Programmatic Environmental Assessment
U.S. Virgin Islands Housing Actions
St. Croix, St. John, and St. Thomas

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U.S. Department of Homeland Security
Federal Emergency Management Agency Region 2
26 Federal Plaza, NY, NY 10278

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LIST OF ACRONYMS

ADA	Americans with Disabilities Act
APE	Area of Potential Effects
BCC	Birds of Conservation Concern
BMPs	Best Management Plans
CAA	Clean Air Act
CBRA	Coastal Barrier Resources Act
CBRS	Coastal Barrier Resources System
CDBG-DR	Community Development Block Grant Disaster Recovery Program
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
CZMP	Coastal Zone Management Plan
dBA	A-weighted Decibel
DCH	Designated Critical Habitat
DHS	U.S. Department of Homeland Security
DOH	[USVI] Department of Health
DPNR	[USVI] Department of Planning and Natural Resources
DPW	[USVI] Department of Public Works
EA	Environmental Assessment
EFH	Essential Fish Habitat
EMS	Emergency Medical Services
EO	Executive Order
ESA	Endangered Species Act
ESA	Environmental Site Assessment
FEMA	Federal Emergency Management Agency
FPPA	Farmland Protection Policy Act
FHA	Federal Highway Administration
FONSI	Finding of No Significant Impact
HMA	Hazard Mitigation Assistance Program
HUD	U.S. Department of Housing and Urban Development
HUD-RE	HUD Responsible Entities
IPaC	Information for Planning and Consultation
L_{dn}	Day Night Noise Level
Leq	Equivalent Sound Level
MBTA	Migratory Bird Treaty Act

MSD	Marine Safety Detachment
MOU	Memorandum of Understanding
NAAQS	National Ambient Air Quality Standards
NCA	Noise Control Act
NEHA	National Environmental Health Association
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NPL	National Priority List
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
ONAC	Office of Noise Abatement and Control
OPAs	Otherwise Protected Areas
OSHA	Occupational Safety and Health Act
PA	[FEMA's] Public Assistance program
PEA	Programmatic Environmental Assessment
PPE	Personal Protective Equipment
PSD	Prevention of Significant Deterioration
RCRA	Resource Conservation and Recovery Act
ROI	Region of Influence
SFHA	Special Flood Hazard Area
SOW	Scope of Work
SPL	Sound Pressure Level
sq. mi.	square miles
SWPPP	Stormwater Pollution Prevention Plan
TMDLs	Total Maximum Daily Loads
TPDES	Territorial Pollutant Discharge Elimination System
USACE	United States Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
U.S.C.	United States Code
USDA	U.S. Department of Agriculture
USDOT	U.S. Department of Transportation
USFWS	U.S. Fish and Wildlife Service
USVI	United States Virgin Islands
V.I.C.	Virgin Island Code
VIEMS	Virgin Islands Office of Emergency Medical Services

VIHA	Virgin Islands Housing Authority
VIHFA	Virgin Islands Housing Finance Authority
VIPA	Virgin Islands Port Authority
VISHPO	Virgin Islands State Historic Preservation Office
VITRAN	Virgin Islands Public Transit System
VIWMA	Virgin Islands Waste Management Authority
WAPA	[Virgin Islands] Water and Power Authority

1.0 INTRODUCTION

The Federal Emergency Management Agency (FEMA) makes federal assistance available to state, local, tribal, and territorial governments, and certain private nonprofit entities under the Public Assistance (PA) and Hazard Mitigation Assistance (HMA) Programs. In September 2017, hurricanes Irma and Maria caused significant damage to the United States Virgin Islands (USVI). President Donald Trump issued one disaster declaration (DR-4335-VI) for Irma on September 7, and another one (DR-4340-VI) for Maria on September 20 encompassing the entire territory. The declarations authorized federal assistance to affected communities and certain non-profit organizations under the PA and HMA Programs in accordance with the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1974 (42 United States Code [U.S.C.] § 5172), as amended. The declaration also authorized direct federal assistance.

This Programmatic Environmental Assessment (PEA) is prepared in accordance with Section 102 of the National Environmental Policy Act (NEPA) of 1969, as amended; the Regulations for Implementation of the National Environmental Policy Act (40 Code of Federal Regulations [CFR] Parts 1500 to 1508); the Council on Environmental Quality (CEQ) regulations implementing NEPA (Title 50 CFR §§ 1500-1508); Department of Homeland Security (DHS) Instruction Manual 023-01-001-01, Revision 01, *Implementation of the National Environmental Policy Act*; *FEMA Directive 108-1: Environmental and Historic Preservation Responsibilities and Program requirements*; and *FEMA Instruction 108-1-1: Instruction on Implementation of the Environmental Planning and Historic Preservation Responsibilities and Program Requirements*. The Virgin Islands Territorial Emergency Management Agency is the recipient for FEMA grant actions and the Virgin Islands Housing Authority (VIHA) is FEMA's subrecipient; the Virgin Islands Housing Finance Authority (VIHFA) is the Housing and Urban Development (HUD) Responsible Entity.

1.1 Use of this Programmatic Environmental Assessment

FEMA reviews project proposals at the lowest NEPA level appropriate to the action in accordance with 40 CFR 1500 – 1502 and the FEMA Instruction, evaluating projects under applicable statutory or categorical exclusions first, while also satisfying other applicable compliance reviews. FEMA uses PEAs to evaluate types of activities in advance of having complete project applications, to address potential extraordinary circumstances in groups of activities, and to focus on future NEPA concerns that have greater potential impacts. When FEMA has project-specific scopes of work, FEMA evaluates them in similar order of NEPA levels, those that fall within the limits established in this PEA, will conclude the review process with applicable consultations, documented in a record of environmental consideration as part of the grant package. FEMA evaluates project proposals that otherwise meet this PEA but exceed the impacts or scale of this document and determine if the action requires a focused Environmental Assessment (EA) tiered from this PEA or a separate project-specific EA. In accordance with the Sandy Recovery

Improvement Act of 2013, as amended (P.L. 113-2), other federal agencies or agencies assuming federal NEPA authority, like HUD Responsible Entities (HUD-RE), may choose to adopt this PEA, in whole or in part, according to their respective regulations. This PEA includes some activities that have already been reviewed on individual projects by one or both agencies and looks toward greater consistency in project reviews and to anticipate project proposals not yet received.

2.0 PURPOSE AND NEED

The purpose of any potential actions or types of activities considered here is to restore the function of the public housing infrastructure in the USVI to meet post-disaster function, capacity, and needs. These potential actions or types of activities will occur during the period of USVI recovery from hurricanes Maria and Irma to will incorporate resiliency measures and codes and standards upgrades. Restoring infrastructure to an improved pre-disaster condition and increasing community resiliency to storms will improve health in these communities. Increased community resiliency that improves community health will indirectly reduce poverty, thereby facilitating better economic conditions and equity on the islands. This PEA considers combined funding sources and alternate or improved actions through FEMA funding and Community Development Block Grant Disaster Recovery Program (CDBG-DR) funds, Low-Income Housing Tax Credits, and other applicable HUD funding. It addresses actions for a series of anticipated construction activities identified as potentially exceeding the available FEMA and DHS Categorical Exclusions thresholds. The subrecipient's focus includes creating new and transforming existing communities by incorporating resilient building methods, ensuring long-term financial sustainability, and connecting residents with social and economic resources.

Safe homes and neighborhoods do more than just provide the basic human need for shelter. Stable, affordable housing fosters an environment where children attend school without the disruption of frequent, unwanted moves; employment becomes possible and remains steady; affordability allows for household funds to be available for other necessities, such as food and healthcare, as well as allowing the surrounding community's economy to better thrive. Healthy homes, free from potential toxins, such as asbestos and lead-based paint, stress, and chance for infectious disease spread, such as uncontrolled pests or high concentrations of people in large developments, allow people to work and study with fewer absences.

The need for these potential actions or types of activities is to address the shortfalls in existing conditions within public housing. The subrecipient is focused on creating a better future for individuals and the communities of the USVI to address these needs. The current conditions include a shortfall of affordable housing units; poverty exacerbated by outdated designs and building codes; poor locations relative to proximity to locations, such as work, school, food, and healthcare; exposure to impacts from storms and disaster events; disrepair from insufficient maintenance; and damage due to impacts from future events where the latter two conditions may lead to impacts on resident health and subsequent economic conditions on the islands, including

tourism. Additionally, future proposed actions will meet Section 504 of the Rehabilitation Act of 1973, as amended, requiring that at least 5% of housing units be accessible for persons with mobility disabilities and 2% of the housing units be accessible for persons with hearing or visual disabilities.

3.0 BACKGROUND

The USVI is comprised of the main islands St. Croix, St. John, and St. Thomas and dozens other surrounding minor islands and cays. The total land area of the territory is 133.73 square miles (sq. mi.). Tourism is the USVI's biggest industry responsible for about 60% of the gross domestic product. The remaining sectors include agriculture, manufacturing, and rum production.

The subrecipient owns and manages approximately 3,000 public housing units on St. Croix and St. Thomas and administers approximately 2,029 housing choice vouchers. The agency is responsible for planning, financing construction, maintaining, and managing public housing developments on St. Croix and St. Thomas, which comprise nearly 15% of the total territorial housing stock.

Since the USVI suffered impacts of back-to-back category five hurricanes, Irma and Maria, with the resulting aftermath, Congress appropriated funds to the CDBG-DR and directed HUD to allocate these funds to address recovery needs. HUD published 84 FR 45838 on August 30, 2019 (CDBG-MIT Main Notice) which allocated CDBG Mitigation funds and 84 FR 47528 (USVI Supplemental Notice) which allocated funds and provided specific guidance to the USVI. The Government of the USVI, in consultation with local territorial government agencies, semi-autonomous agencies, authorities, and community stakeholders, plus U.S. governmental representatives developed an Action Plan from the Mitigation Main Notice. The Action Plan indicates a review of existing data to identify risks posed by natural hazards to identify the mitigation needs that can and should be addressed within the Territory. These efforts align with the Territory Hazard Mitigation Plan, which meets FEMA requirements.[1]

In 2021, USVI and Puerto Rican leadership in disaster recovery, housing, healthcare, and other infrastructure agencies met to discuss the five-year plan for recovery necessitated by the destructive forces of the 2017 hurricanes Irma and Maria, resulting in the USVI Recovery Leaders' Summit Report.[2] A public housing crisis loomed even before the hurricanes. Older, outdated homes no longer met the needs of today's smaller families. Overly large developments with too many units, created concentrated areas of poverty. Lack of local public transportation prohibits some people from entering the workforce. The locations of the developments are sometimes undesirable, and some have become crime ridden. This has led to isolation of public housing

[1] Virgin Islands Housing Finance Authority, 2021
[2] USVI Office of Disaster Recovery, 2021

residents with few opportunities to interact socially with people from surrounding communities. The hurricanes intensified the already declining conditions by damaging 85% of the available public housing, displacing the residents and creating a shortage of available, affordable housing to USVI residents. Non-resident recovery workers worsened the situation with sudden and extensive requirement for housing.[2]

The subrecipient is implementing a 10-year Affordable Housing Revitalization Plan, developed in 2020. The subrecipient will accomplish this plan by leveraging funds from several federal and private agencies including: CDBG-DR or Low-Income Housing Tax Credit with HUD; FEMA PA and HMA funds; and gap financing through federal home loan grants and private financing.[2] FEMA and HUD as the federal agencies have been coordinating with each other and the subrecipient to understand the full revitalization plan and strategize the completion of a unified federal review that addresses the needs of both agencies. VIHFA, HUD, VIHA, and FEMA determined that a holistic approach works best when considering housing actions in the Housing Revitalization Plan during an August 2021 meeting, leading to this PEA. Challenges, such as time constraints due to specific deadlines of all the funding sources used to execute the Housing Revitalization Plan, further support the need for a programmatic review of the housing actions and require consistent coordination between agencies. VIHFA, designated to complete the HUD Environmental review records (ERR), continuously shares the ERRs of properties funded by both federal agencies with FEMA and FEMA subsequently shares their environmental reviews with VIHFA and HUD.

This 10-year Affordable Housing Revitalization Plan provided guidance on improving US housing and other recovery needs. Smaller developments with larger apartments and a variety of available bedroom configurations accommodate a variety of family sizes. The subrecipient will relocate developments to more desirable locations. Relocated developments, along with renovated and reconstructed units, will find additional improvements with planned recreational opportunities such as playgrounds, parks, and community centers, open to everyone, alleviating individual and community isolation. The objective of the housing improvements focuses on creating a better future for individuals and the communities of the USVI.

FEMA Region 2 implemented programmatic documents that support compliance and streamlining the environmental review process in the territory. These documents address the Endangered Species Act (ESA), Coastal Zone Management Act (CZMA), and National Historic Preservation Act (NHPA) and work with this PEA. The VIHFA adopted the NHPA agreement and considered the ESA one early in the disaster response and recovery stages; FEMA is in the early process of updating both of these agreements and is in regular communication with HUD and VIHFA. The following programmatic documents are currently active in the USVI:

- The Section 106 Programmatic Agreement Among The Federal Emergency Management Agency; The Virgin Islands State Historic Preservation Officer; and The Virgin Islands

Territorial Emergency Management Agency, executed on July 14, 2016, and is due to expire on July 14, 2023.

- Endangered Species Act Consultation Matrix for Puerto Rico and U.S. Virgin Islands implemented by FEMA and the U.S. Fish and Wildlife Service Puerto Rico Field Office in 2019 updated as needed.
- Coastal Zone Management Act Federal Consistency Determination Letters for various actions such as:
    - Repair and Restoration of Hurricane Damaged Buildings dated Dec. 7, 2017
    - Repair and Restoration of Roads, Culverts and Bridges to improved pre-disaster conditions on St. Croix, St. Thomas, and St. John USVI dated Nov. 24, 2017, and Jan 2, 2018.
    - Repair of Water and Wastewater Utility Infrastructure dated Jan. 19, 2018.

4.0 ALTERNATIVES

NEPA guidance requires that federal agencies explore and objectively evaluate reasonable alternatives for proposed actions. NEPA guidance also requires evaluation of a No Action Alternative as a benchmark to evaluate other actions. The subrecipient may determine that a specific proposed action requires implementation of a combination of two or more evaluated alternatives. Decisions regarding action execution include budgetary constraints, but they are not the controlling factor. Results of this and proposed action-specific analysis will also help guide future proposed action decisions.

4.1 Alternative 1: No Action Alternative

The No Action Alternative describes potential future conditions if no FEMA funding is used to restore and improve the USVI housing situation via renovation, relocation, redevelopment, or demolition. Under the No Action Alternative, damaged housing would remain in its current state, which in many cases is un-livable. The standard of living for USVI residents would remain diminished by the lack of safe housing. Current anticipated plans include reinforcing new and existing buildings to mitigate damage from future natural disaster events, but if the federal government takes no action, structures will remain in their current vulnerable state.

4.2 Action Alternatives

Four of the five action alternatives include site beautification with the demolition alternative focusing on returning the housing site to its original condition. The beautification measures may include, but are not limited to, new parking lots and areas, sidewalks, seating areas, site lighting, security cameras, mailbox areas, upgrades of all necessary utility distribution systems, trash enclosures, playgrounds and other recreational areas, and landscaping.

Additionally, all five action alternatives include essential stormwater management and flood protection measures, especially when the subrecipient plans to modify natural landscape slopes, new parking lots, or other use of hard surfaces such as asphalt or concrete.

The following is a list of common actions for Action Alternatives 2 through 5 (Renovation, Redevelopment, Relocation, and Demolition), followed by distinct actions pertaining to each alternative below.

- Short-term relocation of tenants
- Construction equipment and materials mobilization
    - Project site deliveries
    - Establishment of staging areas
    - Generator placement and use during construction phase
- Post-construction site restoration
- Americans with Disabilities Act compliance
- Future disaster resiliency
    - Architectural and engineering design studies:
        - Hydrologic and Hydraulic studies
        - Seismicity surveys
        - Geotechnical subsurface explorations
        - Topographical surveys
        - Life-cycle cost analyses
        - Energy efficiency studies
        - Feasibility analyses
- Ground-disturbing activities
    - Surface grading
    - Conduit replacements
    - Trenching
    - Concrete and asphalt applications
    - Pile driving (new construction)
    - Pavement cutting and resurfacing
    - Stormwater Management upgrade
    - Curb and gutter placement
    - Hardware placement
    - Underground utility placement and upgrade
    - Old piping, pumps and broken pavement removal and disposal
    - Re-vegetation and vegetation maintenance
    - Re-establishment of cisterns
- Permanent, emergency back-up generator installation
    - Generator housing

  - Concrete slabs
  - Fuel tank housing
  - Associated piping
- Construction and demolition debris generation and disposition
  - Temporary debris staging and staging site preparation

4.2.1 Alternative 2: Renovation

The activities satisfied by this alternative will involve renovating, restoring, and repairing housing structures to an improved pre-disaster condition to meet post-disaster needs including design, capacity, and function, as well as improving their resiliency in response to future disaster events. Housing structures will remain in their same location and maintain the same footprint. The subrecipient may renovate housing structures that have minor damages.

Anticipated renovation requirements may include:

- Replacement of roofs, entryways, windows, doors, bathrooms, kitchens, electricity, plumbing, flooring, and paint
- Asbestos and lead-based paint abatement and mold remediation
- Replacement of signage for building and site address

The subrecipient anticipates renovations to be designed to meet the construction requirements of National Green Building Standards, Tropical Climate Path. The renovated housing structures may incorporate sustainable green features such as solar panels, EnergyStar® appliances and ceiling fans, LED lighting, low-water usage fixtures, hurricane impact windows, and highly efficient, correctly sized electric water heaters.

Common Actions: In addition to the activities listed in Section 4.2, the following are common activities that may be associated with renovation of housing structures with added resiliency measures. These activities are considered in the analysis presented in Section 5.0:

- Housing structure upgrades
  - Public health and safety building code and standard compliance
- Installation of roofs, windows and other housing construction components that can withstand major storms

4.2.2 Alternative 3: Redevelopment

This alternative allows for the redevelopment of a housing structure in-place. It will require demolition of existing, damaged housing, and construction of new housing in the same parcel of land. This section discusses redevelopment activities.

Common Actions: In addition to the activities listed in Section 4.2, the following are common actions that may be associated with new housing construction. These activities are considered in the analysis presented in Section 5.0:

- Mechanical, electrical and plumbing system installation, to include the following ancillary activities:
    - Backup power generation
    - Construction of parking structures
    - Adjacent roadway connections
    - Utilities upgrades

4.2.3 Alternative 4: Relocation

This alternative allows for constructing the housing structure to a new property which including the selection of a new site for new construction. Facility relocation and new facility construction may include guidance and instruction regarding land acquisition and the abandonment, stabilization, or demolition of existing, previously damaged buildings.

Common Actions: In addition to the activities listed in Section 4.2, the following are common actions that may be associated new housing construction. These activities are considered in the analysis presented in Section 5.0:

- Land or structure acquisition
    - Federal, territorial, and local regulation land acquisition compliance
- If the subrecipient chooses to abandon a facility, they must render the original site safe and secure to ensure that it does not present a threat to public health and safety. Such activities could include, but are not limited to:
    - Fencing
    - Boarding windows and doors
    - Securing utilities, including cisterns
    - Providing adequate ventilation
    - Potential public health hazard removal
    - Structural stabilization
    - Maintenance and monitoring plans
    - Federal and local regulation compliance for future use or transfer of property

4.2.4 Alternative 5: Demolition

This alternative includes demolition of damaged housing structures including existing buildings, and legally disposing of all man-made site and building components off-site to return the site to its original condition. Disposal of site and building components include roof and wall structures, finishes, windows, doors, concrete porches, enclosures, mechanical, electrical, plumbing systems,

foundations, walls, footings, floors slabs, stairwells, sidewalks, stoops, retaining walls, clothing line poles, play areas, and steps. After removal of all building materials, the topsoil will be filled, re-graded, and seed as appropriate to the site, and the pavement placed to match the public street, if affected.

Common Actions: In addition to the activities listed in Section 4.2, the following are common actions that may be associated with demolition. These activities are considered in the analysis presented in Section 5.0:

- Building demolition: Aboveground structure and associated facility removal
    - Clothing line poles, light poles, sidewalk and paving removal, sidewalk railing removal, etc.
- Demolition activities will likely include the use of heavy machinery for construction and demolition activities.
- Removal or capping of utilities, septic tanks, and potable water cisterns
    - May include trenching and excavation
- Properly address utilities and Stormwater Management System
- Hazardous materials removal
    - Removal and disposal of asbestos, lead-based paint or similar hazardous building materials
    - Trash removal from buildings
- Temporary chain link fence
- Clearing and grubbing of the site area
- Final grading
- Topsoil delivery to site

4.2.5 Alternative 6: Combination of Action Alternatives 2 through 5

FEMA prefers Alternative 6 to best fulfill the purpose and need of this PEA. This alternative is inclusive of Scope of Work (SOW) presented for Alternatives 2 through 5 allowing the subrecipient the ability to select actions that are applicable to addressing the wide range of public housing structures in the USVI. Additionally, it provides the subrecipient the greatest flexibility in how they increase the resiliency of USVIs public housing across FEMA funding sources.

4.3 Summary of Alternatives

FEMA and the subrecipient considered six alternatives for evaluation:

1) No Action Alternative
2) Renovation
3) Redevelopment
4) Relocation

5) Demolition
6) Combination of Alternatives 2 through 5

5.0 AFFECTED ENVIRONMENT AND POTENTIAL IMPACTS

This section discusses the potential impacts of the No Action Alternative and the Action Alternatives on environmental resources. When possible, FEMA considers quantitative information to establish potential impacts. FEMA also evaluates the potential qualitative impacts based on the criterial listed in Table 5.0.1. Section 5.16 discusses the potential cumulative environmental impacts.

Table 5.0.1: Impact Significance and Context Evaluation Criteria for Potential Impacts

Impact Scale	Criteria
No Impact	The resource area would not be affected and there would be no impact.
Negligible	Changes would either be non-detectable or, if detected, would have impacts that would be slight and local. Adverse impacts would be well below regulatory standards, as applicable.
Minor	Changes to the resource would be measurable, but the changes would be small and localized. Adverse impacts would be within or below regulatory standards, as applicable. Mitigation measures would reduce any potential adverse impacts.
Moderate	Changes to the resource would be measurable and have either localized or regional scale impacts. Adverse impacts would be within or below regulatory standards, but historical conditions would be altered on a short-term basis. Mitigation measures would be necessary, and the measures would reduce any potential adverse impacts.
Major	Changes to the resource would be readily measurable and would have substantial consequences on regional levels. Adverse impacts would exceed regulatory standards. Mitigation measures to offset the adverse impacts would be required to reduce impacts, though long-term changes to the resource would be expected.

NEPA defines “effects” or “impacts” as “changes to the human environment from the proposed action or alternatives that are reasonably foreseeable” (40 CFR 1508.1 (g)). The action causes direct effects when they occur at the same time and place. The action causes indirect effects when the result is manifested later in time or further away from the action.

Cumulative effects result from incremental effects of the action when added to the effects of other past, present, and reasonably foreseeable actions. They can be individually minor but collectively significant over time.

The terminology used in analysis will include both the impact scale terms indicated in Table 5.0.1 and whether or not the impact will be temporary, short-term or long-term as defined in Table 5.0.2:

Table 5.0.2: NEPA Time Scale

Terminology	Definition
Temporary	Impacts and recovery occurring only during the construction period.
Short-Term	Impacts and recovery occurring during a limited, predictable amount of time up to three years.
Long-Term	Impacts and recovery occurring over time longer than three years but into the reasonably foreseeable future.

FEMA is omitting the following environmental resource topics because they do not apply to the action as covered by this PEA (Table 5.0.3).

Table 5.0.3: Eliminated Resource Topics

Topic	Reason
Bald and Golden Eagles	Bald and Golden Eagles are not found in the U.S. Virgin Islands.
Sole Source Aquifers	There are no aquifers being used as a sole source of drinking water.
Wild and Scenic Rivers	There are no designated wild and scenic rivers.

Renovation (Alternative 2), Relocation (Alternative 3), Redevelopment (Alternative 4), and Demolition (Alternative 5) often have analyses that are the same for all alternatives. In those cases, analysis discussion is combined to avoid unnecessarily repetitive text. The No Action Alternative and the preferred Alternative 6 (a combination of Alternatives 2 through 5) will always have their own analysis discussion.

5.1 Geology, Topography, and Soils

Federal regulations pertaining to this resource area include the Farmland Protection Policy Act (FPPA) of 1981 (7 U.S.C. § 4201). The U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey provides the determination of the current classification of prime farmlands. The Federal Register Vol 43, N. 21, January 31, 1978, published the NRCS policy and procedures on prime and unique farmlands. Land that is identified as urban areas by Census data is exempt from further FPPA evaluation.

In accordance with Virgin Islands Code (V.I.C.) Title 12, § 533 [2019], the Earth Change permitting program is the primary mechanism to locate and address all land disturbing activities territory wide for residential and commercial development. The USVI Department of Planning and Natural Resources (DPNR) approves an Earth Change permit prior to ground disturbance.[3]

5.1.1 Existing Conditions

St. Croix is the largest island with an area of 84 square miles (sq. mi.), St. Thomas covers 32 sq. mi., and St. John is the smallest at 19 sq. mi. Topography varies from shoreline to the highest mountainous peak existing in St. Thomas (Crown Mountain) at 1,555 feet above sea level. All three islands have features such as ridges, mountain slopes, hillslopes, terraces, and alluvial fans. According to USDA NRCS soil survey data, bedrock is located between 10 and 80 inches at St. Croix, 10 to 20 inches at St. Thomas, and 10 to 40 inches at St. John.[4,5]

The Virgin Islands, along with neighboring Puerto Rico, are situated along active plate boundaries between the North American plate and the northeast corner of the Caribbean plate. It is a seismically active area, with small, undetectable-to-most earthquakes occurring often on land as well as in the surrounding ocean waters, with no recent associated tsunamis. The potential for larger, more disruptive seismic activity exists. The ability to fully understand the geology and assess seismic and tsunami hazards is difficult due to the active region being mostly in the ocean depths.

The USDA NRCS characterizes soils by their composition, such as geological origin, chemical, physical, and slope. The USDA NRCS Web Soil Survey online tool provides soil characteristic data. It also offers farmland classifications. There are no soils in the USVI that would qualify as prime or unique farmlands under the FPPA without human intervention such as flood protections or irrigation. Such soils that fit in this category amount to the following percentages: St. Thomas (1.2%), St. John (1.3%), St. Croix (14%).[5] Appendix B, Figures C and D indicate the locations of potential mitigated prime farmland. However, most of St. Thomas is urban, a large portion of St. Croix is, and while the urban area of St. John is small, much of the rest of the island is National Park Service land. See Appendix B, Figure E for a map of Census designated urban.

5.1.2 Potential Impacts and Proposed Mitigation

The following criteria will be used to determine if the alternatives may impact geology, topography and soils:

[3] Federal Emergency Management Agency, 2020
[4] US Geological Survey, 1994
[5] Natural Resources Conservation Survey, 2022

- Land disturbance associated with new construction, grading, and conversion of existing pervious area, or well-drained soil, to impervious area, or compacted soil or pavement, that lead to changes in topography and potential alteration of stormwater flow
- The potential for pilings required at depth, or into bedrock
- The potential for conversion of prime farmland to non-farm usage

Alternative 1: No Action (St. Croix, St. John, and St. Thomas)

Under the No Action Alternative, construction will not occur, therefore no impact will occur to soils, topography and geology. Any buildings constructed prior to current building codes may remain more vulnerable to seismic activity than newer or retrofitted structures.

Alternatives 2 through 5: Renovation, Redevelopment, Relocation and Demolition (St. Croix, St. John, and St. Thomas)

FEMA anticipates ground-disturbing activities for all action alternatives, as indicated is Section 4.2. Heavy equipment may consist of wheeled or tracked construction and transportation, road and non-road, combustion engine, and heavy equipment weighing up to 50 tons. The types of heavy equipment include bulldozers, wheeled tractor-scraper, skid steer loaders, backhoe loaders, excavators, trenchers, articulated hauler, asphalt paver, motor grader, drum roller, compact track and multi-terrain loader.

Topographical disturbance of construction and grading activities could potentially, permanently change the flow of stormwater creating ponding and the potential of overland flow of water that was previously able to drain into pervious soil. Compaction of soil or the placement of concrete or pavement, known as hardscape, over previously pervious land will present similar concerns. FEMA expects minor adverse, short-term impacts with mitigation measures to minimize impact included in construction and final land and hardscaping plans.

FEMA anticipates negligible to no impacts to prime or unique farmlands given the small percentages of soils that may qualify as such farmland and the amount of Census identified land as urban. Should a project proposal require permanent conversion of prime or unique farmland, the federal funding agency will consult with the NRCS for any necessary mitigation measures applicable to the respective site.

FEMA expects minor, temporary adverse impacts for geologic resources if construction requires the placement of pilings or deep foundations. FEMA expects the impact during construction only, as once the pilings and/or foundations have been permanently set, the impact, or vibrations, would cease. Vibrations from such activities will not be seismically significant.

Each of the alternatives include future natural disaster resiliency measures, which implementation of applicable current codes and standards will make possible. Compliance with these standards will minimize impacts associated with seismic activity risks and will allow for minor to moderate

beneficial, long-term impacts by reducing damage and injury. Reduced damage will allow public utilities and services to become operational in less time.

