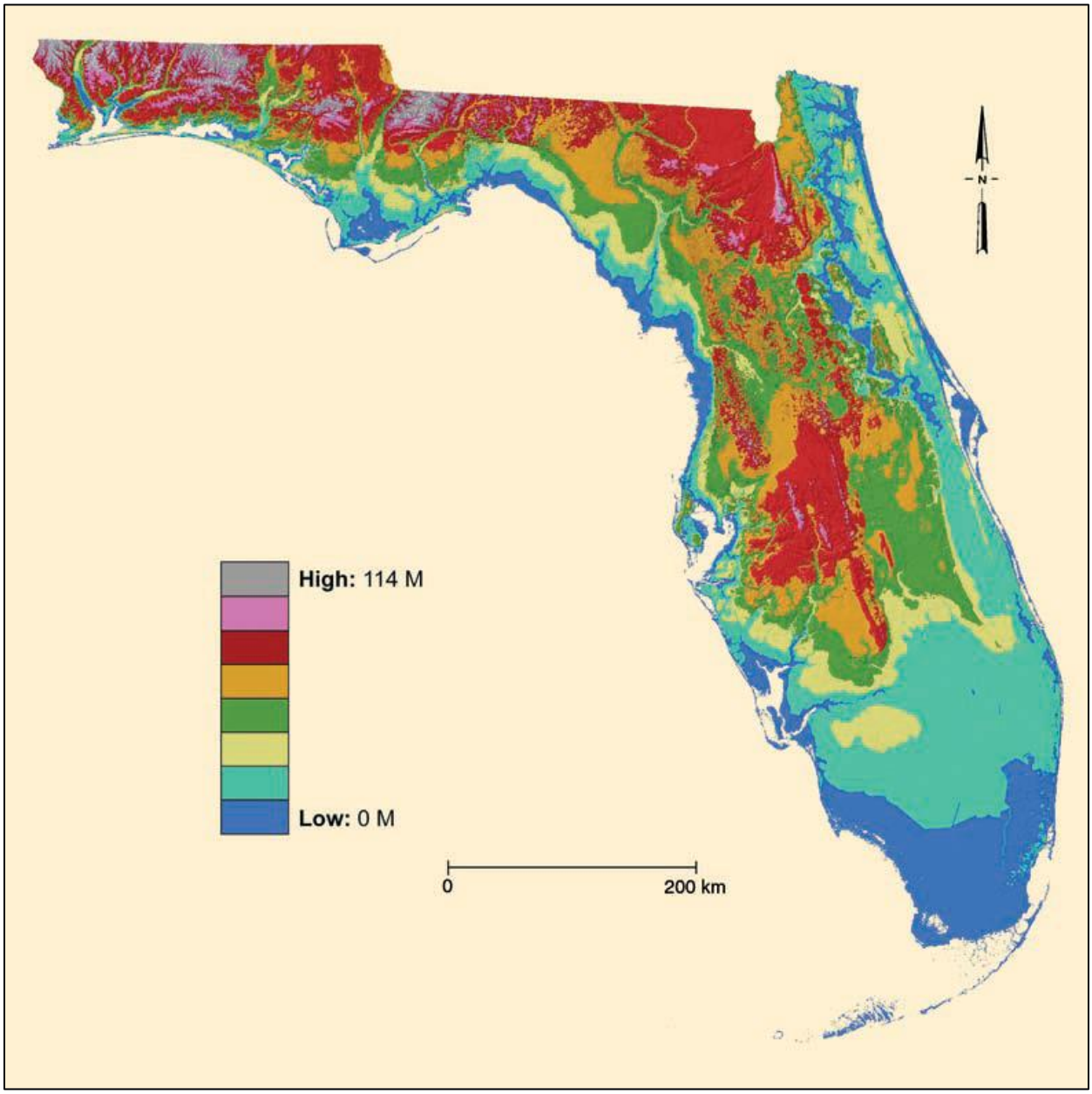


Figure 4.2-1: ***Effect of Mechanical Thinning vs. Mastication on Soil***

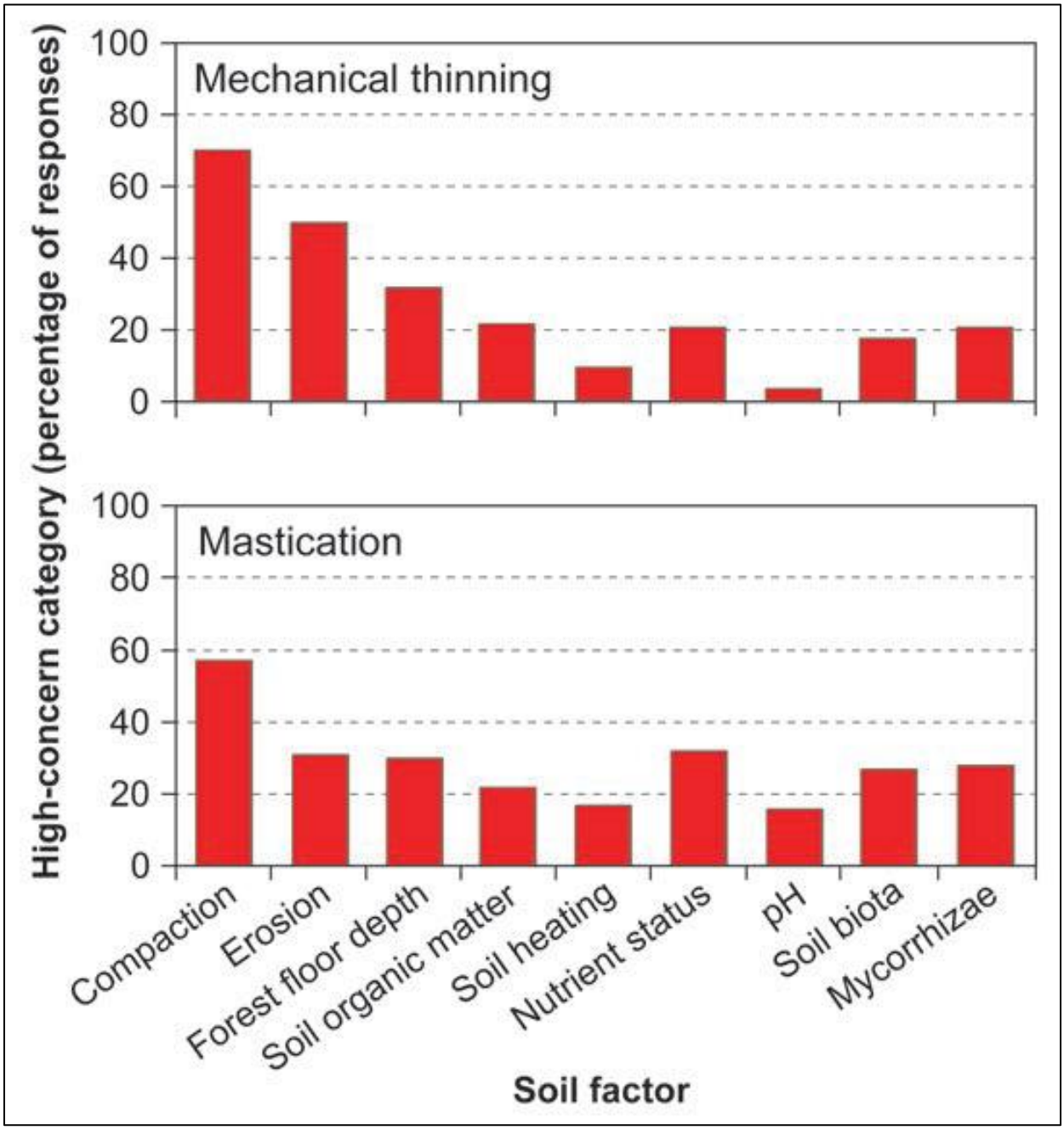


Figure 4.3-1: ***Map of Florida's Wetlands***

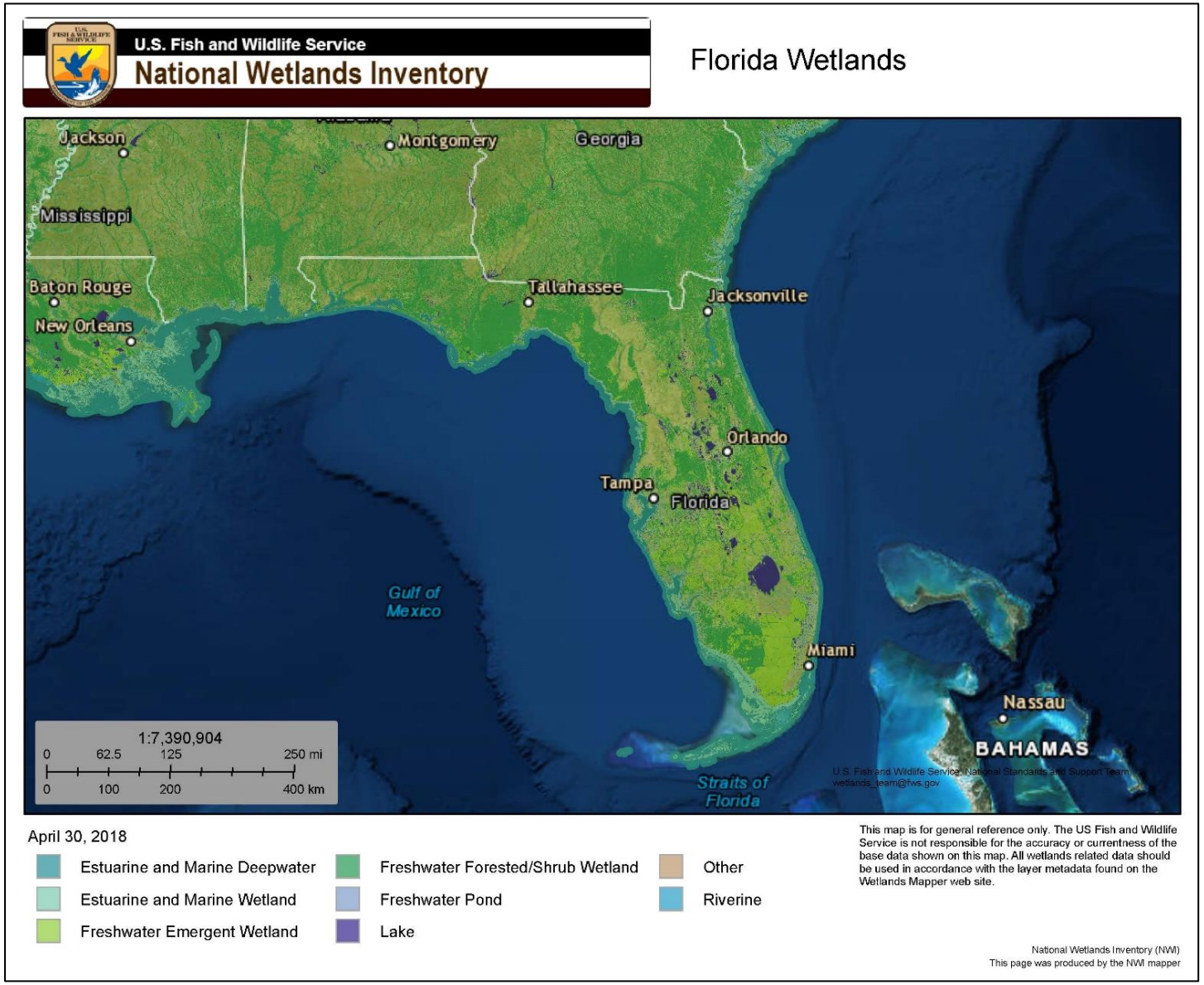


