UNITED STATES VIRGIN ISLANDS
HOUSING FINANCE AUTHORITY

COMMUNITY DEVELOPMENT BLOCK GRANT
DISASTER RECOVERY PROGRAM
ACTION PLAN

Submitted to the U.S. Department of Housing and Urban Development
for CDBG-DR Funds
(FR 6066-N-01)

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1 EXECUTIVE SUMMARY

Hurricanes Irma and Maria had a devastating impact on the United States Virgin Islands (hereinafter referred to as the U.S. Virgin Islands or the Territory). The two back-to-back Category 5 storms in September 2017 caused significant destruction to housing, infrastructure, and the economy; the total damage is estimated at $10.76 billion. The entire population—over 100,000 residents—was impacted by the devastation brought on by the storms, with winds of over 185 miles per hour and up to 20 inches of rain in some areas.[1] Irma crossed the islands as a windstorm tearing the roofs off of buildings in her path; Maria came behind and caused water damage to all of the unprotected structures in the St. Thomas and St. John district, while inflicting severe damage on St. Croix.

The devastation brought by the 2017 storms was staggering. Five Virgin Islanders lost their lives to the storms. Thousands of residents were displaced and over 85% of households reported damage to their homes, with many structures rendered uninhabitable. Most residents had no potable water or electricity for weeks. At its peak, 95% of the Territory was without power and 90% of customers lost internet access due to damage to telecommunications infrastructure.[2] The main airports on St. Croix and St. Thomas were closed for two weeks due to extensive damage to facilities, and all seaports were shut down for three weeks due to the sinking of over 400 vessels in and around the islands during the hurricanes.[3] Roadways experienced washouts, debris, mudslides, and downed power lines. In total, the storm created more than 825,316 cubic yards of debris—more than local landfills could handle.[4] Many government offices were rendered unusable, impacting the delivery of vital government services for several weeks. All primary healthcare facilities were left in need of reconstruction, while hundreds of patients had to be evacuated off-island to receive critical medical attention. Almost all public schools were damaged and according to the U.S. Virgin Islands Department of Education, 17 schools—half of all public schools in the Territory—suffered more than 50% damage to their facilities.

Today, over seven months after Irma and Maria, their effects continue to disrupt the lives of Virgin Islanders. None of the dialysis patients evacuated from the Territory have been able to return for lack of adequate medical care infrastructure and 9,000 public school students (nearly 60% of all K-12 students enrolled) attend school on a reduced schedule due to limited classroom space.[5] In addition, the economy as a whole has been slow to recover. This is most evident in the tourism sector, the single most important stream of revenue for the Territory, with most of the large hotels significantly damaged and still closed for repairs.

[1] Most recent 2014 VI Community Survey estimates population in the Territory at 102,007.
[2] Virgin Islands Next Generation Network (viNGN).
[3] U.S. Virgin Islands Port Authority.
[4] U.S. Federal Emergency Management Agency.
[5] U.S. Virgin Islands Department of Education.

In the wake of the storms, the President announced a Major Disaster Declaration for Irma (DR-4335) and another for Maria (DR-4340) to make federal disaster assistance available to the Territory. In response, Congress approved the Supplemental Appropriations for Disaster Relief Requirements, 2017 (Pub. L. 115-56) on September 8, 2017, which made available $7.39 billion in Community Development Block Grant Disaster Recovery (CDBG-DR) funds to assist in long-term recovery from 2017 disasters. On February 9, 2018, Congress approved a bill appropriating an additional $28 billion CDBG-DR funds, of which $11 billion was set aside to address the remaining unmet needs including those of the U.S. Virgin Islands and Puerto Rico from Hurricane Maria.

Emergency relief and recovery efforts by both federal and local authorities were able to address some of the most urgent emergency response needs, but much remains to be done to recover and rebuild. After accounting for the disaster recovery assistance provided by FEMA, the U.S. Small Business Administration (SBA), private insurance, nonprofits, and other funding sources, the remaining unmet needs exceed $7.58 billion using the best available data as of April 27, 2018.

To address these unmet needs, the U.S. Department of Housing and Urban Development (HUD) has awarded $1,863,742,000 of CDBG-DR funds to the U.S. Virgin Islands. CDBG-DR funds are intended by HUD to address (i) unmet needs in housing, infrastructure, and economic revitalization from the 2017 hurricanes, as well as (ii) mitigation activities to protect the Territory from the damage of future events. The total award for the U.S. Virgin Islands was announced in two separate tranches. First, $242,684,000 was announced on February 2, 2018 for unmet needs (Tranche 1). Second, an additional $1,621,058,000 for Tranche 2 was announced publicly by HUD Secretary Ben Carson on April 10, 2018 (HUD Press Release No. 18-028), comprising $846,870,000 for remaining unmet needs and $774,188,000 for mitigation.

The U.S. Virgin Islands Community Development Block Grant Disaster Recovery Action Plan proposes a portfolio of programs to address unmet housing, public service, infrastructure, and economic needs for the first allocation of CDBG-DR funds of $242,684,000, which is consistent with HUD guidance outlined in the Federal Register (FR 6066-N-01), in a ratio for this tranche that reflects the overall ratio of unmet needs.

Housing for displaced Virgin Islanders and those living in damaged homes remains our highest priority, especially for low- and moderate-income families. In fact, while our overall unmet housing need represents 14% of the total unmet need, in this tranche, 27% of the allocation is dedicated to housing programs that complement existing housing repair efforts.

Prior to the CDBG-DR allocation, the Government of the U.S. Virgin Islands and FEMA established two home repair programs in the Territory: Sheltering and Temporary Essential Power (STEP) and Permanent Home Construction. The STEP program, which in an ideal circumstance would have been deployed one month after the hurricanes, was initiated in earnest in January 2018. As of April 24, 2018, 7,480 residents have signed up for STEP but only 273 home repairs have been completed. The Virgin Islands Housing Finance Authority (VIHFA) estimates that over 10,000 residents will sign up and be eligible for repairs utilizing STEP. All

residents with damage from either storm are eligible for the STEP program. The Territory anticipates that this first phase of home repairs will be completed by September 2018. The STEP program is completing an entire scope of work for every home it enters. This means that even though the STEP program cannot repair all of the damages in a home – because of budget limitations – the Territory is capturing the data for all unmet repair and hardening needs for every customer serviced by STEP. This will put the Territory in an ideal position to utilize CDBG-DR, coupled with FEMA Hazard Mitigation funds, to service and meet with pinpoint accuracy the unmet housing needs of the people of the Territory.

Additionally, the Territory is in a unique position to take advantage of FEMA's full authority under the Insular Areas Act through the Section 408 Permanent Housing Construction program which allows full repairs and reconstruction for both owner-occupied and rental housing. FEMA's unique Permanent Housing Construction authority under the Section 408 of the Stafford Act allows them to do repairs and reconstruction in Insular Areas well beyond what the normal programs permit.[6] To date, FEMA has only supported a small number of homeowners and landlords through this expanded authority.

Furthermore, while we call out Non-Federal Match as a separate allocation in our Action Plan, in reality the bulk of this $50+ million CDBG-DR funding is expected to be used as the local match to FEMA Public Assistance programs for housing, which is estimated to be up to $34 million for STEP and up to $11 million for Phase I of the Tutu High Rise Public Housing development. Therefore, with a minimum of $30 million match in local match dedicated to housing in this tranche, the total percentage of funding associated with housing in this first tranche is actually 44%, which far exceeds the expected target of 14% for the entire program. [7]

With the expectation that FEMA could provide as much $339 million to STEP and $150 million to Permanent Housing Construction, trying to determine how much funding to allocate for another housing repair program right now is a challenge while the two FEMA programs are underway. If FEMA uses its authority under the Insular Areas Act to the fullest extent possible for disaster housing assistance programs in insular areas, much of the unmet need could be addressed, which would allow the Territory to conserve valuable CDBG-DR funds for other priorities benefitting these same low- and moderate-income families. The Government of the Virgin Islands has made a request to FEMA to do exactly that, i.e. use its authority to the fullest extent possible under the Insular Areas Act. Per the guidance in the HUD Federal Register, the Territory understands the sequencing of funding which cautions that CDBG-DR funds should not be used for "activities reimbursable by or for which funds are made available by the Federal Emergency Management Agency" or other federal agencies.

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[6] *Permanent Housing Construction - The President may provide financial assistance or direct assistance to individuals or households to construct permanent or semi-permanent housing in insular areas outside the continental United States and in other locations in cases in which - (A) no alternative housing resources are available; and (B) the types of temporary housing assistance described in paragraph (1) are unavailable, infeasible, or not cost-effective.*

[7] *The match calculation for housing is based on a 10% match requirement; the current match requirement is 25%.*

Given the sequence of Congressional actions and HUD allocations, the Territory knows the full allocation of CDBG-DR funding available. By mid-summer, as the Territory develops the required Action Plan Amendment for the second allocation, the existing FEMA housing programs will have had time to mature and the Territory will reassess the remaining unmet need and allocate CDBG-DR funds accordingly.

The Government of the U.S. Virgin Islands has other high priority, non-housing projects ready to be launched now that need funding immediately. These include critical projects that benefit tourism to support jobs, grid improvements to drive down the cost of electricity to Virgin Islanders who currently pay three times the national average, and essential transportation system improvements to support the flow of commerce and growth of commercial development. As stated above, to comply with HUD's general guidance, we have to make certain that our allocation of funds across unmet needs for this tranche matches the overall ratio of unmet needs, so it is important to properly balance this allocation by providing funds in the appropriate proportions to address unmet housing, economic revitalization, and infrastructure needs.

To address the extensive devastation caused by the storms, the Territory has proposed a portfolio of programs to boost broad-based recovery on multiple fronts. The need for urgent action is a major driver of the first allocation of funds. With an additional CDBG-DR allocation for remaining unmet needs not anticipated until the summer of 2018, the Territory will prioritize "ready-to-go" projects that are expected to be most impactful for long-term recovery and viability of housing in the U.S. Virgin Islands. This includes identified housing projects that are "shovel-ready," as well as infrastructure and economic revitalization programs that can best help prevent future loss of critical services such as power and water, as well as further job losses and economic destabilization.

As discussed, housing for displaced Virgin Islanders remains the highest priority, especially low- and moderate-income families. Given the breadth of housing damage across the islands, the Territory proposes that a total of $72 million from Tranche 1 be used to support housing programs. The total impact on housing, including rental and public housing, is estimated at $2.29 billion with 86% of households that suffered "major" or "severe" damage occupied by LMI households. To date, $1.25 billion has been disbursed from federal and other sources of funds. CDBG-DR is to be used as the funding of last resort to address the remaining unmet needs of $1.04 billion. While the Territory is currently working with FEMA in determining how to best implement the STEP and Permanent Construction programs to maximize the benefits to restoring damaged and destroyed homes, the Territory has developed the Repair, Reconstruction, and New Construction of Owner-Occupied and Rental Housing for Disaster-Impacted Households program using CDBG-DR funds. The program will offer a "one program, many paths" approach. Priority will be given to the most vulnerable Virgin Islanders, especially those who remain displaced or living in severely damaged homes more than seven months after the 2017 hurricanes. The Territory is currently in the process of identifying households that may not get the extent of repairs needed from STEP. These households are being recommended to the FEMA Permanent Housing Construction program for evaluation of eligibility under this program.

As the Territory identifies additional gaps beyond these two programs, households will be evaluated for CDBG-DR funded supplemental home repairs.

Additionally, the Territory will build new affordable housing for new owners and for renters. The program will case manage disaster impacted, low to moderate income households that may be ready to move up to home ownership or are interested in subsidized and affordable rental housing. The proposed housing program will also support the repair and development of affordable rental and public housing and sheltering initiatives. The program will also support landlords who continue to make repairs or build new rental housing to more quickly repair and expand the availability of affordable rental. New public housing and affordable rental units, the need for which predates but was exacerbated by the storms, will be built to provide long-term housing for LMI families throughout the U.S. Virgin Islands. Residential facilities for particularly vulnerable populations—the homeless, disabled, mentally ill, and elderly—will also be prioritized. New housing units funded through this Action Plan will meet HUD's resilience standards, which will reduce the future need for emergency sheltering. Still, new and stronger sheltering facilities will be necessary to guarantee the safety of residents in the likely event of future disasters.

Both storms also had a widespread and lasting impact on the Territory's infrastructure. Total needs for infrastructure are quantified at $6.93 billion, which includes estimated costs of emergency recovery measures; permanent repair and reconstruction work; and resilience and mitigation efforts. The Territory has identified multiple disaster-related infrastructure priorities that must be addressed and which directly support housing needs. Residents not only suffered from direct damage to their homes from the hurricanes, but also endured the loss of critical services such as power and water due to damaged public infrastructure. FEMA Public Assistance (PA) and other federal disaster relief funds will help to address many of these needs. To date, $1.05 billion has been obligated for infrastructure recovery, leaving unmet infrastructure needs of $5.87 billion. As mentioned above, some federal disaster recovery funds, including FEMA PA, require a "local match" contribution, which is currently anticipated to reach over $600 million. As the amount of federal funding obligated continues to grow, the Territory plans to leverage $50.6 million from Tranche 1 to cover the local match for a variety of programs, including public housing.