Alternative 6: A Combination of Alternatives 2-5 (St. Croix, St. John, and St. Thomas)

Preferred Alternative 6 assumes the subrecipient will execute part or all of the activities from each of the alternatives for any given housing action, therefore analysis assumes all of the activities may be applicable. Potential impacts are the same as described for Alternatives 2 through 5: mitigation will be required to ensure impacts are minimized for each alternative.

FEMA anticipates negligible to no impacts to prime or unique farmlands given the small percentages of soils that may qualify as such farmland and the amount of Census identified land as urban. Should a project proposal require permanent conversion of prime or unique farmland, the federal funding agency will consult with the NRCS for any necessary mitigation measures applicable to the respective site.

5.2 Air Quality

The Clean Air Act (CAA) of 1970 (42 U.S.C 7401–7661 [2009]) is a comprehensive federal law that regulates air emissions from area, stationary, and mobile sources. The act authorized the U.S. Environmental Protection Agency (USEPA) to establish National Ambient Air Quality Standards (NAAQS) to protect public health and the environment. The NAAQS includes six criteria air pollutants: lead, nitrogen dioxide, ozone, carbon monoxide, sulfur dioxide, and particulate matter. The latter includes both particulate matter less than 10 micrometers in diameter, and fine particulate matter less than 2.5 micrometers in diameter.

An USEPA-approved State Implementation Plan implements the U.S. Virgin Islands' air quality regulations and is located in the Virgin Islands Laws and Rules and Regulations on Air Pollution Control, Title 12, Chapter 9, Subchapters 201-204 and 206. The Air Pollution Control Program of the Division of Environmental Protection of the USVI DPNR manages the USVI air quality program.

Permitting for CAA in USVI is the shared responsibility of USEPA Region 2 and the Air Pollution Control Program of the Division of Environmental Protection of the USVI DPNR. Region 2 USEPA issues Prevention of Significant Deterioration (PSD) permits and USVI DPNR issues all other permits for emissions.

In accordance with V.I.C. Title 12, Chapter 9 § 206-220, any, "building, erecting, altering or replacing any article, machine, equipment" which may cause air emissions, must obtain an

"Authority to Construct Permit" and a "Permit to Operate," prior to construction. An application form is located on the USVI DPNR website.[6]

5.2.1 Existing Conditions

The USEPA designates air quality for a geographic area as being in attainment or nonattainment. If the air quality in a geographic area meets or is cleaner than the NAAQS, it is an attainment area. Areas that do not meet the NAAQS are nonattainment areas. The USEPA Green Book, last updated September 30, 2022, reports current nonattainment counties for all NAAQS priority pollutants. The Green Book only reports nonattainment areas, therefore areas that are designated attainment are absent from the list. The three USVIs are not on the current list, and therefore designated as attainment areas. General conformity and de minimis thresholds do not apply.[7]

In St. Croix, requirements for the Clean Air Non-Road Diesel Rule historically have not been met for sulfur oxides, largely due to the Limetree Bay Refinery. In June 2021, USEPA ordered all refinery operations to cease due to multiple air emission incidents, despite the refinery obtaining an exemption.[8]

5.2.2 Potential Impacts and Proposed Mitigation

The following criteria will be used to determine if the alternatives may significantly impact air quality:

- Increase of NAAQS priority pollutants, resulting in a status of non-attainment
- Release of lead paint dust
- Release of hydrofluorocarbons

Types of mitigation and prevention

- USEPA mandates the use of ultra-low sulfur diesel fuel sulfur dioxide emitted from construction equipment and vehicles.
- V.I.C. Title 12, Ch. 9 § 204-205, states precautions must be taken to prevent particulate matter from being airborne. Preventative measures may include: The use of water or suitable chemicals for the control of dust in the demolition of buildings, construction operations, grading of roads, or clearing of land. The use of hoods, fans, and fabric filters to enclose and vent the handling of dusty materials. Operators should always cover open-bodied trucks transporting materials likely to give rise to airborne dust when in motion.

[6] USVI Department of Natural Resources, 2020
[7] US Environmental Protection Agency, 2022
[8] US Environmental Protection Agency, 2022

- USEPA's 2008 Lead-Based Paint Renovation, Repair and Painting Rule, as amended in 2010 and 2011, requires workers to be certified and trained in the use of lead-safe work practices, and requires renovation, repair, and painting firms to be USEPA-certified.
- Section 608 of the CAA, USEPA prohibits individuals from knowingly venting refrigerants containing ozone-depleting refrigerants, including HCFC-22, as well as their substitutes such as hydrofluorocarbons, including R-410A, while maintaining, servicing, repairing, or disposing of air conditioning and refrigeration equipment.

Alternative 1: No Action (St. Croix, St. John, and St. Thomas)

No construction would occur under this alternative. Therefore, this alternative would have no short-term or long-term adverse impacts on air quality based on activities listed in section 4.2. However, no action would mean that housing would continue to use fossil-fuel powered backup generators which would continue to impact air with gasoline emissions when in use. FEMA anticipates negligible adverse, long-term impacts to continue with existing fossil-fuel powered generators.

Alternative 2: Renovation (St. Croix, St. John, and St. Thomas)

FEMA anticipates implementation of this alternative to experience minor adverse, short-term impacts from the following potential emission sources: mobile generators, painting or paint removal, handling refrigerants, temporary roads, or work that disrupts dirt, or particulate matter. FEMA anticipates that renovation will generate less particulate matter than the others, but it may still be generated in small amounts. FEMA assumes lead-based paint and asbestos to be fully abated before any activity that would cause it to become airborne. FEMA will implement the above stated mitigation and prevention measures as required. FEMA anticipates no long-term impacts on air quality.

Alternatives 3 through 5: Redevelopment, Relocation and Demolition (St. Croix, St. John, and St. Thomas)

FEMA anticipates implementation of Alternatives 3 through 5 to experience minor adverse, short-term impacts from the following potential emission sources: mobile generators, painting or paint removal, handling refrigerants, and any necessary demolition, temporary roads, or work that disrupts dirt, or particulate matter. Demolition activities will generate particulate matter and even more so for the demolition of higher-rise buildings. FEMA will implement mitigation and prevention measures to minimize impact. FEMA assumes the majority of lead-based paint and friable asbestos will be fully abated (removed) prior to activities that would allow them to become airborne. FEMA anticipates no long-term impacts on air quality.

Minor, long-term beneficial impacts will be experienced with the replacement of fossil-fuel driven backup generators with solar or other energy efficient, non-fossil fuel-based energy sources.

Alternative 6: A Combination of Alternatives 2 through 5 (St. Croix, St. John, and St. Thomas)

Preferred Alternative 6 assumes the subrecipient will execute part or all of the activities from each of the alternatives for any given housing action, therefore analysis assumes all of the activities may be applicable. FEMA anticipates that combining activities of two or more alternatives would not change or increase the potential impact. FEMA anticipates implementation of a combination of alternatives to experience minor adverse, short-term impacts from the following potential emission sources: mobile generators, painting or paint removal, handling refrigerants, and any necessary demolition, temporary roads, or work that disrupts dirt, or particulate matter (as stated previously, lead-based paint and asbestos is assumed to be fully abated). The subrecipient will implement mitigation and prevention measures to minimize impact. FEMA anticipates no long-term impacts on air quality.

Minor, long-term beneficial impacts will be experienced with the replacement of fossil-fuel driven backup generators with solar or other energy efficient, non-fossil fuel-based energy sources.

5.3 Water Quality

Congress enacted the Federal Water Pollution Control Act in 1948, then reorganized and expanded the Act in 1972 and became known as the Clean Water Act (CWA) in 1977. This law regulates discharge of pollutants into water with sections falling under the jurisdiction of the United States Army Corps of Engineers (USACE) and the USEPA.

Section 401 of the CWA requires that an applicant for a federal license or permit provide a certification that any discharges from the facility will comply with the Act, including state-established water quality standard requirements.

Section 402 of the CWA establishes the National Pollution Discharge Elimination System (NPDES). The NPDES allows USEPA to regulate both point and non-point pollutant sources, including stormwater and stormwater runoff, requiring that a Stormwater Pollution Prevention Plan (SWPPP) be prepared. V.I.C. Title 12 requires stormwater permitting for construction activities under the Territorial Pollutant Discharge Elimination System (TPDES) Program, Construction General Permit (Permit No. VIGSA0000). Discharges define the runoff as any pollutants into waters of the USVI from areas where land disturbing activities occurred, such as clearing, grading or excavation.

Section 404 of the CWA establishes the USACE permit requirements for discharging dredged or fill materials into waters of the United States and traditional navigable waterways. Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C § 401 et seq.) authorizes USACE regulation of construction activities in or near any navigable water of the United States.

5.3.1 Existing Conditions

The waters within the jurisdiction of the USVI include: all harbors, bays, streams, lakes, ponds, reservoirs, marshes, channels, waterways, wells, springs, irrigation systems, drainage systems and all other bodies or accumulations of water, surface and underground, natural or artificial, public or private, situated wholly or partly within or bordering upon USVI, including the territorial seas, contiguous zones and oceans.[9]

There is an absence of large freshwater resources and perennial streams. Watershed management is based upon natural or artificial channels and narrow coastal water bodies. Relatively small salt ponds are also scattered across the three main islands. Because of the impermeable underlying volcanic rocks, floodwaters accumulate and recede rapidly, generally in less than one day. During a year of average precipitation, annual runoff ranges from about 2 to 8 percent of the rainfall, which is about 0.5 to 2 inches, depending on conditions in a particular basin. Topography, soil moisture, local evaporation rates, and vegetation cover controls runoff.[10]

V.I.C. Title 29, § 308 [2019] requires self-sustaining water supply systems that typically consist of a well or rainwater collection and a cistern. If a dwelling has access to the potable water system and the appropriate U.S. Virgin Islands Water and Power Authority (WAPA) officials verified it when service is installed, no cistern will be required.

Construction activities are an inherent source of potential non-point source pollution and erosion. Non-point source pollution is the major source of surface water contamination in the USVI due to improper erosion control and stormwater mitigation.[3] Non-point source pollution sources diffuse in nature with two causes that should be addressed during the implementation of the proposed alternatives. The two causes are: failure to properly install effective silt control devices during construction and failure to contain stormwater run-off from unpaved roads.

The USVI DPNR ranked the waters on its 2020 303(d) list as high, medium, or low priority for improving water quality and identified total maximum daily loads (TMDLs) for that body of water. TMDLs are a calculation of the maximum amount of a pollutant that a waterbody can accept and still meet Water Quality Standards for public health and healthy ecosystems. USVI DPNR developed USVI-specific TMDLs in accordance with the CWA for all the waters identified on their Section 303(d) list of impaired waters, according to their priority ranking on that list.[11]

[9] US Environmental Protection Agency, 2020
[10] US Geological Survey, 1996
[11] USVI Department of Natural Resources, 2020

5.3.2 Potential Impacts and Proposed Mitigation

The following criteria will be used to determine if the alternatives may significantly impact water quality:

- Increased the amount of impervious surface significantly, creating measurably more stormwater runoff than was originally experienced in the area
- Results in the creation of a new channel or relocation of a natural drainage channel
- Results in the discharge of pollutants that exceed federal and state water quality standards such as TMDLs and drinking water maximum contaminant levels
- Cause the degradation of surface or groundwater quality
- Threaten or damage unique hydrologic characteristics
- Violate established Federal, State, or Local laws or regulations that currently protect or manage water resources

Alternative 1: No Action (St. Croix, St. John, and St. Thomas)

Under the No Action Alternative, FEMA would not provide grant funding for renovation, redevelopment, relocation and demolition for public housing in USVI. Further deterioration of damaged housing could result in negligible to minor adverse, short- and long-term impacts to water quality from worsening conditions. Potential sources of contamination from uninhabited housing include leaching of lead from lead-based paint, where applicable, uncontrolled erosion due to lack of landscaping maintenance, and the potential of other chemicals originally intended for household use unintentionally releasing into the environment due to improper storage and container deterioration.

Alternatives 2 through 5: Renovation, Redevelopment, Relocation and Demolition (St. Croix, St. John, and St. Thomas)

FEMA anticipates minor adverse, long-term impacts due to the changes of pervious landscape, or well-drained soils, to impervious hardscape such as concrete and asphalt. The primary source of potential water quality impact is construction-related erosion. The subrecipient will manage erosion control by following a SWPPP and obtain applicable NPDES permits. Potential contaminants that stormwater may carry over land via stormwater include petroleum products, including construction equipment, gas-powered or diesel-powered portable generators, and vehicles, as well as sediment. Lead-based paint and asbestos will be fully abated, meaning removed and disposed, prior to demolition or generation of construction debris, therefore there will be no water quality impact from those types of contaminants. The implementation of Best Management Plans (BMPs) as indicated in the SWPPP will alleviate the level of impact.

Alternative 6: A Combination of Alternatives 2 through 5 (St. Croix, St. John, and St. Thomas)

Preferred Alternative 6 assumes the subrecipient will execute part or all of the activities from each of the alternatives for any given housing action, therefore analysis assumes all of the activities may be applicable. FEMA anticipates minor adverse, long-term impacts for the same reasons stated above in the discussion for Alternatives 2 through 5.

5.4 Wetlands

Executive Order (EO) 11990 Wetlands Management requires federal agencies to avoid funding activities that directly or indirectly support occupancy, modification, or development of wetlands, whenever there are practicable alternatives, and that the proposed action includes all practicable measures to minimize harm to wetlands that may result from such use. The government uses the Eight-Step Decision-Making Process to evaluate potential effects on, and mitigate impacts to, wetlands and floodplains in compliance with EO 11990 and EO 11988. FEMA's regulations on conducting the Eight-Step Decision-Making Process are located in 44 CFR Part 9.

The USVI DPNR defines a wetland as:

> "An area that is inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands in the U.S. Virgin Islands generally include watercourses, marshes, swamps, artificial ponds and impoundment, salt ponds, lagoons, shallow seagrass beds, and other similar areas."[12]

5.4.1 Existing Conditions

Wetlands in the USVI occupy less than 3 percent of the land area (see Appendix B, Figures E and F). Types of wetlands systems that occur in the USVI are:

- Inland and contain ocean-derived salts in concentrations of less than 0.05% and are non-tidal situated on a river or riverbank
- Coastal and contain water that is more salty than fresh with one or more rivers or streams flowing into it, and with a free connection to the open sea
- Saltwater wetlands exposed to waves, currents, and tides in an oceanic setting, with coral reefs, sea grass, and/or kelps

As a result of steep terrain, small drainage areas, and limited rainfall, freshwater wetlands and deep-water habitats are scarce on the USVI. Most streams on the islands last for a very short time;

[12] USVI Department of Planning and Natural Resources, 2010

therefore, wetlands located near or on riverbanks appear as channels of streams, typically flowing during the wet season.[10]

The U.S. Fish and Wildlife Service (USFWS) national wetlands inventory indicates that the majority of the USVI mapped wetlands for St. Croix, St. John, and St. Thomas are located in one of three environments: 1) where fresh water meets saltwater, 2) marine and ocean deep water or 3) freshwater emergent, which is where plants grow in standing water or in areas that experience periodic standing water (Appendix B, Figures E and F).[13]

In February 2022, the USEPA announced that it had awarded a grant for over $65,000 to the Government of the USVI to update their USFWS National Wetland Inventory maps, which could change wetlands designations in the USVI.[14]

5.4.2 Potential Impacts and Proposed Mitigation

The proposed alternatives may have the potential to impact wetlands, depending on project location. FEMA would conduct the Eight-Step Decision-Making Process, if there is evidence of a possible wetland in a proposed renovation, redevelopment, or relocation area. This process ensures that FEMA considers how its actions affect a floodplain and/or wetlands.[15]

In addition, prior to the start of construction, the subrecipient would verify and mark the boundaries of wetland areas and trees to be preserved; no disturbance would occur within these areas.

Alternative 1: No Action (St. Croix, St. John, and St. Thomas)

No construction would occur under this alternative. Therefore, this alternative would have no short-term or long-term adverse impacts or directly impact any wetlands. Negligible adverse, indirect long-term impact may occur if damaged housing is left in place and potential contamination from it flows over-land via stormwater into wetlands.

Alternatives 2 through 5: Renovation, Redevelopment, Relocation and Demolition (St. Croix, St. John, and St. Thomas)

Each alternative has common construction activities that have the potential for minor adverse, short-term impacts. Whether or not there will be an impact is dependent upon the results of the previously discussed Eight-Step Process. There will be no impact if the subrecipient chooses housing sites outside of wetlands and avoid access through or site run off to wetlands.

[13] US Fish and Wildlife Service, 2022
[14] US Environmental Protection Agency, 2022
[15] US Department of Housing and Urban Development, 2022

Alternative 6: A Combination of Alternatives 2 through 5 (St. Croix, St. John, and St. Thomas)

Preferred Alternative 6 assumes the subrecipient will execute part or all of the activities from each of the alternatives for any given housing action, therefore analysis assumes all of the activities may be applicable. As indicated in the discussion for Alternatives 2 through 5, FEMA anticipates minor adverse, short-term impacts but is dependent on proposed project location and the results of the Eight-Step Process.

5.5 Floodplain

Executive Order 11988, Floodplain Management, requires that a federal agency avoid direct or indirect support of development within the floodplain whenever there is a practicable alternative. FEMA uses Flood Insurance Rate Maps to identify the floodplains for the National Flood Insurance Program (NFIP) and may use Advisory Base Flood Elevations, when present, to serve as best available information for EO 11988 review. Federal actions within the 100-year floodplain, or 500 for critical actions, require the federal agency to conduct an Eight-Step Decision-Making Process under EO 11988. FEMA's floodplain regulations are located in 44 CFR Part 9.

A floodway is the area of the floodplain where floodwater usually flow faster and deeper. The base flood, or the 1-percent floodplain is the minimal area for floodplain impact evaluation. FEMA defines a 1-percent-annual-chance floodplain, known as the 100-year floodplain, as an area subject to an overabundance of water from a flood that has a 1-percent chance of being equaled or exceeded in any given year. This area defined in flood maps is also known as the Special Flood Hazard Area (SFHA). The elevation of the surface water resulting from a flood that has a 1-percent chance of equaling or exceeding that level in any given year is known as the base flood elevation.

The USVI DPNR Division of Building Permits is responsible for enforcing the Virgin Islands Building Code and the floodplain management regulations in V.I.C. Title. 3, § 22, (2019). The Floodplain Management Regulations are comprised of a combination of the USVI DPNR February 2021 amended Flood Damage Prevention Regulations – Rules and Regulations and the flood provisions of the USVI Building Code.[16] The Floodplain Management Regulations and building code apply to all proposed development in established flood hazard areas.[17] The USVI Building Code V.I.C. Title. 29, §5, (2019) includes certain provisions that apply to the design and construction of buildings and structures in flood hazard areas.

[16] USVI Department of Planning and Natural Resources, 2021
[17] USVI Department of Planning and Natural Resources, 2022

5.5.1 Existing Conditions

The 2019 USVI Disaster Recovery Action Plan indicates that many of the islands' populous and low-income urban areas are located in high-risk flood zones (see Appendix B, Figures E and H).[18] These areas include Downtown Frederiksted on St. Croix, Cruz Bay on St. John, and Charlotte Amalie on St. Thomas. A USVI Flood Hazard Resources Map is located on the FEMA website.[19] Appendix B, Figure H shows a simplified map of the SFHA on each island; the SFHA occupies about 15% of the total landmass of USVI. However, the topography of USVI impacts the amount of buildable area and may limit options for actions outside of the floodplain.

5.5.2 Potential Impacts and Proposed Mitigation

The following criteria will be used to determine if the alternatives may impact a floodplain:

- Potential for intrusion of a regulated floodway that causes new stormwater runoff
- Potential for construction and land disturbances less than 25 feet from the top of the bank or less than 30 feet from the centerline
- Ground disturbances cause unmanaged alteration of natural floodplains, stream channels and shorelines

The proposed alternatives may have the potential to impact floods zones, depending on action location. FEMA prefers total avoidance of a floodplain, but if it is not practicable, FEMA requires projects to incorporate risk minimization measures such as elevation, avoiding areas with higher flood levels, floodproofing, protecting crucial infrastructure in buildings, and so on. Nature-based solutions are another measure, using natural features and processes to combat climate change, reduce flood risks, improve water quality, protect coastal property, restore and protect wetlands, stabilize shorelines, reduce urban heat, and add recreational space.[20] Prior to conducting a proposed renovation, redevelopment, or relocation in a given area, FEMA or VIHFA will evaluate floodplain impacts associated with proposed actions according to the respective agency regulations to maximize resiliency of the community.

FEMA anticipates that adherence to NFIP and local floodplain regulations will help to minimize potential impacts from flooding. Additional measures specific to project sites may include maintaining buffers from embankments, limiting construction in or occupancy of floodplains, elevation of lowest habitable floors, use of nature-based engineering practices, and so on. Specific measures will be evaluated with project proposals through the Eight Step Decision-Making

[18] USVI Housing Finance Authority, 2019
[19] Federal Emergency Management Agency, 2022
[20] Federal Emergency Management Agency, 2021

Process. Flood resistant construction requirements found in the NFIP and Virgin Islands Building Codes will be incorporated.[18]

Alternative 1: No Action (St. Croix, St. John, and St. Thomas)

Under the No Action Alternative, damaged housing would remain in its current state and flooding may still impact compromised structures. FEMA anticipates moderate to major adverse, long-term impacts with no federal action. Currently inhabited housing may require evacuation and residents would experience flood damage to the structures. Uninhabited housing would experience further damage and would create long-term adverse indirect impacts to other resource areas, such as water quality.

Alternatives 2 through 4: Renovation, Redevelopment and Relocation (St. Croix, St. John, and St. Thomas)

FEMA anticipates no to moderate impact in the short term during construction activities if they must take place in a floodplain. Construction crews, equipment, materials, and actions in progress may be at risk if staged or operating in floodplains during or after storm events. In the long term, FEMA anticipates no to major, adverse impacts for actions depending on location; projects that cannot avoid the floodplain at the greatest risk with the most potential impact. However, FEMA anticipates that through the project-specific evaluations and compliance with local code and construction standards, federal agencies will limit impacts and risks through incorporating minimization standards, avoidance, and mitigation appropriate to specific project sites.

Alternative 5: Demolition (St. Croix, St. John, and St. Thomas)

FEMA anticipates similar short term impacts for demolition activities as with Alternatives 2 through 4 while construction equipment and crews are on site. Demolition of damaged or otherwise no longer serviceable facilities removes impediments to floodwaters and reduces potential loose debris during flooding events. FEMA anticipates long term moderate to major beneficial impacts from demolition and removal of structures in the floodplain. As with Alternatives 2 through 4, federal agencies will evaluate project and site-specific according to the respective agency floodplain regulations.

Alternative 6: A Combination of Alternatives 2 through 5 (St. Croix, St. John, and St. Thomas)

Under the Preferred Alternative, FEMA anticipates the broadest range of potential impacts depending on combination of actions for any given project site. In the short term during construction activities impacts may range from no to moderate impacts and in the long term, major adverse to major beneficial impacts.

5.6 Coastal Resources

National Oceanic and Atmospheric Administration (NOAA) manages the CZMA. States and territories with coastal shorelines administer the CZMA to manage coastal development with a Coastal Zone Management Plan (CZMP). Federal agencies must evaluate actions within designated coastal zones to ensure they are consistent with the CZMP. The USVI is divided into two tiers of the coastal zone, encompassing the entire territory which is administered by the DPNR. Actions receiving federal assistance must follow the procedures outlined in 15 CFR 930.90 – 930.101 for federal coastal zone consistency determinations. Coastal resources typically protected under the CZMA include barrier islands, intertidal shoreline, beaches, salt marshes, fresh and saltwater wetlands, aquatic habitat, and any culturally significant or historic resources occurring in those areas, such as shipwrecks and archeological sites.

The Coastal Barrier Resources Act (CBRA) of 1982 designates relatively undeveloped coastal barriers (Coastal Barrier Resources System [CBRS]) along the Atlantic and Gulf coasts as part of the John H. Chafee Coastal Barrier Resources System. The Coastal Barrier Improvement Act of 1990 amended the CBRA, adding the new designation Otherwise Protected Areas (OPA) which are areas where only federal flood insurance is restricted. FEMA's implementing regulations are more stringent than USFWS's administration of CBRA, prohibiting new expenditures in system units with limited exception for emergency actions essential to saving lives, protection of property, and public health and safety. While there are certain other exceptions possible only after consultation with USFWS, they generally do not include public housing actions like those considered in this PEA. See Appendix B, Figure I for the boundaries of both tier 1 of the coastal zone, congressionally mapped CBRS units and OPAs.

5.6.1 Existing Conditions

USVI is all coastal with land adjacent to the marine or coastal estuarine environment and consisting of a coastal watershed. The coral reefs provide protection to buildings and millions of dollars of value to the local economy —over $47 million every year in St. Croix, St. John, and St. Thomas.[21]

Figure I provides a good visual of the Tier 1 Coastal Zone, the CBRS Units and the OPAs. The figure helps depict the fact that public housing and other development is unlikely to occur in these areas, and therefore the potential for alternatives to impact the coastal zone is low.

NOAA approved the USVI Coastal Management Program in 1979. The coastal zone includes the entire territory divided into two tiers. First tier means the areas closest to the shore and second tier defined as the interior portions of the islands. NOAA established the USVI CZMP to manage,

[21] National Oceanic and Atmospheric Administration, 2022

enhance, protect, and preserve coastal resources, while reducing conflict between competing land and water uses.[22]

5.6.2 Potential Impacts and Proposed Mitigation

As discussed in section 5.9, Environmental Justice, there is a concentration of potentially impacted low income and/or minority populations living in high-density housing developments in Frederiksted and Christiansted on St. Croix. While Appendix B, Figure I indicates these two towns are also near CBRS and OPAs, there are no known housing units located within protected areas. Increased development, pressures of coastal communities, changing climate patterns, spread of invasive species, and increased unsustainable harvest of natural resources, coastal ecosystems of the USVI have degraded hastily and without careful consideration. Due to these changes, coastal ecosystems are in direct threat of fisheries collapse, severe coastal erosion, and loss of cultural and historical heritage associated with people's use of the coastal zones.[23]

Inland construction activities could also have an impact on coastal resources due to land disturbance activities that impact local water ways draining into the coastal areas. Stormwater pollution prevention methods will help prevent these impacts. Section 5.3 Water Quality covers these precautions.

The following criteria will be used to determine if the alternatives may impact coastal areas:

- Compliance with the CZMA
- Compliance with the CBRA

Alternative 1: No Action (St. Croix, St. John, and St. Thomas)

The No Action Alternative would not directly impact any coastal resources. However, depending on the location of the damaged housing left in place and the extent of the damage, minor to moderate adverse, long-term impacts to coastal resources due to run off from storm events may occur. The storm damaged building materials left in a vulnerable state may impact the runoff water quality.

Alternatives 2, 3, and 5: Renovation, Redevelopment, and Demolition (St. Croix, St. John, and St. Thomas)

If renovation takes place within a first-tier coastal zone, the subrecipient must obtain permitting per V.I.C. Title 12, § 910 (2019). FEMA anticipates no impact as there are no apparent facilities within the CBRS or OPAs.

[22] USVI Department of Planning and Natural Resources, 2022
[23] USVI Department of Planning and Natural Resources, 2009

Alternative 4: Relocation (St. Croix, St. John, and St. Thomas)

FEMA's implementing regulations for CBRA would prohibit FEMA funding relocation of housing facilities into a CBRS and the federal prohibition on federal flood insurance for facilities in OPAs may be a barrier to relocation into an OPA. Any relocation proposals will require approval by DPNR for consistency with CZMA in addition to any applicable permits. FEMA anticipates that these restrictions will limit potential impacts to coastal areas to negligible to minor adverse, short-term impacts. In addition, any relocation away from coastal areas should reduce the potential for on-going impacts resulting in an anticipated negligible to moderate beneficial impact to coastal areas.

Alternative 6: A Combination of Alternatives 2 through 5 (St. Croix, St. John, and St. Thomas)

Demolition as a means to permanently relocate housing out of a CBRS or OPA will have minor adverse, short-term impacts due to erosion of silt and sedimentation. However, the major beneficial, long-term impact of permanently removing housing out of the CBRS or OPA will follow. All other combination of actions taking place within the CBRS or an OPA will consultation and FEMA anticipates minor adverse, short-term impacts with mitigation and compliance with all regulatory and permitting requirements.

5.7 Protected Species and Habitats

The ESA of 1973 (16 U.S.C. §§ 1531-1543) provides a program for the conservation of threatened and endangered plants and animals and their current habitats. The law requires federal agencies to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of Designated Critical Habitat (DCH) of such species. The law also prohibits any action that causes a "taking" of any listed species of endangered fish or wildlife unless specifically authorized by the USFWS or National Marine Fisheries Service (NMFS). "Take" is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct." Section 7(a)(2) of the ESA requires lead federal agencies to consult with the USFWS and NMFS when an action may have the potential to impact a DCH.

The Magnuson-Stevens Fishery Conservation and Management Act of 1976, (P.L. 94-265) (Magnuson-Stevens Act) requires federal agencies to assess the potential impacts of actions on Essential Fish Habitat (EFH). An EFH includes "those waters and substate necessary to fish for spawning, breeding, feeding or growth to maturity". In most cases mapping data cannot fully represent the complexity of the habitats that make up EFH. A regional expert must perform a location-specific evaluation of EFH for any official purposes. Much like the ESA, the Magnuson-Stevens Act requires federal agencies to consult with the NOAA Fisheries when the government

plans federally-funded projects and/if the action is determined to have the potential to "adversely" affect an EFH.