Figure 4.3-2: ***Florida's Five Water Management Districts***

Figure 4.4-1: ***Figure Depicting Special Flood Hazard Areas (SFHA)***

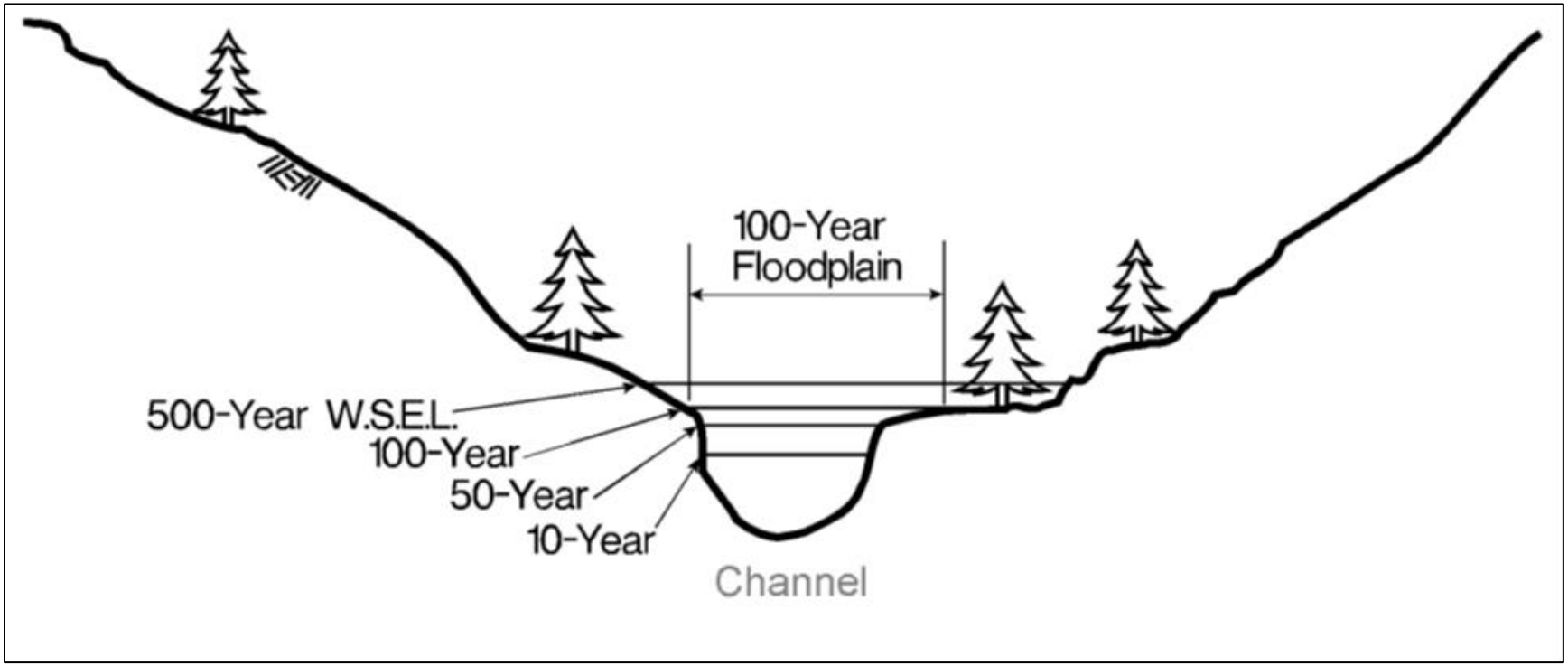


Figure 4.5-1: ***Map of Florida's FDEP Impaired Water Bodies***

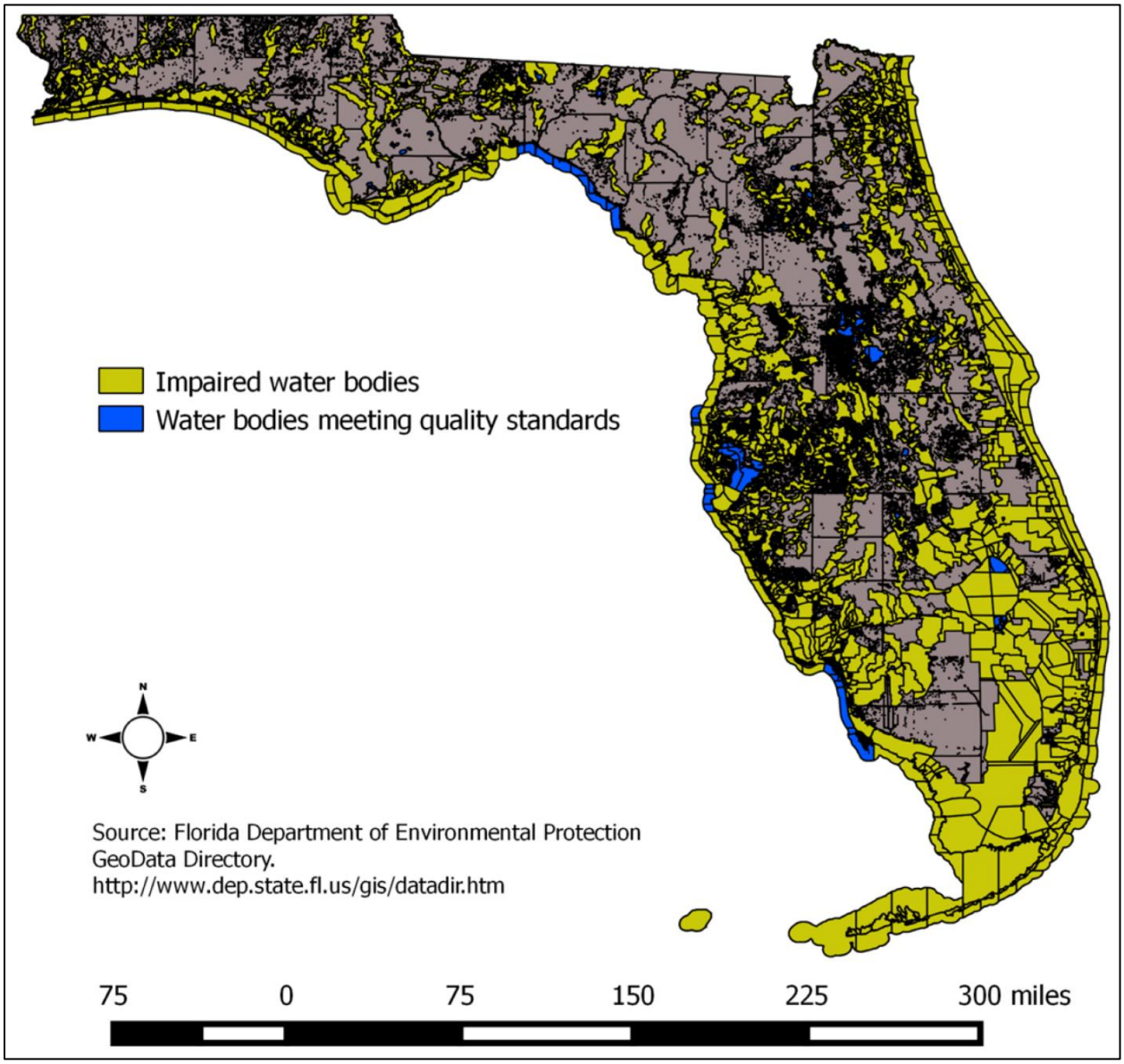