Some infrastructure repair and resilience costs are unlikely to be completed covered by other federal funding sources. To date, the largest unmet needs for infrastructure are the electrical power systems improvements. The Territory will commit $45 million from Tranche 1 to address this need. The Territory also proposes that $30 million from Tranche 1 be used to satisfy broader repair and resilience needs, which may include projects to bring local roads up to Federal Highway Administration standards. Thus, a total of $75 million from Tranche 1 will go towards the largest critical infrastructure unmet needs.

Hurricanes Irma and Maria not only damaged thousands of housing units and large portions of the U.S. Virgin Islands' infrastructure network; the two storms also brought the economy to a halt and caused major fiscal, business, and wage losses. One of the most severe economic effects of

the storms has been the loss of government revenue, driven primarily by sharp declines in gross receipts and property tax receipts. The cumulative loss of public revenue is expected to reach $576 million by 2020. Businesses in the U.S. Virgin Islands also suffered significant losses as a result of the 2017 storms that go well beyond damages to commercial property or lost inventories. The interruption of business and the challenges of recovery have led to large losses in revenue for small businesses as well as lost wages, especially for low- and moderate-income workers. This is particularly true for tourism, which is estimated to make up between 30% and 80% of the economy.[8] The storms brought tourism to a sudden halt, with all airports and seaports closing for several weeks due to the storms. Even when the ports reopened, tourism remained low because of a lack of accommodations (a result of disaster-caused damage to hotels) and the perception that the islands were completely decimated.[9] Including lost government tax revenue, the total impact of the storms on the Territory's economy is estimated at $1.54 billion.

The economic revitalization programs proposed by the Territory will help sustain and increase tourism revenue for the U.S. Virgin Islands by addressing public perception of post-disaster conditions and revitalizing neighborhoods with significant tourist visits. Given that the tourism sector is especially vulnerable to severe disruption due to natural disasters, the economic revitalization programs also seek to diversify the economy of the U.S. Virgin Islands by investing in workforce training initiatives as well as technical assistance for entrepreneurs and small businesses. Such programs will help residents reap the maximum benefits of disaster recovery work such as construction in the short run and diversify the economy of the Territory into other high value sectors such as medical, marine and financial services in the longer term. The Territory proposes that a total of $33 million from Tranche 1 be used to support economic revitalization with a focus on enhancement of ports and airports, promotion of the Territory's tourism assets, and workforce development programs.

The proposed allocations made to these programs from Tranche 1 ($242,684,000) are summarized in *Table 1*. This funding will only begin to address the significant unmet needs for the U.S. Virgin Islands following Hurricanes Irma and Maria. The Territory anticipates the initiation of programs funded in Tranche 1 within calendar year 2018. As the Territory receives additional allocations of CDBG-DR funding (Tranche 2), all of the programs herein proposed will begin to address remaining unmet needs. The Government of the U.S. Virgin Islands and VIHFA, as the CDBG-DR Grantee, have collaborated with community, nonprofit, and business leaders throughout the Territory and leveraged the expertise of its agencies to design these programs. In accordance with HUD's requirement that 70% of all program funds be used primarily to benefit low- and moderate-income (LMI) individuals, these programs seek to address the needs of the most vulnerable and hardest-hit residents as effectively as possible.

The Territory will continue prioritizing programs that focus on unmet needs as additional data are gathered on damages and needs, and as the requirements and processes for the additional $1,621,058,000 in CDBG-DR funds awarded by HUD are made known.

[8] 2017 World Travel & Tourism U.S. Virgin Islands Report; Euromonitor International.
[9] U.S. Virgin Islands Department of Tourism.

Table 1. Program Allocations from Tranche 1 CDBG-DR Funds

Program		Funds allocated
Housing	Repair, Reconstruction, and New Construction of Owner-Occupied and Rental Housing for Disaster-Impacted Households	$57,000,000
	Sheltering Programs	$15,000,000
Infrastructure	Local Match for Federal Disaster Relief Programs	$50,549,800
	Infrastructure Repair and Resilience	$30,000,000
	Electrical Power Systems Enhancement and Improvement	$45,000,000
Economic Revitalization	Port and Airport Enhancement	$23,000,000
	Tourism Marketing Campaign	$5,000,000
	Workforce Development	$5,000,000
	Neighborhood Revitalization	$0
	Small Business and Entrepreneurship Technical Assistance	$0
Public Services		$0
Administration and Planning*		$12,134,200
Total		**$242,684,000**

* Administration costs are capped at 5% of the overall allocation

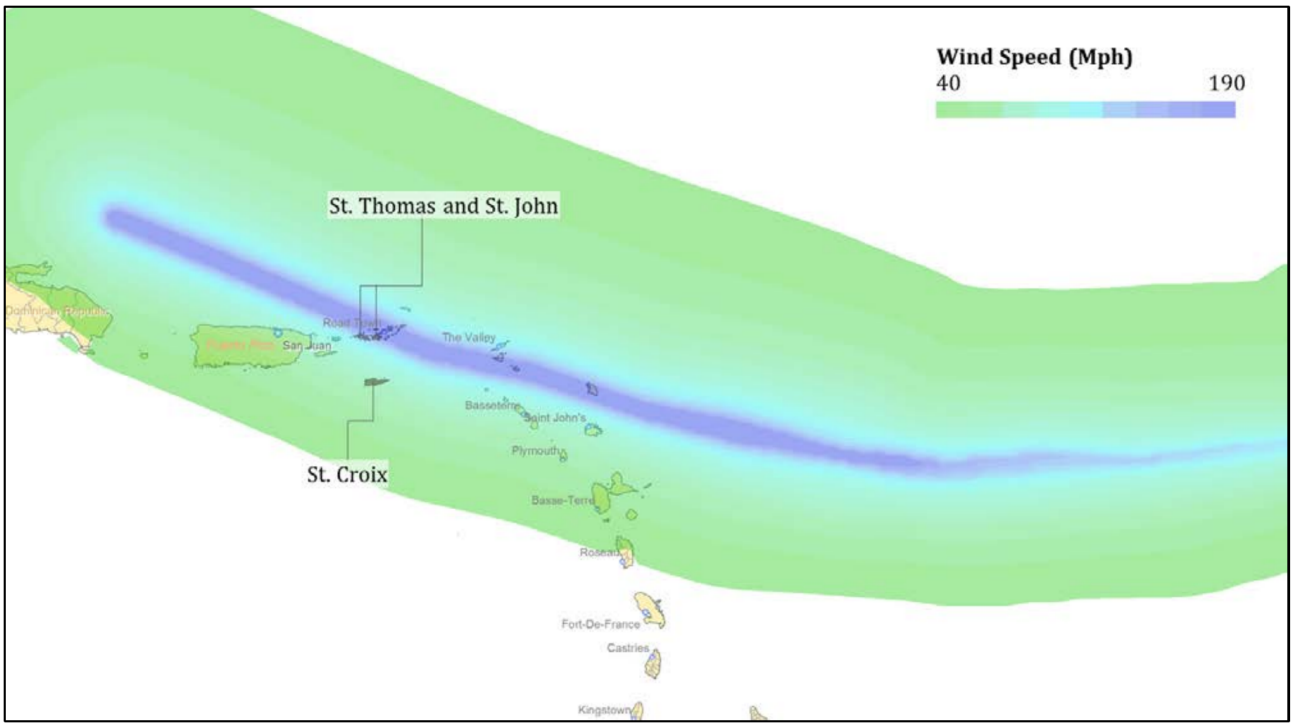
Table 2. Proportionality between Share of Unmet Needs and Share of Tranche 1 Program Allocations

Sector	Unmet Needs Assessment		Tranche 1 Program Allocation	
	$	%	$	%
Housing	$1,040,432,096	13.7%	$72,000,000	31.2%
Infrastructure	$5,874,618,385	77.5%	$125,549,800	54.5%
Local Match – Housing (Public Housing, STEP, and other eligible housing)			*$30,000,000*	
Local Match – Infrastructure			*$20,000,000*	
Economic Revitalization	$669,104,933	8.8%	$33,000,000	14.3%
Total	**$7,584,155,415**	**100%**	**$230,549,800**	**100%**

2 INTRODUCTION

In a 12-day period beginning September 5, 2017, Category 5 storms Irma (DR-4335) and Maria (DR-4340) swept across the Eastern Caribbean, causing severe damage to the U.S. Virgin Islands.[10] It is difficult to overstate the impact of these Presidentially-declared disasters throughout the Territory. While damage levels differ, the storms heavily impacted the main islands of St. Croix, St. Thomas, St. John, and Water Island, as well as about 50 other uninhabited small islands that make up the U.S. Virgin Islands. St. Thomas, St. John, and Water Island bore the brunt of Hurricane Irma (Maps 1 through 3). Less than two weeks later, Hurricane Maria caused more destruction on all of the islands, especially on St. Croix (Maps 4 through 6).

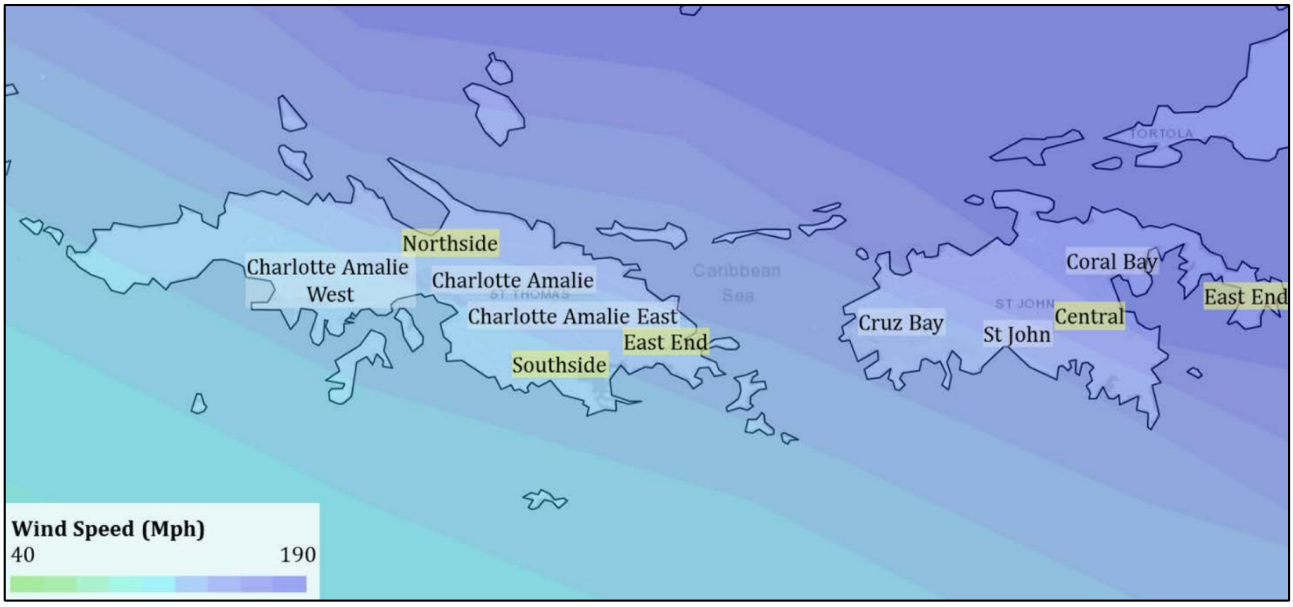
Map 1. Hurricane Irma Wind Gust: Eastern Caribbean



Source: Pan American Health Organization/World Health Organization and Applied Research Associates.

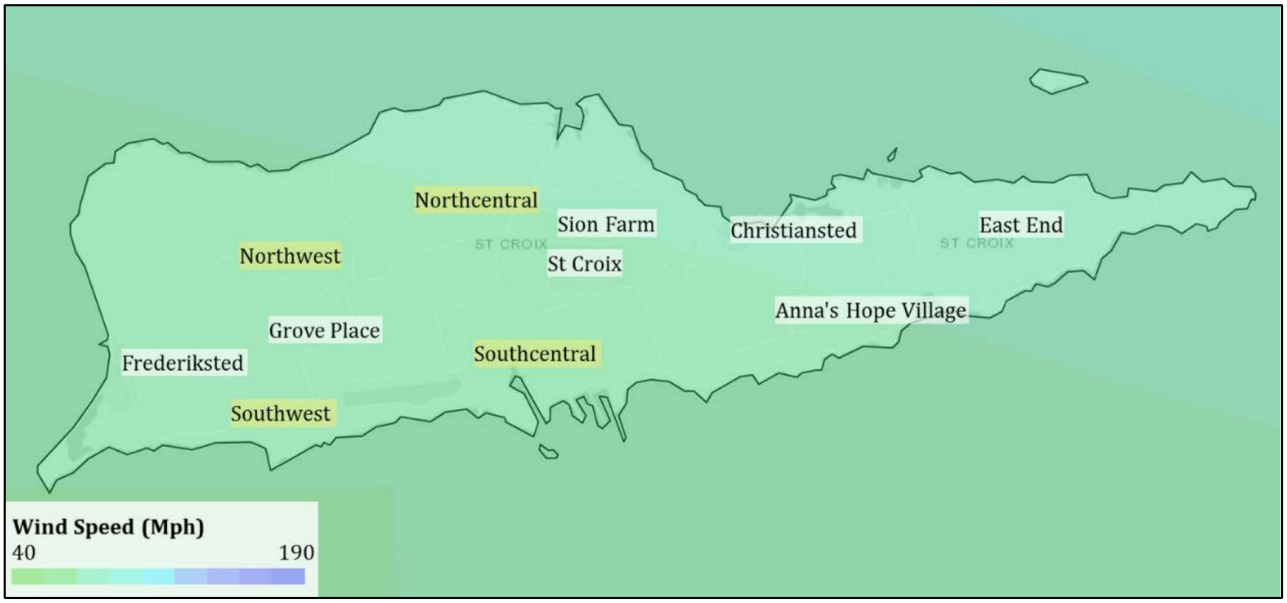
[10] Based on incident period dates in the Federal Emergency Management Agency (FEMA) Disaster Declarations for Hurricanes Irma and Maria.