The Migratory Bird Treaty Act (MBTA) of 1918 provides a program for the conservation of migratory birds that fly through lands of the United States. The USFWS is the federal agency delegated with the primary responsibility for protecting migratory birds. The law requires federal agencies to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any migratory birds or result in the destruction or adverse modification of designated critical habitats of such species. The law makes it illegal for anyone to "take," possess, import, export, transport, sell, purchase, barter, or offer for sale, purchase, any migratory bird, or their parts, feathers, nests, or eggs. The USFWS Information for Planning and Consultation (IPaC) database comprises the Migratory Bird Resource List from USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in the action location. BCCs are birds not designated threatened or endangered, but still represent the USFWS highest conservation priorities. In 50 CFR 10.13 is the most recently updated list from 2020, incorporating the most current scientific information on taxonomy and natural distribution, known as the "10.13 list."

Executive Order 13112 Invasive Species requires federal agencies, to the extent practicable, to prevent the introduction of invasive species, provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause.

5.7.1 Existing Conditions

FEMA uses the USFWS IPaC online service to identify federally listed threatened and endangered animal species and plants within the USVI.[24] There is a total of 12 listed animal and plants species within the USVI. The USVI ESA matrix, further described below, includes these species as well as assessments of the impact of proposed actions on them.

Each island has similar, but slightly variable lists of threatened and endangered animal and plant species as depicted in Appendix C, Table A.

The 2020 10.13 list identifies 27 species of migratory birds present in the USVI. Yellow warblers are not BCC but are the most widespread species breeding in almost the whole of North America, the Caribbean, and down to northern South America. The IPaC indicates no migratory BCCs occur on any of the islands. Regardless of special protection status, the MBTA protects all migratory birds from the more modern threats, including potential habitat degradation or destruction due to development consistent with the proposed alternatives.

[24] US Fish and Wildlife Service, 2022

The NOAA Fisheries EFH Mapper Tool references *Amendment 10 to the 2006 Consolidated Atlantic Highly Migratory Species Fishery Management Plan: Essential Fish Habitat and Environmental Assessment*, in order to identify EFH Areas Protected from Fishing, Habitat Area of Particular Concern, and Essential Fish Habitats. EFH and EFH Areas Protected From Fishing completely surround the islands of St. Croix, St. John, and St. Thomas, with many Habitat Areas of Particular Concern surrounding St. Thomas and St. Croix. The EFH Mapper Report identified four Species within the USVI.[25,26]

- Spiny Lobster
- Reef Fish
- Queen Conch
- Coral

5.7.2 Potential Impacts and Proposed Mitigation

The following criteria will be used to determine if the alternatives may impact a threatened and endangered species, migratory birds and EFHs:

- The "take", as defined by the ESA and the MBTA, or potential for "take", of any individual or group of individuals of a listed species
- The loss or degradation, or potential for such, of any critical habitat, as defined by the ESA
- Non-compliance with EO 13112 (invasive species)
- Non-compliance with EO 13186 (migratory birds)
- Adverse impact of an EFH

Endangered Species

FEMA will need to consider whether individual proposed actions will impact listed species or DCH's. This will be based on the location(s) chosen for housing development activities.

FEMA has entered into agreement with the USFWS regarding the likelihood of impact from a variety of activities, including some listed in Section 4.2. The ESA Matrix dated November 17, 2020, indicates one of three determinations for each proposed activity relative to the potential effect on specific species: no effect, not likely to adversely affect, or that it requires consultation. If the matrix does not include a proposed activity, then FEMA may not use the matrix determinations, and consultation is required. If FEMA determines that a proposed action will affect a listed species or DCH, FEMA will complete compliance with ESA Section 7 via consultation with the USFWS.

[25] National Oceanic and Atmospheric Administration, 2017
[26] National Oceanic and Atmospheric Administration, 2022

Any meaningfully measurable level of adverse impact to threatened and endangered species is unacceptable. Consultation for potential activity to species interaction, as indicated by the ESA matrix, will determine if an impact that reaches the scale of a "take" may occur.

FEMA will make site-specific assessments in accordance with ESA Section 7 once the subrecipient identifies locations of individual proposed actions. FEMA will use the ESA matrix to help determine if certain activities will have no effect or likely will not have adverse effect on specific species, thus allowing the project to move forward without Section 7 consultation.

Migratory Birds

The incidental take of migratory birds is the concern governed by EO 13186. Federal actions that may have a measurable impact on the migratory bird population of species indicated in 50 CFR 10.13 require the development of a Memorandum of Understanding with the USFWS that shall promote the conservation of migratory bird populations, in particular. FEMA anticipates no impact as it is unlikely the implementation of the alternatives will have any measurable impact on the migratory bird population.[27]

Essential Fish Habitat

Each action alternative includes activities which will result in ground disturbance. Ground disturbance will likely induce short-term soil erosion during rain events. Ground disturbance in areas near identified EFHs has the potential to disturb, destroy, or compromise them without proper assessment and implementation of erosion control mitigation measures. If a proposed action is located near an area that may potentially serve as an EFH, FEMA will perform an assessment to determine the presence of an EFH and the likelihood of impact.[28]

Invasive Species

Ground disturbance from each of the action alternatives also has the potential to cause adverse impacts on the surrounding vegetation. Ground disturbing activities and construction of retention ponds to contain stormwater runoff can result in invasive species quickly taking hold, sometimes preying on or crowding out native vegetation. Mitigation activities to avoid the introduction of invasive species include planting native seed mixes, occasionally clearing the vegetation from ponds, and implementing a maintenance plan to control invasive species, allowing native species to become predominant.[29]

[27] US Fish and Wildlife Service, 2022
[28] National Oceanic and Atmospheric Administration, 2022
[29] US Forest Service, 2022

Alternative 1: No Action (St. Croix, St. John, and St. Thomas)

No action would provide invasive species an opportunity to spread in currently vacant, unmaintained buildings and landscaping. No action may have minor, adverse impact with EO 13112 non-compliance. There is also potential for endangered species to create habitat in abandoned housing. FEMA would not assume a "take" of a listed species or migratory bird with no action. However, if an endangered species found the abandoned structures suitable for habitat, it may have impact on future demolition efforts.

Alternatives 2 through 5: Renovation, Redevelopment, Relocation and Demolition (St. Croix, St. John, and St. Thomas)

If a protected species is present in a proposed action area, appropriate agency consultation and mitigation will limit impact to negligible adverse, temporary. Each of the alternatives indicated in Section 4.2 include common activities such as earth-moving and landscaping activities, therefore FEMA anticipates the *potential* for disturbance of EFHs and DCHs, takes of threatened and endangered species, and introduction of invasive plant species, assuming they are in the proposed action area. Demolition, clearing, grading, trenching, equipment staging, and construction phases have the potential for negligible adverse, temporary impact. Negligible adverse, temporary indirect impacts to ESA-listed species, such as sea life, and EFHs may occur as a result of erosion and sedimentation during the construction phase. Appropriate agency consultation and mitigation will limit impact to temporarily adverse and negligible.

If proposed actions are located near known critical habitat (see Appendix B, Figure J), the subrecipient will consider species-specific mitigation measures. St. Croix has critical habitat for the Leatherback Sea Turtle, where artificial night-time lighting would be impactful. In accordance with the ESA Matrix, consultation with USFWS is required when projects in the vicinity of the Leatherback Sea Turtle are proposed. USFWS is considering expanding critical habitat for the Green Sea Turtle and West Indian Manatee. USFWS has not yet mapped or formalized those designations.

Alternative 6: A Combination of Alternative 2 through 5 (St. Croix, St. John, and St. Thomas)

Preferred Alternative 6 assumes the subrecipient will execute part or all of the activities from each of the alternatives for any given housing action, therefore analysis assumes all of the activities may be applicable. These include the same activities as described in the analysis for Alternatives 2 through 5 above. FEMA anticipates the potential for impact of EFHs and DCHs, "takes" of threatened and endangered species, and introduction of invasive plant species for all alternatives indicated in Section 4.2. Demolition, clearing, grading, trenching, equipment staging, and construction phases have the potential for temporary adverse negligible impact. Temporary adverse negligible indirect impacts to ESA-listed species and EFHs may occur as a result of

erosion and sedimentation during the construction phase. Appropriate agency consultation and mitigation will limit impact to temporarily adverse and negligible.

If proposed actions are located near known critical habitat (see Appendix B, Figure J), the subrecipient will consider species-specific mitigation measures. St. Croix has critical habitat for the Leatherback Sea Turtle, where artificial night-time lighting would be impactful. In accordance with the ESA Matrix, consultation with USFWS is required when projects in the vicinity of the Leatherback Sea Turtle are proposed. USFWS is considering expanding critical habitat for the green sea turtle and West Indian Manatee. USFWS has not yet mapped or formalized those designations as of the writing of this document.

5.8 Cultural Resources

FEMA must consider the potential effects of its funded actions upon cultural resources prior to engaging in any undertaking in accordance with Section 106 of the NHPA, as amended and implemented by 36 CFR Part 800. The NHPA of 1966 defines a historic property as "any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion on the National Register." 36 CFR Part 60 details eligibility criteria for listing a property on the National Register of Historic Places (NRHP).

Pursuant to 36 CFR 800.4(a)(1), the Area of Potential Effects (APE) includes the geographic area(s) within which the undertaking may directly or indirectly affect cultural resources. FEMA evaluates impacts to cultural resources prior to the undertaking for both Standing Structures, or above ground resources, and Archaeology, or below ground resources, within the APE.

The NRHP NPGallery Digital Asset Management System hosted by the National Park Service (NPS) includes 97 historic properties, including standing historic resources and archaeological resources, listed in the NRHP on the USVI of St. Croix, St. John, and St. Thomas.[30] FEMA did not consult the Virgin Islands State Historic Preservation Office (VISHPO) and Certified Local Government records, site form data, and site map files, because the subrecipient has yet to identify specific action areas. Existing conditions below are based on USVI government profiles of each island.

5.8.1 Existing Conditions (Historic Standing Structures)

Since Christopher Columbus landed in 1493, the USVI have been ruled in succession by Spain, England, France, Knights of Malta, France, Denmark, and the United States, which placed the islands under the control of the Government of the Virgin Islands. The 251-year Danish reign from

[30] National Park Service, 2022

1685 to 1917 and exploitation of Black laborers has been most influential on historic architecture, land use, and street, town, and area names.

Potentially historic resources since then are more diverse in type, style, and use based on U.S. policies and historic periods related to Community Planning and Development, the Civil Rights Movement, and early historic preservation efforts and eco-tourism among other themes. After the U.S. purchased the islands, the precursor of the VIHA was established in 1941 when the municipal councils of each island combined their housing authorities into a single corporation under the provisions of the U.S. Housing Act of 1937 and the Virgin Islands Code. Potentially historic public housing consists of mid-twentieth century high rises concentrated in the urban areas of each island. Smaller, more diverse buildings that mimic the earlier architectural history of the islands begun to replace these structures in the recent past.

St. Croix

The largest of the three islands, St. Croix contains the historic towns of Christiansted to the northeast and Frederiksted to the southwest with an industrial area and airport in Limetree Bay on the central south shore. Major cultural resources that are also tourist attractions include Buck Island National Monument protected by the NPS northeast of the main island, Salt River Bay National Historical Park and Ecological Preserve, St. George Village Botanical Gardens, and the Dutch Whim Plantation Museum.

St. John

The smallest and most natural of the three islands, St. John contains a 9,500-acre terrestrial and underwater reserve, which is around two thirds of the island and protected by the NPS. Other major cultural resources include Annaberg Sugar Mill Ruins and downtown Cruz Bay and Coral Bay, which contains the highest elevation in the USVI.

St. Thomas

The most urban of the three islands, St. Thomas contains multiple low-density communities scattered throughout the island and the capital city of USVI, Charlotte Amalie, which contains historic residences, commerce, industry, and monuments. Major cultural resources that are also tourist attractions include Plantation Crown and Hawk Botanical Garden and Bluebeard's Castle.

5.8.2 Potential Impacts and Proposed Mitigation (Historic Standing Structures)

Analysis of potential impacts to cultural and historic resources considers both direct and indirect impacts. Descriptions of what constitutes direct and indirect impacts are as follows:

- Direct impacts may occur by physically altering, damaging, or destroying all or part of a resource or introducing visual, audible, or atmospheric elements that are out of character

with the property or alter its setting. Once the subrecipient identifies the proposed action locations, FEMA will assess the locations of direct impacts

- Indirect impacts may occur by altering the characteristics of the surrounding environment that contribute to the resource's significance as well as neglect of the resource causing deterioration or complete destruction

Pursuant to 36 CFR §800.14(b), FEMA, in consultation with VISHPO and other consulting parties, developed a programmatic agreement that provided a strategy for achieving and expediting compliance with Section 106 of the NHPA. This includes exemptions from Section 106 review of certain activities having limited or no effect on historic properties; identification and evaluation of historic properties; and methods of resolving adverse effects. FEMA, VISHPO and other consulting parties executed the Programmatic Agreement on May 6, 2016, and was subsequently amended on May 31, 2018, November 13, 2019, and April 11, 2022.[31] FEMA would use all these tools to meet compliance requirements under Section 106 of the NHPA and anticipates that VIHFA may adopt further updates of these tools.

For this project, alternatives could include repair, expansion, abandonment, demolition, and/or installation of new resiliency technologies that could alter or impact NRHP-listed or eligible historic properties. To determine the effect(s) and opportunities to avoid or minimize any adverse effects, FEMA would follow the standard project review as outlined in Stipulation II.C of the amended Programmatic Agreement. FEMA will analyze the SOW to determine if the proposed actions fall under the programmatic allowances outlined in the amended Programmatic Agreement. If the SOW meets the programmatic allowances, the project would be compliant with Section 106 and the review process would be complete.

If the proposed SOW does not fall within the allowances, FEMA would initiate consultation with VISHPO. If FEMA finds, and VISHPO concurs that the proposed action would have an adverse effect on a historic property, FEMA will work with VISHPO, the recipient, subrecipient, and other identified consulting parties to avoid or minimize the adverse effect. If the adverse effect is unavoidable, FEMA would follow the process set forth in Stipulation II.C.6 of the amended Programmatic Agreement. FEMA would memorialize the outcome of this consultation using either the Abbreviated Consultation Process or through development of a Memorandum of Agreement. FEMA may elect to develop a Project-Specific Programmatic Agreement that would provide a specialized Section 106 compliance strategy designed to meet the particular compliance needs of those projects.

[31] Federal Emergency Management Agency, 2022

Alternative 1: No Action (St. Croix, St. John, and St. Thomas)

If no action occurs to restore and improve the USVI housing situation via renovation, relocation, redevelopment, or demolition, damaged housing will remain in its current state, which in many cases is un-livable. The No Action Alternative may have potential minor adverse, long-term impacts to the surrounding viewshed and public housing, if determined eligible for listing in the NRHP, due to potential collapse due to neglect.

Impacts to historic properties due to no action could result in long-term negligible to moderate adverse impacts to the resource. FEMA anticipates that without routine maintenance, historic properties would deteriorate over time. The No Action Alternative would have long-term negligible to major impacts.

Alternative 2: Renovation (St. Croix, St. John, and St. Thomas)

Renovation of public housing, if determined eligible for listing in the NRHP, roughly within their existing footprint with resilient and green building methods, including installation of underground utilities, roofs, windows, and other housing construction components that can withstand major storms, would likely have a negligible impact on the historic integrity of standing resources, including those within the viewshed, and may in fact have a minor beneficial, long-term impact. Renovation likely would not require regulatory or mitigation measures.

Alternatives 3 through 5: Redevelopment, Relocation and Demolition (St. Croix, St. John, and St. Thomas)

Redevelopment, relocation, and demolition of public housing, if determined eligible for listing in the NRHP, would have a moderate adverse, long-term impact, on both the existing buildings and their viewsheds. These three alternatives may also have a moderate to major adverse, long-term impact, on resources and viewsheds at the new location of public housing. FEMA would require mitigation measures to offset any adverse effects to reduce impacts.

Alternative 6: A Combination of Alternatives 2 through 5 (St. Croix, St. John, and St. Thomas)

Preferred Alternative 6 assumes the subrecipient will execute part or all of the activities from each of the alternatives for any given housing action, therefore analysis assumes all of the activities may be applicable. With the exception of renovation, each of the action alternatives will result in moderate to major adverse, long-term potential impacts without mitigation measures, assuming NRHP eligibility. FEMA anticipates combining renovation with one or more alternatives to have the same result.

5.8.3 Existing Conditions (Archaeological Resources)

Prehistoric populations were the Ciboney, Caribs, and Arawaks who used seasonal camps to harvest conch, fish, and forage in reef environments and along the wetlands of the coast and the interior forests. Prehistoric archaeological sites in the USVI consist primarily of indigenous village sites occupied from 1499 BC to 1499 AD. These archaeological districts include former village, fishing, and ceremonial sites as well as prehistoric ceramic scatter dating from 1100 BC to 1492 AD.[32]

During Danish reign from 1685 to 1917, agriculture destroyed more than 97% of forests with a concentration on sugar cane and rum produced by African enslaved laborers and later exploited descendants of formerly enslaved communities. Historic archaeological sites in the USVI relate to remnant rock shelters, historic encampment foundations, port facilities, shipwrecks, and "slave villages" and burials, dating from 1600 to 1864 AD.[34]

5.8.4 Potential Impacts and Proposed Mitigation (Archaeological Resources)

The processes of renovation, redevelopment, relocation, or demolition include ground disturbance and therefore could adversely affect archaeological resources. All action alternatives have the potential to disturb archaeological resources as a result of excavation, construction staging, and site access that disturbs previously undisturbed soils. Actions that include significant ground disturbing activities may adversely affect archaeological resources if they are present. Before ground disturbance occurs as a result of any action alternatives, the subrecipient will conduct research to determine if any archaeological resources exist in the APE.

Criteria used to determine impacts include NRHP eligibility of identified archaeological sites. Regulatory or mitigating action may occur to determine site boundaries, assess eligibility, and ensure protectiveness.

Alternative 1: No Action (St. Croix, St. John, and St. Thomas)

Under the No Action Alternative, there will be no effort made to restore and improve the USVI housing via renovation, relocation, redevelopment, or demolition. Damaged housing would remain in its current state, which in many cases is un-livable. The No Action Alternative would not have any foreseeable impacts upon archaeological below-surface cultural resources as disturbance would not occur. This alternative would not require regulatory or mitigation measures of any archaeological resources, should they be present.

[32] US Department of Homeland Security, Federal Emergency Management Agency Region II, 2020

Alternative 2: Renovation (St. Croix, St. John, and St. Thomas)

Renovation of public housing, if determined eligible for listing on the NRHP, roughly within their existing footprint with resilient and green building methods, including installation of underground utilities, roofs, windows, and other housing construction components that can withstand major storms, would likely have a negligible impact, or no adverse effect, on the integrity of archaeological resources, should they exist within the APE. Renovation likely would not require regulatory or mitigation measures. However, if archaeological resources exist within the APE, any ground disturbing activities will require regulatory or mitigating measures to offset adverse effects to archaeological resources.

Alternative 3 through 5: Redevelopment, Relocation and Demolition (St. Croix, St. John, and St. Thomas)

Redevelopment, relocation and demolition of public housing, if archaeological resources are determined to be present within the APE, will likely have a moderate to major adverse, long-term impact upon those resources because of the significant ground disturbing element of the work. Any ground disturbing activities that occur, if archaeological resources are present, will trigger regulatory and possibly mitigating measures in accordance with the VISHPO to offset or reduce potential impacts upon archaeological resources. The subrecipient will consider regulatory requirements prior to selecting for relocation and the subrecipient will avoid locations containing below-surface archaeological resources if possible.

Alternative 6: A Combination of Alternatives 2 through 5 (St. Croix, St. John, and St. Thomas)

Preferred Alternative 6 assumes the subrecipient will execute part or all of the activities from each of the alternatives for any given housing action, therefore analysis assumes all of the activities may be applicable. Significant ground disturbing activity will occur with any combination of alternatives, therefore FEMA anticipates moderate to major adverse, long-term impacts on archaeological resources, should they exist within the identified APE.

5.9 Environmental Justice

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requires federal agencies to identify and address disproportionately high and adverse human health and environmental effects that may impact minority or low-income populations.

5.9.1 Existing Conditions

FEMA typically uses USEPA's EJScreen tool to evaluate potential impacts on disadvantaged communities. However, data for this tool is not generally available as of the writing of this

document for small geographic and small population areas, such as USVI. FEMA understands that more specific data will be released through summer 2023. FEMA also understands that the University of the Virgin Islands is or has recently started conducting population studies at more detail than the U.S. Census. The 2010 U.S. Census data is the most recent complete data set which indicates the following:

Table 5.9.1: Island-specific population and household (2010 Census data):

Location	Population	Number Households	Median Household income	Poverty Households
St. Croix	50,601	6,808	$34,752.00	38%
St. Thomas	51,634	6,745	$41,024.00	29.9%
St. John	4170	211	40,250.00	31.7%

Table 5.9.2: Virgin Islands minority population data (2010 Census data):

Location	Black/African*	White	Other
USVI	79%	16%	8%

* African descent (i.e., Black, West Indies, African American)

FEMA conducted analysis with the data available for planning purposes. See Appendix B, Figures E, K and L along with the methodology provided after with Figure L. Based on FEMA's analysis, low income populations are concentrated in Frederiksted and Christiansted on St. Croix. FEMA will conduct project-specific evaluations for disproportionate adverse effects once project proposals are received.

5.9.2 Potential Impacts and Proposed Mitigation

The CEQ Environmental Justice Guidance Under the NEPA provides guidance directly annotated within Executive Order 12898, allowing for effective implementation.[33] The USEPA guidance includes criteria to be considered when identifying potentially at-risk communities and is an additional resource for project-specific analysis:

- The minority population of the affected area exceeds 50 percent; or
- The minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis

[33] Council on Environmental Quality, 1997

Also as defined by the CEQ guidance, low-income populations in an affected area should be identified with:

- The annual statistical poverty thresholds from the Bureau of the Census' Current Population Reports
- A group of individuals living in geographic proximity to one another, or a set of individuals such as migrant workers or Native Americans, where either type of group experiences common conditions of environmental exposure or effect

General criteria to determine significance includes any action that may:

- Create an environment where the health and safety of socioeconomically disadvantaged community members and their surrounding area is at risk,
- Create the potential to substantially affect human health or the environment by excluding persons, denying persons benefits, or subjecting persons to discrimination because of their race, color, national origin, or income level,
- Create undesirable living conditions for socioeconomically disadvantaged community members,
- Create health and safety risks that may disproportionately affect children, as indicated in EO 13045 Protection of Children from Environmental Health Risks and Safety Risks.

Alternative 1: No Action (St. Croix, St. John, and St. Thomas)

Under the No Action Alternative, no housing improvements would occur with federal funding. FEMA anticipates disproportionately major adverse long-term impacts if these activities do not occur, as damaged buildings would continue to deteriorate and be vulnerable to greater damage by future storms. As discussed in Section 2.0 Purpose and Need, no action would result in continued undesirable living conditions for those dependent on public housing.

Alternatives 2 through 5: Renovation, Redevelopment, Relocation and Demolition (St. Croix, St. John, and St. Thomas)

FEMA anticipates that none of the action alternatives would have disproportionately high or adverse long-term impacts on low-income or minority populations. FEMA anticipates these actions to improve the lives of people who depend on public housing which often fall within the categories of low-income and minority populations. FEMA anticipates major, long-term, beneficial impacts with new construction and/or renovations, modernized for a variety of family scenarios and optimized locations for easier access of employment, school, entertainment and community interaction. For each project location, FEMA will consider the activities and location to identify potential impacts. FEMA will consult with USEPA and incorporate recommendations into the project to minimize impacts if an individual project has a potential to create an impact. Minor adverse, short-term impacts to low-income or minority populations include temporary

increase of traffic for construction activities, including potential traffic re-routing (see Transportation section 5.18) and increase of emissions associated with vehicles and heavy equipment (see Air Quality section 5.2).

Minor adverse, short-term impact due to temporary displacement of people from their homes to perform the proposed actions may occur in cases where homes must be vacated during work. The subrecipients will implement a phased approach over the 10-year construction plan, allowing them to help manage the disruption to residents, such as they have already done for the residents of the damaged Tutu High-Rise, which facilitated successful relocation of over 200 households. FEMA anticipates the completed project to have major beneficial, long-term impacts.

Alternative 6: A Combination of Alternatives 2 through 5 (St. Croix, St. John, and St. Thomas)

Preferred Alternative 6 assumes the subrecipient will execute part or all of the activities from each of the alternatives for any given housing action, therefore analysis assumes all of the activities may be applicable. Combining some or all of the alternatives will have the same impact as the individual alternatives described above. Minor adverse, short-term impacts to low-income or minority populations include temporary increase of traffic for construction activities, including potential traffic re-routing (see Transportation section 5.18), and increase of emissions associated with vehicles and heavy equipment (see Air Quality section 5.2). Minor adverse, short-term impacts due to temporary displacement of people from their homes to perform the proposed actions may be experienced in cases where homes must be vacated during project work. A phased construction approach will help mitigated the disruption. FEMA anticipates the completed project to have major beneficial, long-term impacts.

5.10 Land Use and Planning

FEMA considers local comprehensive plans, land use plans and zoning code, including federal, state, and local overlay environmental and historic districts, when building in local jurisdictions. When the subrecipient defines a specific action area, additional research will be required as it relates to land use and planning requirements for that jurisdiction. In the interim, overviews of land use and planning are based on current aerial photography and USVI government profiles and encyclopedic data for each island.

5.10.1 Existing Conditions

Fringing coral reefs surround the USVI within the Lesser Antilles of the Caribbean. The USVI government identifies St. Croix as a cultural destination, St. John as natural, and St. Thomas as cosmopolitan. As of 2018, 95.7% of the population of USVI lived in urban areas, where public housing is historically concentrated, and 4.3% in rural areas due to historic land conservation efforts. Based on the economy, land use has evolved from forested during prehistoric occupation,

97% deforested with sugarcane plantations and rum distilling during the historic period from the eighteenth to twentieth century, to 94% deforested with urbanized, agricultural, and industrial pockets among large areas of land conserved for wildlife and tourism. In the late twentieth century, more-diversified crops, including mangoes, bananas, papayas, avocados, tomatoes, and cucumbers as well as fields for cattle, goats, sheep, and pigs replaced sugarcane plantations.

St. Croix: St. Croix is one-fifth in farmland, with mountains to the north, rolling-to-level plain to the south, low-density resort communities interspersed, and the historic towns of Christiansted to the northeast and Frederiksted to the southwest. Infrastructure includes a government constructed dam, paved roads with bus service and ferries, an international airport, former oil refining plant, and two deep water ports, one in Frederiksted for tourism and one in Limetree Bay for container ships in the industrial area to the south.

St. John: St. John has rugged mountainous terrain. Virgin Islands National Park comprises two-thirds of the island. Much of the rest of the island is utilized for resorts and two urban areas, Cruz Bay to the west and Coral Bay to the east. Infrastructure includes paved roads with bus service and ferries.

St. Thomas: St. Thomas has rugged mountainous terrain with low-density resort communities interspersed. Infrastructure includes a government constructed dam, paved roads with bus service and ferries, an international airport, and a deep-water port in Charlotte Amalie, which serves as the USVI capital.

5.10.2 Potential Impacts and Proposed Mitigation

The following criteria will be used to determine if the alternatives may impact land use and planning:

- Potential to change the current land use by expanding the construction footprint
- Potential to move the location to undeveloped land

Alternative 1: No Action (St. Croix, St. John, and St. Thomas)

The No Action Alternative would not restore or improve USVI housing; thus, the current land use would become vulnerable. Current hurricane damage and ongoing neglect and deterioration would likely result in code violations. Lack of adequate housing could also result in zoning and code violations in other planning districts, as overcrowding and homelessness would be more likely to occur. Therefore, the No Action Alternative would have moderate to major, long-term adverse impacts on land use, planning, and zoning.

Alternative 2: Renovation (St. Croix, St. John, and St. Thomas)

Renovation will result in existing public housing remaining in place and improved to meet post-disaster design, capacity, and function needs. This includes upgrades allowing greater protection against future natural disasters. This alternative will not disrupt the existing land use and supporting infrastructure such as schools. Therefore, FEMA anticipates negligible short-term adverse impacts and moderate to major, long-term beneficial impacts on land use.

Alternative 3: Redevelopment (St. Croix, St. John, and St. Thomas)

Redevelopment will result in the demolishing of existing public housing and replaced with new housing in the same location. This alternative will not disrupt the existing land use and supporting infrastructure such as schools. Therefore, FEMA anticipates negligible short-term adverse impacts and moderate to major, long-term beneficial impacts on land use.

Alternative 4: Relocation (St. Croix, St. John, and St. Thomas)

Relocation will result in reconstructing the public housing at a new site and the existing site cleared of all buildings and related utilities. The subrecipient will consider the proximity to public transportation with a mix of planning zones that include retail, schools, hospital, and other public services when selecting a new location. The proposed action likely would have negligible short-term impacts and moderate to major, long-term beneficial impacts on land use at the new site. The proposed action likely would have negligible short-term impacts and moderate to major, long-term beneficial impacts on land use at the existing site, which presents an opportunity for sustainable redevelopment.