Figure 4.6-1: ***Map of Florida Counties with NAAQS Non-Attainment Areas***

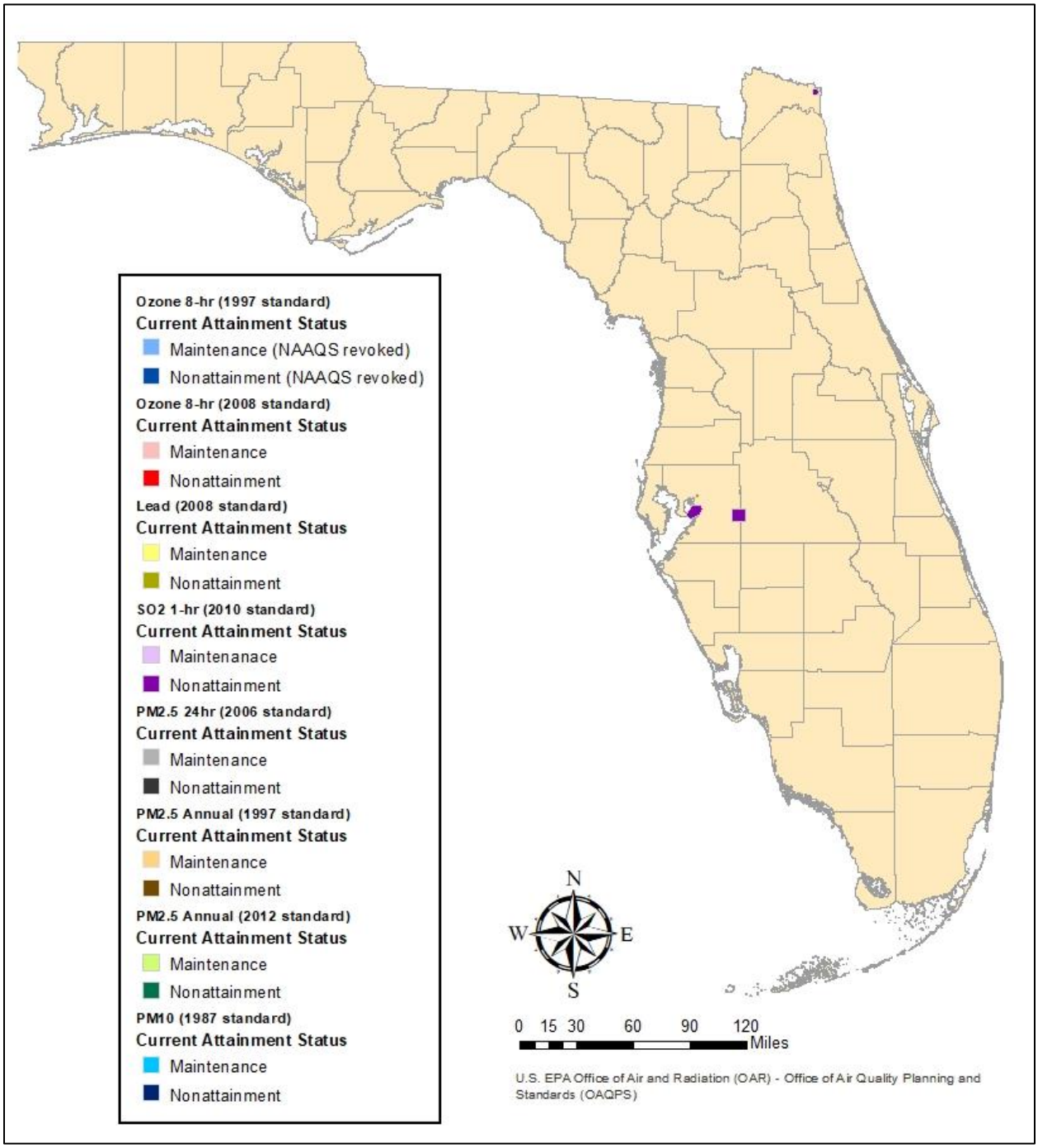


Figure 4.7-1: ***Map of Terrestrial Ecoregions in Florida***

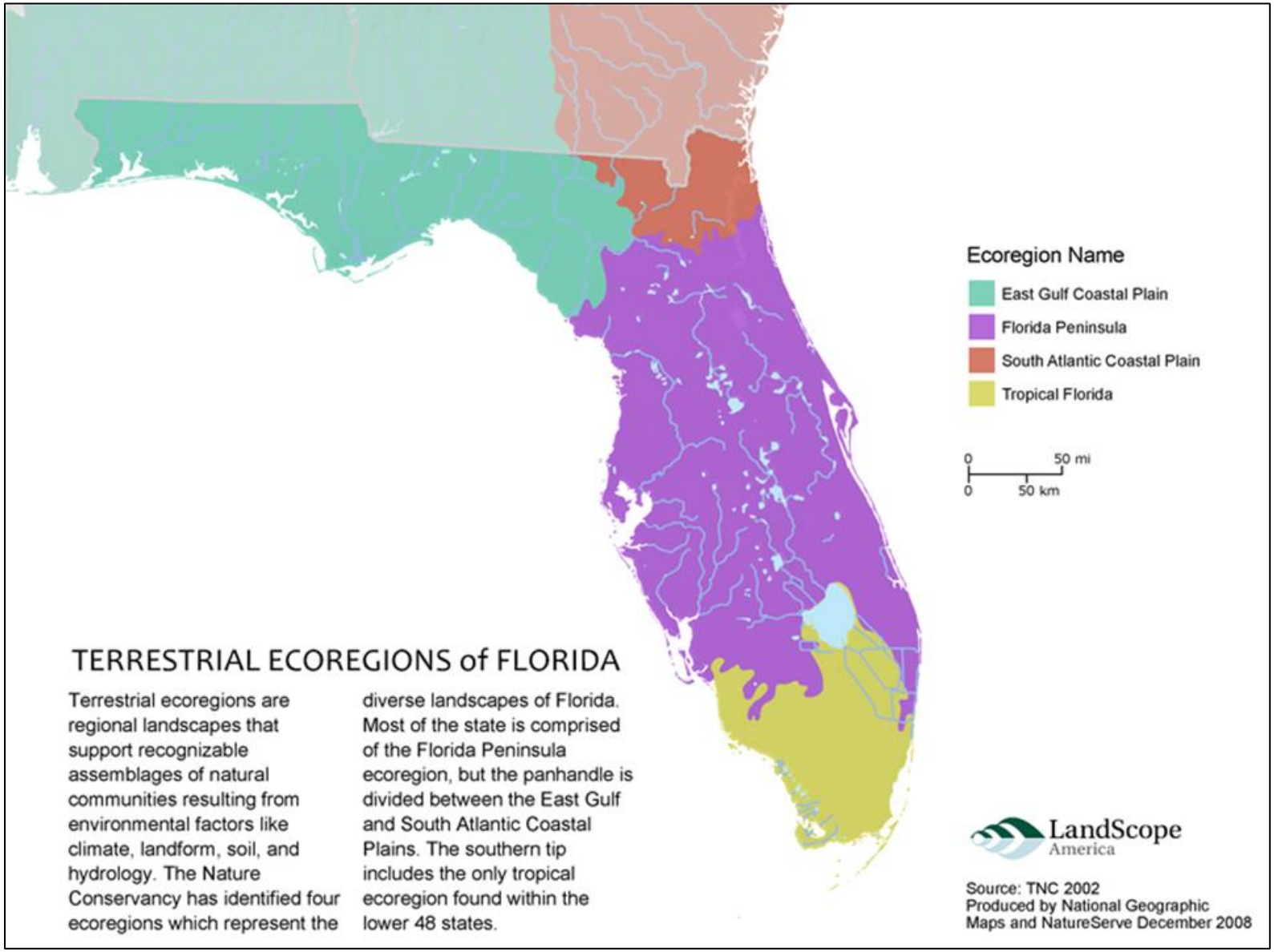