Map 2. Hurricane Irma Wind Gust: St. Thomas and St. John



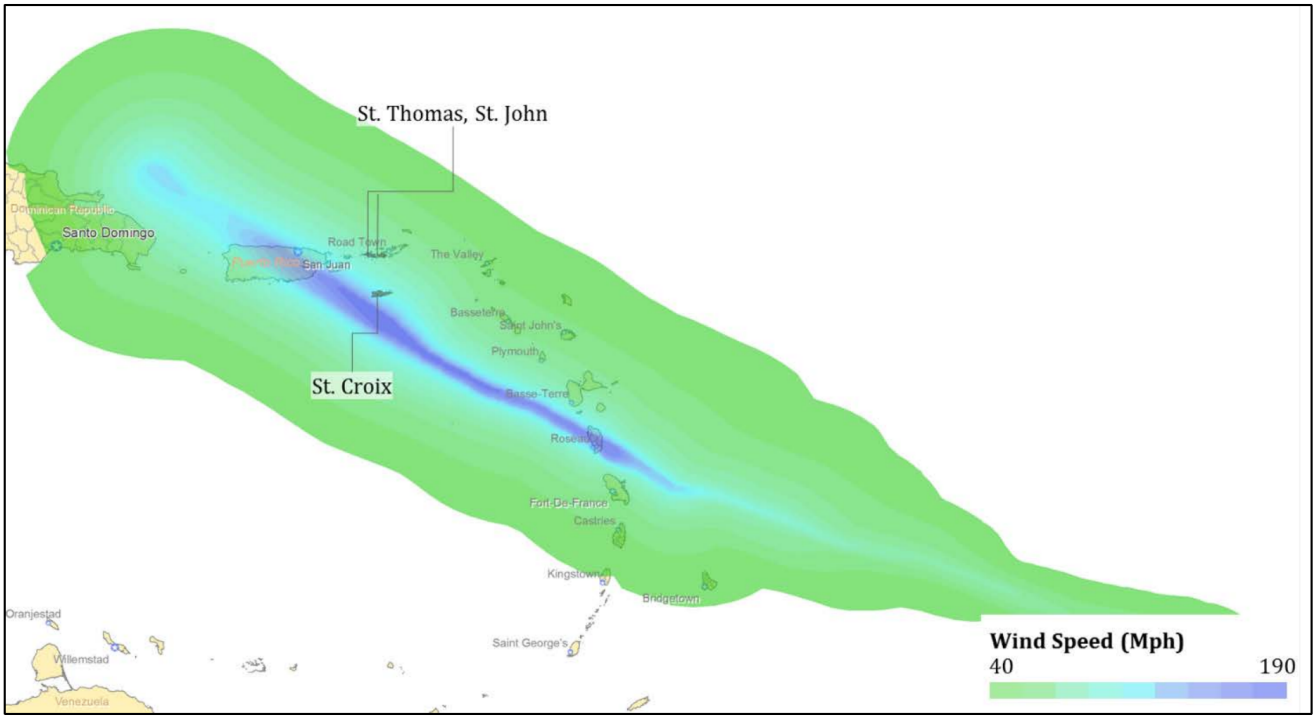
Source: Pan American Health Organization/World Health Organization and Applied Research Associates.

Map 3. Hurricane Irma Wind Gust: St. Croix



Source: Pan American Health Organization/World Health Organization and Applied Research Associates.

Map 4. Hurricane Maria Wind Gust: Eastern Caribbean



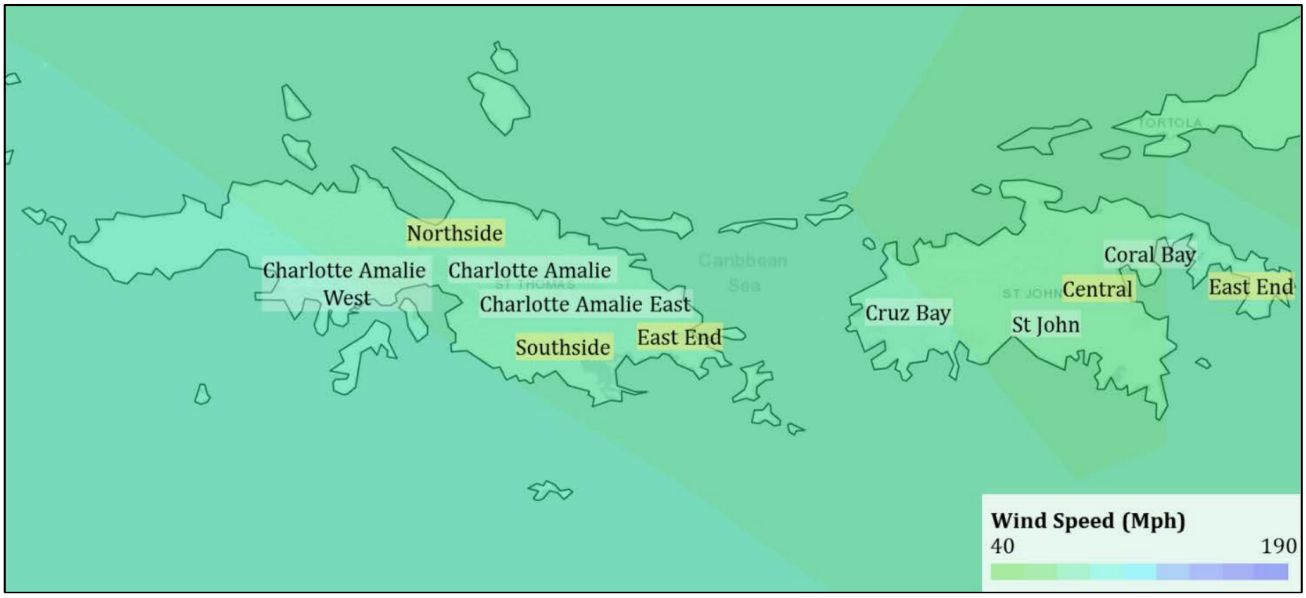
Source: Pan American Health Organization/World Health Organization and Applied Research Associates.

Map 5. Hurricane Maria Wind Gust: St. Croix



Source: Pan American Health Organization/World Health Organization and Applied Research Associates.

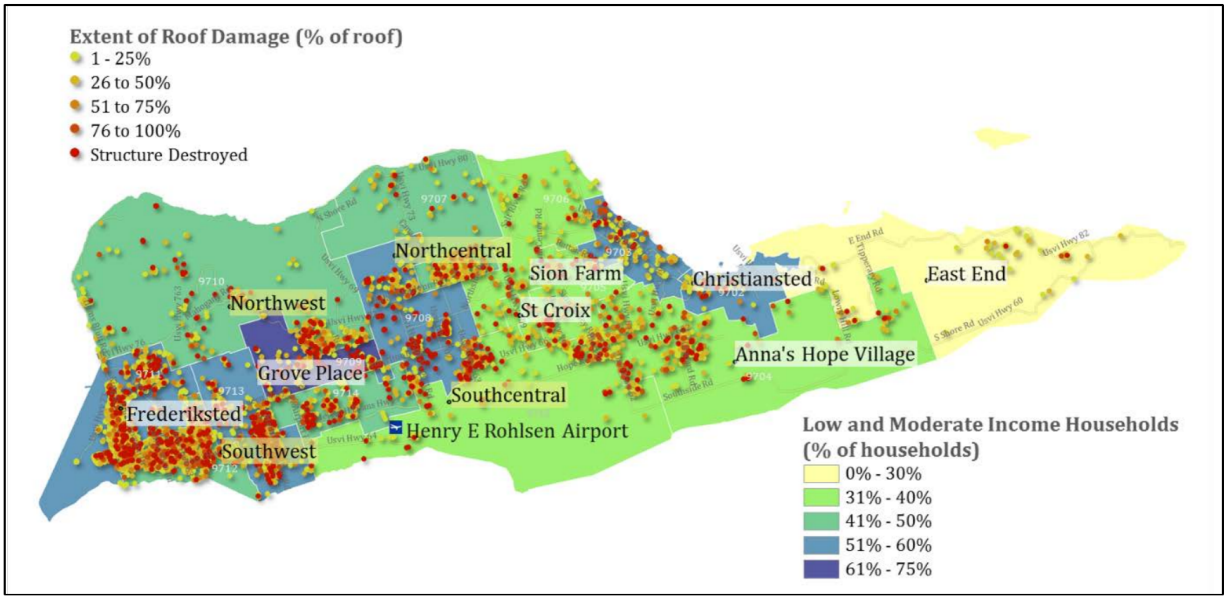
Map 6. Hurricane Maria Wind Gust: St. Thomas and St. John



Source: Pan American Health Organization/World Health Organization and Applied Research Associates.

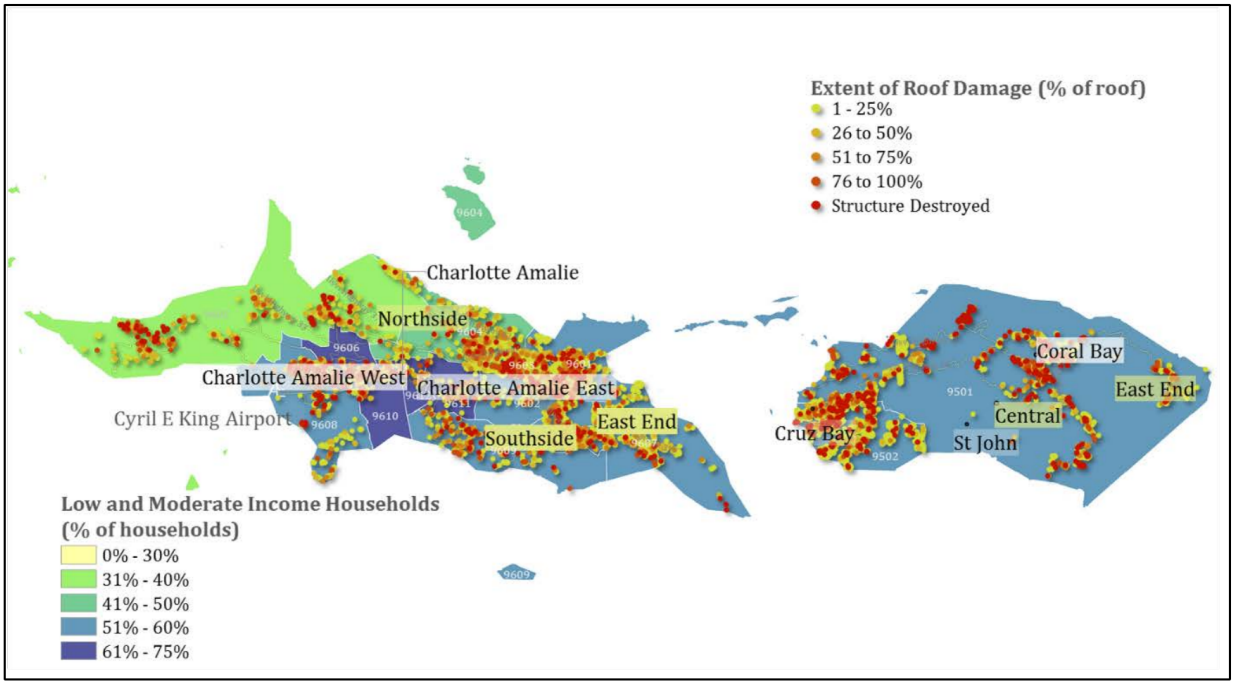
Although the storms have passed, their effects continue to disrupt the lives of Virgin Islanders. As of March 30, 2018, FEMA's Individual Assistance program indicated that 22,527 households sustained damage to their primary residences as a result of the storms, representing 52% of all households on the islands. As shown in Maps 7 and 8, a significant number of damaged households are located in census tracts with high LMI population density, largely due to the paths of each of the hurricanes. Furthermore, as illustrated in Maps 9 and 10, many of the islands' populous and low-income urban areas, such as downtown Frederiksted on St. Croix, Cruz Bay on St. John, and Charlotte Amalie on St. Thomas, are located in high-risk flood zones, thereby exacerbating the damage incurred by the populations residing there.