Alternative 5: Demolition (St. Croix, St. John, and St. Thomas)

Demolition would result in the removal of existing public housing and utilities. The intent of demolition as a final disposition of damaged housing structures is to remove unsafe structural and unlivable conditions. If left in place, land that could be repurposed for other community needs would instead be unusable. FEMA anticipates moderate to major, long-term beneficial impacts on land use, planning and zoning. In addition, removal of unsafe structures will alleviate a safety issue concerning the potential for the buildings to fall during seismic events, such as earthquakes or other natural disasters. The subrecipient will ensure new developments will be built in compliance with building codes that require buildings to be less vulnerable to natural disaster damage.

Alternative 6: A Combination of Alternatives 2 through 5 (St. Croix, St. John, and St. Thomas)

Preferred Alternative 6 assumes the subrecipient will execute part or all of the activities from each of the alternatives for any given housing action, therefore analysis assumes all of the activities may be applicable. FEMA anticipates negligible adverse effects and moderate to major long-term

beneficial impacts for each alternative. FEMA does not expect combining one or more alternative to change the outcome.

5.11 Noise

Noise is unwanted or unwelcome sound and is measured in decibels (dBA) on the A-weighted scale. This is the scale most similar to the range of sounds that the human ear can hear. The duration and frequency of noise events influence the overall impact of noise on receptors. The effects of noise on humans include annoyance, sleep disturbance, and health impacts. The effects of noise may impact wildlife since many animals rely on their sense of sound for survival, including communication, mating, navigation, and foraging.[34]

The Noise Control Act (NCA) of 1972 required the USEPA to create a set of noise criteria. In response, the USEPA published *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety* in 1974 which explains the impact of noise on humans.[35] The USEPA report found that keeping the maximum 24-hour Ldn (24-hour average) value below 70 dBA would protect the majority of people from hearing loss. The USEPA recommends an outdoor Ldn of 55 dBA.

The Quiet Communities Act of 1978 enabled the development of state and local noise control programs. According to published lists of noise sources, sound levels, and their effects, sound causes pain starting at approximately 120 to 125 dBA and can cause immediate irreparable damage at 140 dBA. Occupational Safety and Health Act (OSHA) has adopted a standard of 140 dBA for maximum impulse noise exposure.

Under the CAA, the USEPA established the Office of Noise Abatement and Control (ONAC). The ONAC was responsible for investigations and studies on noise and its effect on the public. In 1981, the Administration determined noise issues were best handled at the State and local level and subsequently the ONAC was closed. The USEPA transferred primary responsibility of addressing noise issues to the State and local level; however, the USEPA retains authority to investigate and study noise and its effect, disseminate information to the public regarding noise pollution and its adverse health effects, respond to inquiries on matters related to noise, and evaluate the effectiveness of existing regulations for protecting the public health and welfare, pursuant to the NCA of 1972 and the Quiet Communities Act of 1978.[36]

[34] Malik, Sienna. Wildlife Habitat Council, 2021
[35] US Environmental Protection Agency, Office of Noise Abatement and Control, 1974
[36] US Environmental Protection Agency, 2022

5.11.1 Existing Conditions

Reference to several metrics occur in noise assessments to account for duration and frequency of noise events.

- Equivalent Sound Level (Leq) is the average sound level in dBA (A-weighted decibels) One sound occurring for 2 minutes would have the same Leq of a sound twice as loud occurring for 1 minute
- Peak sound pressure level (SPL), expressed as decibel peak SPL or dBP, is the maximum instantaneous sound level for a sudden, unexpected sound. Audible sounds are typically expressed in terms of A-weighting, or dBA.[37] The threshold of human hearing is defined as 0 dBA
- The day night noise level (Ldn) is based on the Leq and is used to measure the average sound impacts for the purpose of guidance for compatible land use. Ldn is used to measure if noise will be generated in areas that will bother people and wildlife during times when one may expect noise, for example, during the day, versus noise that may be more problematic happening at night

Primary sources of ambient noise, or background sound, in the USVI include transportation such as vehicular traffic and intermittent construction activities. The screening method used in this PEA to characterize the existing conditions of ambient noise in the USVI is based, in part, on the preliminary screening procedure described in the U.S. Department of Transportation (USDOT) "transit noise and vibration impact assessment manual," September 2018.[38] The screening procedure determines where the sensitive receptors are located in relation to existing, major noise sources so current noise exposure estimates and distances where impact is likely to occur, is evaluated. Appendix C, Table E lists the major noise sources, and their related exposure estimates which FEMA used to characterize the existing conditions of ambient noise for the USVI.

FEMA evaluated the distances provided in Appendix C, Table E based on proximity to the sensitive receptors to determine the existing ambient noise levels. FEMA used Geographic Information System methods to supplement the screening procedure. Since this is a PEA and the subrecipient has not finalized specific action areas and activities, the extent and severity of potential impact is discussed in a general way.

USDOT Federal Highway Administration (FHA), maintains a Construction Noise Handbook that includes construction equipment noise levels based on both equipment type and equipment manufacturer.[39] Noise mitigation considerations and the results of the noise screening procedure

[37] Harris, CM, 1998
[38] Volpe, John A., US Department of Transportation, Federal Transit Administration, 2018
[39] US Department of Transportation, Federal Highway Administration, 2022

are located in the following sections, while Appendix A, Document C includes the estimating methodology details.

Appendix C includes tabular results from preliminary noise screening as follows:

- St. Croix – Table F
- St. John – Table G
- St. Thomas – Table H

5.11.2 Potential Impacts and Proposed Mitigation

The following criteria will be used to determine if the alternatives may impact noise receptors:

- Increase ambient noise levels
- Increase in duration of noise levels
- Increase in nighttime noise levels

Alternative 1: No Action (St. Croix, St. John, and St. Thomas)

No construction or improvements would occur under the No Action Alternative. Therefore, this alternative would have no impact.

Alternative 2: Renovation (St. Croix, St. John, and St. Thomas)

Renovation activities would temporarily increase ambient noise levels in and around the construction sites. The subrecipient will implement mitigating measures such as engineering controls and administrative controls to both isolate sensitive receptors from the noise hazard and ensure workers have an optimized work schedule to lessen noise effects while they are carrying out the construction activities.

Engineering controls include:

- Choosing low-noise machinery
- Maintaining and lubricating equipment and machinery
- Placing a barrier between the noise and sensitive receptor
- Use of hearing protection for workers

Administrative controls include:

- Operating noisy machinery during daytime hours
- Limit the amount of time the noisy machinery is operating
- Establish quiet areas where workers take their scheduled breaks

Residents would hear noise that is audible to the nearest sensitive receptor only during daytime, which would be intermittent, and limited to the duration of the overall construction and demolition period. Therefore, this alternative would have negligible short-term adverse noise impacts and minor beneficial long-term noise impacts since housing structure upgrades will be compliant with public health and safety building codes.

Alternative 3: Redevelopment (St. Croix, St. John, and St. Thomas)

Redevelopment would temporarily increase ambient noise levels in and around the construction sites with the potential of both construction and demolition activities. Noise mitigating measures would be the same as described in Alternative 2 Renovation. This alternative would have negligible adverse, short-term impacts and minor beneficial long-term noise impacts.

Alternative 4: Relocation (St. Croix, St. John, and St. Thomas)

Relocation would also temporarily increase ambient noise levels in and around the construction or demolition sites. Noise mitigation measures would be the same as described in Alternative 2 Renovation. The subrecipient may demolish existing housing structures and relocate housing units to a new existing, property with damaged housing or transportation features removed. Operators may use heavy equipment to construct new structures and temporary re-routing of traffic around the construction site may occur. For these reasons, minor, short-term adverse noise impacts and moderate, long-term beneficial noise impacts would result.

Alternative 5: Demolition (St. Croix, St. John, and St. Thomas)

Demolition activities would temporarily increase ambient noise levels in and around the sites. Noise mitigation measures would be the same as described in Alternative 2 Renovation. Activities include entire removal of damaged housing structures, proper demolition debris disposal and removal or capping of associated utilities. Final construction activities would include re-grading and landscaping of the former housing area. FEMA anticipates minor, short-term adverse impacts from the demolition activities. Moderate, long-term beneficial noise impacts would result, due to the removal of existing structures and utilities, and landscaping would decrease existing ambient noise due to sound absorption by vegetation or the establishment of dense, vegetative barriers.

Alternative 6: A Combination of Alternatives 2 through 5 (St. Croix, St. John, and St. Thomas)

Preferred Alternative 6 assumes the subrecipient will execute part or all of the activities from each of the alternatives for any given housing action, therefore analysis assumes all of the activities may be applicable. Noise from construction will have minor adverse, short-term impacts as once it is over, normal ambient noise consistent with any residential area will remain. Moderate beneficial, long-term impacts would result with the establishment of landscaping and vegetative barriers.

5.12 Transportation

The Virgin Islands Department of Public Works (DPW) is mandated to plan, construct and maintain the territory's public roads, highways, storm drainage systems, public transportation systems, public parking facilities, public buildings, and public cemeteries.[40] The DPW's Division of Public Transportation promotes public transit, has the responsibility for transportation planning, highway research, planning and oversight of the VI Public Transit System (VITRAN), public parking lots, and all traffic control devices, such as pavement markings, signs, and traffic signals. The Virgin Islands Port Authority (VIPA) is an autonomous agency that owns and manages the two airports and most of the public seaports in the USVI. The VIPA also maintains the harbors in the Territory but does not control the mooring and anchoring of vessels which the USVI DPNR coordinates.

5.12.1 Existing Conditions

Roadways, vehicles, sidewalks, parking, ferries and car barges, trails, and airports comprise the transportation system for the USVI. There are no railways, and walking and cycling infrastructure is extremely limited because of topography. Public bus transport, which is often unreliable, taxis, shuttle services, and vehicles support activity within each island. Primarily sea and air transportation carry supplies and daily necessities. Air and sea links also serve as crucial escape routes before major hurricanes for those who want to evacuate.

Roads: The USVI road network includes 1,230 miles of roads: 340 miles classified as federal routes, 410 local, and 480 private.[41] In the USVI, highways which begin with the numbers 1-2 are located on the island of St. John, 3-4 are located on St. Thomas, and 5-8 are located on St. Croix. Due to the terrain, roads are often narrow and steep with sharp turns.

Most federal routes and local public roads are two-lane roadways paved with asphalt or concrete, mostly without shoulders. Some street signage exists, as well as ghuts, which is the common term for watercourse, culverts, inlets, and swales provide drainage. Retaining walls on steep slopes help to prevent road collapse and landslides. Many of the public roads suffer from deferred maintenance due to planning, lack of resources, and difficult procurement processes.[41] This leads to deterioration of the roadways, potentially making it difficult for emergency services or equipment to use them effectively. This applies to both federal routes and private, multi-household roads which are typically unpaved, semi-paved, or poorly built. Most residents access their homes via private, multi-household roads.

Cycling and Walking: Designated bike lanes do not exist, but the DPW has approved the proposed 15-mile bike lane for St. Croix.[41] Pedestrian access is limited or dangerous; however, St. Thomas

[40] USVI Department of Public Works, 2022
[41] USVI Hurricane Recovery and Resilience Task Force, 2022

does have historical "step streets" which allows quick access up steep hills between streets in the historic Charlotte Amalie district. Most pedestrians walk on the side of the road due to limited sidewalks.

Public Transportation: A public bus system, provided by VITRAN, is available on all three islands. Taxis are available as shared-ride multi-passenger taxis, open-air safari taxis, and private taxis. VITRAN services local residents, cruise ship tourists, and provides transport to or from the airports.

The following sections discuss seaports, ferries, car barges, and airports, which are also available in the USVI along with additional details on major roads in the Territory.

St. Croix

There are two airports on St. Croix:

- Henry E. Rohlsen Airport, Christiansted, is a primary airport in the USVI. It provides commercial services of more than 10,000 passenger boardings, or enplanements, each year. In 2019, there were a total of 212,812 enplanements.
- The Svend Aaage Ovesen Jr. Seaplane Terminal, located in the water ghut, in Christiansted. offers daily service to downtown Charlotte Amalie, St. Thomas. Flights are also available to San Juan Puerto Rico with connections to the British Virgin Islands via inter-island ferries.[42]

There are three cargo and ferry terminals operated by the VIPA in St. Croix:

- The Gallows Bay Dock in Christiansted is a vital link for small cargo vessels serving St. Croix and other Caribbean islands. It accommodates mini-cruise vessels, small inter-island sloops, ferries, private yachts, cargo and U.S. Coast Guard vessels.
- The Gordon A. Finch Molasses Pier in Krause Lagoon is under construction. It provides docking space for cable vessels, cable storage, molasses, and aggregate vessels. Current VIPA plans are to shift cargo operations from Gallows Bay Marine Facility to this Pier.
- The Wilfred "Bomba" Allick Port and Transshipment Center in Krause Lagoon, is locally known as "The Containerport." This port is the hub for commercial and industrial marine activity on St. Croix and serves as a transshipment center to many other locations.

St. John

There are no major airports on St. John. Private ferries and car barges offer passenger services between the islands. Two private franchises, Varlack Ventures and Transportation Services of St.

[42] USVI Port Authority, 2022

John, operate the most common passenger ferry route between Red Hook on St. Thomas and Cruz Bay on St. John. There is also a car barge on St. John operated by VIPA.[42]

There are three cargo and ferry terminals on St. John:

- The Loredon Lawrence Boynes Sr. Dock in Cruz Bay is the main port of entry to St. John. Ferry service runs to Red Hook and the Charlotte Amalie Harbor in St. Thomas
- The Theovald Eric Moorehead Dock and Terminal at Enighed Pond is now a cargo facility, has 650 lineal feet of berthing space, six acres for cargo handling and storage, and a channel and turn-around area for vessels up to 175 feet in length. An administration building is also here and houses the VIPA dock master's office and public restrooms
- The Victor William Sewer Marine Facility, also known locally as "The Creek", allows for the berthing of passenger ferries, charters, and tenders. All vessels that require federal inspection must use this facility

USVI residents refer to Highway 10 as Center Line Road and runs from Cruz Bay at Highway 20 east-west through the center of the island intersecting the Virgin Islands National Park and ends near Round Bay. There are three auxiliary routes, Highway 104, Highway 107, and Highway 108.

St. Thomas

There are two airports in St. Thomas

- Cyril E. King Airport in Charlotte Amalie is a primary airport in the USVI. It offers commercial service of more than 10,000 passenger enplanements each year. In 2019, there were a total of 417,871 enplanements.
- The Charles F. Blair Seaplane Terminal in Charlotte Amalie offers service to St. Croix, San Juan, Puerto Rico, and connections to the British Virgin Islands via inter-island ferries.[42] There are private ferries and car barges operating out of St. Thomas. The most common passenger ferry route is between Red Hook on St. Thomas and Cruz Bay on St. John. DPW subsidizes the operations and maintenance of the private ferries.

There are four cargo and ferry terminals in St. Thomas:

- The Edward Wilmoth Blyden IV Marine Terminal in Charlotte Amalie's waterfront that supports passenger vessels traveling between St. Thomas, St. John, and Tortola. Recent upgrades make it compliant with the Americans with Disabilities Act and includes an elevator and renovated restrooms in the terminal.
- The Charlotte Amalie Waterfront accommodates yachts and other luxury vessels, mini-cruise ships and cruise ship tenders.

- The Crown Bay Cargo Port is vital to the USVI economy and receives most of its foods, materials and other goods.
- The Urman Victor Fredericks Marine Terminal in Red Hook supports passenger travel between St. Thomas and St. John, as well as to and from the British Virgin Islands. Cruise ships arrive either at the VIPA-operated Austin "Babe" Monsanto Marine Facility or the West Indian Company Ltd. dock across the harbor in Havensight.

Highway 30 is a major road on St. Thomas. It begins in the west part of the island where it is also called Fortuna Road and provides access to Cyril E. King Airport via Highway 302. A portion of Highway 30 road runs along the Caribbean Sea and to the vicinity of Charlotte Amalie. After Charlotte Amalie, it becomes one of the busiest roads on the island and is prone to traffic jams near Havensight, which is a large shopping center. Beyond Havensight, it quickly becomes a residential road, with many houses on either side and meets with Highway 32 in the town of Nadir where it ends. Major intersections include Highways 301, 302, 33, 313, and 32 where it terminates.

5.12.2 Potential Impacts and Proposed Mitigation

Criteria to determine significance is limited to disruption due to increased construction-related traffic and the potential for detours from normal routes.

Alternative 1: No Action (St. Croix, St. John, and St. Thomas)

Construction will not occur under the No Action Alternative, therefore FEMA anticipates no impact to transportation.

Alternative 2: Renovation (St. Croix, St. John, and St. Thomas)

Renovation involves general improvements to the housing structures to meet post-disaster design, capacity, and function need. Improvements would also withstand future disaster events. This alternative would use existing transportation networks, and traffic patterns would not change as a result of this alternative. Removal or improvement of damaged sidewalks and related paving and railings during the construction activity may result in short-term, local re-routing of traffic in the proposed action area only. For these reasons, there would be minor beneficial, long-term impact on transportation due to improved sidewalks and a negligible adverse, short-term impact because some traffic may need to be temporarily re-routed during demolition or construction activities related to renovation. FEMA does not anticipate activities that would contribute to major changes in local transportation capacities.

Alternative 3: Redevelopment (St. Croix, St. John, and St. Thomas)

Redevelopment will entail improving the housing structure where it is currently situated. It may include demolition of existing damaged housing and allow for the construction of new housing in the same location. New parking lots, sidewalks, and connections to or improvements of adjacent,

local roadways will affect transportation. The construction or improvements would not result in markedly increased road capacity, but may increase support capacity as it relates to construction of additional parking spaces. For these reasons, FEMA anticipates a negligible adverse, short-term impact on local roads and parking spaces and a minor beneficial, long-term impact on transportation and parking.

Alternative 4: Relocation (Alternative 1: No Action (St. Croix, St. John, and St. Thomas)

The No Action Alternative would not restore or improve the VI housing, and thus, the related transportation network would remain. VI residents would continue to use the existing transportation network and without improvements, would continue to be vulnerable to flooding during large rain events. Therefore, the No Action Alternative would have minor to moderate long-term adverse impacts on transportation and no negative short-term impacts.

Alternative 5: Demolition (St. Croix, St. John, and St. Thomas)

Demolition would consist of the removal of damaged housing structures and removal of associated public streets. The existing transportation network would be used to haul the construction debris to a permitted landfill site or associated recycling facility. There would be negligible, short-term adverse impacts associated with this alternative since traffic would likely need to be rerouted during demolition activities. There would be moderate, long-term beneficial impacts to transportation since aging or damaged transportation features would be removed.

Alternative 6: A Combination of Alternatives 2 through 5 (St. Croix, St. John, and St. Thomas)

Alternatives 2 through 5 average negligible, short-term adverse impacts mainly due to the potential need to re-route traffic around construction or demolition activities. Minor to moderate long-term beneficial impacts may be experienced with the sidewalk and road improvements anticipated for all alternatives. Combining one or more alternative is not expected to change this outcome.

5.13 Public Services and Utilities

Public services and utilities refer to the generation and transmission of potable water, sanitary wastewater and stormwater, electricity generation as well as natural gas transmission and communications infrastructure, and the management of solid waste. Analyses of the utility conditions addresses the existing infrastructure such as wells, water systems, cisterns, and wastewater treatment plants, current utility use, and any pre-defined capacity or limitations set forth in permits or regulations.

In addition to complying with local zoning regulations and applicable ordnances, other major regulatory requirements and policies anticipated to apply to utility improvements, demolition, and/or construction activities include:

- Federal Clean Water Act
- Title V of the Clean Air Act
- Virgin Islands Air Pollution Control Act Rules and Regulations (V.I.C. Title. 12, § 9 (2019) and the 1995 Rules and Regulations of the Virgin Islands Air Pollution Control Act)
- V.I.C. Title. 19, § 51 (2019) pertaining to the Safe Drinking Water Act, pursuant to Act No. 6433, October 9, 2001
- V.I.C. Title. 19, § 51 (2019) Part VI: Regulatory Provisions Concerning Public Health, Chapter 56 of the Virgin Islands Code pertaining to Solid and Hazardous Waste Management
- V.I.C. Title. 29, § 5 (2019) pertaining to Building Code: Public Planning and Development, Subchapter VIII - Water Supply § 308. Water supply, cisterns, gutters, downspouts, wells
- USVI TPDES which regulates the discharge of pollutants into waters of the Virgin Islands
- USVI Underground Storage Tank Act

5.13.1 Existing Conditions

The regulatory body within the USVI DPNR is the Division of Environmental Protection. This Division collaborates with other DPNR divisions and is responsible for environmental protections and enforcement of USVI environmental laws, regulations, and certain national environmental laws, as delegated by the USEPA. The Region of Influence (ROI) for potable water, wastewater, stormwater, electrical, natural gas, and communications is comprised of the existing infrastructure and utilities on the USVI. The ROI for solid waste includes the entire USVI and surrounding cays.

Electricity: The Virgin Islands WAPA is an independent agency of the Virgin Islands Government which produces and distributes electricity and drinking water to residential and commercial customers in the Territory.[43] WAPA produces electrical power at plants on St. Thomas and St. Croix and distributes electrical service through smart grids to customers on St. Croix, St. John, St. Thomas, Hassel Island, and Water Island.

The two generating units on St. Thomas and St. Croix include combustion and steam turbines powered with fuel oil or propane, as well as some solar power facilities owned by independent power producers and residents with rooftop solar panels. More than half of the USVI's petroleum-fueled generating units are more than 25 years old. WAPA is replacing some of its older generators with combinations of smaller units for more efficient balancing with renewable energy sources.[44] The two separate island grids maintain their own backup generation. The USVI is shifting from fuel oil to propane to generate electricity and produce public drinking water.[44]

[43] USVI Water and Power Authority, 2022
[44] US Energy Information Administration, 2022

Power systems transmit electricity through feeder power lines. Feeder transmits power from generating station or substation to the distribution points. Appendix A, Documents A and B, provide feeder listings for the St. Croix district and the St. Thomas and St. John district.[45]

During the back-to-back hurricanes in September 2017, 80 to 90% of the USVI transmission and distribution systems were damaged or destroyed.[45] To mitigate future disruption of the islands' grids, WAPA added backup generating units that include battery storage.

The WAPA's Strategic Transformation plan includes making the existing electrical grids far more resilient to major hurricanes, including extensive undergrounding and installing composite poles. As of October 2021, WAPA installed just over half of the planned composite poles and was on track to finish the project in early 2024.[45]

- 140 megawatts of electricity are used to supply St. Croix Island. 40 miles of ocean separates the power supply on St. Croix from the St. Thomas system. Seabed depth makes any potential electrical connection between the St. Thomas and St. Croix systems difficult. For both electric systems, the average power demand loads are less than half of their generating capacities, which allows them to maintain their own backup generation and reserves.[45]

- Electricity at St. Thomas has 160 megawatts of generating capacity and supplies electricity to St. Thomas as well as both nearby islands St. John and Water by underwater cables.[45]

Renewable Energy: In 2020, renewables were less than 10% of the USVI electricity generating capacity, all of it from solar power. Customer-installed, small rooftop panel systems account for almost two-thirds of USVI solar generating capacity, while the other one-third comes from larger solar energy facilities. The USVI plans to add wind energy capacity in the coming years and also considered other biomass, or organic matter used as fuel, energy sources.[45]

Drinking Water: The WAPA produces and distributes drinking water to residential and commercial customers in the Territory. Under long-term agreements with Seven Seas Water Corporation, modern seawater reverse osmosis facilities on St. Thomas and St. Croix produce drinking water.[44] The law requires all residences, hotels, and most public buildings to have cisterns supplied from rooftop precipitation collectors.[46]

Wastewater: The Virgin Islands Waste Management Authority (VIWMA) provides wastewater services including collection, pumping, treatment, and disposal to approximately 60 percent of the residents of the Territory. Through a network of underground pipes and pump stations, wastewater is transported to treatment plants and ultimately treated effluent is discharged into the ocean. The system currently consists of 8 treatment plants and 31 pump stations, territorially. Compliance

[45] USVI Water and Power Authority, 2022
[46] USVI Code, 2019

with local and federal regulations and permits issued by the USVI DPNR is a requirement. According to the USVI Law, if a residence is located within 60 feet of a public sewer line, the subrecipient will be required to connect to the system.[47]

Stormwater: Discussion of stormwater resources are located in Section 5.3 Water Quality is not discussed further in this section.

Communications: The traditional and largest communications provider in the USVI is Viya which is a subsidiary of ATN International, formerly known as Atlantic Tele-Network, Inc. Viya serves both businesses and residential markets and include wireline and wireless voice service, fixed and mobile broadband and cable television service offered over a hybrid fiber-coaxial wireline network and a state-of-the-art 4G LTE wireless network serving St. Croix, St. John, and St. Thomas.[48] Claro Puerto Rico and T-Mobile U.S. also serve the islands.

Solid Waste: The VIWMA provides waste collection, treatment, and disposal services to the USVI. The VIWMA manages the USVI landfills and transfer station to meet local and federal rules and regulations for compliance. Public dumpsters are situated around the islands for VIWMA pickup for ultimate waste disposal at St. Croix's Anguilla Landfill and St. Thomas' Bovoni Landfill, which also collects waste from St. John via the Susannaberg Transfer Station. The landfills accept non-hazardous waste only such as household, construction/demolition, yard, inert gas cylinders, etc.[48] The VIWMA is in on-going coordination with USEPA on diminishing landfill capacity and ability to accept hazardous waste in the territory that has required shipping of waste outside of the territory for final disposal.

5.13.2 Potential Impacts and Proposed Mitigation

The only potential impact would be if the current public services would not be able to meet the demand of residents. The subrecipient does not anticipate the current population to increase due to implementation of the alternatives, therefore negligible to no adverse impacts would be anticipated, with mostly beneficial impact expected.

Alternative 1: No Action (St. Croix, St. John, and St. Thomas)

Under the No Action Alternative, construction will not occur, therefore FEMA anticipates no impact on public services and utilities. No action would not restore or improve the USVI housing, and thus, the related public utility infrastructure would remain and be vulnerable to future disaster events. USVI residents would continue to live in buildings that may be damaged and would likely continue to experience service interruptions during future flood or natural disaster events.

[47] USVI Waste Management Authority, 2022
[48] Viya, 2022

Therefore, the No Action Alternative would have minor to moderate adverse, long-term impacts on utilities and no short-term impacts.

Alternative 2: Renovation (St. Croix, St. John, and St. Thomas)

Renovation would result in existing building structures remaining in place. Improvements would occur to meet post-disaster design, capacity, and function needs. This would require upgrades which allow greater protection against future natural disasters. Disruption should not occur to the existing utilities, but upgrade may occur to support improved distribution systems during the construction phase. This alternative anticipates site work related to re-establishing cisterns to include trenching, cutting and resurfacing of pavement or curb and gutter, and replacing of old piping and pumps. Therefore, FEMA anticipates that there would be negligible adverse, short-term impacts and minor beneficial, long-term impacts on public services and utilities.

Alternative 3: Redevelopment (St. Croix, St. John, and St. Thomas)

Redevelopment requires demolition of existing, damaged housing, and construction of new housing in the same place. During the construction phase the existing public services and utilities would be adequate since there is existing capacity in the ROI. However, removal of some utilities and septic tanks may occur in specific areas. Therefore, some utilities may require isolation using valves and other shut-off mechanisms to segregate sections of water, electric, or sanitary pipes that would no longer supply utility services during development activities. In addition, FEMA anticipates an increase of permanent residences in the redeveloped area increasing the consumption of improved public services and utilities. For these reasons, negligible adverse, short-term impacts and minor beneficial, long-term impacts on public services and utilities would occur.

Alternative 4: Relocation (St. Croix, St. John, and St. Thomas)

Relocation involves selecting a new site for the housing which would require new construction. FEMA expects demolition activities to occur and correlate with the type of relocation required. Similar to Alternative 2, public services and utilities would be adequate to support relocation, but necessary utility distribution systems would need to be isolated either permanently or temporarily isolated, with shut-off mechanisms while improvements occur. Relocation would have negligible adverse, short-term impacts and minor beneficial, long-term impacts on public services and utilities.

Alternative 5: Demolition (St. Croix, St. John, and St. Thomas)

Demolition would consist of the removal of damaged housing structures, removal of related utilities and would impact public services. Demolition would affect stormwater, sanitary piping supply, trenching and excavation, utility capping, and electrical systems. Since removal of the damaged housing structures would occur, so would removal of damaged utilities. Demolition would result in a decrease in the population in that area, and have no short-term adverse impacts

and minor beneficial long-term impacts on public services and utilities. Demolition may require additional coordination between VIWMA, USEPA, VIHFA, and VIHA for approval and may be a moderate to major impact to the territory's landfills.

Alternative 6: A Combination of Alternatives 2 through 5 (St. Croix, St. John, and St. Thomas)

Preferred Alternative 6 assumes the subrecipient will execute part or all of the activities from each of the alternatives for any given housing action, therefore analysis assumes all of the activities may be applicable. The action alternatives have negligible short-term impacts and minor beneficial long-term impacts. The only potential change would be combining a sole demolition action with one or more of the other action alternatives, as demolition currently has no adverse impacts.