Figure 4.7-2: ***Map of Florida's Average Annual Precipitation***

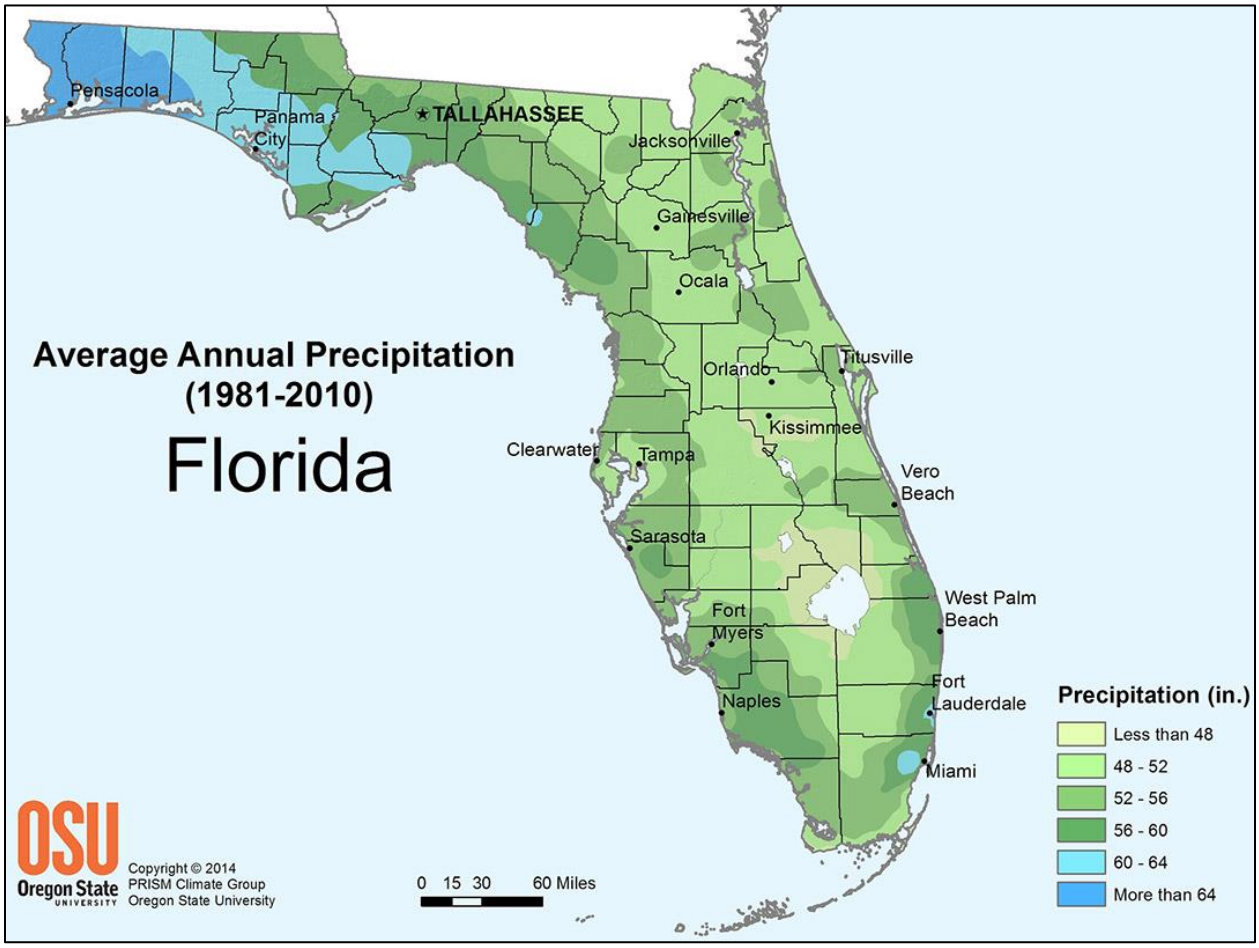


Figure 4.8-1: ***Map of Critical Habitat Designations within Florida***

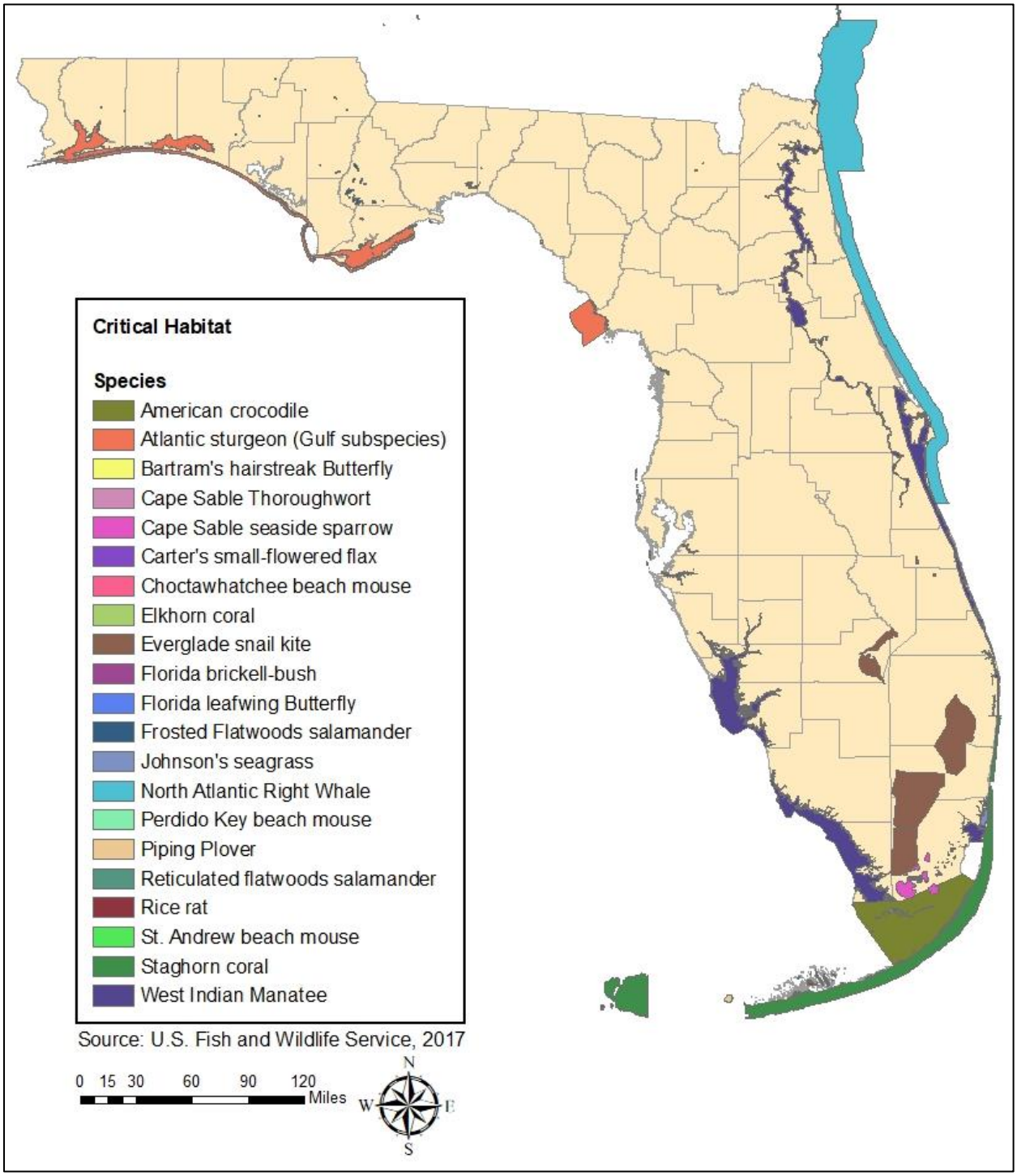


Figure 4.10-1: ***Map of FDEP Coastal Construction Control Line (CCCL)***