Map 7. LMI Households and Extent of Roof Damage: St. Croix



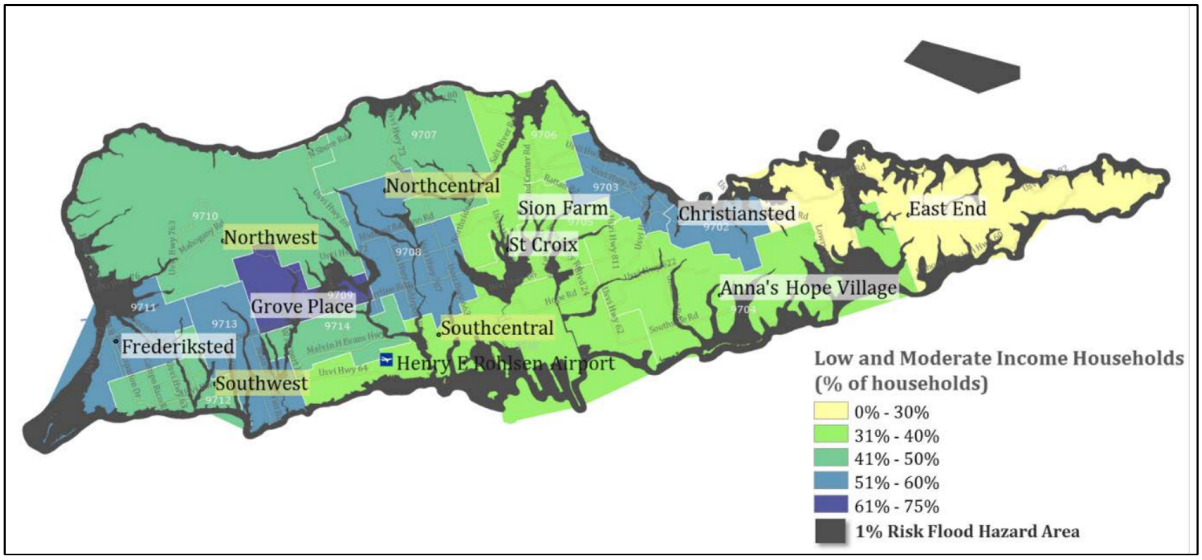
Source: HUD FY 2017 LMISD by State - All Block Groups, Based on 2006-2010 American Community Survey (Accessed: March 5, 2018); NOAA Hurricane Aerial Imagery

Map 8. LMI Households and Extent of Roof Damage: St. Thomas and St. John



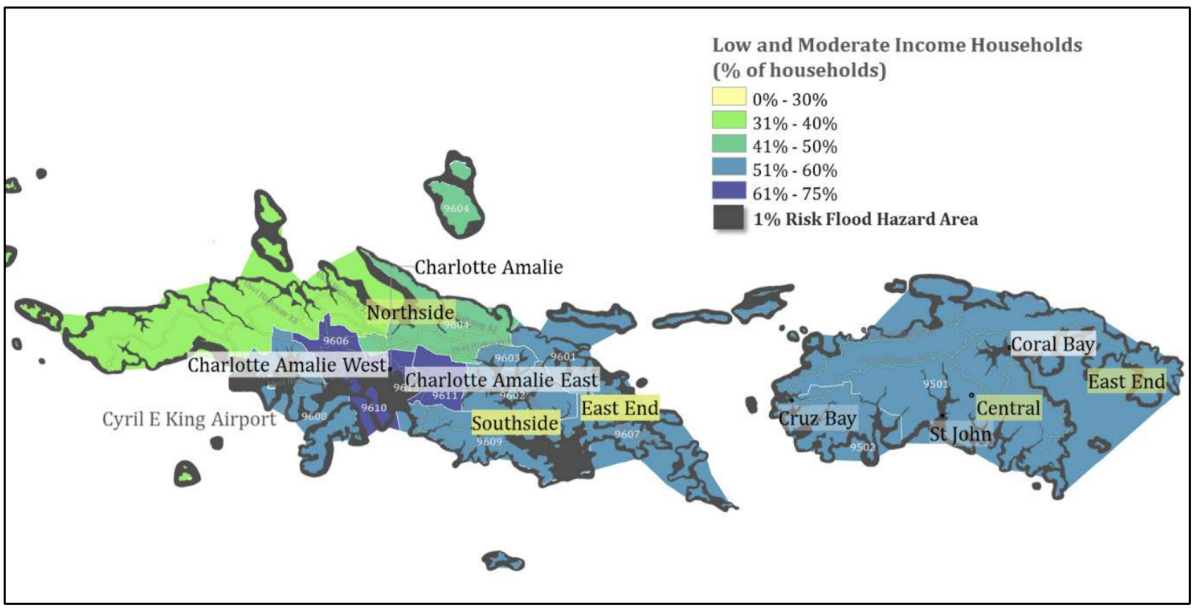
Source: HUD FY 2017 LMISD by State - All Block Groups, Based on 2006-2010 American Community Survey (Accessed: March 5, 2018); NOAA Hurricane Aerial Imagery

Map 9. LMI Households and 1% Flood Zone: St. Croix



Source: HUD FY 2017 LMISD by State - All Block Groups, Based on 2006-2010 American Community Survey (Accessed: March 5, 2018); FEMA.

Map 10. LMI Households and 1% Flood Zone: St. Thomas and St. John



Source: HUD FY 2017 LMISD by State - All Block Groups, Based on 2006-2010 American Community Survey (Accessed: March 5, 2018); FEMA.

Damage to critical infrastructure also hindered the ability of businesses to reopen and operate normally. At its peak, 95% of the Territory was without power. The main airports on St. Croix and St. Thomas were closed for two weeks due to extensive damage to facilities, and all seaports were shut down for three weeks due to the sinking of over 400 vessels in and around the islands

during the hurricanes.[11] Roadways experienced washouts, debris, mudslides, and downed power lines. In total, the storm created more than 825,316 cubic yards of debris—more than local landfills could handle.[12] Damage to telecommunications infrastructure severely limited cellular and broadband network connectivity, with 90% of customers losing internet access.[13]

The unprecedented damages caused by the storms compounded challenges for an already-fragile economy. Pre-storm, the economy had experienced a decline of 14% in gross domestic product (GDP) between 2006 and 2016 and public debt had mounted to 74% of GDP.[14] Further, the islands' small domestic market and narrow natural resource base has resulted in an over-reliance on one or two economic sectors and limited private sector development. The economy's lack of growth can also be attributed to an aging population and overall population loss—5% from 2000 to 2010—driven by families leaving for mainland jobs. One key result is an increased need for talent that often cannot be met locally.

The physical damages caused by the storms brought tourism—the single most important stream of revenue for the Territory—to a complete halt and recovery has been slow. Most of the large hotels were significantly damaged and remain closed for repairs. Many of the largest hotels will not be back online until late 2019 or 2020.[15] The impact of the storms on tourism has had a ripple effect on the local economy, hurting small businesses, retailers, tax revenues, and, most importantly, low- and moderate-income residents that depend on visitor spending and the hospitality industry at large for employment. The hurricanes only made the Territory more economically vulnerable than it already was before September 2017.

Ordinarily difficult, long-term recovery efforts are complicated further by the geography of the U.S. Virgin Islands. Distances between islands vary from two miles between St. Thomas and St. John to less than a mile between St. Thomas and Water Island to over 40 miles from these islands to St. Croix. Land evacuation is not possible for the Territory. Evacuation must occur by ship or aircraft, which makes it more difficult, especially for the most vulnerable among the population. Its position also makes response, recovery, and rebuilding logistically challenging and more expensive for the Territory which sits at the end of the supply chain from the mainland. This is a primary driver of the high cost of imported goods and materials, which mean higher-than-average costs of reconstruction—with construction costs nearly 1.4 times the U.S. national average—and contributes to the high cost of power, almost three times the U.S. average.[16] Finally, the distances between the islands result in the need for more localized solutions, such as an emergency shelter or a separate electrical power system on each island.

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[11] U.S. Virgin Islands Port Authority.
[12] U.S. Federal Emergency Management Agency (FEMA) Incident Storyboard as of April 23, 2018.
[13] Virgin Islands Next Generation Network (viNGN).
[14] U.S. Virgin Islands Bureau of Economic Research; U.S. Government Accountability Office.
[15] U.S. Virgin Islands Department of Tourism and U.S. Virgin Islands Hotel and Tourism Association.
[16] U.S. Department of Defense, UFC3-701-01 DoD Facilities Pricing Guide (Revision Date: 07-01-2017); U.S. Energy Information Administration, Territory Profile: U.S. Virgin Islands: April 2018.

Despite these challenges, the Territory, no stranger to natural disasters, has time and time again proven its resilience and commitment to improving the lives of its inhabitants, rebuilding better and stronger than before after each storm. After each modern-day disaster, the U.S. Virgin Islands has improved its infrastructure and has invested in hazard mitigation strategies. Particularly after Category 3 Hurricane Marilyn in 1995, which left 8 dead and an estimated 10,000 homeless on the islands, the Territory shifted its focus from disaster response to disaster preparedness, adopting and implementing stronger building codes and strengthening piers, water production, and the electric distribution system.[17] In a testament to the effectiveness of these measures, it is noted that most homes and businesses rebuilt to the post-Marilyn standards withstood the most recent storms.[18]

This same commitment to recovery has been on display after Irma and Maria, when the Territory moved swiftly to restore critical public services. After the hurricanes knocked out power to almost all of the islands, electricity was restored to 90% of eligible homes and businesses by Christmas. Over 22.3 million cubic feet of debris were cleared in less than 6 months and an emergency repair program to assist people living in temporary shelter or storm-damaged homes has been implemented.[19]

As with all previous modern-day disasters, the Territory recognizes that the key to moving beyond recovery will be rebuilding with a focus on resilience. Thus, the Territory is pursuing a holistic approach in order to identify and realize opportunities to address vulnerabilities and make recovery more resilient in the face of future extreme weather events and other hazards. To support the commitment to resilient recovery, in October 2017, Governor Kenneth E. Mapp established the U.S. Virgin Islands Hurricane Recovery Task Force, an expert advisory committee intended to set the framework for reconstruction and resilience efforts in the U.S. Virgin Islands. The Territory understands federal relief funds are a precious resource and is fully committed to carrying out recovery in the most efficient, cost-effective, and resilient manner. Addressing unmet needs for critical infrastructure and positioning the economy for growth will promote the long-term resilience of the U.S. Virgin Islands across all sectors, including housing.

On September 8, 2017—after Hurricane Irma had made landfall and before Hurricane Maria had arrived—Congress approved the Supplemental Appropriations for Disaster Relief Requirements, 2017 (Pub. L. 115-56), which made available $7.39 billion in Community Development Block Grant Disaster Recovery (CDBG-DR) funds to assist in long-term recovery from 2017 disasters. CDBG-DR provides resources to address a community's wide-ranging recovery needs. On February 9, 2018, Congress approved a bill appropriating an additional $28 billion CDBG-DR funds, of which $11 billion was set aside to address the remaining unmet needs including those of the U.S. Virgin Islands and Puerto Rico from Hurricane Maria. Of that amount, $2 billion is for the repair and reconstruction of the electricity systems in Puerto Rico and the U.S. Virgin Islands. On February 14, 2018, the U.S. Department of Housing and Urban Development (HUD) published

[17] U.S. Department of Commerce National Institute of Standards and Technology (NIST); "Losses from Hurricane Total $875 Million," *The New York Times* (September 28, 1995).
[18] Federal Emergency Management Agency News Release, March 28, 2018.
[19] FEMA Incident Storyboard as of April 23, 2018.

Federal Register 6066-N-01, which detailed the guidelines for the first round of CDBG-DR funding for the U.S. Virgin Islands from the aforementioned appropriation. Since data were not available for the U.S. Virgin Islands and Puerto Rico until late December 2017, the first allocation of CDBG-DR funding addressed only a portion of the total unmet need amounted to $242,684,000. FR 6066-N-01 also established the requirements and processes pertaining to the first allocation of CDBG-DR funds (Tranche 1).

The second allocation of CDBG-DR funds for the Territory was announced on April 10, 2018, totaling $1,621,058,000 (Tranche 2). Of this amount, $846,870,000 is intended to address the U.S. Virgin Islands' remaining serious unmet housing, infrastructure, and economic needs, including the enhancement and improvement of the electrical power system. The remaining $774,188,000 is intended to support mitigation activities that protect communities against predictable damage from future natural disasters. As of May 3, 2018, HUD has not yet published the Federal Register Notice with the requirements and processes pertaining to this second allocation. After the second Notice is published, the Territory will amend its Action Plan accordingly to ensure compliance and allocate Tranche 2 funds to the programs proposed herein.

The U.S. Virgin Islands CDBG-DR Action Plan lays out programs to address unmet housing needs, rebuild critical infrastructure, and revitalize the local economy. The Action Plan also describes the Territory's proposed allocation of the $242,684,000 in Tranche 1. The Territory will use later allocations to continue to address these unmet needs and to fund programs that will help increase overall community resilience and further enable economic growth. These programs have been designed to promote sound, sustainable long-term recovery in coordination with other planning efforts such as the Hurricane Recovery Task Force report, the hazard mitigation plan update, and flood plain management studies.