5.14 Public Health and Safety

Safety considerations arise in many stages of the NEPA process. Public health and safety can include everything from the safety and security of food supplies to the safe use of drug and medical devices. Understanding health as a human right creates a legal obligation on states to ensure access to timely, acceptable, and affordable health care of appropriate quality as well as to providing for the underlying determinants of health, such as safe and potable water, sanitation, food, housing, health-related information and education, and gender equality.[49]

After March 13, 1991, buildings of four or more units must meet the accessibility requirements for multifamily housing, whether privately owned or publicly assisted housing, and regardless of whether they are rental or for sale units. To help builders comply with these requirements, HUD issued in 1991 its Fair Housing Act Accessibility Guidelines. All Federally assisted new construction housing developments with five or more units must design and construct 5 percent of the dwelling units, or at least one unit, whichever is greater, to be accessible for persons with mobility disabilities. Construction of these units must be in accordance with the Uniform Federal Accessibility Standards or a standard that is equivalent or stricter. An additional 2 percent of the dwelling units, or at least one unit, whichever is greater, must be accessible for persons with hearing or visual disabilities.

The Americans with Disabilities Act of 1990 (ADA) primarily deals with accessibility of public facilities such as restaurants, hotels, and parks. With respect to housing accessibility, Title II of the ADA covers housing provided by public entities such as state and local governments.[50]

The action alternatives and futured proposed actions presented in this PEA, will meet the Section 504 of the Rehabilitation Act of 1973, as amended, requiring at least five percent of housing units

[49] World Health Organization, 2017
[50] US Department of Housing and Urban Development, 2022

be accessible for persons with mobility disabilities and two percent of the housing units to be accessible for persons with hearing or visual disabilities.

Established in February 2019, the USVI Office of Disaster Recovery[51] oversees recovery, designating federal block grant funds for public actions, training staff, using contractors to boost territory government management capacity, making plans to upgrade existing infrastructure, identifying funding options to restore and improve housing conditions, and working to restore natural and cultural resources.

Within the USVI the primary protective and health services include fire protection, law enforcement, and medical emergency services. The following describes the primary authorities tasked with ensuring public health and safety:

- USVI Department of Health (DOH) functions as both the state or territory regulatory agency and the territorial public health agency for the U.S. Virgin Islands. As set forth by the V.I.C. Title 3 and 19, DOH has direct responsibility for conducting programs of preventive medicine, including, Environmental Sanitation, providing Emergency Medical Services, and assumes primary responsibility for the health of the community in the event of a disaster. USVI DOH services are administered by 34 activity centers, with three health care facilities, two district offices and field offices, as well as the central office, located on St. Thomas.[52]
- USVI DOH provides emergency care and transport of the sick and injured through its Office of Emergency Medical Services (VIEMS). USVI DOH created VIEMS in 1976 and is responsible for public safety, highway safety, rescue response, health & environmental monitoring, community outreach and emergency medical services (EMS) for children. VIEMS operates on the Islands of St. Croix, St. John and St. Thomas. It also provides EMS to the surrounding cays and waterways via ground and sea transport vehicles.[53]
- The major hospital on St. Thomas is Schneider Regional Medical Center. St. Croix has Governor Juan F. Luis Hospital & Medical Center. There are only clinic facilities, no full hospital, on St. John; medical teams transfer serious cases to the hospital on St. Thomas.
- The VI Fire Services has total of 11 stations with 4 stations on St. Croix, 5 stations on St. Thomas and 2 stations on St. John.[54]
- The Police Division is organized into five bureaus: Patrol, Criminal Investigation, Traffic, Special Operations and Communications. The Police Division further organizes the

[51] USVI Office of Disaster Recovery, 2022
[52] USVI Department of Health, 2022
[53] USVI Department of Health, 2022
[54] USVI Department of Property and Procurement, 2022

bureaus into three Districts: St. Thomas and Water Island District; St. Croix District; & St. John District.[55]

- The United States Coast Guard Atlantic Area Marine Safety Detachment (MSD) St. Thomas is in port city of Charlotte Amalie. The MSD's area of responsibility incudes three of the four islands in the USVI; St. Thomas, St. John, and Water Island. Working closely with other government agencies, federal, territorial, and local law enforcement. MSD St. Thomas is responsible for the protection of the marine environment and the promotion of the safe passage of marine traffic, carrying passengers, oil, hazardous products, and consumer goods.[56]

The National Environmental Health Association (NEHA) is working with the U.S. Centers for Disease Control and Prevention and the Agency for Toxic Substances and Disease Registry to improve public health, childcare, and building safety. The two-year cooperative agreement directs NEHA to conduct its work in jurisdictions impacted by the 2017 hurricanes Harvey, Irma, and Maria, notably the U.S. Virgin Islands and Puerto Rico. The agreement outlines a series of objectives in a variety of areas: develop and maintain a trained, skilled environmental health workforce, essential for hurricane recovery efforts and ensuring preparedness for future emergencies when contagious disease, vector control, and threats to drinking water and food supplies pose increased public risks after a storm.[57]

5.14.1 Existing Conditions

St. Croix

The major hospital on. St. Croix has Governor Juan F. Luis Hospital & Medical Center. The VI Fire Services has total of 11 stations with 4 stations on St. Croix.

St. John

There is no full hospital on St. John only clinic facilities; medical teams transfer serious cases to the hospital on St. Thomas. The VI Fire Services has total of 11 stations with 2 stations on St. John.

St. Thomas

The major hospital on St. Thomas is Schneider Regional Medical Center. The VI Fire Services has total of 11 stations with 5 stations on St. Thomas.

[55] USVI Police Department, 2010
[56] US Coast Guard, 2022
[57] National Environmental Health Association, 2022

5.14.2 Potential Impacts and Proposed Mitigation

The following criteria will be used to determine if the alternatives may impact public health and safety:

- Substantially increase risks associated with the safety of construction personnel or the local community,
- Substantially hinder the ability to respond to an emergency,
- Introduce a new health or safety risk for which the community is not prepared or does not have adequate management and response plans in place,
- Result in non-compliance with the ADA.

Alternative 1: No Action (St. Croix, St. John, and St. Thomas)

In the No Action Alternative, FEMA does not provide funding for housing actions, potentially leaving residents without acceptable living conditions and vulnerable to future storm events. As part of the housing action initiative, FEMA anticipates the infrastructure will be upgraded to meet current standard, thereby improving building accessibility for the disabled. The standard of living for USVI residents would remain diminished by the lack of safe housing. Further, if no action occurs, the subrecipient would not be eligible to receive FEMA funds for housing actions to restore and improve the infrastructure to meet post-disaster design, capacity, and function needs. FEMA anticipates moderate to major adverse, long-term impacts.

Alternatives 2 and 3: Renovation and Redevelopment (St. Croix, St. John, and St. Thomas)

With appropriate planning, mitigation activities and compliance with safety regulations, implementation of the alternatives will not result in substantially increased safety risk, the hindrance of emergency response, or the introduction of a new health or safety risk. FEMA anticipates no impact. Renovation and redevelopment activities must be ADA compliant and follow the Fair Housing Act Accessibility Guidelines. Doing so will result in no impact.

Alternative 4: Relocation (St. Croix, St. John, and St. Thomas)

With appropriate planning, mitigation activities and compliance with safety regulations, implementation of the alternatives will not result in substantially increased safety risk, the hindrance of emergency response, the introduction of a new health or safety risk. FEMA anticipates no impact. Relocation activities must be ADA compliant and follow the Fair Housing Act Accessibility Guidelines. No compromising will occur with accessibility to fire protection, law enforcement, and medical emergency services. Doing so will result in no impact.

Alternative 5: Demolition (St. Croix, St. John, and St. Thomas)

FEMA anticipates no impact to this resource by this alternative.

Alternative 6: A Combination of Alternatives 2 through 5 (St. Croix, St. John, and St. Thomas)

Preferred Alternative 6 assumes the subrecipient will execute part or all of the activities from each of the alternatives for any given housing action, therefore analysis assumes all of the activities may be applicable. Alternatives 2 through 4 are dependent on compliance with ADA and the Fair Housing Act Accessibility Guidelines, with Alternative 5 having no impact without mitigation. Combining one or more alternative will not change this outcome.

5.15 Hazardous Materials

49 CFR §171.8 defines hazardous materials as hazardous substances, hazardous wastes, marine pollutants, elevated temperature materials, materials designated as hazardous in the Hazardous Materials Table (49 CFR § 172.101), and materials that meet the defining criteria for hazard classes and divisions in 49 CFR §173. Resource Conservation and Recovery Act (RCRA) defines hazardous wastes at 42 U.S.C. § 6903(5). The Pollution Prevention Act of 1990, 42 U.S.C. 13101(b), established a national policy to prevent or reduce pollution at the source, whenever feasible.

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 (42 U.S.C § 9601 et seq.) RCRA, Subtitle D are the primary Federal laws for the management and disposal of hazardous substances. The USEPA regulates the management of non-hazardous solid waste according to the RCRA. Under RCRA, the USEPA is also in charge of regulating the handling and disposal of hazardous wastes. The USVI DPNR regulates locally.

A considerable number of health and safety laws and regulations exist for a wide variety of activities. With regards to worker safety, the U.S. Congress enacted OSHA of 1970, 29 U.S.C § 651 et seq. to assure safe and healthful working conditions for working men and women. The Virgin Islands Division of Occupational Safety and Health operates an OSHA-approved public sector only State Plan under the 23(g) 50/50 Grant. Safety and occupational health issues include exposure to natural hazards; one-time and long-term exposure to asbestos, lead, mold, radiation, chemicals, and other hazardous materials; and injuries or deaths resulting from a one-time accident.

5.15.1 Existing Conditions

St. Thomas

The USEPA refers to the CERCLA program as a Superfund. A Superfund site is placed on the USEPA's National Priorities List (NPL) if it has scored high enough on CERCLA's hazard ranking system. The USVI has one site included on the NPL: Tutu Well Field on St. Thomas. Tutu Well Field has groundwater contaminated with chlorinated volatile organic compounds from multiple

sources. Treatment of the groundwater plume is currently happening; Appendix B, Figure M indicates its location.[58]

St. Croix, St. John, and St. Thomas

There will be plots of land considered for housing and the history of what has occurred on that land may be unknown. It may have soil and/or groundwater contamination from past land use including old gasoline stations, industrial use, etc. Where needed, land acquisition will include an Environmental Site Assessment (ESA) performed using the ASTM E1527-21 Standard Practice for Environmental Site Assessments: Phase I ESA Process.[59] A Phase I typically occurs at the desktop, reviewing historical records, aerial photographs, and other documentation to determine what activities have occurred on that piece of land in the past. A Phase II ESA occurs if the result of the ESA indicates that past activities may have resulted in the release of contamination into the environment via soil, groundwater, surface water or sediment. A Phase II ESA includes sampling to determine if chemicals above residential regulatory standards contaminated the environment.

Exposure to silica, friable asbestos and lead-based paint from the breaking of building materials into fine particles during demolition or similar activities can release fine particles into the air. Mold may also be present at unmaintained buildings. Long-term exposure to these contaminants can lead to health issues. OSHA requires that contractors use BMPs and wear appropriate personal protective equipment (PPE) to minimize fugitive dust particulate and mold exposure while working with materials that have the potential to become hazardous.

Construction work routinely includes use of hazardous materials such as aerosols, anti-freeze, fertilizers, motor oil, vehicle fuel, paint supplies, and solvents and more. FEMA expects their use and storage on-site as part of the existing conditions for all alternatives and locations.

5.15.2 Potential Impacts and Proposed Mitigation

Each of Alternatives 2 through 5 may include the removal and/or demolition of one or more of the following materials including but not limited to: painted sheet rock, countertops, flooring, wood, concrete, and asphalt. Removal of these types of materials may require special handling if project managers suspect lead-based paint, mold or asbestos. Alternative 2 (Renovation) may have asbestos and lead-based paint abatement and mold remediation with no planned structure removal or demolition.

Buildings slated for Alternatives 3 through 5 (Redevelopment, Relocation, and Demolition) will also need specialized testing for asbestos prior to the start of work. If asbestos is determined to be present, USEPA laws and regulations provide worker safety and proper disposal of asbestos-

[58] US Environmental Protection Agency, 2022
[59] ASTM International, 2021

containing material.[60] Asbestos exposure can result from the inhalation of dust from a multitude of construction materials or household products. The subrecipient is responsible for planning, financing, constructing, maintaining, and managing public housing developments in the Territory.[61] Asbestos identification will be necessary and includes having a specialist on-site during or prior to renovation, redevelopment, and demolition activities so the specialist can identify potential asbestos-containing materials, test if present, and potential proper abatement, or cleanup and disposal, activities performed.

Building structures impacted by Hurricanes Irma and/or Maria are susceptible to mold. Residents and construction personnel should limit their exposure to mold by wearing PPE, including an N-95 respirator at a minimum, goggles, and protective gloves, and ensure the mold cleanup is complete before residents occupy the structure.[62]

Use of diesel fuel or other fuels for powering equipment used in construction or demolition may occur and it may be necessary to store bulk quantities. Storage of bulk fuels and other regulated materials during construction activities will also need to follow USEPA and USVI regulations for storing bulk fuels, container inspection, spill prevention, reporting and clean up should a spill occur (V.I.C. Title 12 §17 (2019)).[63] Proper secondary containment for mobile refuelers is necessary to prevent releases to the environment and vary based on volume and type. The USEPA website provides details regarding secondary containment requirements.[64]

Housing renovations and demolition that include the removal of power line transformers will require the subrecipient follow the USEPA Regional Polychlorinated Biphenyls Programs regulations and guidelines.[65]

The following criteria will be used to determine impacts:

- The generation of a new waste stream that cannot be immediately or safely managed, under existing protocols,
- The generation of an excessive quantity of waste that cannot be adequately or safely managed under the current protocols,
- Risk of building on contaminated land,
- Risk of exposure to mold, asbestos and lead-based paint.

[60] US Environmental Protection Agency, 2021
[61] US Department of Housing and Urban Development, 2019
[62] US Environmental Protection Agency, 2022
[63] US Environmental Protection Agency, 2021
[64] US Environmental Protection Agency, 2022
[65] US Environmental Protection Agency, 2022

Alternative 1: No Action (St. Croix, St. John, and St. Thomas)

In the No Action Alternative, FEMA does not provide funding for housing actions, potentially leaving residents without acceptable living conditions and vulnerable to future storm events. As part of the housing action initiative, FEMA anticipates the housing structure will be upgraded to whereby potential environmental hazards such as mold, asbestos and lead based paint would be removed. The standard of living for USVI residents would remain diminished by the lack of safe housing. Further, if no action occurs, the subrecipient would not be eligible to receive FEMA funds for housing actions to restore and improve the infrastructure to meet post-disaster design, capacity, and function needs. Effects will not occur on all housing. In a worst-case scenario, where damage has caused friable asbestos, mold growth and/or where lead-based paint is accessible to children, FEMA anticipates the No Action Alternative has the potential to cause a major adverse, long-term direct impact to from the potential exposure or release of hazardous materials.

Alternatives 2 through 5: Renovation, Redevelopment, Relocation and Demolition (St. Croix, St. John, and St. Thomas)

Specific to Alternative 2: Renovation:

As activities will occur on existing housing sites, FEMA assumes the potential for exposure to contaminated soil and/or groundwater due to previous land use would not be a concern. FEMA assumes that lead-based paint and potentially friable asbestos sources would be fully abated prior to renovation activities, therefore no impact is anticipated.

For all alternatives:

Mold, asbestos, and lead-based paint may be present. If buildings programmed for renovation, redevelopment, relocation or demolition were built before 1978, they may need to be tested for lead-based paint and abatement may be necessary before these activities begin. FEMA anticipates moderate, long-term beneficial impacts with the removal of asbestos, lead-based paint and mold.

FEMA does not anticipate hazardous materials used onsite to cause impact if properly used, stored and disposed. A Spill Prevention Control and Countermeasure Plan will be prepared by the contractor(s) conducting the renovations.[65] FEMA anticipates no impact associated with materials used on site during construction activities.

FEMA anticipates no impact if new construction avoids the area within or near the footprint of the Tutu Wellfield groundwater contamination plume. It is unlikely the subrecipient will choose new housing sites within the Tutu Wellfield plume as the current nature and extent of the contamination would not support immediate future residential use. The subrecipient will chose new site locations using due diligence to ensure no previous contamination exists.

Alternative 6: A Combination of Alternatives 2 through 5 (St. Croix, St. John, and St. Thomas)

Preferred Alternative 6 assumes the subrecipient will execute part or all of the activities from each of the alternatives for any given housing action, therefore analysis assumes all of the activities may be applicable. FEMA anticipates no adverse impacts from any of the alternatives as long as compliance occurs with worker safety regulations, plans and guidance. FEMA anticipates no impacts from existing groundwater contamination in St. Thomas as housing will not be located within the footprint or adjacent to the Superfund site. The subrecipient will make new site choices using due diligence to ensure no previous contamination exists. Moderate beneficial, long-term impacts will result with the removal of lead-based paint and friable asbestos sources. In addition, FEMA anticipates negligible to minor, short-term adverse impact related to handling, storage and/or disposal of lead and friable asbestos-containing materials.

5.16 Cumulative Impacts

In accordance with NEPA, this PEA considers the overall cumulative impact of the alternatives and other actions that are related in terms of time or proximity. According to the CEQ regulations, cumulative impacts represent the "impact on the environment which results from the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what federal agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time" (40 CFR 1508.7).

Cumulative impacts are those impacts "… which result from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions…" (40 CFR 1508.7). The statutory basis for considering cumulative impacts of federal actions is the NEPA of 1969, 42 U.S.C. 4321 et seq. In the context of evaluating the scope of a proposed action, FEMA must consider direct, indirect, and cumulative impacts.

In addition to NEPA, other statutes require federal agencies to consider cumulative effects. These include the CAA Section 404(b)(1) guidelines, the regulations implementing the conformity provisions of the CAA, Section 106 of the NHPA, Section 7 of the ESA and Section 6 of the CBRA.

Areas on the islands that can accommodate development are limited, therefore cumulative effects among projects implemented at the same time as one or more proposed housing action is anticipated to cause some level of impact. Appendix A, Table I includes a summary of the types of current and future projects that may be occurring at the same time as the proposed housing actions, including the potentially affected resource area.

FEMA will consider specific cumulative effects once the subrecipient identifies individual proposed actions and schedules. Overall, FEMA anticipates beneficial cumulative impacts as a

result of restoring infrastructure to improved pre-disaster conditions and improving resiliency, which will improve health of these communities and indirectly reduce poverty, thereby improving the economy and tourism as well as improving equity on the islands. The potential adverse effects of these actions will prove to be short-term, whereas the beneficial impacts of the housing actions are long-term, therefore resulting in a net beneficial impact to the identified resources.

Full impact analysis for the following resource areas will not be affected cumulatively or requirements for mitigation will ensure no cumulative impact:

- Geology, Topography and Soils
- Protected Species and Habitats
- Land Use and Planning
- Public Services and Utilities
- Public Health and Safety
- Hazardous Materials

Appendix C, Table I identifies specific resource areas that are most likely potentially affected cumulatively. Descriptions of the anticipated impacts are as follows:

Air Quality

Many ongoing and future projects that may occur at the same time as proposed housing actions will involve construction. FEMA anticipates cumulative impacts to be minor adverse, short-term impacts from the following potential emission sources used both at the proposed housing actions and other actions: mobile generators, painting or paint removal, handling refrigerants, and any necessary demolition, temporary roads, or work that disrupts dirt, or particulate matter. The subrecipient will implement mitigation and prevention measures to minimize impact. FEMA anticipates no long-term impacts on air quality.

Water Quality

The primary source of potential water quality impact is construction-related erosion. FEMA anticipates minor adverse, long-term impacts due to ground disturbing activities and changes of pervious landscape, or well-drained soils, to impervious hardscape such as concrete and asphalt. The subrecipient will manage erosion control by following a SWPPP and obtain applicable NPDES permits. Potential contaminants that stormwater may carry over land via stormwater include petroleum products, including construction equipment, gas-powered or diesel-powered portable generators, and vehicles, as well as sediment. Lead-based paint and asbestos will be fully abated, meaning removed and disposed, prior to demolition or generation of construction debris, therefore there will be no water quality impact from those types of contaminants. The implementation of BMPs as indicated in the SWPPP will alleviate the level of impact.

Cultural Resources

There are a few future actions that focus on the restoration and mitigation of cultural resources. FEMA would anticipate minor to moderate, beneficial, long-term impacts given the scope of the projects include the preservation of known cultural resources. Those future projects, combined with proposed housing actions, would not be more adversely impactful than the proposed housing actions alone.

Future construction projects, if involving buildings determined eligible for listing in the NRHP, would likely have a negligible impact on the historic integrity of standing resources, including those within the viewshed, and may in fact have a minor beneficial long-term impact. However, if archaeological resources exist within the APE, any ground disturbing activities will require regulatory or mitigating measures to offset adverse effects to archaeological resources. Any action will require Section 106 consultation.

Environmental Justice

FEMA anticipates that cumulative impacts would not disproportionately impact low-income or minority populations long-term. FEMA anticipates all future actions will improve the lives of all island inhabitants with improved housing and roads, updated healthcare facilities and educational and cultural opportunities among other improvements (such as future hazard and natural disaster mitigation). FEMA anticipates major, long-term, beneficial impacts. For each project location, FEMA will consider the activities and location to identify potential location-specific impacts. FEMA will consult with USEPA and incorporate recommendations into the project to minimize impacts if an individual project has a potential to create an impact. Minor adverse, short-term impacts to low-income or minority populations include temporary increase of traffic for construction activities, including potential traffic re-routing and increase of emissions associated with vehicles and heavy equipment.

Minor adverse, short-term impact due to temporary displacement of people from their homes to perform future actions may occur in cases where residents must vacate homes during work.

Coastal Resources

Section 6 of the CBRA requires FEMA to consult with a regional representative of the Department of Interior before an action involving permanent restoration of a facility or structure on or attached to a unit of the CBRS (Section 6 consultation). The regulations surrounding construction that may impact coastal resources greatly limits the amount of work that is able to occur there, therefore an adverse long-term impact is not likely.

Inland construction activities could also have a significant impact on coastal resources due to land disturbance activities that impact local water ways draining into the coastal areas. Stormwater

pollution prevention methods will help prevent these impacts. Section 5.3 Water Quality covers these precautions.

Noise

Multiple construction projects implemented at the same time will have more noise impact that if just one project were ongoing. Heavy equipment, temporary re-routing of traffic, potential demolition and other construction-related noise will occur. FEMA expects minor adverse, short-term noise impacts, minimized by use of engineering and administrative controls as discussed in Section 5.11.

Transportation

Multiple construction projects implemented at the same time may have impact on traffic routes that will need to be re-routed, causing minor adverse, short-term impacts with potential traffic congestion in areas that are not accustomed to such inconveniences.

Wetlands

Common construction activities have the potential for minor adverse, short-term impact due to erosion, which the subrecipient will minimize by adherence to mitigation measured outlined in project-specific SWPPP. Whether or not there will be impact is dependent upon the results of the Eight-Step Process discussed in section 5.4. There will be no impact if the subrecipient chooses housing sites outside of wetlands and avoid access through or site run off to wetlands.

Floodplain

Floodplains and floodways have a major presence within the islands, as indicated in Appendix B, Figures G-J. Future projects may have the potential to adversely impact flood zones, depending on action location. If the subrecipient selects future proposed actions in or near a floodplain, all project proponents will need to follow the Eight-Step Decision-Making Process. This process ensures that project proponents consider how its actions affect a floodplain and/or wetlands.

To minimize environmental impacts and future flood risk, mitigation efforts include maintaining as much pre-development vegetation as possible as well as maintaining buffers and drainageways. Buildings and land disturbances should be at least 25 feet from the top of the bank or 30 feet from the centerline, whichever is greater. Compliance with a USVI DPNR SWPPP will minimize impact.

6.0 PERMITS AND PROJECT CONDITIONS

The subrecipient is responsible for obtaining all applicable federal, state, and local permits and other authorizations for project implementation prior to construction and adherence to all permit conditions. Any substantive change to the approved scope of work will require re-evaluations by

FEMA for compliance with NEPA and other laws and EOs. The subrecipient must also adhere to the conditions identified during project implementations and continuing consultations with resource agencies as they identify specific work sites. Failure to comply with grant conditions may jeopardize Federal funds.

1. **The Subrecipient:** Must comply with all applicable environmental and historic preservation laws. Federal funding is contingent upon acquiring all necessary federal, state, and local permits. Noncompliance with this requirement may jeopardize the receipt of federal funds.
2. **Stormwater and Soils:** Under the USEPA NPDES, any project disturbing more than one acre requires an USEPA Construction General Permit, an NPDES Permit, and a SWPPP. The permits and plan require BMPs which serve to protect soils, in addition to stormwater. Subrecipient is required to: manage any piles of soil or debris, minimize steep slope disturbance, preserve native topsoil unless infeasible; and minimize soil compaction and erosion.
3. **Erosion and Sediment Control:** Each project will implement BMPs, and guidelines recommended by USVI state officials. The subrecipient must obtain all necessary permits such as NPDES and implement required plans such as SWPPP.
4. **Endangered Species Act:** All projects will comply with and implement the ESA conditions found in any FEMA programmatic consultation that applies, or those conditions from a project-specific consultation to any actions that may adversely affect federally listed species or designated critical habitat. Impacts no resolved through consultation will require individual NEPA compliance.
5. **Work Affecting Water:** USACE will consult on any work that may affect waters of the United States. The subrecipient is responsible for obtaining and implementing all appropriate permit requirements, including pre-construction notification, prior to the beginning of work.
6. **Floodplain:** For FEMA-funded projects that are within or may affect a floodplain, FEMA will apply the 8-Step Decision-Making Process. FEMA will assess short-term and long-term effects to floodplains and apply applicable avoidance, minimization, and mitigation measures to limit impacts to less than major. FEMA will consider projects in the V-Zone, those with potential major or greater impacts, or those with the potential to increase flood elevations on a case-by-case basis for whether this PEA applies, or to prepare a tiered EA or Site-specific EA. Projects must also comply with USVI floodplain and flood risk regulations.
7. **Wetlands:** For FEMA-funded projects that are within or may affect a wetland, FEMA will apply the 8-Step Decision-Making Process. FEMA will assess short-term and long-term effects to wetlands and apply applicable avoidance, minimization, and mitigation measures to limit impacts to less than major.

8. **Historic Preservation/Archaeological Resources:** For FEMA-funded projects, FEMA will review for any historic or archaeological resources on or eligible for the NRHP. If there is potential to affect historic or archaeological resources, consultation with the VISHPO must occur and any recommendations implemented.
9. **Discovery of Cultural Resources:** If workers discover any cultural materials or human remains during construction, the contractor must halt work immediately and contact FEMA. FEMA staff meeting the Secretary of the Interior's Professional Qualification Standards (48 FR 22716, Sept. 1983) will evaluate the discovery in coordination with VISHPO.
10. **Construction Material and Debris:** The subrecipient must remove any materials deposited in eroded embankments before start of work. The subrecipient is responsible for ensuring that final disposal of bituminous and any non-recyclable debris materials resulting from the renovation, redevelopment, relocation, and demolition activities must take place at a properly permitted landfill. If necessary, waste characterization may be required for certain waste types, such as oil, asbestos, lead-based paint, etc., are properly disposed. The subrecipient is responsible for obtaining any permits associated with staging, transportation, and handling of construction debris.
11. **Solid and Hazardous Waste:** The subrecipient will handle, manage, and dispose of all solid and hazardous waste in accordance with requirements of local, state, and federal laws, regulation, and ordinances.
12. **Clean Air Act:** The subrecipient is responsible for complying with applicable USEPA and USVI requirements for low sulfur fuels and fugitive dust suppression. CAA permitting in USVI is the shared responsibility of USEPA Region 2 for PSD permits and the Air Pollution Control Program of the Division of Environmental Protection of the USVI DPNR for all permits for emission sources that do not require a PSD permit.
13. **Invasive Species:** The subrecipient is responsible for restoring disturbed soils with planting native, non-invasive species. Construction equipment should be power washed prior to initial transportation to the construction site and prior to changing locations to prevent spread of noxious weeds.

7.0 AGENCY COORDINATION AND PUBLIC INVOLVEMENT

This PEA is available for agency and public review and comment for a period of 30 days. The public information process will include a public notice with information about the proposed action in the VI Daily News. The EA is available for download at FEMA's National Environmental

Policy Act Repository, the VIHA official website, the VI Office of Disaster Recovery website, and the VI Territorial Management Agency Facebook page.[66, 67, 68, 69]

A hard copy of the PEA will be available for review at the following VIHA locations:

- VI Housing Authority Offices

  St. Croix
  9299 Estate Slob
  Kingshill, VI 00850
  340-778-8442

  St. Thomas
  9900 Oswald Harris Court
  St. Thomas, VI 00802

Interested parties may request an electronic copy of the EA by emailing FEMA at FEMA-4340-Comment@fema.dhs.gov. This PEA reflects the evaluation and assessment of the federal government, the decision maker for the federal action; however, FEMA will take into consideration comments submitted during the public review period. The public is invited to submit written comments by emailing FEMA-4340-Comment@fema.dhs.gov or via mail to:

USVI Recovery Office
4500 Sunny Isle Shopping Center
Christiansted, VI 00820
Attn: USVI Housing PEA Comments

If FEMA receives no substantive comments from the public and/or agency reviewers, FEMA will adopt the PEA as final, and will issue a Finding of No Significance (FONSI). If FEMA receives substantive comments, it will evaluate and address comments as part of the FONSI documentation or in a Final PEA.