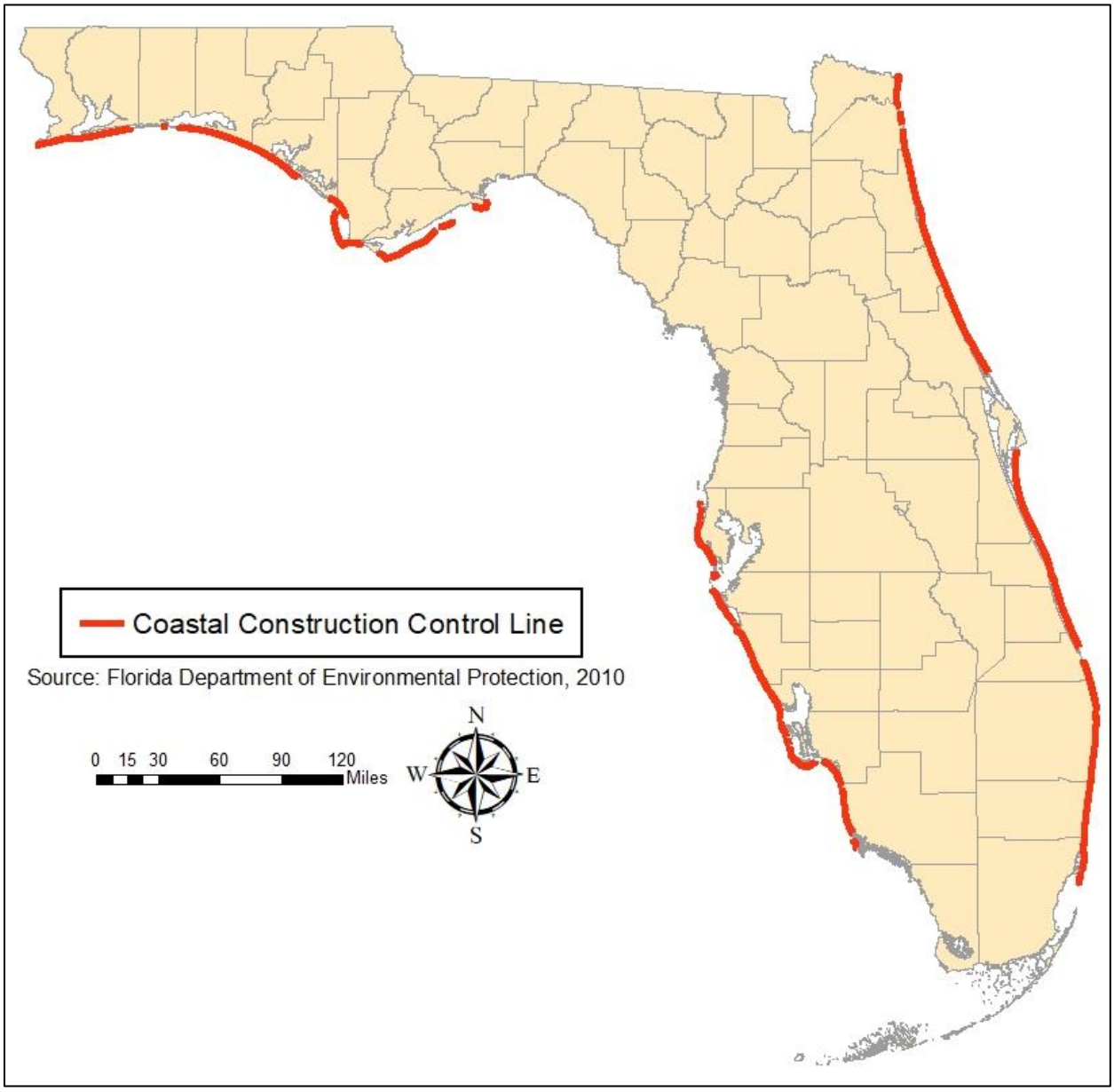


Figure 4.11-1: ***Map of John H. Chafee Coastal Barrier Resources System***

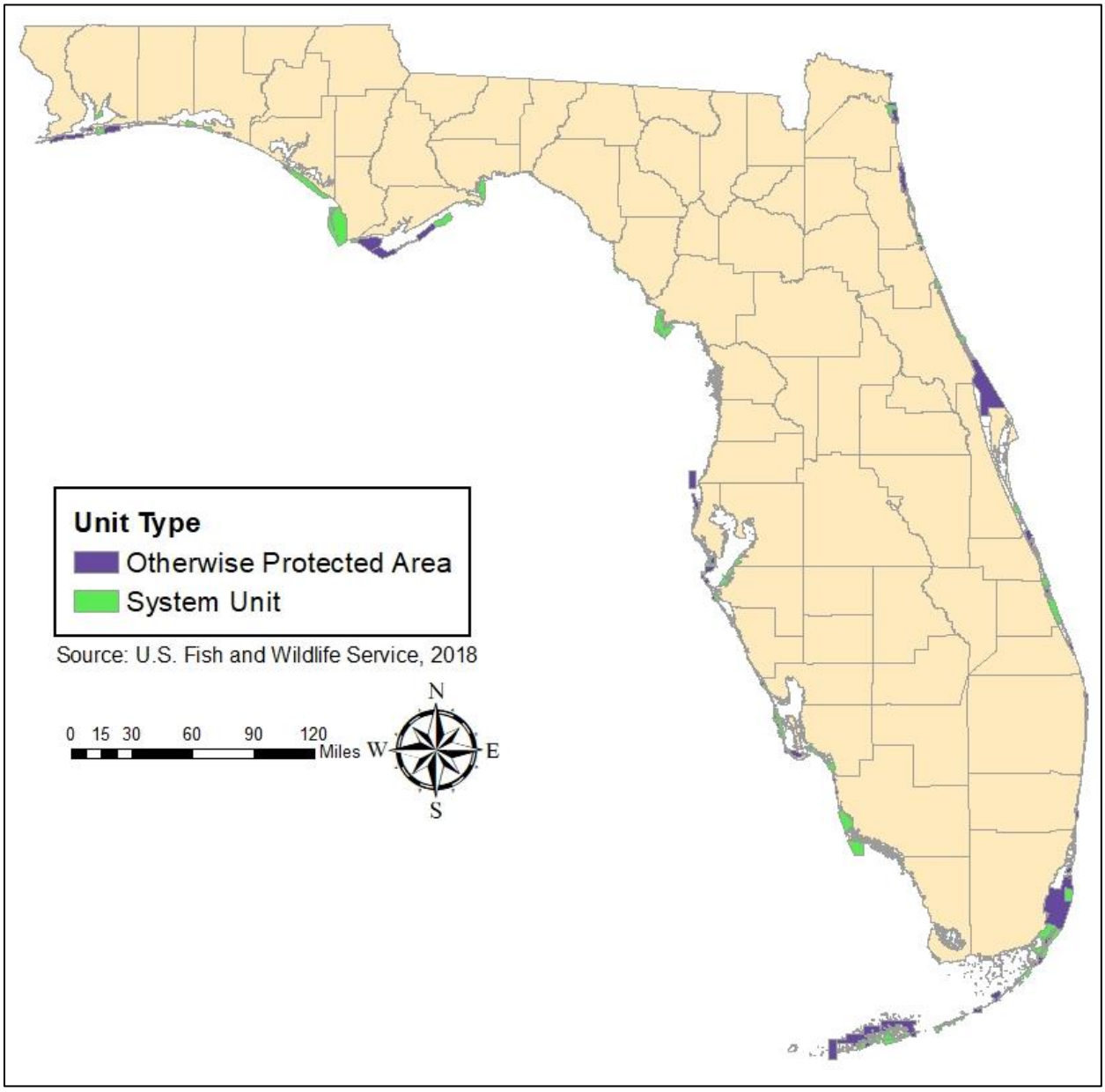


Figure 4.12-1: ***Map of National Register of Historic Places (NRHP) Listings in Florida***