The Impact and Unmet Needs Assessment section of this Action Plan details the most up-to-date unmet needs assessment, currently estimated at $7.58 billion. As indicated in the demographic profile of the most impacted areas (Section 3.3), the vast majority of the LMI population of the U.S. Virgin Islands endured major and severe damage as defined by HUD (83 FR 5869). The unmet needs assessment estimates the impact of Hurricanes Irma and Maria on housing, infrastructure, and the economy and is sensitive to the particular challenges of reconstruction and resilience due to high labor and construction costs in the Territory.

The Method of Distribution, Programs, and Allocations section of this Action Plan identifies the method of distribution of these funds as well as the programs proposed to address housing, infrastructure, and economic unmet needs. Each program description identifies the corresponding eligible activities and national objectives per the 1974 Housing and Community Development Act, as well as eligible applicant and eligibility criteria, total program allocation, and additional program-specific measures to ensure compliance with high-quality, resilience, sustainability, environmental, administrative, and other applicable standards. The program design is highly sensitive to the urgency of needs and HUD's mandate to prioritize assistance for LMI individuals, defined by HUD as those whose yearly income does not exceed 80% of the area median income (AMI).

The General Administration section of this Action Plan summarizes and reviews the Action Plan's compliance with each of HUD's high quality, resilience, sustainability, environmental, administrative, and other applicable standards, criteria, and certifications. The Government of the U.S. Virgin Islands is committed to detecting and preventing fraud, waste, and abuse of funds. All programs have been designed to ensure the most transparent and cost-effective use of public funds primarily for the benefit of low- and moderate-income residents.

3 IMPACT AND UNMET NEEDS ASSESSMENT

3.1 Background

HUD requires that the Territory conduct an assessment of impact and unmet needs to quantify the funding needed for recovery from the 2017 disasters. The assessment is used to identify the type and location of community needs and thus informs the prioritization of CDBG-DR funds to address the most distressed areas as effectively as possible. The assessment must evaluate all aspects of recovery, with an emphasis on housing, infrastructure, and economic revitalization. An understanding of the impact of natural disasters is necessary to identify the most appropriate and effective programs to spur sustainable recovery and reconstruction. Since CDBG-DR funds are meant to contribute to long-term recovery and resilience, the unmet needs assessment takes into account the costs of mitigation and resilience measures that can reduce the impact of future natural disasters.

To ensure that CDBG-DR funds go towards needs that are not likely to be addressed by other funding sources, the assessment accounts for the various forms of assistance available to, or likely to be available to, the affected communities and individuals within the Territory using the most up to date data. The unmet needs assessment draws on the data and input provided by the following federal and local authorities as well as non-governmental sources:

Table 3. Agencies and Organizations Engaged in Preparation of CDBG-DR Action Plan

Federal Agencies	
• Environmental Protection Agency (EPA)	• U.S. Army Corps of Engineers (USACE)
• Federal Emergency Management Agency (FEMA) Hazard Mitigation Grant Program	• U.S. Census [2000 and 2010 data]
• FEMA Individual Assistance Program	• U.S. Department of Agriculture (USDA)
• FEMA Inundation Shapefiles	• U.S. Department of Commerce (DOC)
• FEMA Pre-Disaster Mitigation Program	• U.S. Department of Defense (DoD)
• FEMA Public Assistance Program	• U.S. Department of Education (ED)
• FEMA Shelter and Temporary Essential Power (STEP) Program	• U.S. Department of Housing and Urban Development (HUD)
• Federal Highway Administration Emergency Relief (FHWA-ER) Program	• U.S. Department of the Interior, Office of Insular Affairs
• Federal Reserve Bank of New York	• U.S. Energy Information Administration (EIA)
• National Center for Education Statistics	• U.S. Postal Service (USPS)
• Small Business Administration (SBA)	•
International and Multilateral Organizations	
• Euromonitor International	• World Bank

• Florida-Caribbean Cruise Association	• World Travel and Tourism Council
Local Authorities	
• University of the Virgin Islands	• Virgin Islands Economic Development Authority
• Virgin Islands Bureau of Economic Research	• Virgin Islands Housing Authority
• Virgin Islands Bureau of Information Technology	• Virgin Islands Housing Finance Authority
• Virgin Islands Community Survey (VICS) 2014	• Virgin Islands Hurricane Recovery Task Force
• Virgin Islands Division of Banking, Insurance, and Financial Regulation	• Virgin Islands Next Generation Network
• Virgin Islands Department of Education	• Virgin Islands Port Authority
• Virgin Islands Department of Health	• Virgin Islands Public Services Commission
• Virgin Islands Department of Human Services	• Virgin Islands Territorial Emergency Management Agency
• Virgin Islands Department of Labor	• Virgin Islands Waste Management Authority
• Virgin Islands Department of Property and Procurement	• Virgin Islands Water and Power Authority
• Virgin Islands Department of Public Works	• The West Indian Company, Ltd. (WICO)
• Virgin Islands Office of Public Authority	• Virgin Islands Department of Finance
• Virgin Islands Office of Management and Budget	• Virgin Islands Department of Tourism
• Virgin Islands Department of Planning and Natural Resources	
Community Organizations and Private Businesses	
• American Red Cross	• Methodist Training and Outreach Center
• Jackson Development Inc.	• My Brother's Workshop
• Catholic Charities of the Virgin Islands	• The Salvation Army of the Virgin Islands
• Coldwell Banker	• St. Croix Foundation for Community Development
• Continuum of Care	• St. Croix Mission Outreach
• Disability Rights Center of the Virgin Islands	• St. Croix Renaissance Group, LLP
• DWH Business Services Inc.	• St. John Community Foundation
• Eagle's Nest Men's Shelter	• Sugar Mills Villas
• East Caribbean Center at the University of the Virgin Islands	• Sunny Isles Elderly Housing
• Family Resource Center	• Ten Thousand Helpers of St. Croix
• Frederiksted Health Care	• The Village – VI Partners in Recovery
• Gold Coast Yachts, Inc.	• Virgin Islands Hotel and Tourism Association
• Island Therapy Solutions	• WestCare Foundation

- Limetree Bay Terminals, LLC
- Lutheran Social Services of the VI
- Community Foundation of VI
- Women's Coalition of St. Croix
- The Carambola Hotel

3.2 Summary of Impact and Unmet Needs

HUD defines unmet needs as the financial resources necessary to recover from a disaster that are not likely to be addressed by other public or private sources of funds, including, but not limited to FEMA Individual Assistance, FEMA Public Assistance, FHWA Emergency Relief Program, SBA Disaster Loans, and private insurance. *Table 4* reflects the Territory's unmet needs for housing, infrastructure, and economic revitalization based on the most recently available data as of April 27, 2018.

Table 4. Estimated Unmet Needs for the U.S. Virgin Islands

Sector	Total Need	Funding Obligated	Unmet Need
Housing	$2,293,642,404	$1,253,210,308	$1,040,432,096
Infrastructure	$6,929,400,000	$1,054,781,615	$5,874,618,385
Economic Revitalization	$1,535,182,202	$866,077,269	$669,104,933
Total	**$10,758,224,606**	**$3,174,069,191**	**$7,584,155,415**

Sources: FEMA Individual Assistance, Public Assistance, Hazard Mitigation Grant Program, Mission Assignments, and Pre-Disaster Mitigation program data; Federal Highway Administration Emergency Relief Program, SBA disaster loan approvals; U.S. Virgin Islands Division of Banking, Insurance, and Financial Regulation; effective April 27, 2018.

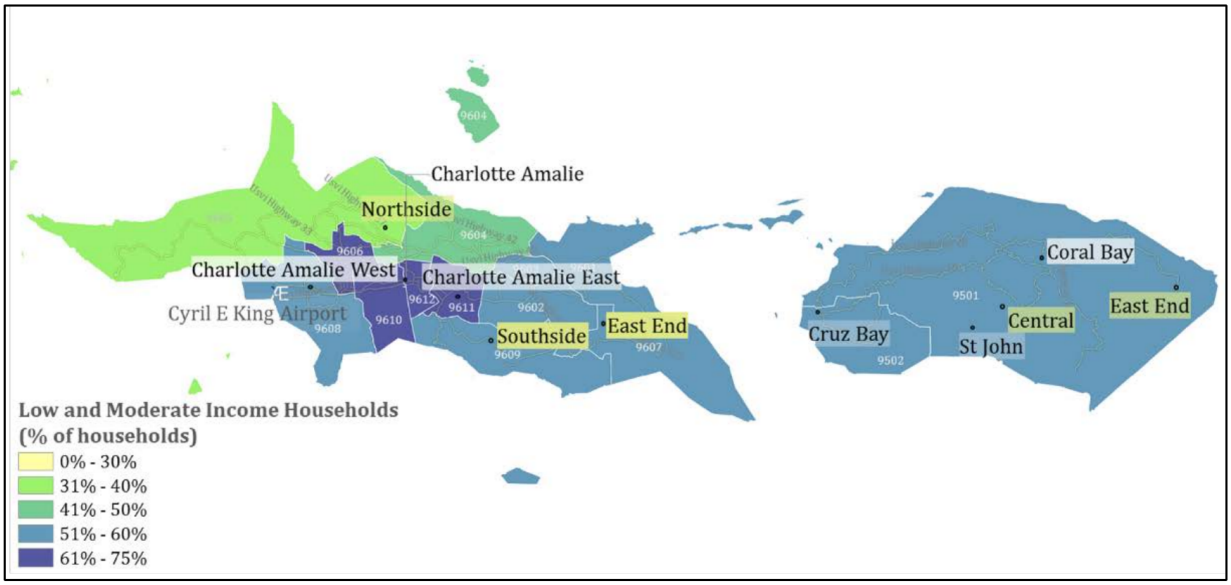
The total need for the U.S. Virgin Islands is estimated to be $10.76 billion. With $3.17 billion in other funding obligated to date, there is a total unmet need of $7.58 billion. These estimates will be more refined as more recent, geographically-specific, and precise data are collected and analyzed, and as additional funding is committed and disbursed.

To grasp the severity of housing, infrastructure, and economic unmet needs, it is important to understand the demographic characteristics of the U.S. Virgin Islands, including the level and distribution of low- and moderate-income persons and other vulnerable populations. Pursuant to HUD's Notice for 2017 CDBG-DR Grantees, no less than 70% of the aggregate CDBG-DR funds must be used to support activities benefitting LMI (83 FR 5855). Per HUD requirements, LMI households with up to 80% of the area median income (AMI) may qualify as meeting the low- and moderate-income person benefit national objective. For the U.S. Virgin Islands, HUD estimates the 2017 one-person household AMI by island at: $34,813 for St. Croix; $48,188 for St.

John; and $43,000 for St. Thomas. Accordingly, LMI individuals are those whose yearly income does not exceed $27,850 for St. Croix; $38,550 for St. John; and $34,400 for St. Thomas.[20]

An area is determined to meet the low- and moderate-income area (LMA) benefit when at least 51% of its residents are LMI persons. Areas that qualify as low- and moderate-income were identified using the 2010 U.S. Census data, the most recently available data at the census tract level for the U.S. Virgin Islands. As seen in Map 11, which shows percentage of LMI households by census tract, the majority of census tracts on St. Thomas and St. John exceed the threshold of 51% LMI residents. Accounting for population density, St. Thomas (57.9% LMI) and St. John (54.8% LMI) both qualify for the LMA benefit at the island level. Although St. Croix does not meet the LMA threshold at the island level (46.3% of its residents are LMI), a third of the census tracts in that island do qualify for LMA benefit, as shown in Map 12. The location and concentration of LMI households are important considerations in the impact and unmet needs assessment as well as program design.

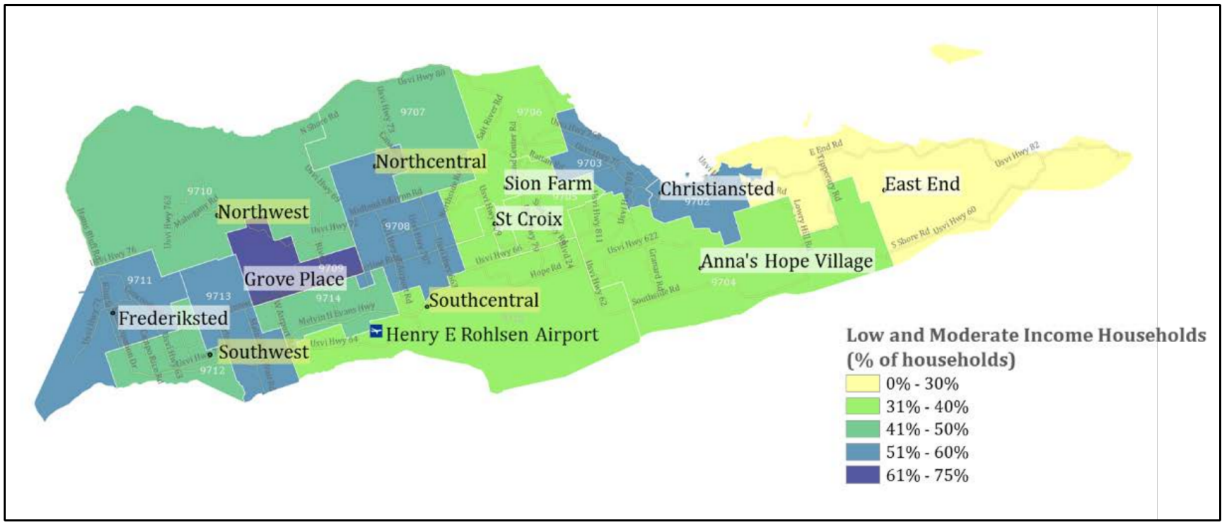
Map 11. Percentage of LMI Households by Census Tract: St. Thomas and St. John



Source: HUD FY 2017 LMISD by State - All Block Groups, Based on 2006-2010 American Community Survey (Accessed: March 5, 2018)

[20] HUD FY 2017 Income Limits for the U.S. Virgin Islands.