8.0 LIST OF PREPARERS

FEMA Region 2
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[66] www.fema.gov/emergency-managers/practitioners/environmental-historic/nepa-repository
[67] www.vihousing.org
[68] www.usviodr.com
[69] www.facebook.com/vitema/

Virgin Islands Housing Authority
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Environmental Research Group, LLC
6049 Falls Road
Baltimore, MD 21209

9.0 SUMMARY OF IMPACTS

Section	Area of Evaluation	Alternative 1 No Action	Alternative 2 Renovation	Alternative 3 Redevelopment	Alternative 4 Relocation	Alternative 5 Demolition	Alternative 6 A Combination of Alternatives 2 through 5
5.1	Geology, Topography and Soils*	No impact	Minor adverse, temporary to short-term and minor to moderate beneficial, long-term	Minor adverse, temporary to short-term and minor to moderate beneficial, long-term	Minor adverse, temporary to short-term and minor to moderate beneficial, long-term	Minor adverse, temporary to short-term and minor to moderate beneficial, long-term	Minor adverse, temporary to short-term and minor to moderate beneficial, long-term
5.2	Air Quality	Negligible adverse, long-term	Minor adverse, short-term and minor beneficial, long-term	Minor adverse, short-term and minor beneficial, long-term	Minor adverse, short-term and minor beneficial, long-term	Minor adverse, short-term and minor beneficial, long-term	Minor adverse, short-term and minor beneficial, long-term
5.3	Water Quality*	Negligible adverse, minor short-term and long-term	Minor adverse, long-term	Minor adverse, long-term	Minor adverse, long-term	Minor adverse, long-term	Minor adverse, long-term
5.4	Wetlands*	Negligible adverse, long-term	Minor adverse, short-term	Minor adverse, short-term	Minor adverse, short-term	Minor adverse, short-term	Minor adverse, short-term
5.5	Floodplains*	Moderate to major adverse, long-term	Moderate to major beneficial long-term *(avoidance of floodplain)* No to major adverse, short-term *(work performed in floodplain)*	Moderate to major beneficial long-term *(avoidance of floodplain)* No to major adverse, short-term *(work performed in floodplain)*	Moderate to major beneficial long-term *(avoidance of floodplain)* No to major adverse, short-term *(work performed in floodplain)*	Moderate to major beneficial long-term *(avoidance of floodplain)* No to major adverse, short-term *(work performed in floodplain)*	Moderate to major beneficial long-term *(avoidance of floodplain)* No to major adverse long-term *(work performed in floodplain)*

Section	Area of Evaluation	Alternative 1 No Action	Alternative 2 Renovation	Alternative 3 Redevelopment	Alternative 4 Relocation	Alternative 5 Demolition	Alternative 6 A Combination of Alternatives 2 through 5
5.6	Coastal Resources*	Minor to moderate adverse, long-term	Minor adverse, short-term	Minor adverse, short-term	Negligible to moderate beneficial, long-term *(if relocation out of a coastal resource) Negligible to minor, adverse (if relocated into a coastal resource [unlikely])*	Minor adverse, short-term followed by major beneficial long-term *(when demolition leads to removal of structures from the coastal resource)*	Minor Adverse, short-term followed by major beneficial long-term *(when demolition or relocation leads to removal of structures from the coastal resource)*
5.7	Protected Species and Habitats*	Minor adverse, long-term	Negligible adverse, temporary	Negligible adverse, temporary	Negligible adverse, temporary	Negligible adverse, temporary	Negligible adverse, temporary
5.8	Cultural Resources Historic Standing Structures**	Minor Adverse, long-term	Negligible Effect and minor beneficial, long-term	Moderate to major adverse, long-term (*without mitigation*)	Moderate to major adverse, long-term (*without mitigation*)	Moderate to major adverse, long-term (*without mitigation*)	Moderate to major adverse, long-term (*without mitigation*)
5.8	Cultural Resources Archaeological Resources**	No Impact	Negligible Effect	Moderate to major adverse, long-term (*without mitigation*)	Moderate to major adverse, long-term (*without mitigation*)	Moderate to major adverse, long-term (*without mitigation*)	Moderate to major adverse, long-term (*without mitigation*)
5.9	Environmental Justice	Major Adverse, long-term	Minor adverse, short-term *(due to short-term displacement and traffic disruption)* and major beneficial, long-term	Minor adverse, short-term *(due to short-term displacement and traffic disruption)* and major beneficial, long-term	Minor adverse, short-term *(due to short-term displacement and traffic disruption)* and major beneficial, long-term	Minor adverse, short-term *(due to short-term displacement and traffic disruption)* and major beneficial, long-term	Minor adverse, short-term *(due to short-term displacement and traffic disruption)* and major beneficial, long-term

Section	Area of Evaluation	Alternative 1 No Action	Alternative 2 Renovation	Alternative 3 Redevelopment	Alternative 4 Relocation	Alternative 5 Demolition	Alternative 6 A Combination of Alternatives 2 through 5
5.10	Land Use and Planning	Moderate to major adverse	Negligible adverse & moderate to major beneficial	Negligible adverse & moderate to major beneficial	Negligible adverse & moderate to major beneficial	Moderate to major beneficial	Negligible adverse & moderate to major beneficial
5.11	Noise	No impact	Negligible Adverse short-term and Minor beneficial, long-term	Negligible Adverse short-term and Minor beneficial, long-term	Minor adverse short-term and moderate beneficial, long-term	Minor Adverse short-term and moderate beneficial, long-term	Minor Adverse short-term and moderate beneficial, long-term
5.12	Transportation	No impact	Negligible adverse, short-term and minor beneficial, long-term	Negligible adverse, short-term and minor beneficial, long-term	Negligible adverse, short-term and minor beneficial, long-term	Negligible adverse short-term and Moderate beneficial, long-term	Negligible adverse short-term and minor to moderate beneficial, long-term
5.13	Public Services and Utilities	Minor to moderate adverse, long-term	Negligible short-term adverse and minor, beneficial long-term	Negligible short-term adverse and minor, beneficial long-term	Negligible short-term adverse and minor, beneficial long-term	Minor, beneficial long-term	Negligible short-term adverse and minor, beneficial long-term
5.14	Public Health and Safety*	Moderate to major adverse, long-term	No impact	No impact	No impact	No impact	No impact
5.15	Hazardous Materials*	Major, long-term adverse	Moderate beneficial, long-term	Moderate beneficial, long-term	Moderate beneficial, long-term	Moderate beneficial, long-term	Moderate beneficial, long-term

* Areas of Evaluation with an asterisk (*) depend on physical mitigation activities and/or full regulatory compliance to achieve the indicated impact designation.

** Cultural Resources impacts are dependent on whether or not the public housing structures and their exiting footprint are determined eligible for listing in the NRHP.

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APPENDIX A

Documents

Document A – St. Croix Feeder Listing

Document B – St. Thomas/St. John Feeder Listing

Document C – Noise Screening Procedure

NOISE/Existing Noise Exposure - Screening Methodology

Existing noise in the region needs to be quantified so it can be compared to action-specific noise to determine noise impact. In the absence of existing noise measurements, especially at locations known to be noise-sensitive, they must be estimated. The methodologies outlined in The Federal Transit Administration (FTA)Transit Noise and Vibration Impact Assessment Manual, 2018, were implemented to estimate existing noise exposure (FTA, 2018).

The source data evaluated includes existing published noise contours, major and minor roads, 2020 population density, and sensitive receptors.

The sensitive receptors were compared to the existing noise sources to determine:

- If sensitive receptors are within airport published noise contours (Y/N); if Y, L_{dn} = published noise contour. If N, roads and population were evaluated. *There were no sensitive receptors located within the published contours for Henry E. Rohlsen, 2017.*
- Proximity to major and minor roadways. Major roads for the USVI were those with GT 20,000 ADT which includes portions of 30 and 38 on St. Thomas (VIDPW, 2019) and portions of Hwy 66 on St. Croix since some are paved, 4-lane roads.
- 2020 population density.

The L_{dn} values from Appendix C, Table E were applied and further evaluated. If the sites proximity to major roads or airports were far enough away that ambient noise is dominated by local streets and community activities, then the estimate is based on population density. For this effort, if the proximity of the sensitive receptor was greater than a half-mile away from a major or minor road, then the relative population density L_{dn} value was used. The final noise levels were compared, and the lowest level is selected and associated with the final L_{dn} for the noise receiver (or sensitive receptor). (FTA, 2018. Step 5, Estimate Existing Noise Exposure). See: Transit Noise and Vibration Impact Assessment Manual (dot.gov).

APPENDIX B

Figures

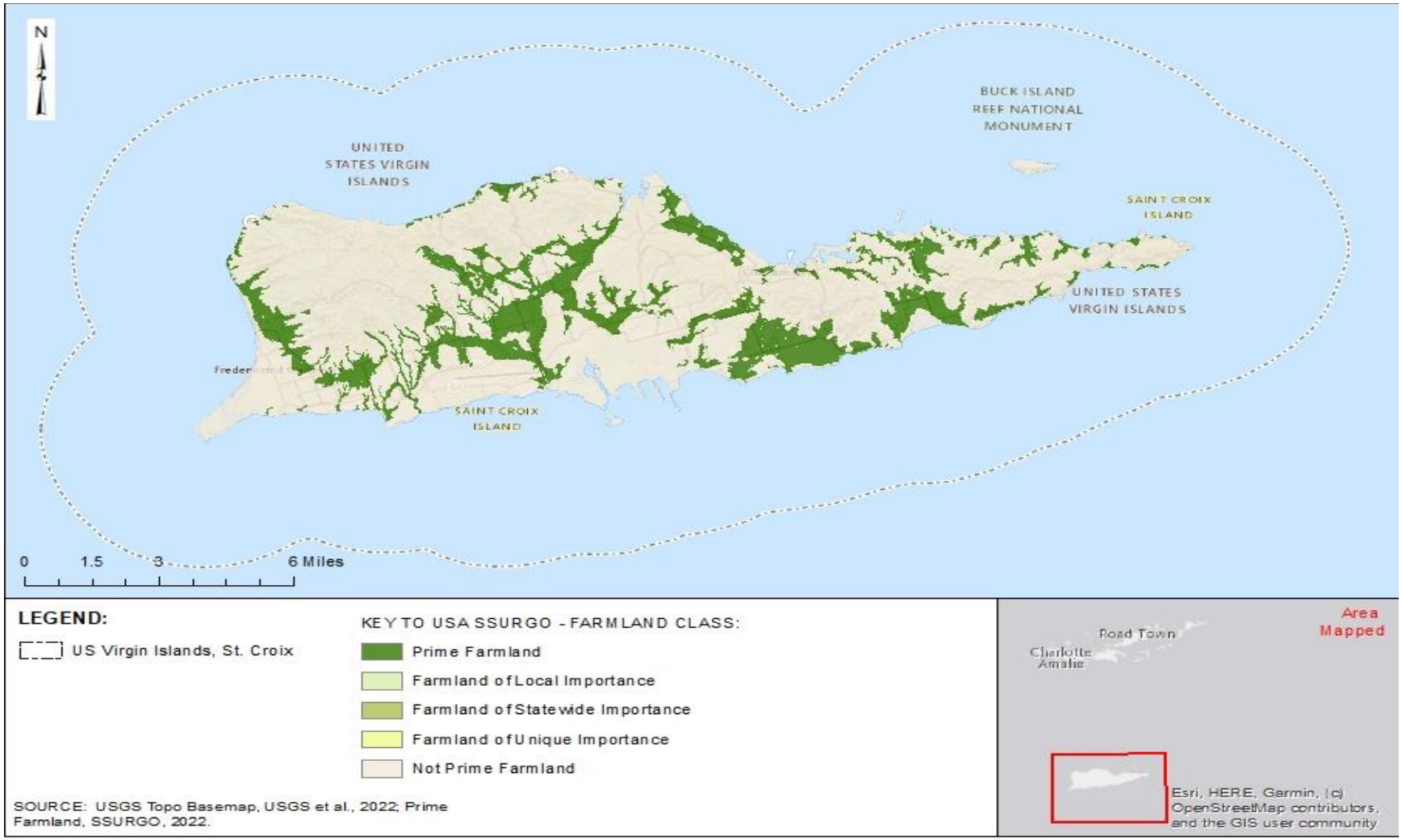
Figure A - USVI Location Map (St. Croix)

Saint Croix Island, Location Map

Figure A – USVI Location Map (St. Thomas and St. John)

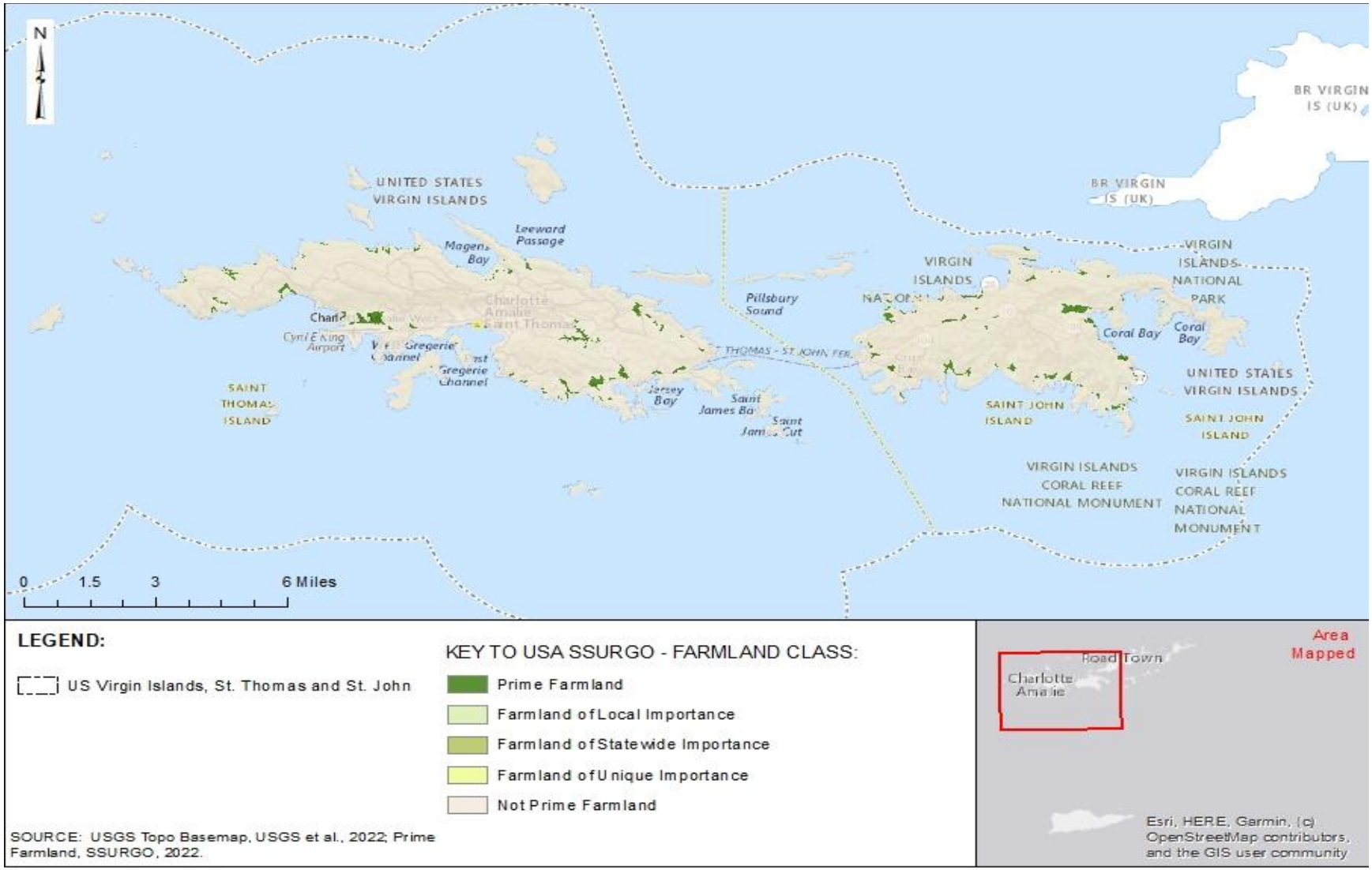
Saint Thomas and Saint John Islands, Location Map

Figure C – USVI Prime Farmland (St. Croix)



Prime Farmland, Saint Croix Island

Figure D – USVI Prime Farmland (St. John and St. Thomas)



Prime Farmland, Saint Thomas and Saint John

Figure E –Urban Areas

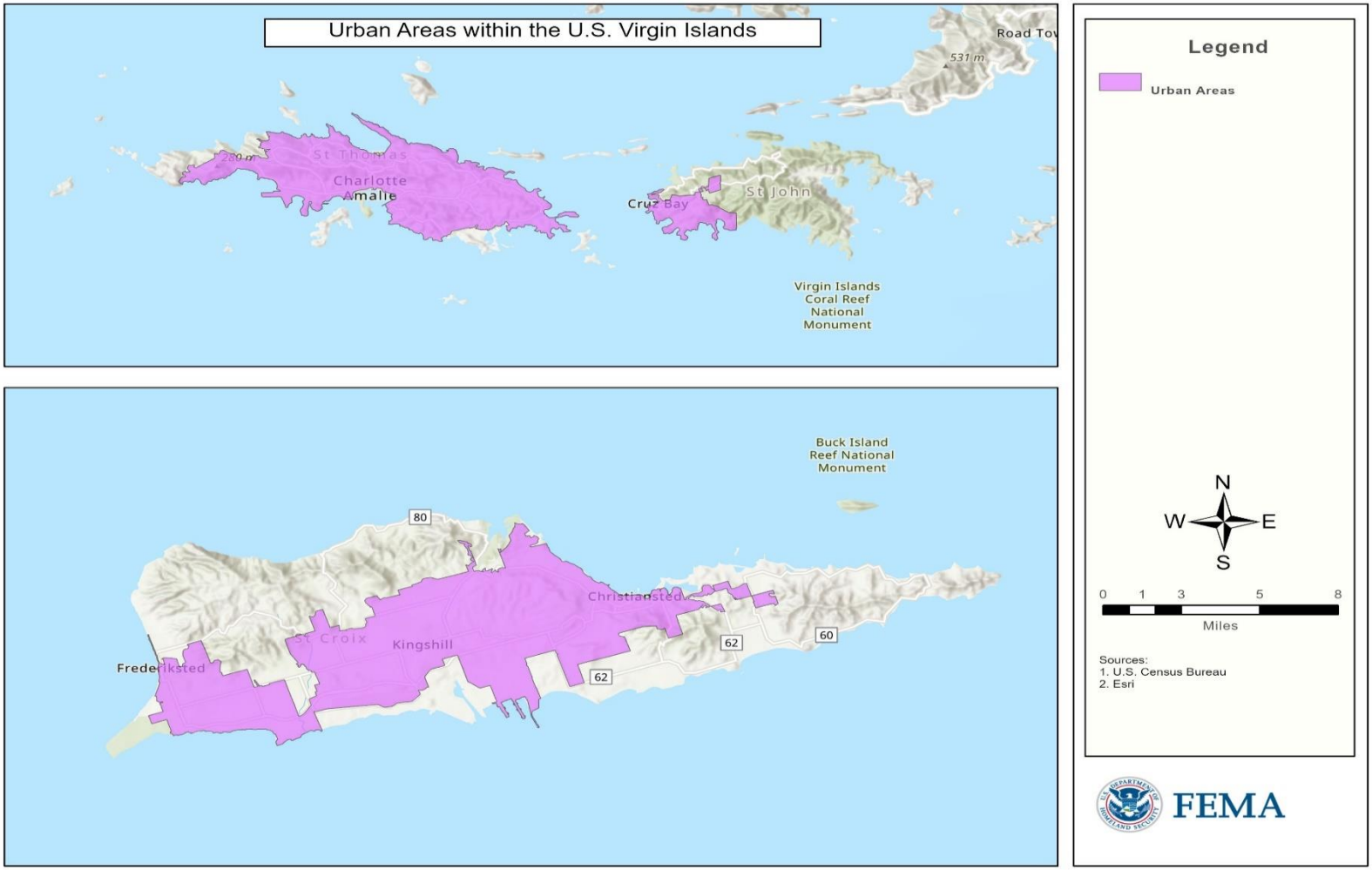
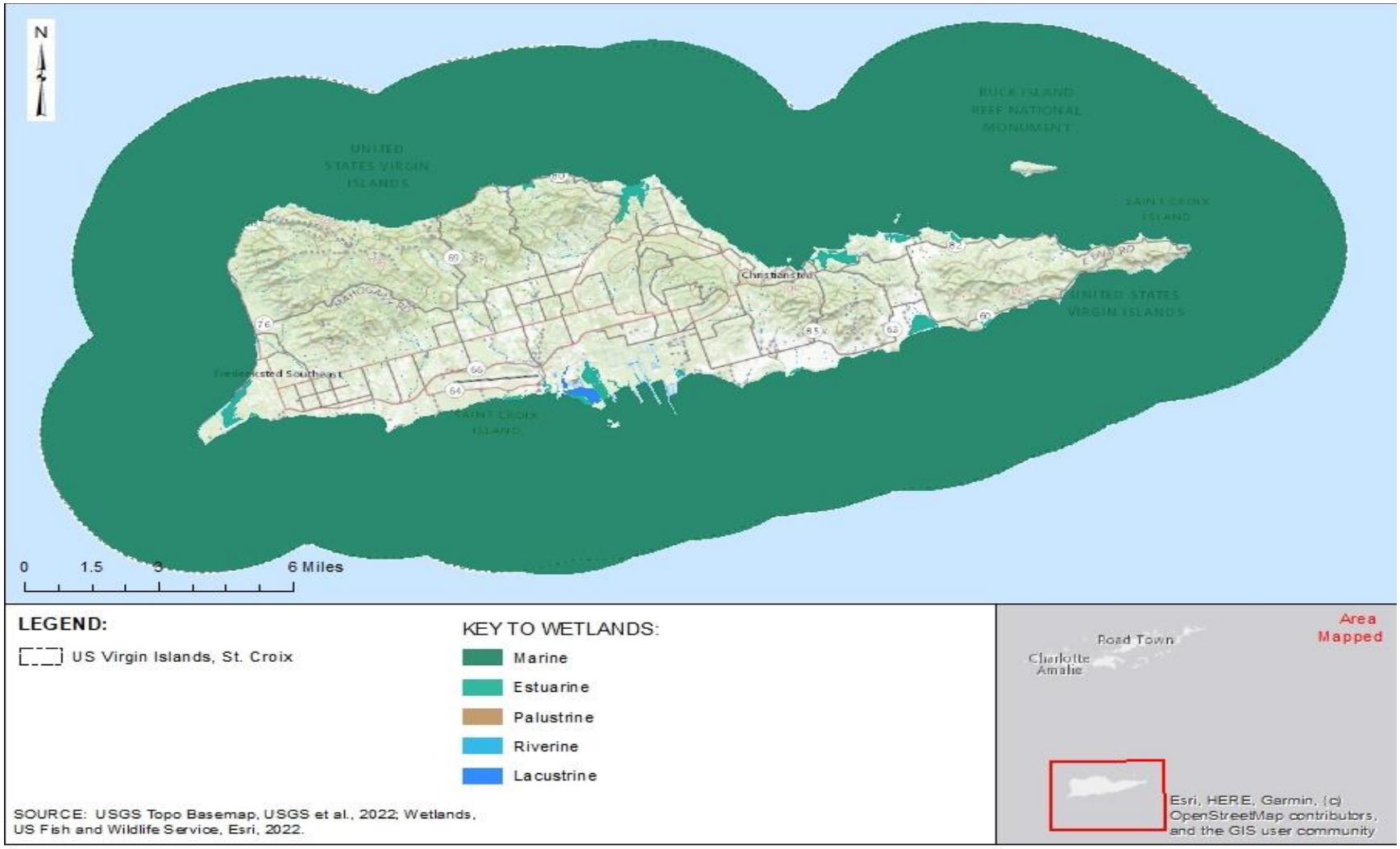
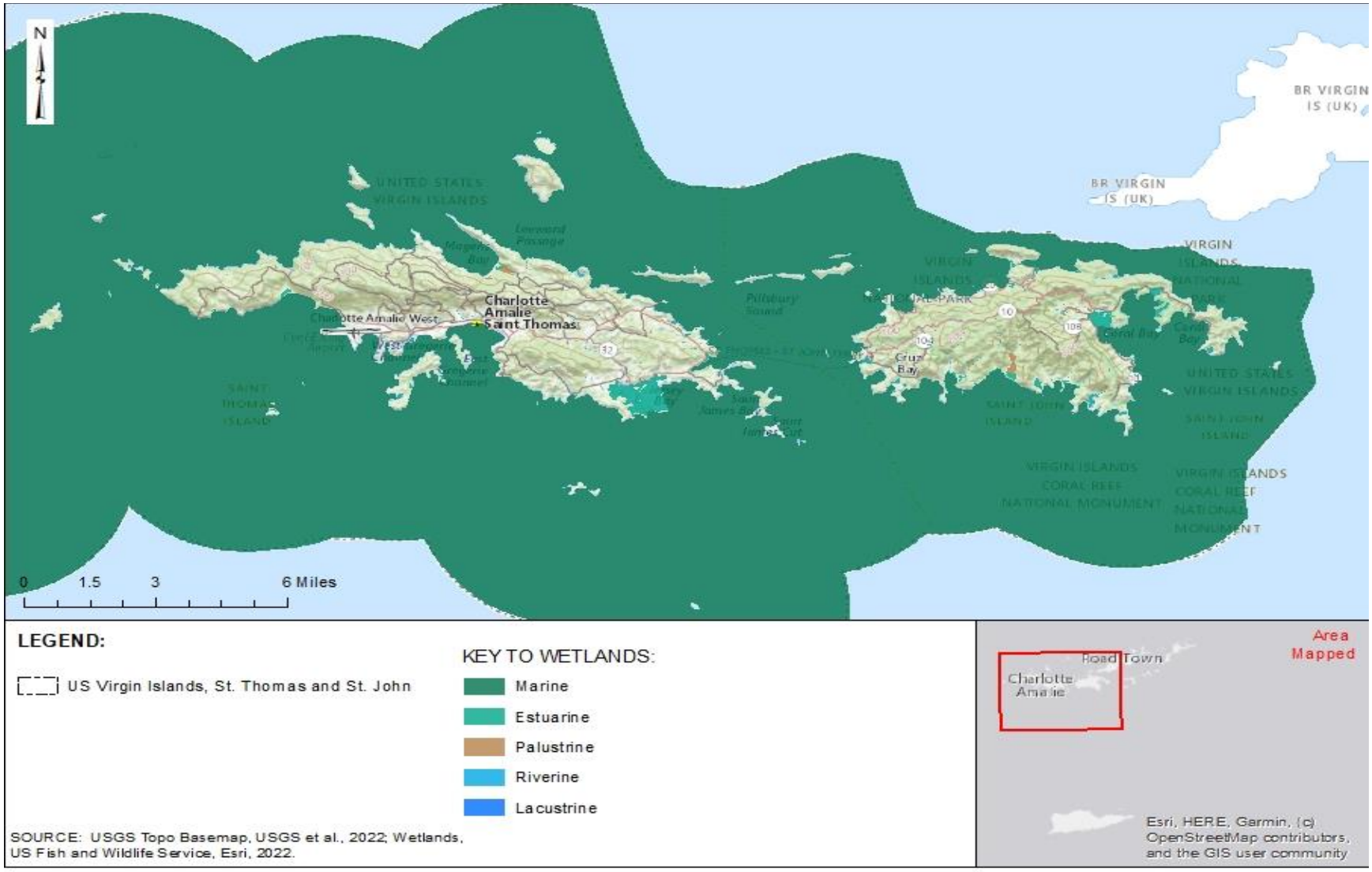


Figure F – USVI Wetlands (St. Croix)



Wetlands, Saint Croix Island

Figure G – USVI Wetlands (St. John and St. Thomas)