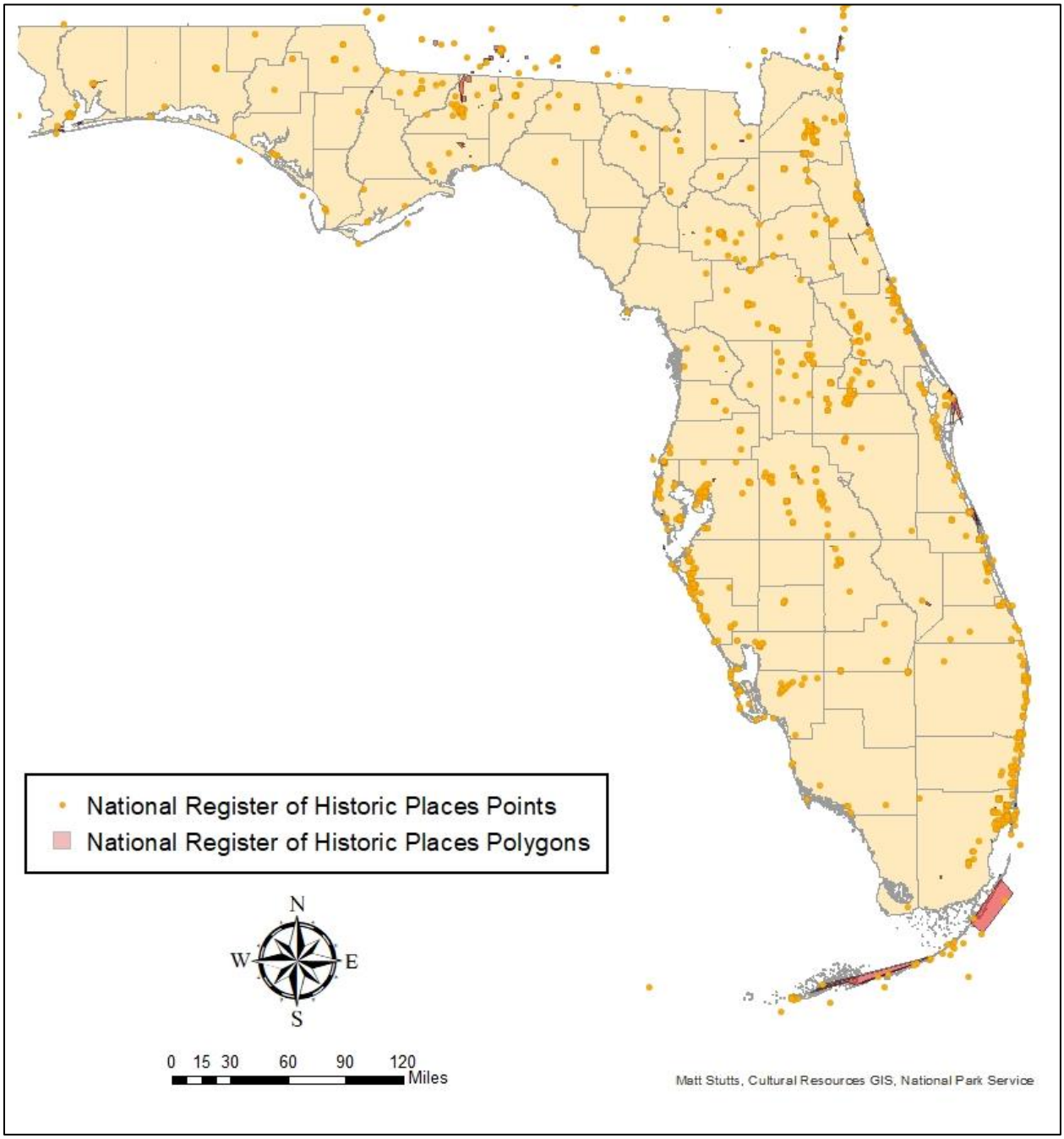


Figure 4.13-1: ***Map of Florida Counties with Large Minority Populations***

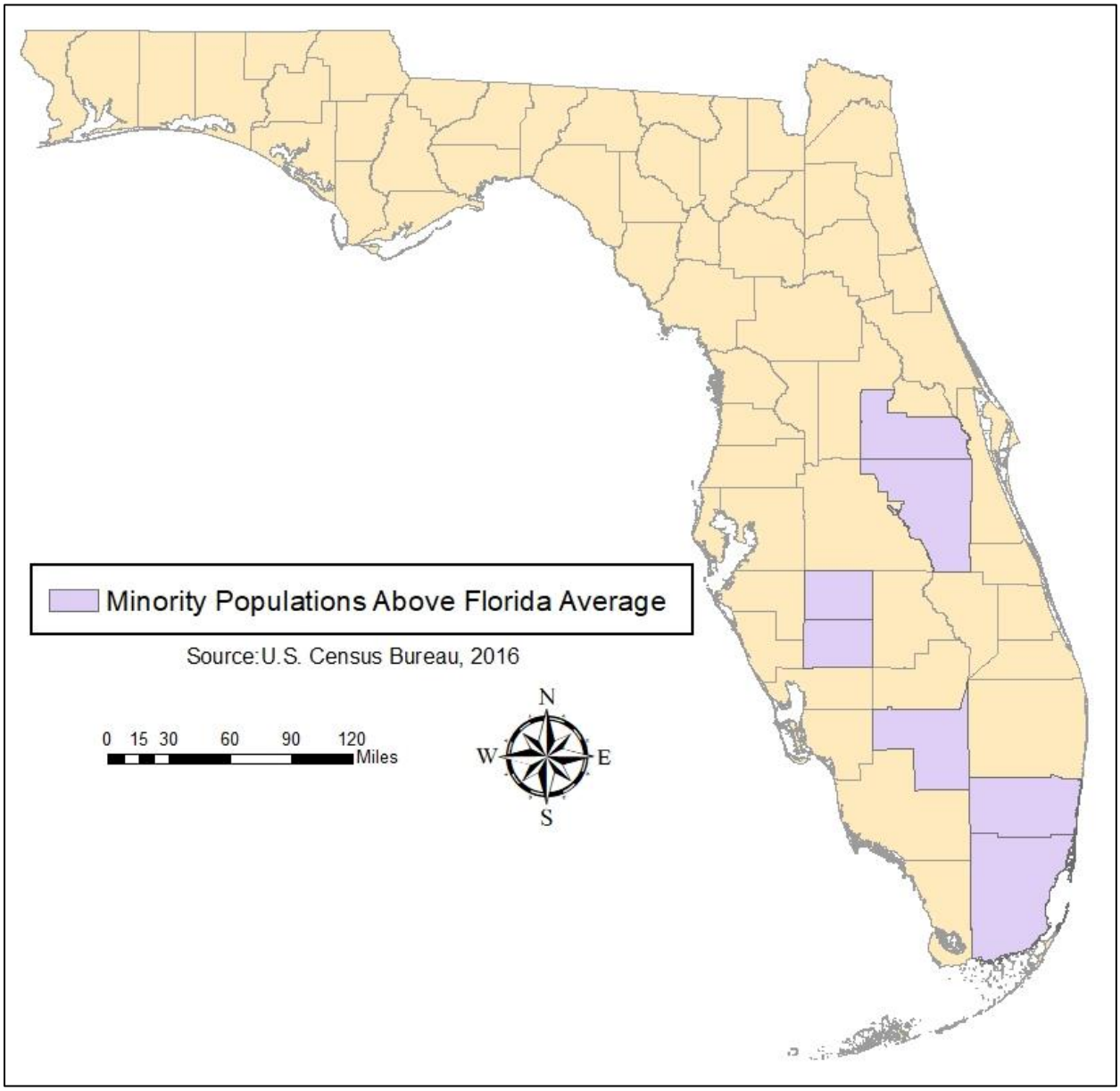


Figure 4.13-2: ***Map of Florida Counties with Large Low-Income Populations***

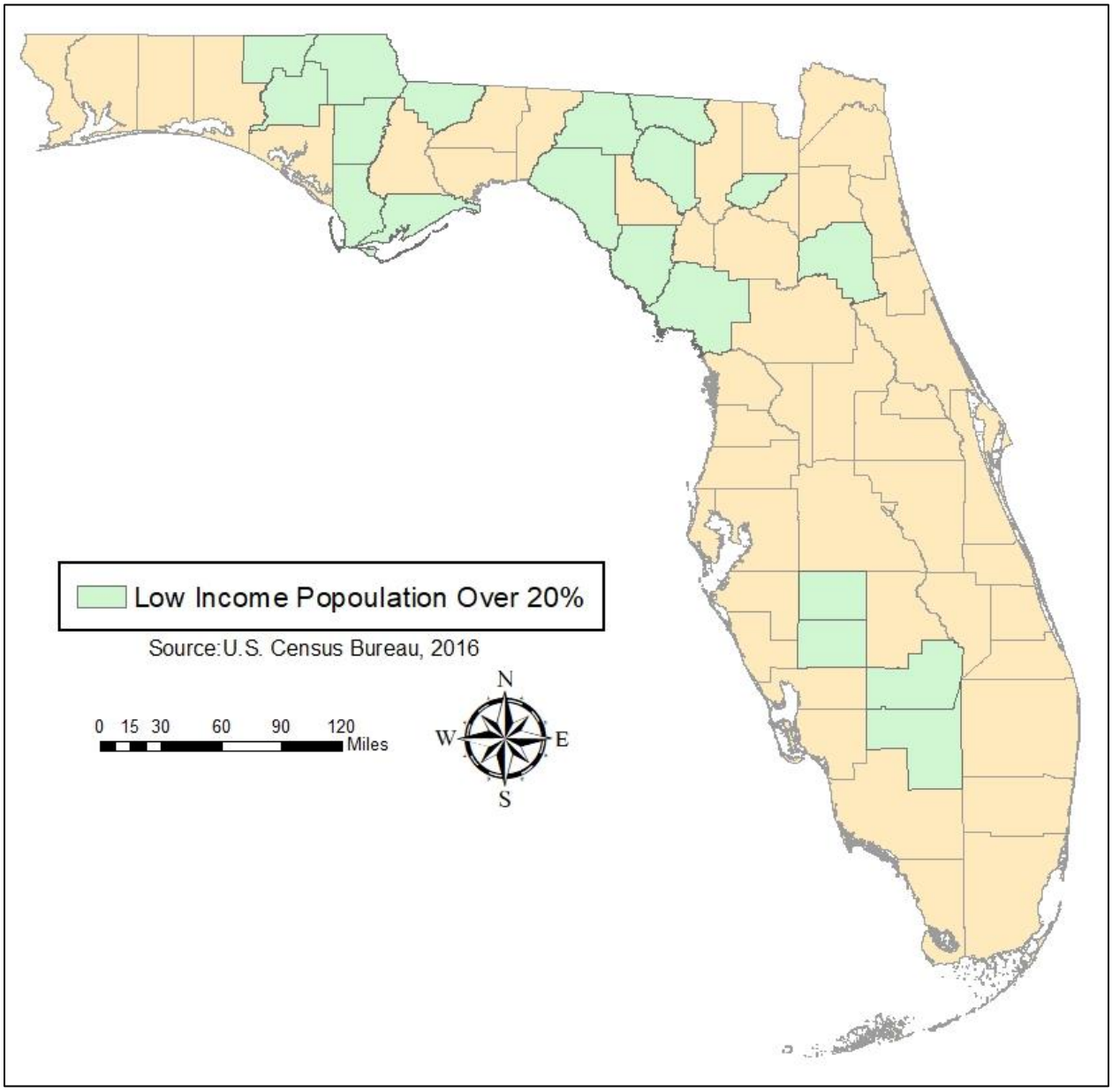


Figure 4.15-1: ***Map of Florida's State Highway System***

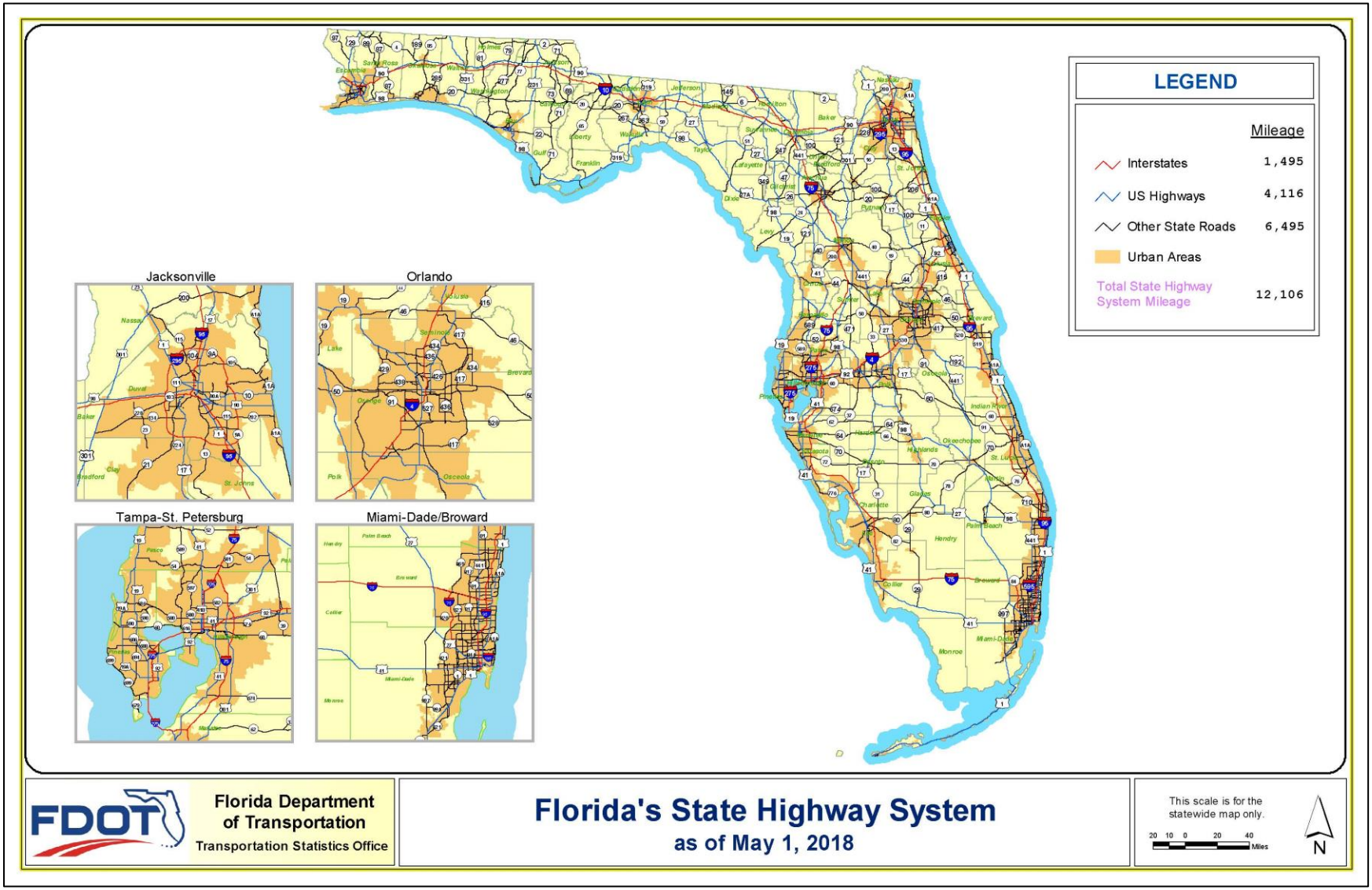
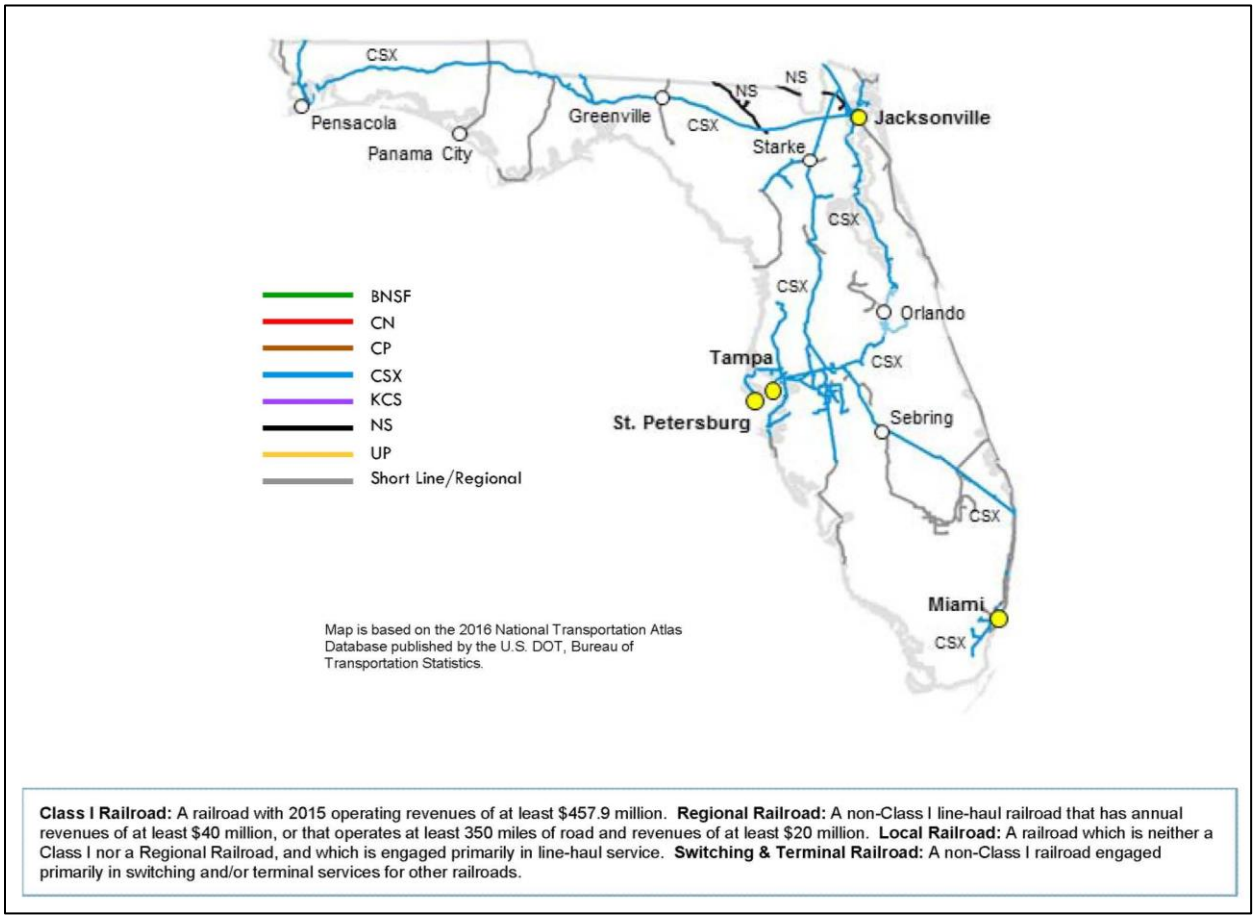


Figure 4.15-2: ***Map of Florida's Roadroad System***



Class I Railroad: A railroad with 2015 operating revenues of at least $457.9 million. **Regional Railroad:** A non-Class I line-haul railroad that has annual revenues of at least $40 million, or that operates at least 350 miles of road and revenues of at least $20 million. **Local Railroad:** A railroad which is neither a Class I nor a Regional Railroad, and which is engaged primarily in line-haul service. **Switching & Terminal Railroad:** A non-Class I railroad engaged primarily in switching and/or terminal services for other railroads.