Map 12. Percentage of LMI Households by Census Tract: St. Croix



Source: HUD FY 2017 LMISD by State - All Block Groups, Based on 2006-2010 American Community Survey (Accessed: March 5, 2018)

3.3 Demographic Profile of Most Impacted and Distressed Areas

The demographic profile for the U.S. Virgin Islands was generated using data from the 2010 U.S. Census, which is the latest and best available dataset at the census tract level given that the American Community Survey is not conducted in the Territory. However, to ensure a more accurate and comprehensive view of the socioeconomic characteristics of the U.S. Virgin Islands' population, 2010 data were supplemented with insights from the 2014 U.S. Virgin Islands Community Survey conducted by the University of the Virgin Islands (available at the island level) and various U.S. Virgin Islands government agencies, including the Bureau of Economic Research and the Department of Labor.

The Territory has unique demographic characteristics, largely due to its geography. Located east over 40 miles of Puerto Rico and southwest of the British Virgin Islands, the U.S. Virgin Islands is composed of the main islands of St. Croix, St. Thomas, and St. John. The Territory also encompasses Water Island, a small island off the coast of St. Thomas with less than 200 residents, and Hassel Island, an even smaller island in the Charlotte Amalie harbor south of St. Thomas and east of Water Island. Hassel Island is nearly all property of the Virgin Islands National Park and has only a few private residences. The Territory extends to approximately 50 other small uninhabited islands and cays, encompassing a total of 737 square miles.

According to the 2010 Census, there are 106,405 residents in the U.S. Virgin Islands; however, the most recent data reported in the 2014 Virgin Islands Community Survey estimates total population at 102,007. The demographic analysis that follows is based primarily on 2010 Census data because it is the most recent available data reported at the census tract level. The three main islands have relatively similar demographic profiles. Both St. Croix and St. Thomas have approximately 50,000 residents each, though St. Croix has 60% of the Territory's land mass while

St. Thomas has only 30%. St. John, the smallest of the main islands, has a population of just over 4,000 and most of the land on the island is owned by the National Park Service as a part of the Virgin Islands National Park.

The population of the U.S. Virgin Islands is considerably more vulnerable than that of the U.S. mainland. The median income in 2010 was $37,254, approximately 25% lower than the U.S. as a whole,[21] and it is estimated to have decreased by about $5,000 between 2010 and 2014.[22] In fact, 22% of the U.S. Virgin Islands population is below the poverty level, compared to 14.4% of the overall U.S. population. A large share of households lack access to critical water and telecommunications infrastructure: only 47% of households are connected to the municipal potable water network, and 14% do not have internet access.[23] Furthermore, 15% of the population of the U.S. Virgin Islands have disabilities, compared with 12% in the U.S. overall.[24] In terms of race, the population is 73% Black or African American and 19% White. In terms of ethnicity, Hispanics and Latinos account for 17% of the population. A striking 48% of U.S. Virgin Islands families are led by single parents. A more detailed breakdown of these statistics by 2010 U.S. Census tract is provided in *Table 5* and *Table 6*.

The population of St. Croix is the most economically vulnerable with a median household income of $36,042, as compared to $38,232 in St. Thomas and $40,644 in St. John. Lastly, 26% of St. Croix's residents live below the poverty level compared to 19% in St. Thomas and 15% in St. John.

[21] 2010 median U.S. household income was $51,914.
[22] 2014 Virgin Islands Community Survey.
[23] There is no privately owned comparable activity in the Territory, thus the other 53% of residents are not connected to any water network. Homes not connected to any water network are built with a large capacity cistern as a catchment for rainwater.
[24] U.S. percentage of individuals with disabilities from 2010 Census.

Table 5. Primary 2010 Demographics Statistics for the U.S. Virgin Islands

Census Tract	No. of households	% of HH damaged*	Median HH Income	% of LMI HH	% of HH over 65 alone	Race (%)			Ethnicity (%) Hispanic / Latino	% owner occupied homes	% renter occupied homes
						Black / African American	White	Other race			
USVI	**43,214**	**12%**	**$37,254**	**52%**	**10%**	**73%**	**19%**	**8%**	**17%**	**48%**	**52%**
St. Croix	**19,765**	**9%**	**$36,042**	**46%**	**10%**	**71%**	**17%**	**11%**	**24%**	**56%**	**44%**
9701	894	3%	$56,154	29%	10%	33%	60%	7%	15%	70%	30%
9702	1,346	40%	$26,633	59%	12%	70%	20%	10%	31%	34%	66%
9703	1,996	1%	$28,077	58%	10%	67%	18%	15%	31%	37%	63%
9704	1,842	1%	$51,038	32%	9%	67%	21%	12%	23%	66%	34%
9705	1,297	1%	$45,670	37%	11%	74%	15%	12%	26%	63%	37%
9706	1,705	3%	$50,881	31%	10%	69%	22%	9%	15%	68%	32%
9707	934	0%	$38,229	42%	13%	72%	17%	11%	22%	69%	31%
9708	1,492	12%	$26,500	59%	8%	70%	7%	23%	41%	58%	42%
9709	807	14%	$18,802	69%	10%	84%	8%	8%	17%	27%	73%
9710	822	34%	$41,210	42%	12%	65%	26%	9%	15%	68%	32%
9711	1,589	15%	$27,177	56%	11%	78%	12%	10%	24%	43%	57%
9712	1,729	9%	$36,215	44%	12%	81%	9%	10%	22%	63%	37%
9713	1,260	13%	$31,778	50%	10%	80%	10%	10%	26%	62%	38%
9714	730	3%	$33,214	48%	6%	88%	3%	9%	20%	70%	30%
9715	1,322	1%	$41,929	40%	8%	72%	17%	11%	22%	52%	48%
St. John	**1,894**	**30%**	**$40,644**	**55%**	**7%**	**49%**	**47%**	**4%**	**10%**	**47%**	**53%**
9501	676	64%	$40,114	54%	8%	40%	57%	3%	5%	53%	47%
9502	1,218	11%	$40,909	55%	6%	55%	41%	4%	13%	43%	57%
St. Thomas	**21,555**	**13%**	**$38,232**	**58%**	**10%**	**77%**	**19%**	**5%**	**11%**	**41%**	**59%**
9601	1,532	1%	$36,912	59%	8%	78%	19%	2%	8%	46%	54%
9602	1,672	18%	$38,352	59%	9%	92%	6%	2%	8%	54%	46%
9603	1,768	0%	$38,804	56%	11%	94%	4%	1%	6%	54%	46%
9604	2,061	32%	$53,633	42%	7%	55%	38%	7%	9%	49%	51%
9605	2,459	2%	$55,532	38%	9%	55%	41%	5%	7%	54%	46%
9606	1,753	0%	$35,083	61%	11%	81%	13%	6%	15%	33%	67%
9607	1,545	5%	$41,425	55%	9%	70%	27%	3%	8%	50%	50%
9608	1,559	5%	$36,332	60%	8%	76%	17%	7%	17%	32%	68%
9609	1,934	4%	$40,933	58%	8%	73%	20%	7%	10%	38%	62%
9610	2,256	3%	$29,896	70%	10%	84%	11%	5%	21%	28%	72%
9611	1,860	22%	$28,297	72%	14%	89%	6%	4%	12%	19%	81%
9612	1,156	92%	$27,112	74%	14%	89%	7%	4%	15%	26%	74%

* Based on FEMA Individual Damage assessments and including all homes with major or severe damage as defined by HUD in 83 FR 5869.
Source: 2010 U.S. Census. Excludes Census Tract 9900 (uninhabited bodies of water).

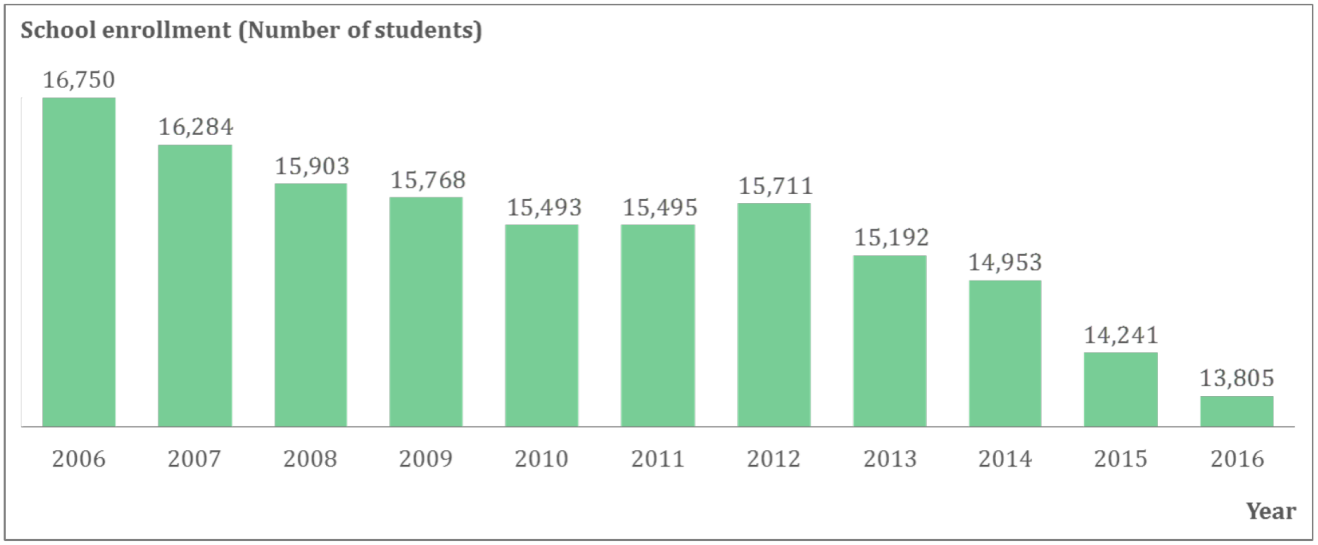
Table 6. Additional 2010 Demographic Statistics for the U.S. Virgin Islands

Census Tract	Total households	% of HH damaged*	% below poverty level	Avg. pop. per sq. mile	% families w/ single parents	% of pop. w/ disabilities	Median rent	% homes built before 1990	% of homes using public water	% of homes without internet
USVI	**43,214**	**12%**	**22%**	**1,605**	**48%**	**15%**	**$621**	**67.8%**	**47%**	**14%**
St. Croix	**19,765**	**9%**	**26%**	**885**	**47%**	**15%**	**$535**	**67.2%**	**50%**	**14%**
9701	894	3%	12%	171	22%	17%	$861	67.6%	25%	10%
9702	1,346	40%	34%	1,640	59%	20%	$433	85.2%	80%	19%
9703	1,996	1%	36%	2,251	60%	11%	$395	84.9%	78%	20%
9704	1,842	1%	15%	427	39%	15%	$675	64.7%	29%	11%
9705	1,297	1%	17%	1,464	45%	13%	$686	70.1%	32%	9%
9706	1,705	3%	13%	824	34%	15%	$722	64.4%	27%	11%
9707	934	0%	20%	369	41%	13%	$603	75.9%	39%	10%
9708	1,492	12%	37%	810	56%	11%	$402	54.7%	56%	20%
9709	807	14%	49%	865	70%	24%	$305	66.0%	70%	21%
9710	822	34%	23%	140	37%	21%	$535	56.6%	21%	13%
9711	1,589	15%	36%	1,087	60%	19%	$435	73.1%	68%	16%
9712	1,729	9%	23%	1,813	48%	19%	$582	69.4%	54%	14%
9713	1,260	13%	26%	978	44%	11%	$501	58.4%	51%	15%
9714	730	3%	26%	963	48%	11%	$370	19.1%	65%	14%
9715	1,322	1%	18%	360	42%	14%	$514	54.6%	42%	14%
St. John	**1,894**	**30%**	**15%**	**364**	**40%**	**13%**	**$835**	**44.8%**	**22%**	**15%**
9501	676	64%	15%	85	44%	13%	$811	39.3%	13%	14%
9502	1,218	11%	15%	1,007	38%	12%	$858	47.6%	26%	15%
St. Thomas	**21,555**	**13%**	**19%**	**2,778**	**49%**	**15%**	**$693**	**71.3%**	**47%**	**13%**
9601	1,532	1%	18%	1,577	44%	16%	$743	64.1%	37%	13%
9602	1,672	18%	18%	1,627	53%	14%	$719	71.6%	30%	16%
9603	1,768	0%	17%	6,601	54%	17%	$687	85.0%	29%	13%
9604	2,061	32%	11%	1,042	36%	22%	$795	60.6%	22%	9%
9605	2,459	2%	10%	603	33%	14%	$901	62.5%	7%	11%
9606	1,753	0%	19%	3,248	50%	16%	$669	67.9%	56%	11%
9607	1,545	5%	16%	1,632	46%	23%	$791	66.7%	34%	16%
9608	1,559	5%	21%	1,387	53%	11%	$636	78.2%	64%	14%
9609	1,934	4%	21%	1,550	46%	15%	$642	65.8%	49%	11%
9610	2,256	3%	27%	6,436	59%	11%	$614	78.7%	85%	17%
9611	1,860	22%	27%	3,210	64%	15%	$579	83.0%	85%	13%
9612	1,156	92%	28%	7,200	68%	14%	$545	81.1%	88%	15%

* Based on FEMA Individual Damage assessments and including all homes with major or severe damage as defined by HUD in 83 FR 5869.
Source: 2010 U.S. Census. Excludes Census Tract 9900 (uninhabited bodies of water).