Wetlands, Saint Thomas and Saint John

Figure H – USVI Special Flood Hazard Areas

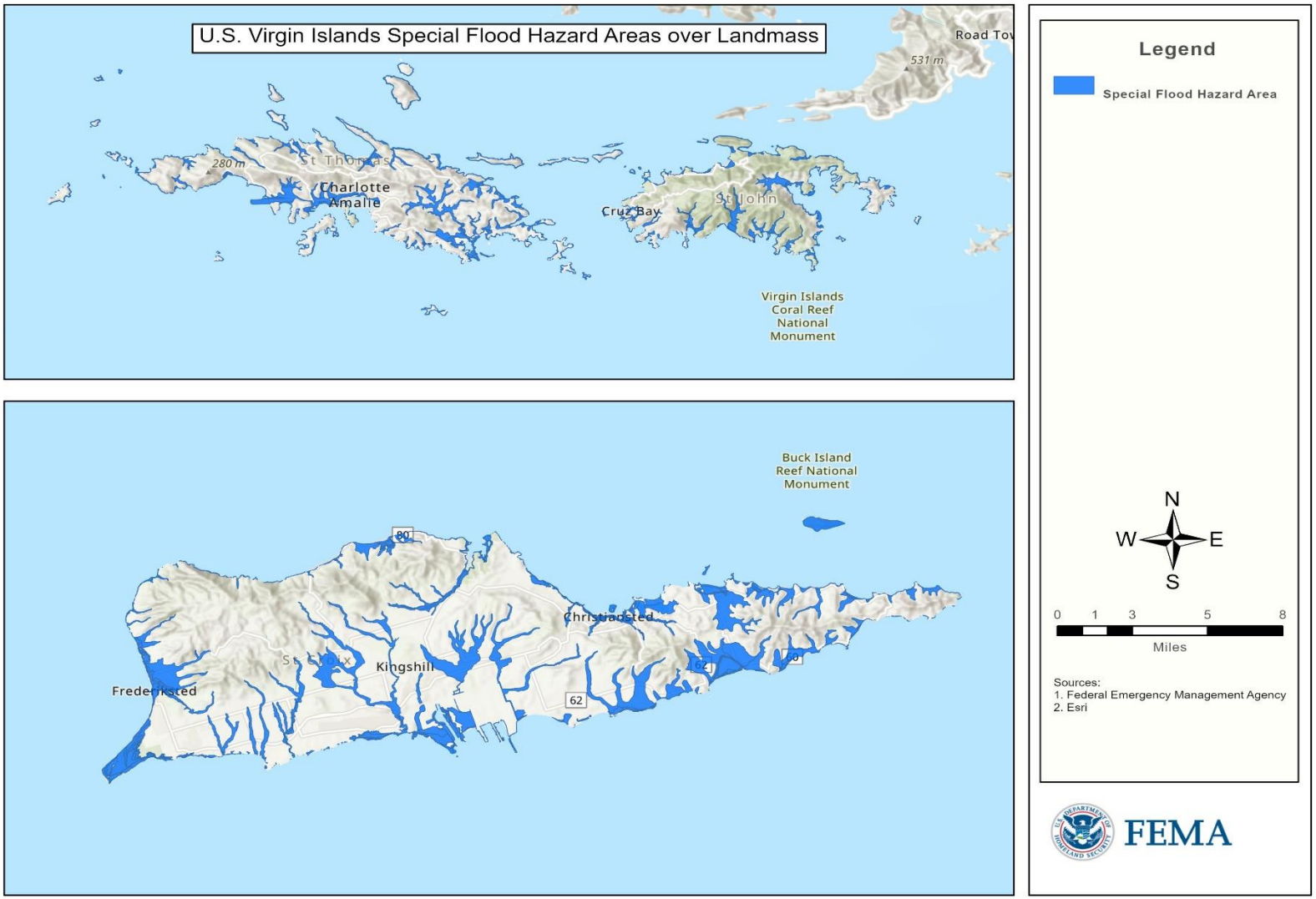


Figure I – Coastal Zone and Coastal Barrier Resources System Units

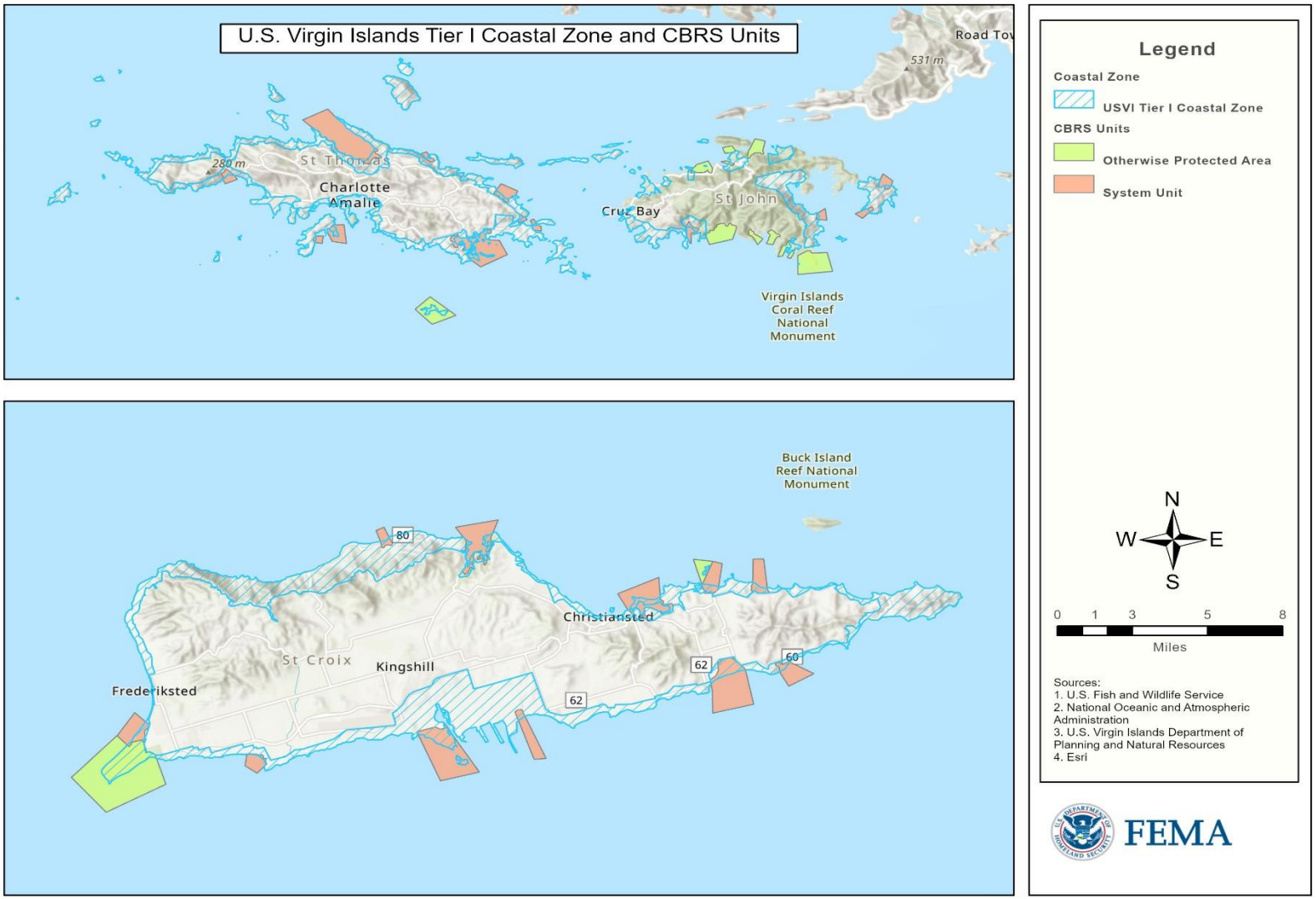
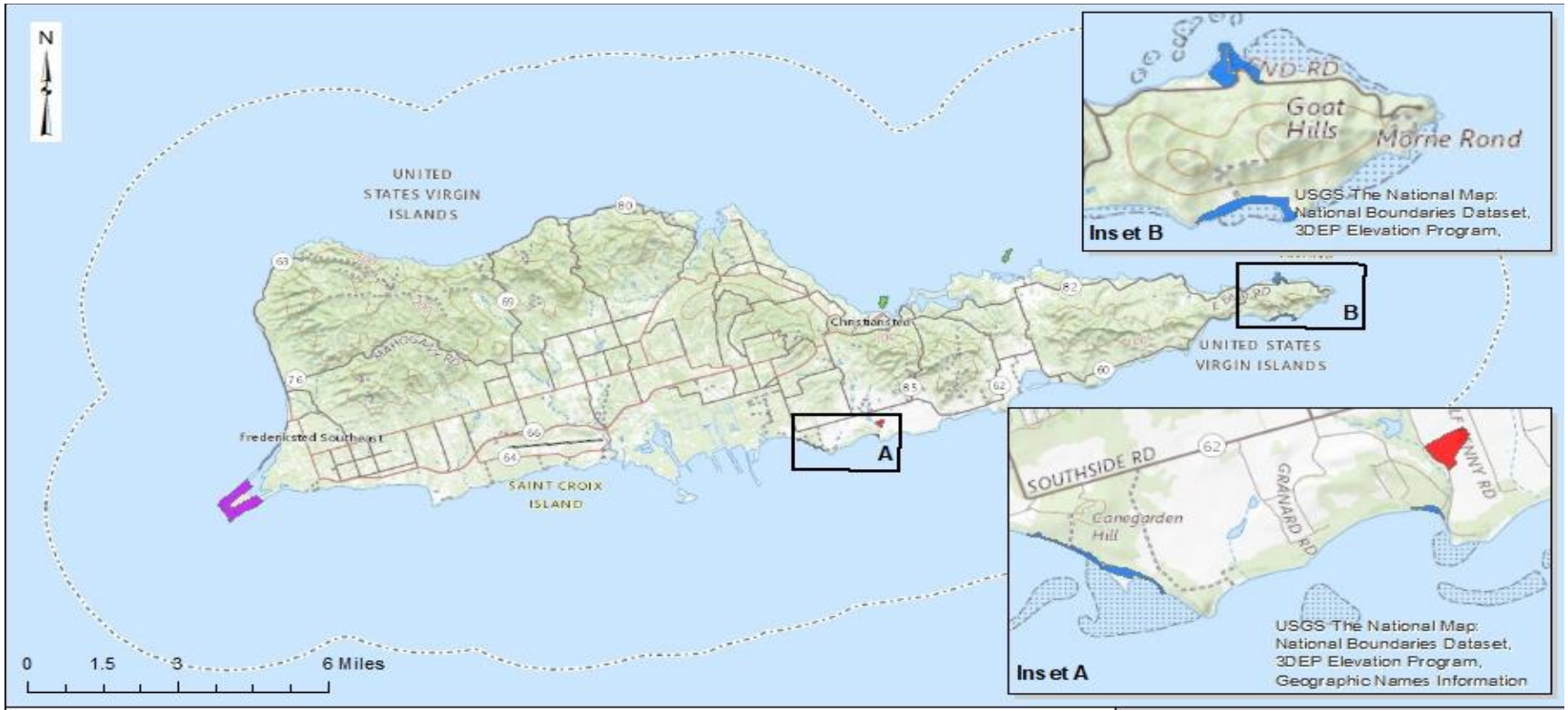


Figure J – USVI Critical Habitat (St. Croix only)



Critical Habitat, Saint Croix Island

Figure K – Low Income Percentiles

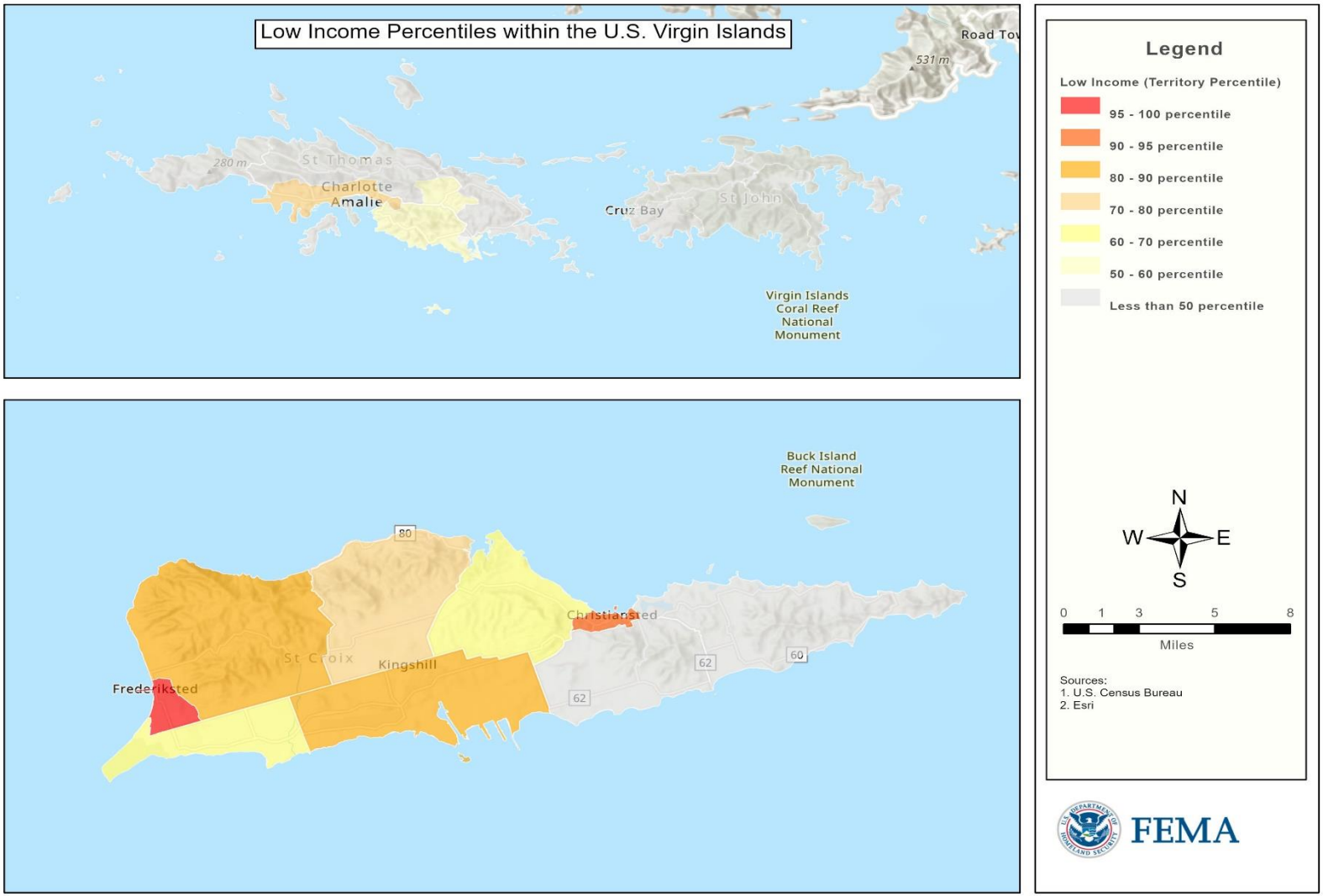
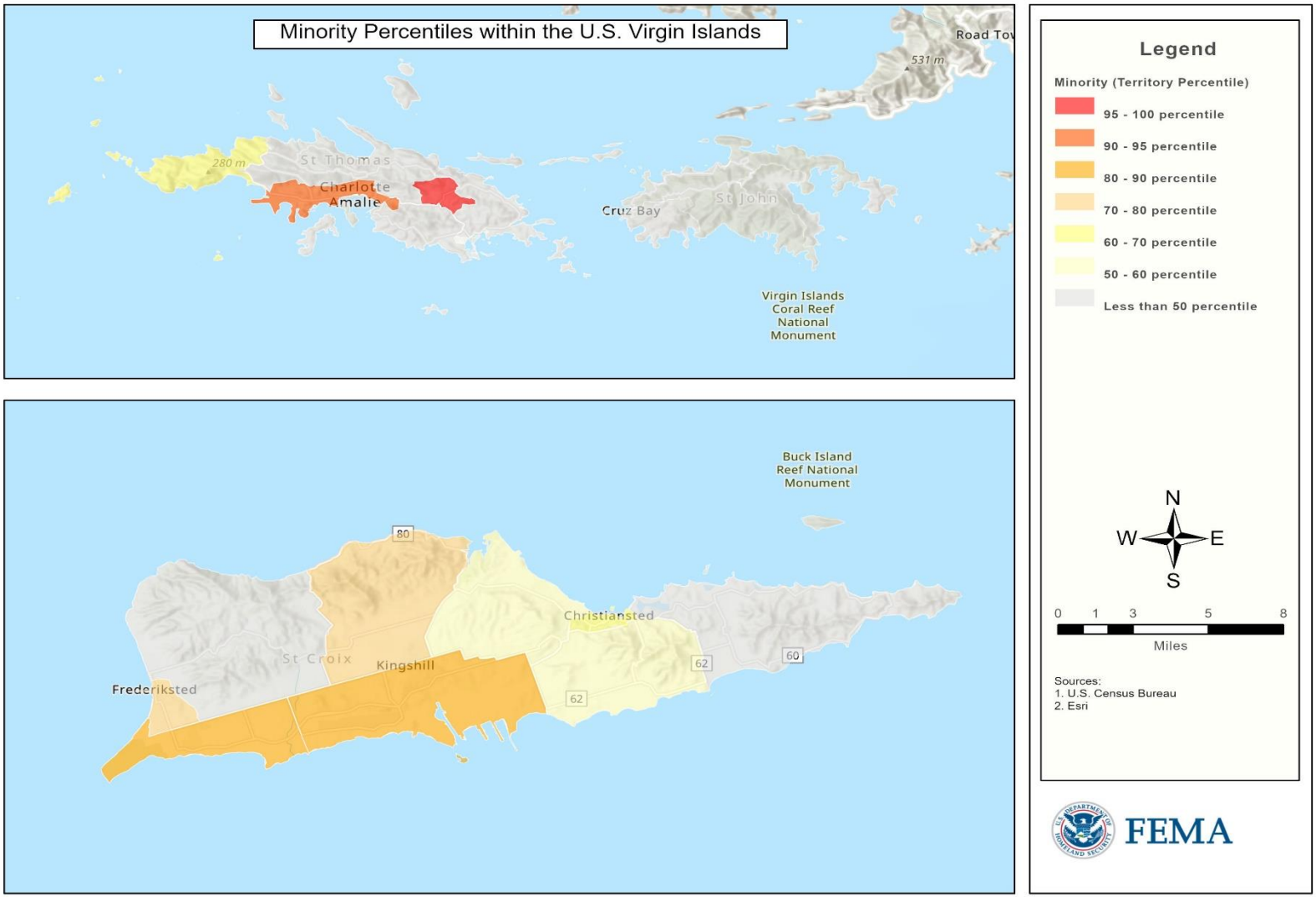


Figure L – Minority Percentiles



Methodology for analysis: Coastal Zone and Socioeconomic Data (Figures E, I K and L)

*DEFINING REGULATED COASTAL ZONE BOUNDARIES

In the U.S. Virgin Islands, the comprehensive coastal zone permit system is focused on proposals in their Tier I boundary, as defined by the U.S. Virgin Islands Department of Planning and Natural Resources, so only Tier I was considered.

Percentage of Regulated Coastal Zone Containing Geographic Features of Concern

Jurisdiction	Wetlands	SFHA	CBRA/OPA
U.S. Virgin Islands	6%	25%	9%

Sources: U.S. Fish and Wildlife Service and FEMA

Percentage of Regulated Coastal Zone Containing Sociodemographic Features of Concern

Jurisdiction	Urban Area	Low Income	Minority
U.S. Virgin Islands	30%	45%	43%

Sources: U.S. Census Bureau and Environmental Protection Agency (EJSCREEN)

SOCIODEMOGRAPHIC DATA USED

Note that all of EJSCREEN's demographic data for low income and minority communities come from the latest annual update of the five-year average ACS estimates (updated June 2021), with some lag time from publication by Census to inclusion in EJSCREEN. For this analysis, all percentiles over 50 were considered. Due to a lack of current data availability, 2010 Census data was considered "best available" for the U.S. Virgin Islands.

Factors for low income were considered differently for the U.S. Virgin Islands based on information available. For the U.S. Virgin Islands, low income was based on the percent of individuals in a subdistrict below the poverty level. Minority populations were considered similarly across all jurisdictions as the percent of individuals in a subdistrict who list their racial status as a race other than white alone and/or list their ethnicity as Hispanic or Latino.

It is important to highlight the limitations of data for the U.S. Virgin Islands and how this shapes the outcome of this analysis, especially for low-income communities. Per EJSCREEN, many studies in various fields use 2x poverty, while many others use 1x poverty to define "low-income." Since 2x poverty was used for all jurisdictions except for U.S. Virgin Islands (where 1x poverty was used), the threshold for what is considered low income in the U.S. Virgin Islands was lower. If 2x poverty was available for the U.S. Virgin Islands, it would define a larger percent of the population as low income and may present a different outcome for the percent of low-income communities found within the Tier I coastal zone.

Figure M - USVI Tutu Well Field Groundwater Plume (St. Thomas)

Location of Groundwater Chlorinated Volatile Organic Compounds Plume (2017)

APPENDIX C

Tables

Table A – Threatened and Endangered Species

	List Status	St. Croix	St. Thomas	St. John	Requires consultation per ESA matrix with one or more alternative activity
Antillian manatee (Trichechus manatus)	Threatened	X	X	X	In-water work only
Leatherback sea turtle (Dermochelys coriacae)	Endangered	X*	X	X	X
Hawksbill sea turtle (Eretmochelys imbricate)	Endangered	X	X	X	Only on beaches
St. Croix Ground lizard (Ameiva polops)	Endangered	X*			
Virgin Islands tree boa (Epicrates monensis granti,	Endangered		X		
Eggers' century plant (Agave eggersiana)	Endangered	X*			X
Tropical lilythorn (Catesbaea melanocarpa)	Endangered	X*			X
Vahl's Boxwood (Buxus vahlii)	Endangered	X			X
Thomas' lidflower (Calyptranthes thomasiana)	Endangered		X	X	X
St. Thomas Prickly-ash (Zanthoxylum thomasianum)	Endangered		X	X	X
Marron Bacora (Solanum conocarpum)	Endangered			X	X

	List Status	St. Croix	St. Thomas	St. John	Requires consultation per ESA matrix with one or more alternative activity
Roseate Tern (Sterna dougallii dougallii)	Threatened			X	

* Denotes species with whole or partial designated critical habitats

Source: Endangered Species Act Consultation Matrix for Puerto Rico and U.S. Virgin Islands implemented by FEMA and the U.S. Fish and Wildlife Service Puerto Rico Field Office in 2019

Table B – Migratory Bird Species Present in the USVI (Scientific and Common Name Only).

SCIENTIFIC NAME	COMMON NAME
Setophaga angelae	Elfin-woods Warbler
Setophaga citrina	Hooded Warbler
Setophaga ruticilla	American Redstart
Setophaga kirtlandii	Kirtland's Warbler
Setophaga tigrine	Cape May Warbler
Setophaga cerulea	Cerulean Warbler
Setophaga americana	Northern Parula
Setophaga pitiayumi	Tropical Parula
Setophaga magnolia	Magnolia Warbler
Setophaga castanea	Bay-breasted Warbler
Setophaga fusca	Blackburnian Warbler
Setophaga petechia	Yellow Warbler
Setophaga pensylvanica	Chestnut-sided Warbler
Setophaga striata	Blackpoll Warbler
Setophaga caerulescens	Black-throated Blue Warbler
Setophaga palmarum	Palm Warbler
Setophaga pinus	Pine Warbler
Setophaga coronata	Yellow-rumped Warbler
Setophaga dominica	Yellow-throated Warbler
Setophaga discolor	Prairie Warbler
Setophaga adelaidae	Adelaide's Warbler
Setophaga graciae	Grace's Warbler
Setophaga nigrescens	Black-throated Gray Warbler
Setophaga townsendi	Townsend's Warbler
Setophaga occidentalis	Hermit Warbler
Setophaga chrysoparia	Golden-cheeked Warbler
Setophaga virens	Black-throated Green Warbler

Table C – 2020 Title 50 Part 10.13 (10.13 list): migratory birds.

ORDER	FAMILY	GENUS	SPECIES	SCIENTIFIC NAME	COMMON NAME	COMMON (English) FIRST NAMES	COMMON (English) GROUP NAMES	TAXONOMIC ORDER
PASSERIFORMES	PARULIDAE	Setophaga	angelae	Setophaga angelae	Elfin-woods Warbler	Elfin-woods	Warbler	1035
PASSERIFORMES	PARULIDAE	Setophaga	citrina	Setophaga citrina	Hooded Warbler	Hooded	Warbler	1036
PASSERIFORMES	PARULIDAE	Setophaga	ruticilla	Setophaga ruticilla	American Redstart	American	Redstart	1037
PASSERIFORMES	PARULIDAE	Setophaga	kirtlandii	Setophaga kirtlandii	Kirtland's Warbler	Kirtland's	Warbler	1038
PASSERIFORMES	PARULIDAE	Setophaga	tigrina	Setophaga tigrina	Cape May Warbler	Cape May	Warbler	1039
PASSERIFORMES	PARULIDAE	Setophaga	cerulea	Setophaga cerulea	Cerulean Warbler	Cerulean	Warbler	1040
PASSERIFORMES	PARULIDAE	Setophaga	americana	Setophaga americana	Northern Parula	Northern	Parula	1041
PASSERIFORMES	PARULIDAE	Setophaga	pitiayumi	Setophaga pitiayumi	Tropical Parula	Tropical	Parula	1042
PASSERIFORMES	PARULIDAE	Setophaga	magnolia	Setophaga magnolia	Magnolia Warbler	Magnolia	Warbler	1043

ORDER	FAMILY	GENUS	SPECIES	SCIENTIFIC NAME	COMMON NAME	COMMON (English) FIRST NAMES	COMMON (English) GROUP NAMES	TAXONOMIC ORDER
PASSERIFORMES	PARULIDAE	Setophaga	castanea	Setophaga castanea	Bay-breasted Warbler	Bay-breasted	Warbler	1044
PASSERIFORMES	PARULIDAE	Setophaga	fusca	Setophaga fusca	Blackburnian Warbler	Blackburnian	Warbler	1045
PASSERIFORMES	PARULIDAE	Setophaga	petechia	Setophaga petechia	Yellow Warbler	Yellow	Warbler	1046
PASSERIFORMES	PARULIDAE	Setophaga	pensylvanica	Setophaga pensylvanica	Chestnut-sided Warbler	Chestnut-sided	Warbler	1047
PASSERIFORMES	PARULIDAE	Setophaga	striata	Setophaga striata	Blackpoll Warbler	Blackpoll	Warbler	1048
PASSERIFORMES	PARULIDAE	Setophaga	caerulescens	Setophaga caerulescens	Black-throated Blue Warbler	Black-throated Blue	Warbler	1049
PASSERIFORMES	PARULIDAE	Setophaga	palmarum	Setophaga palmarum	Palm Warbler	Palm	Warbler	1050
PASSERIFORMES	PARULIDAE	Setophaga	pinus	Setophaga pinus	Pine Warbler	Pine	Warbler	1051
PASSERIFORMES	PARULIDAE	Setophaga	coronata	Setophaga coronata	Yellow-rumped Warbler	Yellow-rumped	Warbler	1052

ORDER	FAMILY	GENUS	SPECIES	SCIENTIFIC NAME	COMMON NAME	COMMON (English) FIRST NAMES	COMMON (English) GROUP NAMES	TAXONOMIC ORDER
PASSERIFORMES	PARULIDAE	Setophaga	dominica	Setophaga dominica	Yellow-throated Warbler	Yellow-throated	Warbler	1053
PASSERIFORMES	PARULIDAE	Setophaga	discolor	Setophaga discolor	Prairie Warbler	Prairie	Warbler	1054
PASSERIFORMES	PARULIDAE	Setophaga	adelaidae	Setophaga adelaidae	Adelaide's Warbler	Adelaide's	Warbler	1055
PASSERIFORMES	PARULIDAE	Setophaga	graciae	Setophaga graciae	Grace's Warbler	Grace's	Warbler	1056
PASSERIFORMES	PARULIDAE	Setophaga	nigrescens	Setophaga nigrescens	Black-throated Gray Warbler	Black-throated Gray	Warbler	1057
PASSERIFORMES	PARULIDAE	Setophaga	townsendi	Setophaga townsendi	Townsend's Warbler	Townsend's	Warbler	1058
PASSERIFORMES	PARULIDAE	Setophaga	occidentalis	Setophaga occidentalis	Hermit Warbler	Hermit	Warbler	1059
PASSERIFORMES	PARULIDAE	Setophaga	chrysoparia	Setophaga chrysoparia	Golden-cheeked Warbler	Golden-cheeked	Warbler	1060
PASSERIFORMES	PARULIDAE	Setophaga	virens	Setophaga virens	Black-throated Green Warbler	Black-throated Green	Warbler	1061

Table D – Common Sounds and Their Levels.

Outdoor	Sound Level (dBA)	Indoor
Motorcycle	100	Subway train
Tractor	90	Garbage disposal
Noisy restaurant	85	Blender
Downtown (large city)	80	Ringing telephone
Freeway traffic	70	TV audio
Normal conversation	60	Sewing machine
Rainfall	50	Refrigerator
Quiet residential area	40	Library

Notes:
dBA = A-weighted decibel.
Source: Volpe, John A., U.S. Department of Transportation, Federal Transit Administration.
2018 "Transit Noise and Vibration Impact Assessment Manual. September 2018." Accessed June 2022: https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf

Table E – Estimating Existing Noise Exposure

Distance from Major Airports (Henry E. Rohlsen)(ft.)[1,2]	Distance from Interstate Highways (ft.)[1,3]	Distance from Other Roadways (ft.)[1,4]	Population Density (people/sq. mi.)	Day (L_{eq})	Evening (L_{eq})	Night (L_{eq})	L_{dn}
1-200 200-300 300-600 600 - 900							75 70 65 60
	10-50 50-100 100-200 200-400 400-800 800 and up			75 70 65 60 55 50	70 65 60 55 50 45	65 60 55 50 45 40	75 70 65 60 55 50
		10-50 50-100 100-200 200-400 400 and up		70 65 60 55 50	65 60 55 50 45	60 55 50 45 40	70 65 60 55 50
			1-100 100-300 300-1000 1000-3000 3000-10000 10000-30000 30000 and up	35 40 45 50 55 60 65	30 35 40 45 50 55 60	25 30 35 40 45 50 55	35 40 45 50 55 60 65

Notes:
[1]Distances do not include shielding from intervening rows of buildings.

[2]This information is specific to Henry E. Rohlsen Airport, 2017 Noise Contours. GIS methods were used to evaluate sensitive receptors that are within or near the existing noise contours. The distance from major noise sources and associated L_{dn} values presented here are for general reference only and based on the 2017 Noise Contour map. Source: LPA Group, 2017, "Henry E. Rohlsen Airport Environmental Assessment: 2017 Noise Contours Map.

[3]Roadways with 4 or more lanes that permit trucks, with traffic at 60 mph.

[4]Parkways with traffic at 55 mph, but without trucks, and city streets with the equivalent of 75 or more heavy trucks per hour and 300 or more medium trucks per hour at 30 mph.