Figure 4.19-1: ***Map of Florida's Superfund Cleanup Areas***

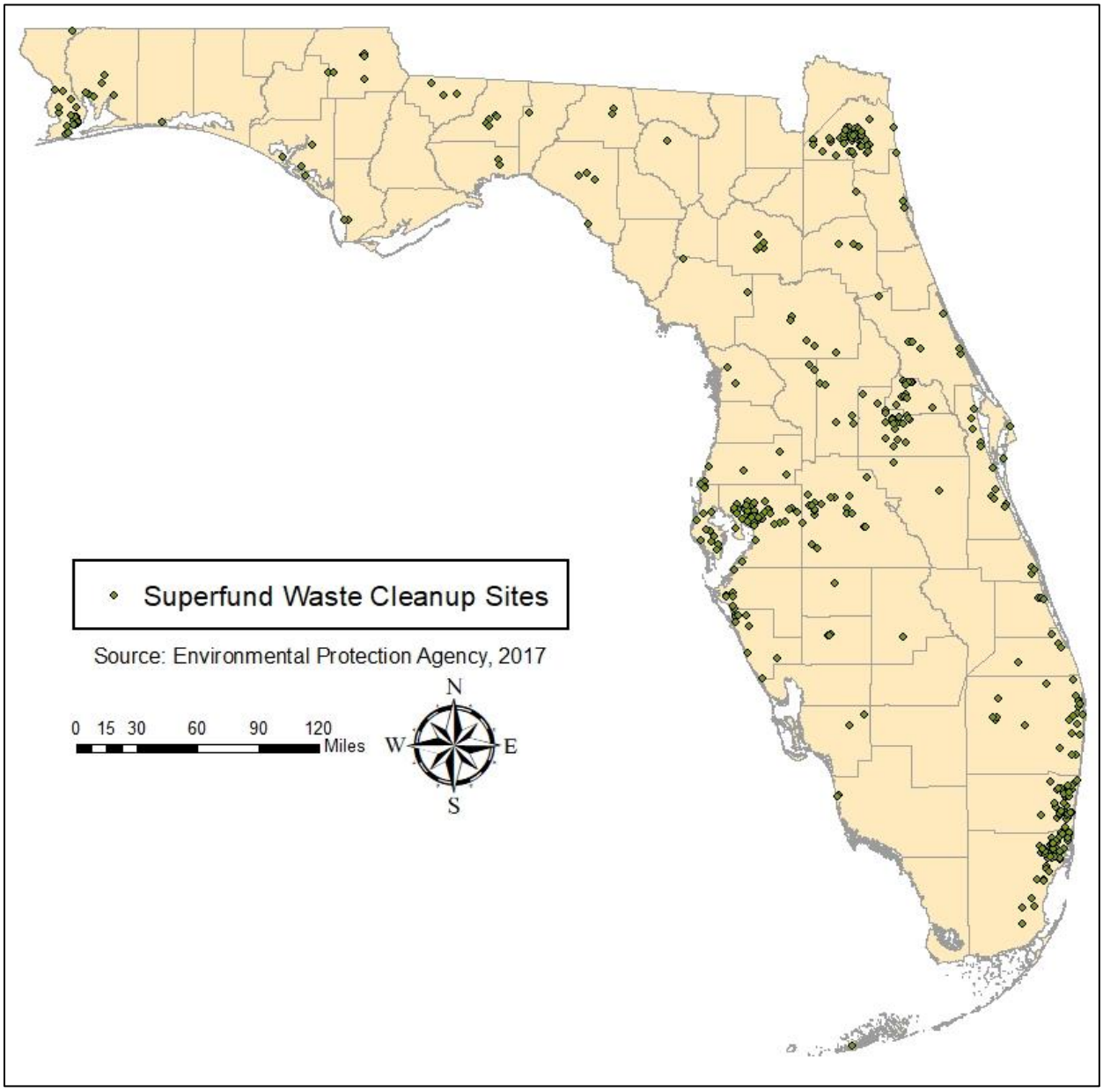
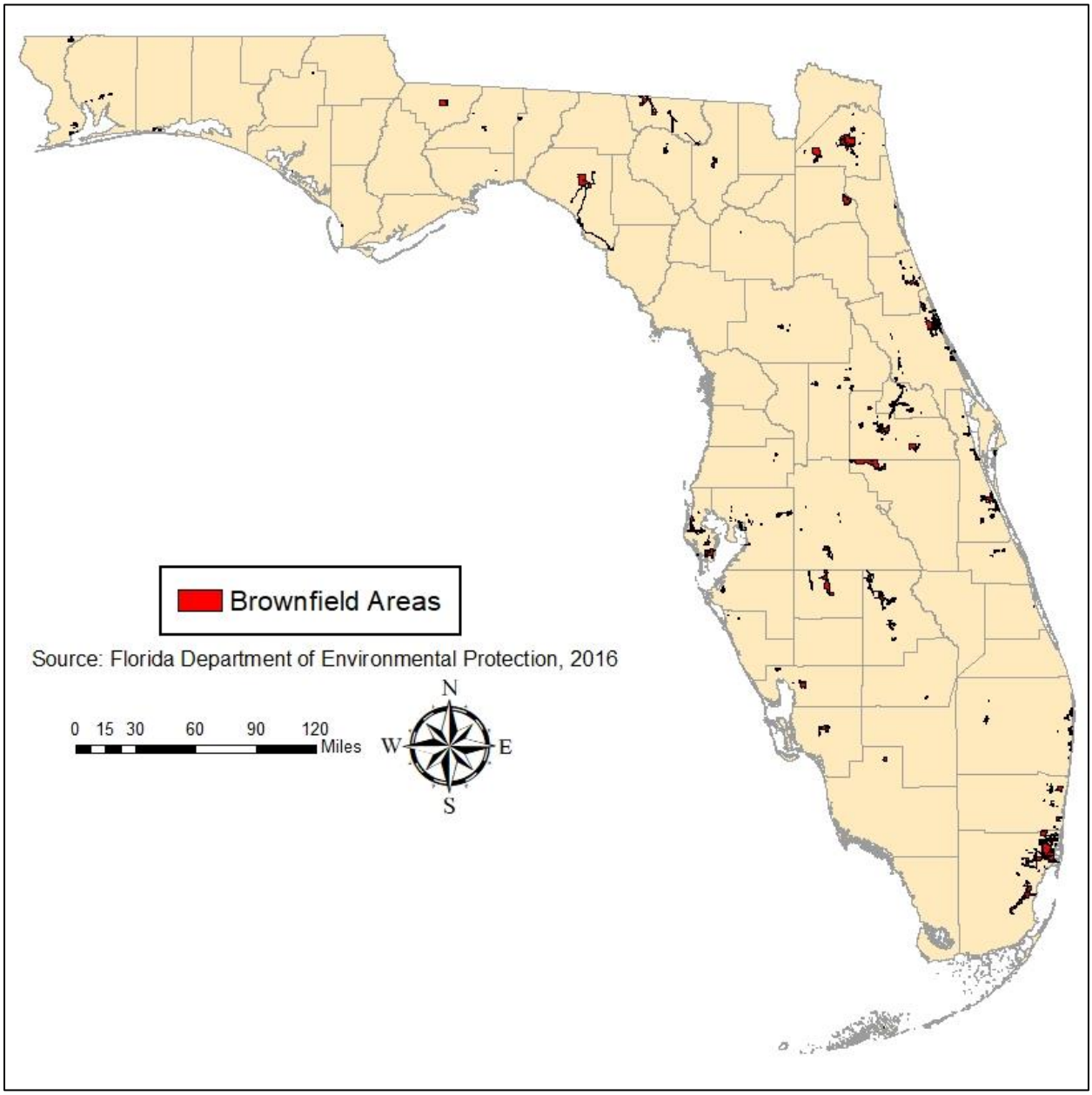


Figure 4.19-2: ***Map of Florida's Brownfield Cleanup Areas***



Appendix C: USFWS Species List

Appendix D: FWC Imperiled Species Management Plan