The population of the U.S. Virgin Islands has been steadily decreasing since 2000, largely due to emigration to the mainland U.S. [25] By 2019, the population is projected to have decreased by 5% since 2010. [26] In addition to emigration, the decrease in population can be attributed to declining birthrates and overall aging.[27] In fact, while individuals over the age of 65 made up 8.4% of the population in 2000, they made up 13.5% of the population in 2010, and 17.5% in 2014.[28] The overall downward trend in population is evident in decreasing school enrollment as seen in Figure 1, which may be considered a good proxy for population size given the lack of more recent Territory-wide census data.

Figure 1. School Enrollment in the U.S. Virgin Islands from 2006 to 2016



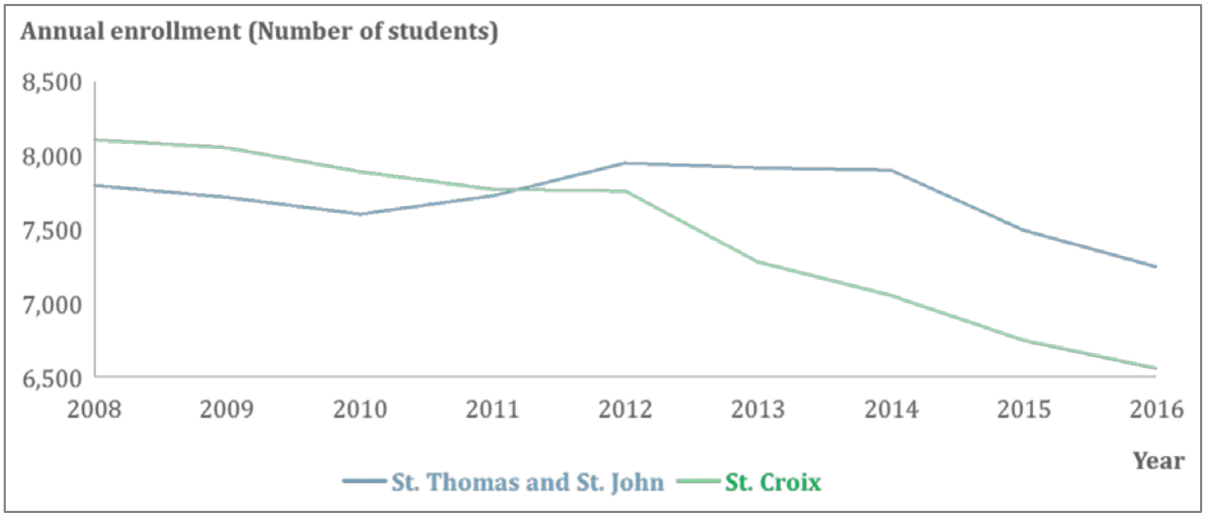
Source: National Center for Education Statistics (Accessed 3/27/2018)

As shown in Figure 2, school enrollment, which correlates to population, has declined more significantly on St. Croix, where it dropped by 11% from 2010 to 2014, compared to St. Thomas and St. John, where enrollment increased by 4%.[29] One key difference between the islands, which may account for St. Croix's proportionately greater population decrease, is their historic economic drivers. St. Croix experienced an economic downturn sparked by the 2012 closure of HOVENSA, one of the ten largest oil refineries in the world. At its peak, HOVENSA employed 2,200 residents or about 10.9% of the workforce on St. Croix.[30] By contrast, the largest sector for employment on St. Thomas and St. John is tourism, which grew from 2009 to 2014, as seen in Figure 3 below.

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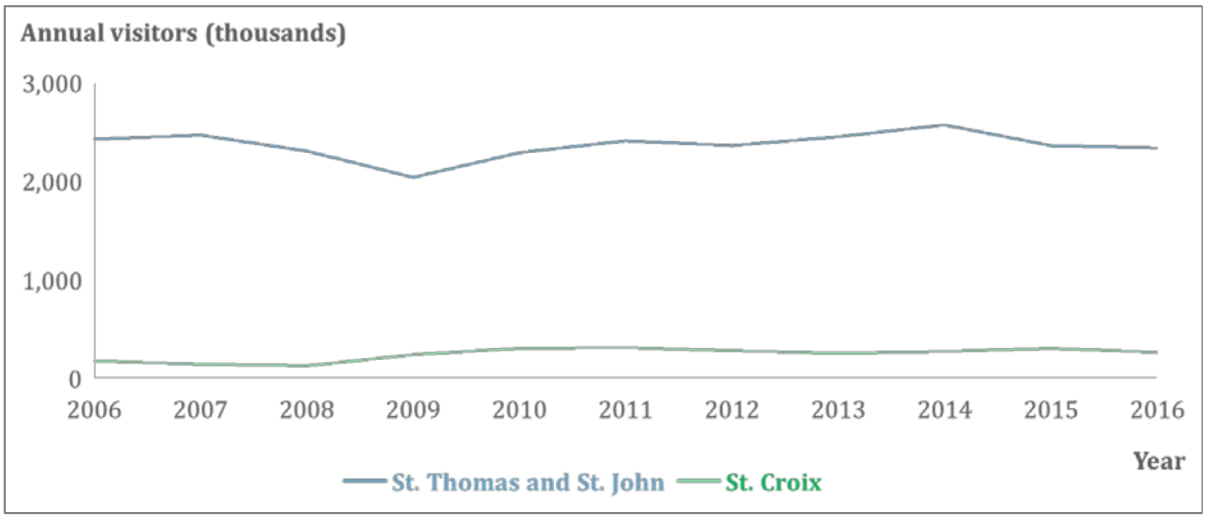
[25] World Bank.
[26] U.S. Postal Service.
[27] U.S. Virgin Islands Housing Demand Study (Community Research Services, LLC).
[28] 2000 U.S. Census, 2010 U.S. Census, 2014 Virgin Islands Community Survey.
[29] National Center for Education Statistics (Accessed 4/3/2018).
[30] "One Year Later: Refinery Closure Scattered Hovensa Family Across the Map" (1/18/2013), "One Year Post-Hovensa: Worse Before It Gets Better?" (1/26/2013), *St. Croix Source.* HOVENSA's share of St. Croix's workforce based on U.S. Virgin Islands Division of Labor sector data.

Figure 2. School enrollment in St. Thomas, St. John, and St. Croix from 2008 to 2016



Source: National Center for Education Statistics (Accessed 4/3/2018).

Figure 3. Annual visitors to St. Thomas, St. John, and St. Croix from 2006 to 2016



Source: U.S. Virgin Islands Bureau of Economic Research (Accessed 4/3/2018).

The combined trends of an aging, declining population with low median income have led to some challenges in the housing market, including abandonment of properties, particularly in St. Croix, and declining incomes causing a housing affordability challenge. The housing stock is relatively expensive compared to median incomes. The median home value in the Territory is $254,300 and the median monthly rent is $631, making affordability a serious concern for the U.S. Virgin Islands' low-income population.[31] In fact, 49% of renter households are "cost-burdened,"

[31] U.S. 2010 Census.

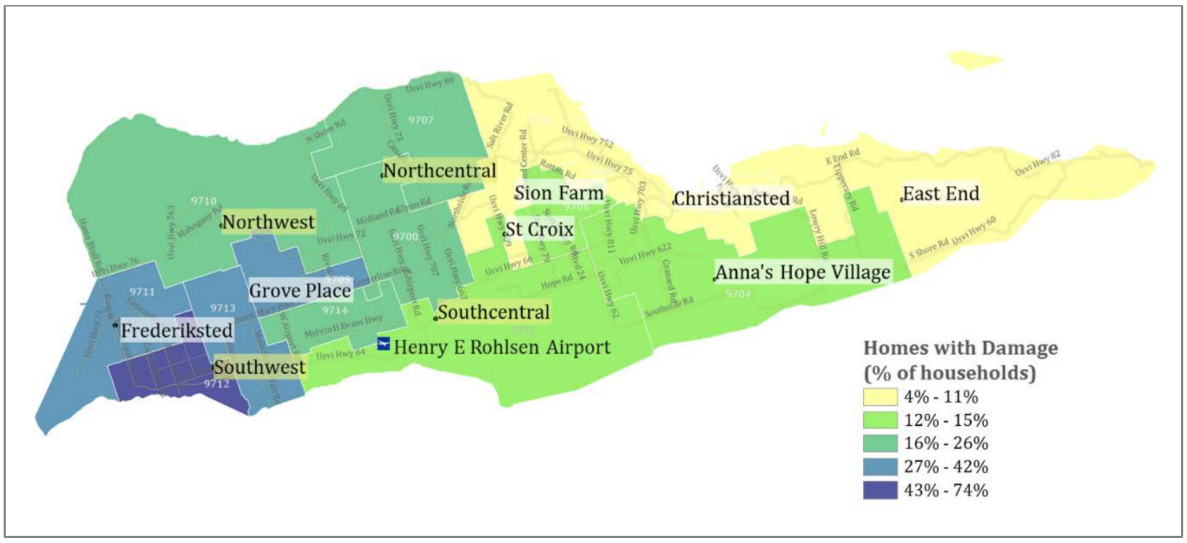
spending over 30% of their income on rent.[32] Recent estimates show that of the 43,214 households on the islands, 48% are owner-occupied, well below the national average of 63.9%.[33]

[32] U.S. Virgin Islands 2015 Housing Demand Study, based on 2010 Census data.
[33] 2010 U.S. Census.

3.4 UNMET HOUSING NEEDS

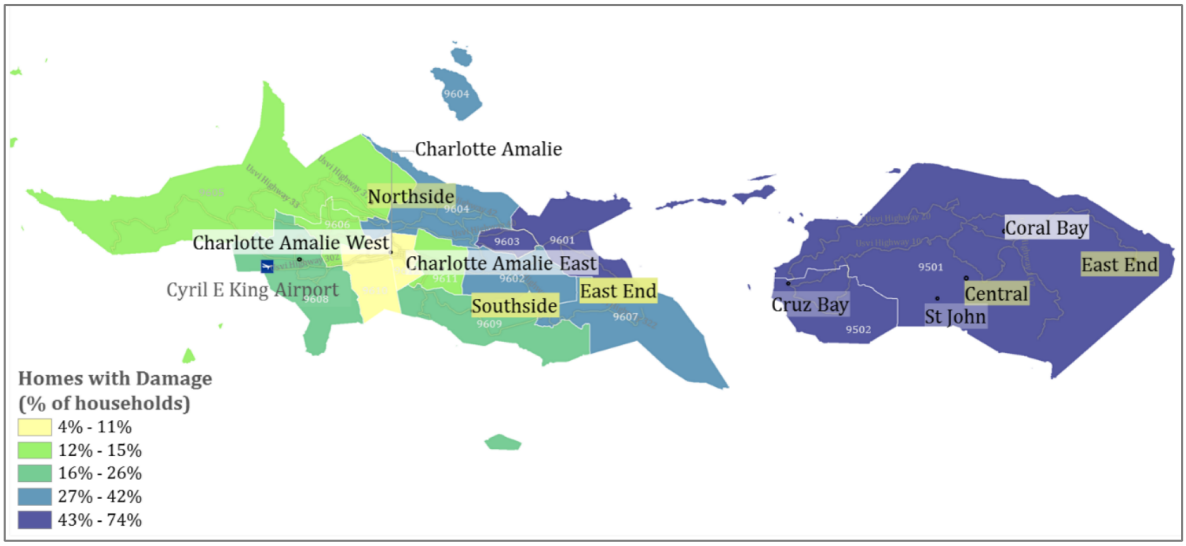
Hurricanes Irma and Maria significantly impacted the Territory's housing sector, as illustrated in Maps 13 and 14, below. Damage to housing is quantified using the methodology outlined by HUD (83 FR 5868), which categorizes damage as Minor, Major or Severe depending on the levels of flooding and/or Full Verified Loss (FVL) to either real or personal property as reported by FEMA's Individual Assistance (IA) Program. Based on the FEMA IA data as of March 30, 2018, the Territory estimates that approximately 22,527 households sustained some damage to their primary residences from one or both hurricanes, representing 52% of all housing stock on the islands. Of the 22,527 households that were impacted, 5,175 suffered Major or Severe damage; of these, approximately 2,362 are the owners' primary residences and 2,813 are renter-occupied homes. Current data also indicate an additional 11,827 owner-occupied residences and 5,525 rental units sustained Minor damage. *Table 7* describes housing damage by severity among FEMA IA applicants.