Sources: Major Airports Data (LPA 2017); All Other Data (U.S. Department of Transportation, Federal Highway Administration, 2022, "Construction Noise Handbook". Accessed June 2022: https://www.fhwa.dot.gov/Environment/noise/construction_noise/handbook/handbook09.cfm.

Table F – Tabular results from preliminary noise screening for St. Croix (PEA-specific data)

Name	Address	City	State	Zipcode	Island	Road Type	Near Distance (feet)	Road Ldn	Population Density 2022	Population Density Ldn	Final Ldn
Charles H Emanuel Elementary School	Centerline Road	Kingshill	VI	00850	St. Croix	OtherHwy	160.19451881600	60	4884	55	60
Saint Croix Educational Complex High School	Centerline Road	Christiansted	VI	00820	St. Croix	OtherHwy	714.20945779600	50	4884	55	50
Saint Croix Central High School	Centerline Road	Kingshill	VI	00850	St. Croix	OtherHwy	293.84696648300	55	7899	55	55
Alexander Henderson Elementary School	73 Estate Concordia	Frederiksted	VI	00840	St. Croix	OtherHwy	358.98473967200	55	4884	55	55
Arthur A Richards Junior High School	20 and 21 Estate Stoney Ground	Saint Croix	VI	00840	St. Croix	OtherHwy	1776.63780444000	50	7899	55	50
Claude O Markoe Elementary School	7175 Mars Hills	Frederiksted	VI	00840	St. Croix	OtherHwy	150.17572908900	60	4884	55	60
Eulalie Rivera Elementary School	Route 1 Grove Place	Frederiksted	VI	00840	St. Croix	OtherHwy	212.03367263100	55	4884	55	55
Evelyn M Williams Elementary School	13 A Mount Pleasant	Frederiksted	VI	00841	St. Croix	OtherHwy	1290.17007224000	50	7899	55	50
Governor Juan Francisco Luis Hospital	4007 Estate Diamond Ruby	Christiansted	VI	00820	St. Croix	OtherHwy	268.72592798300	55	12761	60	55

Name	Address	City	State	Zipcode	Island	Road Type	Near Distance (feet)	Road Ldn	Population Density 2022	Population Density Ldn	Final Ldn
and Medical Center											
Henry Rohlson Airport Fire Department	East Centerline Airport Road	Christiansted	VI	00820	St. Croix	OtherHwy	286.18394453300	55	7899	55	55
Renceliar I Gibbs Fire Station	1 Estate Cotton Valley	Christiansted	VI	00820	St. Croix	OtherHwy	231.21150061500	55	2407	50	55
Saint Croix Fire Department Charles A Seales Fire Station	Route 76 Alfredo Andrews Street	Frederiksted	VI	00840	St. Croix	OtherHwy	222.06354917800	55	4884	55	55
Saint Croix Fire Department Herbert L Canegata Fire Station	Route 663	Christiansted	VI	00820	St. Croix	OtherHwy	74.80128515110	65	7899	55	65
Saint Croix Fire Department Emile Henderson Senior Fire Station	Queen Street Route 75	Christiansted	VI	00820	St. Croix	OtherHwy	133.11723182200	60	12761	60	60
Golden Grove Adult Correctional Facility	East Airport Road	Christiansted	VI	00820	St. Croix	MjrHwy/Intr	1031.51396540000	50	7899	55	50
Youth Rehabilitation Center	6179 Annas Hope	Christiansted	VI	00820	St. Croix	OtherHwy	681.14992253900	50	3966	55	50
Lew Muckle Elementary School	317 Sion Farm	Christiansted	VI	00820	St. Croix	OtherHwy	334.90748533700	55	7899	55	55

Name	Address	City	State	Zipcode	Island	Road Type	Near Distance (feet)	Road Ldn	Population Density 2022	Population Density Ldn	Final Ldn
Pearl B Larsen Elementary School	7 Estate Saint Peters	Christansted	VI	00820	St. Croix	OtherHwy	186.32094984300	60	3966	55	60
Alfredo Andrews Elementary School	1 Estate Frdensborg	Kingshill	VI	00850	St. Croix	OtherHwy	254.23946550000	55	4884	55	55
Elena L Christian Junior High School	6465AD La Grande Princesse	Christiansted	VI	00820	St. Croix	OtherHwy	617.00872484200	50	12761	60	50
Juanita Gardine Elementary School	Estate Richmond	Christiansted	VI	00820	St. Croix	OtherHwy	350.44890718100	55	2407	50	55
Ricardo Richards Elementary School	491 Estate Barren Spot	Kingshill	VI	00850	St. Croix	MjrHwy/Intr	505.87236529800	55	7899	55	55
John H Woodson Junior High School	Highway 73	Kingshill	VI	00850	St. Croix	OtherHwy	408.68826625700	50	4884	55	50
Kingshill Cemetery	Centerline Road	Kingshill	VI	00850	St. Croix	OtherHwy	337.22035757100	55	4884	55	55
Saint Croix Career and Technical Education Center	Centerline Road	Christiansted	VI	00820	St. Croix	OtherHwy	513.07233462100	50	4884	55	50
Frederiksted Post Office	1 Mars Hill	Frederiksted	VI	00840	St. Croix	OtherHwy	73.59817017870	65	4884	55	65
Kingshill Post Office	2 Est La Reine	Kingshill	VI	00850-9998	St. Croix	OtherHwy	170.75241035600	60	12761	60	60
University of the Virgin Islands - Albert A	Centerline Road	Kingshill	VI	00850	St. Croix	OtherHwy	1288.25309118000	50	7899	55	50

Name	Address	City	State	Zipcode	Island	Road Type	Near Distance (feet)	Road Ldn	Population Density 2022	Population Density Ldn	Final Ldn
Sheen Campus											
Virgin Islands Police Department Saint Croix Command Zone B	45 Mars Hill	Frederiksted	VI	00840	St. Croix	OtherHwy	87.64966540970	65	7899	55	65
Sunny Isle Post Office	4500 Sunny Isle Suite 53	Christiansted	VI	00820	St. Croix	OtherHwy	712.24626883000	50	12761	60	50
Gallows Bay Post Office	5027 Anchor Way Suite 1	Christiansted	VI	00820	St. Croix	OtherHwy	379.17178570800	55	2407	50	55
Christiansted Post Office	1104 Estate Richmond	Christiansted	VI	00820	St. Croix	OtherHwy	50.35740894260	65	2407	50	65
R H Amphlett Leader Justice Complex - Superior Court	RR1 9000	Kingshill	VI	00850	St. Croix	OtherHwy	162.66089834700	60	4884	55	60
Supreme Court of the United States Virgin Islands - Saint Croix	18 Strand Street	Frederiksted	VI	00841	St. Croix	OtherHwy	206.58461145900	55	4884	55	55
Almeric L Christian Federal Building - District Court	3013 Estate Golden Rock	Saint Croix	VI	00820	St. Croix	OtherHwy	262.01874653800	55	12761	60	55
Good Hope Country Day School	51 Estate Concordia	Kingshill	VI	00820	St. Croix	OtherHwy	1105.12928217000	50	12761	60	50

Name	Address	City	State	Zipcode	Island	Road Type	Near Distance (feet)	Road Ldn	Population Density 2022	Population Density Ldn	Final Ldn
Zion Christian Academy	Number 37 New Castle Coakley	Christiansted	VI	00820	St. Croix	OtherHwy	197.59617038500	60	7899	55	60
Church of God Holiness Academy	6278 Peters Rest	Saint Croix	VI	00820	St. Croix	OtherHwy	233.91989757400	55	3966	55	55
AZ Academy	36 Estate Orange Grove	Christiansted	VI	00820	St. Croix	OtherHwy	477.68899130600	50	2407	50	50
Saint Croix Montessori School	3013 Orange Grove	Christiansted	VI	00820	St. Croix	OtherHwy	607.85064300600	50	12761	60	50
Ancilmo Marshall Command Police Department	19-20 Estate Richmond	Frederiksted	VI	00820	St. Croix	OtherHwy	76.14393593940	65	2407	50	65
Friedensfeld Moravian Church Cemetery	Midland Road	Saint Croix	VI	00820	St. Croix	OtherHwy	120.14234963300	60	4884	55	60
Christiansted Post Office	1104 Estate Richmond	Christiansted	VI	00820	St. Croix	OtherHwy	163.20619089600	60	2407	50	60
Danish Cemetery		Saint Croix	VI	00820	St. Croix	OtherHwy	357.36192897400	55	2407	50	55
Saint Croix Seventh Day Adventist School	Holgers Hope	Christiansted	VI	00821	St. Croix	OtherHwy	219.83166981400	55	3966	55	55
Ann Schrader Command Police Station	Number 19 Estate La Reine	Kingshill	VI	00820	St. Croix	OtherHwy	140.64573649300	60	4884	55	60
Saint Mary's Catholic School	Queen Street	Christiansted	VI	00820	St. Croix	OtherHwy	276.34029472200	55	2407	50	55
Free Will Baptist	ΓÇï135 Sion Hill	Christiansted	VI	00820	St. Croix	OtherHwy	410.37756186500	50	12761	60	50

Name	Address	City	State	Zipcode	Island	Road Type	Near Distance (feet)	Road Ldn	Population Density 2022	Population Density Ldn	Final Ldn
Christian School of Saint Croix											
Herbert L Canegata Fire Station	16 Penitentary Land	Christiansted	VI	00820	St. Croix	OtherHwy	62.00890163670	65	2407	50	65
Frederiksted Cemetery	New Street	Frederiksted	VI	00840	St. Croix	OtherHwy	687.98618071300	50	4884	55	50
Christianstead Government House	1105 King Street	Christianstead	VI	00820	St. Croix	OtherHwy	21.96619574430	70	2407	50	70

Table G – Tabular results from preliminary noise screening for St. John

Name	Address	City	State	Zipcode	Island	Road Type	Near Distance (feet)	Road Ldn	Population Density 2022	Population Density Ldn	Final Ldn
Julius E Sprauve School	15-18 Estate Enighed	Saint John	VI	00830	St. John	OtherHwy	310.07627882900	55	2656	50	55
Saint John Fire Department Zulu Company	Southside Road Route 104	Cruz Bay	VI	00830	St. John	OtherHwy	169.71420920200	60	2656	50	60
Emmaus Moravian Church Cemetery	Centerline Road	Saint John	VI	00830	St. John	OtherHwy	124.29218265900	60	622	45	60
Saint John Fire Department Romeo Company	Centerline Road Route 10	Saint John	VI	00830	St. John	OtherHwy	151.15712626800	60	622	45	60
Cruz Bay Post Office	100 Vester Gade Street	Saint John	VI	00830	St. John	OtherHwy	219.57482717800	55	2656	50	55
Cemetery Saint John Seaside	Cruz Bay Gallows Point	Cruz Bay	VI	00830	St. John	OtherHwy	1520.12589143000	50	2656	50	50
Beverhoudt Cemetery		Cruz Bay	VI	00830	St. John	OtherHwy	1028.69942561000	50	2656	50	50
Leander Jurgen Command Police Station	Prince Street	Cruz Bay	VI	00830	St. John	OtherHwy	162.30062768300	60	2656	50	60
Gifft Hill School	5000 Estate Enighed	Saint John	VI	00830	St. John	OtherHwy	419.02541802200	50	2656	50	50
Cruz Bay Fire Sation		Cruz Bay	VI	00830	St. John	OtherHwy	175.56262594600	60	2656	50	60

Table H – Tabular results from preliminary noise screening for St. Thomas

Name	Address	City	State	Zip code	Island	Road Type	Near Distance (feet)	Road Ldn	Population Density 2022	Population Density Ldn	Final Ldn
University of the Virgin Islands Saint Thomas Campus	2 John Brewers Bay	Saint Thomas	VI	00802	St. Thomas	OtherHwy	1088.78383376000	50	18137	60	50
Charlotte Amalie High School	8-9 Sugar Estate Road	Saint Thomas	VI	00802	St. Thomas	MjrHwy/Intr	490.29833223100	55	9862	55	55
Ivanna Eudora Kean High School	6501 Red Hook Plaza	Saint Thomas	VI	00802	St. Thomas	OtherHwy	147.79839097300	60	9862	55	60
Joseph Sibilly Elementary School	14 15 16 Estate Elizabeth	Saint Thomas	VI	00802	St. Thomas	OtherHwy	140.48427013900	60	9862	55	60
Lockhart Elementary School	41 Estate Thomas	Saint Thomas	VI	00802	St. Thomas	MjrHwy/Intr	628.04113434500	55	9862	55	55
Ulla F Muller Elementary School	101 Contant	Saint Thomas	VI	00802	St. Thomas	OtherHwy	314.70231240600	55	18137	60	55
Schneider Regional Medical Center	9048 Sugar Estate Road	Saint Thomas	VI	00802	St. Thomas	MjrHwy/Intr	472.07249759400	65	9862	55	65
Virgin Islands Fire Department Echo Company	Route 333	Charlotte Amalie	VI	00802	St. Thomas	OtherHwy	73.18243464460	65	9862	55	65
Virgin Islands Fire Department	Fortuna Road Route 30	Charlotte Amalie	VI	00802	St. Thomas	OtherHwy	313.40655556900	55	2199	50	55

Tango Company											
Bertha C Boschulte Middle School	9-1 and 12A Bovoni Road	Saint Thomas	VI	00802	St. Thomas	OtherHwy	4539.68164410000	50	5310	55	55
Capitol Building	Veterans Drive at Forte Strade	Charlotte Amalie Saint Thomas	VI	00804	St. Thomas	MjrHwy/Intr	113.26320114800	65	18137	60	65
Moravian Cemetery	Harwood Highway	Charlotte Amalie	VI	00802	St. Thomas	MjrHwy/Intr	162.71513827300	65	18137	60	65
Danish Cemetery		Charlotte Amalie	VI	00802	St. Thomas	OtherHwy	427.21651211600	50	18137	60	50
Addelita Cancryn Junior High School	Route 30	Saint Thomas	VI	00802	St. Thomas	OtherHwy	216.13298762200	55	18137	60	55
Moravian Multipurpose Education Center	Nisky 6	Saint Thomas	VI	00802	St. Thomas	OtherHwy	181.94357246200	60	18137	60	60
Virgin Islands Career and Technical Institute	41 Estate Thomas	Saint Thomas	VI	00802	St. Thomas	MjrHwy/Intr	826.97706969300	50	9862	55	50
Yvonne E Milliner - Bowsky Elementary School	15 Estate Mandahl	Saint Thomas	VI	00802	St. Thomas	OtherHwy	208.89536959000	55	9862	55	55
Western Cemetery	Harwood Highway	Charlotte Amalie	VI	00802	St. Thomas	OtherHwy	161.71300745200	60	18137	60	60
Old Jewish Cemetery		Charlotte Amalie	VI	00802	St. Thomas	OtherHwy	420.20444835900	50	18137	60	50
Moravian Cemetery		Charlotte Amalie	VI	00802	St. Thomas	OtherHwy	315.45341527900	55	18137	60	55
Altona Jewish Cemetery	Harwood Highway	Charlotte Amalie	VI	00802	St. Thomas	OtherHwy	131.48192829600	60	18137	60	60

Memorial Moravian School	Number 17 Norre Gade	Saint Thomas	VI	00804	St. Thomas	OtherHwy	36.68746070100	70	18137	60	70
Virgin Islands Montessori School and Peter Gruber International Academy	6936 Vessup Lane	Saint Thomas	VI	00802	St. Thomas	OtherHwy	201.89126087600	55	9862	55	55
Saint Thomas / Saint John Seventh Day Adventist School	Smith Bay Road	Saint Thomas	VI	00802	St. Thomas	OtherHwy	153.15036241100	60	5310	55	60
Emanuel Benjamin Oliver Elementary School	148 - 325 Palmetto Road	Saint Thomas	VI	00802	St. Thomas	OtherHwy	869.63325535000	50	5310	55	50
Edith L Williams Alternative Academy	4406 Weymouth Rhymer Highway	Saint Thomas	VI	00802	St. Thomas	OtherHwy	94.70945412510	65	5310	55	65
Saint Peter and Paul Catholic School	13-19 Kronprindsens Gade	Saint Thomas	VI	00802	St. Thomas	OtherHwy	99.72948346340	60	18137	60	60
Jane E Tuitt Elementary School	19 Staabailand	Saint Thomas	VI	00802	St. Thomas	OtherHwy	805.70644322400	50	18137	60	50
Antilles School	7280 Frenchman's Bay	Saint Thomas	VI	00802	St. Thomas	OtherHwy	2862.57362082000	50	5310	55	55
Gladys A. Abraham Elementary School	68A Lindberg Bay	Saint Thomas	VI	00802	St. Thomas	OtherHwy	1432.93428184000	50	18137	60	50
Leonard Dober Elementary School	9A - 10B Kronprindsens Gade	Saint Thomas	VI	00802	St. Thomas	OtherHwy	243.92613185800	55	18137	60	55

Joseph Gomez Elementary School	Annas Retreat	Saint Thomas	VI	00801	St. Thomas	OtherHwy	353.05249520100	55	5310	55	55
Veterans Annex Post Office	6500 Veterans Drive	Saint Thomas	VI	00802-9992	St. Thomas	MjrHwy/Intr	143.67226615200	65	18137	60	65
Virgin Islands Police Department	5400 Veterans Drive	Saint Thomas	VI	00802	St. Thomas	OtherHwy	69.17812226210	65	18137	60	65
Havensight Post Office	9007 Havensight Shopping Center Frenchman Bay Road	Saint Thomas	VI	00802	St. Thomas	MjrHwy/Intr	953.04149549300	50	5310	55	50
Virgin Islands Fire Department - Lima Company Tutu Fire Station	Smith Bay Road Route 38	Saint Thomas	VI	00802	St. Thomas	OtherHwy	80.26056881130	65	5310	55	65
Virgin Islands Port Authority - Airport Fire Division	8074 Lindbergh Bay	Saint Thomas	VI	00803-1707	St. Thomas	OtherHwy	138.05829395100	60	18137	60	60
Virgin Islands Fire Department - Hotel Company	William Lewis Lane	Charlotte Amalie	VI	00802	St. Thomas	MjrHwy/Intr	275.57033175100	60	18137	60	60
East End Post Office	4605 Tutu Park Mall Suite 179	Saint Thomas	VI	00802-9993	St. Thomas	OtherHwy	858.57031588100	50	5310	55	50
Emancipation Gardens Post Office	5046 Norre Gade	Saint Thomas	VI	00802-9995	St. Thomas	OtherHwy	89.19826240020	65	18137	60	65
Virgin Islands Police	6115 Estate Smith Bay Suite 124	Saint Thomas	VI	00802	St. Thomas	OtherHwy	70.03263557830	65	9862	55	65

Department - Red Hook Substation											
Smith Bay Eastern Cemetery	8 Smith Bay Road	Saint Thomas	VI	00802	St. Thomas	OtherHwy	235.84065165500	55	9862	55	55
Ron deLugo Federal Building - District Court	5500 Veterans Drive	Saint Thomas	VI	00802	St. Thomas	MjrHwy/Intr	146.44071834200	65	18137	60	65
Alexander A Farrelly Justice Center - Superior Court	5400 Veterans Drive	Saint Thomas	VI	00802	St. Thomas	OtherHwy	118.21710472200	60	18137	60	60
Supreme Court of the United States Virgin Islands - Saint Thomas	161B Crown Bay	Saint Thomas	VI	00802	St. Thomas	OtherHwy	141.69787424300	60	18137	60	60
New Testament Academy	394A - 1 Annas Retreat	Saint Thomas	VI	00820	St. Thomas	OtherHwy	691.44331385900	50	5310	55	50
Faith Alive Christian Academy	394B Estate Annas Retreat	Charlotte Amalie	VI	00820	St. Thomas	OtherHwy	990.04889351500	50	5310	55	50
Addelita Cancryn Junior High School	1834 Kongens Gade	Saint Thomas	VI	00802	St. Thomas	OtherHwy	250.58421155900	55	18137	60	55
All Saints Cathedral School	2353 Commandant Gade	Saint Thomas	VI	00820	St. Thomas	OtherHwy	545.67206536600	50	18137	60	50
Charlotte Amalie Post Office	9846 Estate Thomas	Saint Thomas	VI	00802	St. Thomas	MjrHwy/Intr	167.35429680300	65	9862	55	65
Nisky Moravian Cemetery	Subbase Road	Charlotte Amalie	VI	00802	St. Thomas	OtherHwy	108.09163418400	60	18137	60	60

Source: ARCGIS-generated screening utilizing the following: U.S. Department of Transportation, Federal Highway Administration, 2022, "Construction Noise Handbook". Accessed June 2022: https://www.fhwa.dot.gov/Environment/noise/construction_noise/handbook/handbook09.cfm.

Table I – Underway and Future USVI Project Category Summary

Scheduled Project Type/Quantity	Island Location	Implementation Status
Healthcare Facilities/6	St. Croix	Future
Transportation Facilities Improvement and Expansion/3	St. Croix	Underway/Future
Education and Arts Facilities/6	St. Croix	Future
Roads and Drainage Improvements/12	St. Croix	Future
Utilities/5	St. Croix	Future
Housing/8	St. Croix	Future
Healthcare Facilities/4	St. Thomas	Future
Airport and Water Transportation Facilities Improvement and Expansion/2	St. Thomas	Future
Education and Arts Facilities/1	St. Thomas	Future
Roads and Drainage Improvements/10	St. Thomas	Future
Utilities/4	St. Thomas	Underway/Future
Healthcare Facilities/1	St. John	Future
Transportation Facilities Improvement and Expansion/2	St. John	Underway/Future
Solid Waste Facilities	St. Croix and St. John	Future
Hazard Mitigation	St. Croix, St. Thomas, and St. John	Future
Housing/1	St. Croix, St. Thomas, and St. John	Future
Natural and Cultural Resources/2	St. Croix, St. Thomas, and St. John	Future
Public Buildings/1	St. Croix, St. Thomas, and St. John	Future
Transportation/3	St. Croix, St. Thomas, and St. John	Future
Utilities/5	St. Croix, St. Thomas, and St. John	Future

Source: Exported and summarized from MAXTRAX by FEMA Interagency Recovery Coordination, Joint Recovery Office

Table J: Thresholds For Preparing A Tiered EA

Resource Area or Regulation	Action Covered by this PEA	Tiered Site-Specific Environmental Assessment Required
Geology, Topography and Soils	Alternatives 2-6 would have minor, adverse, short-term impacts due to topography changes (landscape to hardscape) that will allow for greater overland flow. Stormwater management mitigation measures will be required to achieve the anticipated impact; and Minor, temporary adverse impacts for activities requiring placement of pilings or deep foundations; and Negligible to no impact due to the conversion of prime farmland.	The proposed action creates topography changes that alter stormwater flow deemed to be unmanageable via standard stormwater mitigation measure, thus creating overland contamination migration and/or exceedances of surface water quality standards; or Activities that will result in seismically-significant vibration; or The potential for conversion of prime farmland to non-farming usage.
Air Quality	Alternatives 2-6 would have minor, adverse, short-term impacts due to use of construction equipment and the implementation of activities that will temporarily generate particulate matter. Mitigation will be implemented to reduce impact.	A proposed action would increase NAAQS priority pollutants, resulting in status of non-attainment
Water Quality	Alternatives 2-6 would have minor adverse, long-term impacts due to the changes of landscape to hardscape surface, resulting in overland flow of contaminants. Mitigation is required to ensure reduced impact. and The proposed action does not require an individual permit from USACE. The proposed action complies with all permit conditions, notification and reporting requirements for applicable nationwide permits, regional general permits, emergency authorizations, programmatic general permits or other USACE-issued general permit.	The proposed action would cause or contribute to existing exceedances of water quality standards resulting in violation of state water quality criteria; or The proposed action requires an individual permit from USACE.

Resource Area or Regulation	Action Covered by this PEA	Tiered Site-Specific Environmental Assessment Required
	and The subrecipient has received a written waiver from USACE for projects that exceed permit thresholds.	
Wetlands	Alternatives 2-6 would result in minor adverse, short-term impacts due to common construction activities. and FEMA completes an eight-step decision-making process and has determined that the proposed alternatives are practicable and fit alternatives in this PEA.	The proposed action requires an individual permit from USACE because of impacts to a wetland; or The proposed action would result in adverse effects to wetlands, and mitigation or avoidance measures in this PEA are not practicable.
Floodplain	Alternatives 2-6 comply with all state, federal and local permit conditions, regulations, and authorizations, including CWA, state floodplain and wetland laws, and local floodplain codes. and The alternatives will not increase levels, frequency or duration of floods and will not alter hydrological connectivity. and FEMA completes an eight-step decision-making process and has determined that the proposed alternatives are practicable.	Proposed action requires an individual permit from USACE because of impacts to a wetland; or The proposed action would result in adverse effects to the floodplain and there are no practicable alternatives. Such effects include an increase in flood levels, significant changes to flood frequency, conveyance and duration that increase flood risk at locations upstream, downstream, or adjacent to the project site.

Resource Area or Regulation	Action Covered by this PEA	Tiered Site-Specific Environmental Assessment Required
Coastal Resources	Alternatives 2, 3, and 5 are not anticipated to have any impact. or If relocation proposals (Alternative 4) require approval by DPNR for consistency with CZMA in addition to any applicable permits. FEMA anticipates that these restrictions will limit potential impacts to coastal areas to negligible to minor adverse, short-term impacts.	Proposed action is located within a Coastal Barrier Resources System Unit and USFWS does not concur that it qualifies as an exception under Section 3505.a.6 of the CBRA; or The proposed action is unable to obtain CZMA consistency determination from DPNR.
Protected Species and Habitat	Alternatives 2-6 create the potential for negligible adverse, direct temporary impact if a protected species is in the proposed action area. Indirect negligible adverse, temporary impact is possible as a result of erosion and sedimentation during the contraction phase; or The proposed action results in potential moderate impacts that are mitigated via resource agency consultations. FEMA makes a "May affect, Not Likely to Adversely Affect" determination and USFWS concurs; or Proposed action includes mitigation measures to reduce the level of impacts to species and habitats protected by ESA, MBTA, EO 13112 and 13186 below the level of significance; or Proposed action discourages spread of invasive species by implementing BMPs according to state and federal guidance.	Projects exceeding a "May affect, Not Likely to Adversely Affect" determination to a species listed as federally threatened or endangered; or Projects that result in the loss or adverse modification of designated critical habitat for a listed species.
Cultural Resources	The effects of the action can be resolved through the Programmatic Agreement or standard consultation.	FEMA makes an "Adverse Effect" determination with concurrence from SHPO/THPO that cannot be resolved using measures outlined in state

Resource Area or Regulation	Action Covered by this PEA	Tiered Site-Specific Environmental Assessment Required
		programmatic agreements or negotiated through a standard project-specific Memorandum of Agreement; or Projects that that result an "Adverse Effect" determination on a National Historic Landmark.
Environmental Justice	There would be no disproportionately high and adverse environmental or health effects to low-income and/or minority populations; or Mitigation measures are used to reduce the level of impacts below the level of significance.	There would be unmitigated disproportionately high and adverse, disproportionate, environmental and health impacts to low-income or minority populations.
Land Use and Planning	Alternatives 2-6 will result in negligible adverse, short-term impacts due to temporary construction disruption; and The proposed action is in compliance with all local planning and zoning requirements; or Mitigation measures are used to reduce the level of impacts below the level of significance.	The proposed action would not be consistent with the surrounding land use and the local land use agency requires a special land use permit or waiver to facilitate project completion.

Resource Area or Regulation	Action Covered by this PEA	Tiered Site-Specific Environmental Assessment Required
Noise	Alternatives 2, 3 will result in negligible adverse, short-term impact by increasing ambient noise levels in and around the project site; or Alternative 4 is similar to 2 and 3 with the added consideration that demolition may be required, increasing the noise due to the blast and that subsequent increase in heavy vehicles to remove debris, resulting in minor adverse, short-term impact. For the same reasons, Alternatives 5 and 6 will also have minor adverse, short-term impact.	Projects exceeding established noise threshold levels would require a noise permit from PRDNER/PREQB that allows for work to occur during non-waking hours; or Projects that would result in post-construction noise impacts above baseline conditions; or Projects that would adversely impact sensitive receptors and cannot be mitigated.
Transportation	Alternatives 2-6 would have negligible impact to transportation infrastructure or traffic patterns.	The proposed action may have a permanent adverse impact on vehicle traffic congestion, emergency routes, and commerce; or A proposed action isolates a community, or portion of a community, through road closures on a short- or long-term basis.
Public Services and Utilities	Alternatives 2-6 will result in negligible adverse, short-term impacts due to need to temporarily disrupt local utilities during construction.	The proposed action creates exceedance of the capacity for each service and utility to serve the community; or The specific action would violate another law or result in non-compliance with other requirements.

Resource Area or Regulation	Action Covered by this PEA	Tiered Site-Specific Environmental Assessment Required
Public Health and Safety	No impact is anticipated with any of the Alternatives.	The proposed action significantly increases risk associated with the safety of construction personnel or the local community in accordance with OSHA; or Substantially hinders the ability to respond to an emergency; or Introduces a new health or safety risk for which the community is not prepared or does not have adequate management and response plans in place; or Results in non-compliance with the ADA.
Hazardous Materials	There is no impact anticipated with the implementation of Alternatives 2-6.	The proposed plan significantly increases risk to construction personnel or the local community due to the generation of a new waste stream that cannot be immediately or safely managed, under existing protocols; or The generation of an excessive quantity of waste that cannot be adequately or safely managed under the current protocols; or Land on proposed action site contaminated; or Lack of proper mold, asbestos and lead-based paint abatement.