Map 13. Homes with Damage (% of Households) in St. Croix



Source: FEMA Individual Assistance Data, effective March 30, 2018.

Map 14. Homes with Damage (% of Households) in St. Thomas and St. John



Source: FEMA Individual Assistance Data, effective March 30, 2018.

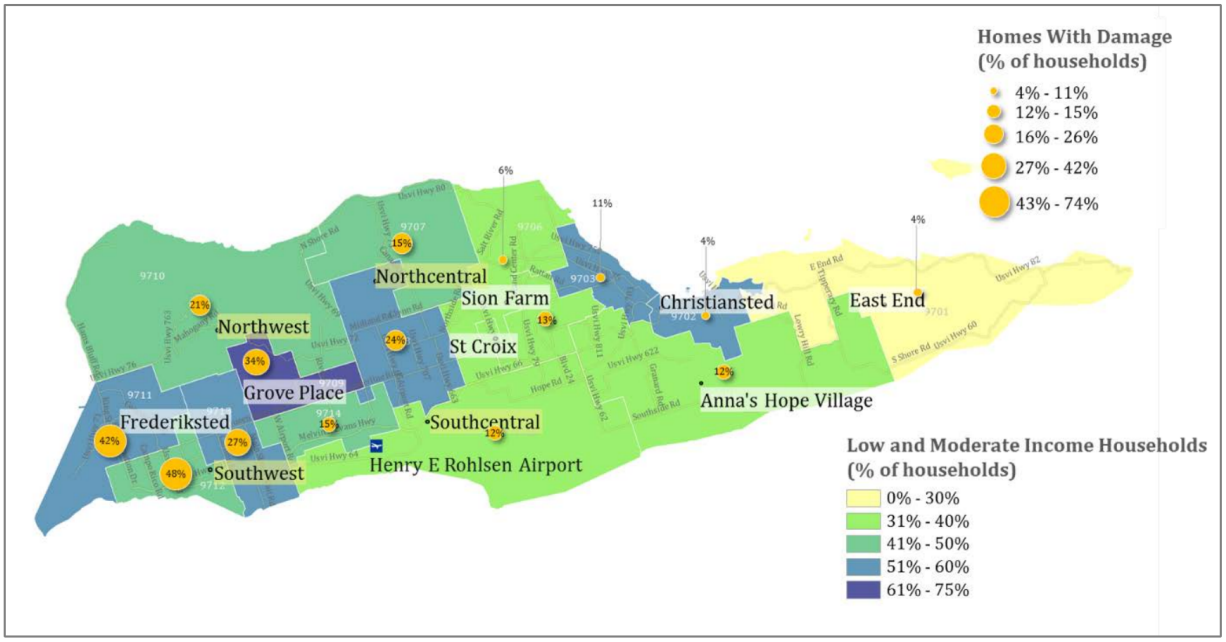
Table 7. Housing Units Damaged by Severity and Occupant Type for FEMA IA Applicants

Level of Damage	Owner		Renter		Total Households		
	No. of Households	% of Damaged Households	No. of Households	% of Damaged Households	No. of Damaged Households	% of Damaged Households	% of Total Households
Minor Damage	11,827	83%	5,525	66%	17,325	77%	40%
Major Damage	1,847	13%	2,688	32%	4,535	20%	11%
Severe Damage	515	4%	125	2%	640	3%	1%
Total	**14,189**	**100%**	**8,338**	**100%**	**22,527**	**100%**	**52%**

Source: FEMA Individual Assistance Data, effective March 30, 2018; 2010 U.S. Census.

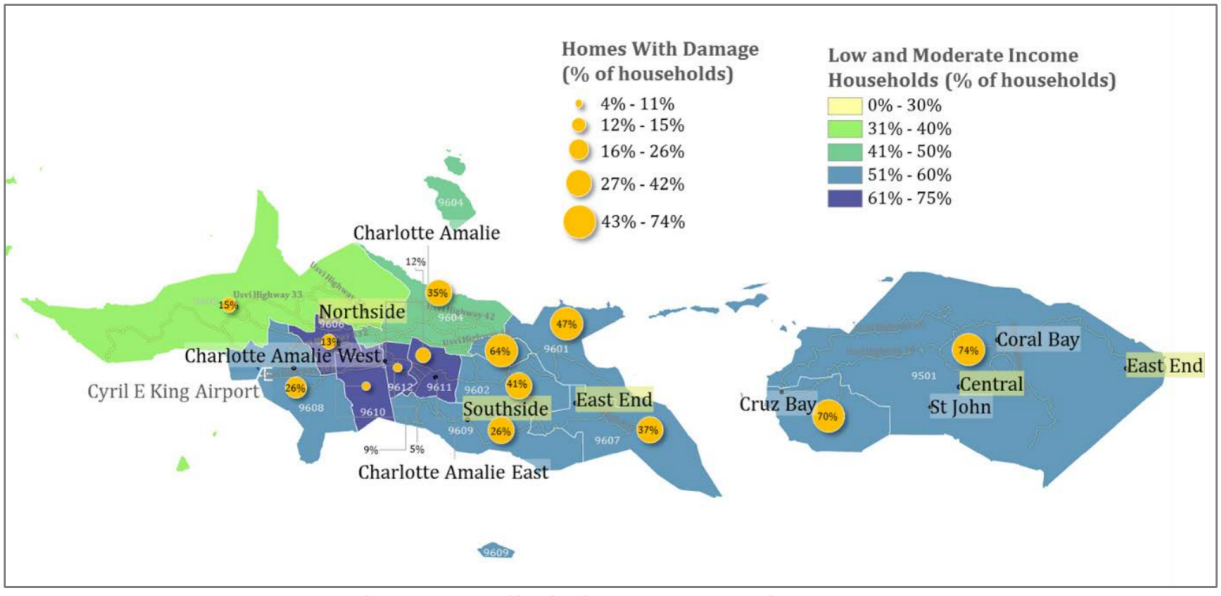
Although 12% of the housing stock on the islands suffered Major to Severe damage, the worst damage was disproportionately inflicted upon LMI households, as shown in Maps 15 and 16 as well as Table 7 below. For this reason, the Territory is especially focused on understanding the unmet housing needs of the most vulnerable.

Map 15. LMI Households (%) and Damaged Households (%) in St. Croix



Source: HUD FY 2017 LMISD by State - All Block Groups, Based on 2006-2010 American Community Survey (Accessed: March 5, 2018); FEMA Individual Assistance Data, effective March 30, 2018.

Map 16. LMI Households (%) and Damaged Households (%) in St. Thomas and St. John



Source: HUD FY 2017 LMISD by State - All Block Groups, Based on 2006-2010 American Community Survey (Accessed: March 5, 2018); FEMA Individual Assistance Data, effective March 30, 2018.

Table 8. Percent of Housing Stock with Major to Severe Damage and Impact on LMI

Tenure	No. of Households with Major to Severe Damage	No. of Households with Major to Severe Damage that are LMI	% of Households with Major to Severe Damage that are LMI
Owner	2,362	1,650	70%
Renter	2,813	2,813	100%
Total	**5,175**	**4,463**	**86%**

Source: FEMA Individual Assistance Data, effective March 30, 2018.

Developing a clear picture of the impact of natural disasters on housing stock is always a challenge. While there is no single data source on damage for all types of housing, FEMA's IA program gives an initial view of losses to owner and renter-occupied housing. However, to arrive at a more comprehensive assessment of the damages to the Territory's housing stock and outline the remaining unmet needs, information has been collected directly from the following entities: (i) the Virgin Islands Housing Finance Authority (VIHFA), the Virgin Islands Housing Authority (VIHA), and the U.S. Virgin Islands Department of Human Services (DHS); (ii) organizations investing in housing recovery such as SBA and USDA; and (iii) private property managers, nonprofits, and other stakeholders involved in providing housing.

The analysis of damages and unmet housing needs is based on the best available data as of April 27, 2018. Using the methodology outlined in Section 3.4.2 below, the total need identified via damages to the Territory's housing stock is estimated at $2.29 billion, of which $1.25 billion has been obligated for housing recovery. The remaining unmet need for housing is estimated at $1.04 billion. As additional data is compiled and analyzed, the Territory expects this figure to become more accurate, though significant increases to total housing unmet need are not expected at this point.

3.4.1 Characterization of Populations with Unmet Needs

Damages calculated using FEMA IA data merely scratch the surface of the level of damage that Hurricanes Irma and Maria caused to the Territory's housing stock. To begin to address the extent of the storms' impact, it is necessary to examine their effects on homeowners, rental stock, public housing, displaced populations, LMI populations, and the most vulnerable households.

The U.S. Virgin Islands is especially focused on understanding the impact of the 2017 hurricanes on (i) the stock of affordable housing and (ii) interim and permanent supportive housing given the limited availability of both prior to the storms.

3.4.1.1 Impact on Homeowners

Homeowners throughout the Territory were significantly affected by Hurricanes Irma and Maria. As displayed in *Table 9* below, FEMA data indicates that 14,189 owners' primary residences

sustained some degree of physical damage; of those, 2,362 owner-occupied homes sustained Major to Severe damage.

Table 9. FEMA Damage to Owner Stock

HUD-Defined Damage Categories*			No. of Damaged Housing Units	% of Total Damaged Housing Units
Level of Damage	Real Property FVL Range	Personal Property FVL Range		
Minor – Low	$1 to $2,999	$1 to $2,500	9,133	64%
Minor – High	$3,000 to $7,999	$2,500 to $3,499	2,694	19%
Major – Low	$8,000 to $14,999	$3,500 to $4,999	1,167	8%
Major – High	$15,000 to $28,800	$5,000 to $8,999	680	5%
Severe	$28,000 or more	$9,000 or more	515	4%
Total			**14,189**	**100%**

* For any given household, the Level of Damage is deemed to be the highest one in which it is placed by either Real Property or Personal Property FVL.
Source: FEMA Individual Assistance Data, effective March 30, 2018; FR 6066-N-01

The first source of funding to address the damage to homeowners was provided by FEMA IA through the Individual and Household Programs (IHP), which help owners return their homes to decent, safe, and habitable conditions. FEMA also provides rental assistance to eligible displaced homeowners. Of the 14,189 owner-occupied households with damage on the islands, 33% accessed two or more months of rental assistance through FEMA, indicating a significant amount of displaced households, at least shortly following the storms.

Homeowners who were not able to fund their temporary repairs through FEMA IA or have needs in excess of the $33,300 FEMA IA grant cap are referred to the FEMA PA-funded Sheltering and Temporary Essential Power (STEP) program for emergency home repairs. STEP provides free repairs to eligible owner-occupied homes to supplement other FEMA repair programs. The STEP program allows individuals and families to find safe shelter in their own homes instead of staying at public shelters, hotels, or rentals while awaiting permanent repairs to their homes.

Although FEMA's Full Verified Loss (FVL) to real property includes the cost of restoring homes to decent, safe and habitable standards, STEP conducts a broader damage assessment for habitability. The STEP program has been accepting applications from homeowners since early February and as of April 23, 2018, 4,762 homes have been approved for inspection (right of entry forms signed) and close to 250 homes have been completed. For the 1,632 households with both FEMA and STEP damage estimates, STEP estimates were found to be $9,013 higher on average than the FEMA estimates for the same home. This confirms HUD's assertion that FEMA's FVL underrepresents the level of damage to homes (83 FR 5869) and suggests that STEP will continue to address unmet needs for owner repairs, as STEP does not duplicate the benefits given to homeowners by FEMA IA and can thus independently provide up to $25,000 in eligible repair

expenses per households. While STEP is still in its early phases, administrators anticipate that there will be approximately 7,500 households served.

Based on current available data, as well as input from local agencies and community organizations, the Territory's owner-occupied housing needs include:

- Assisting homeowners with the reconstruction or rehabilitation of their homes, following the support of other existing programs;
- Providing case management and technical assistance to help homeowners navigate the rebuilding and reconstruction process; and
- Providing interim rental assistance to displaced homeowners.

3.4.1.2 Impact on Rental Stock

Renter-occupied households were likewise affected by the storms. An estimated 8,338 rental units sustained some amount of physical damage. Of the renter-occupied households that incurred damage, 2,813 or 34% of those sustained Major or Severe damage, as indicated in *Table 10*.

Table 10. FEMA Damage to Rental Stock

HUD-Defined Damage Categories*			No. of Damaged Housing Units	% of Total Damaged Housing Units
Level of Damage	Real Property FVL	Flooding Threshold		
Minor – Low	$1 to $1,000	N/A	2,820	34%
Minor – High	$1 to $1,000	N/A	2,705	32%
Major – Low	$2,000 to $3,499	1-4 feet of flooding on the first floor	1,623	19%
Major – High	$3,500 to $7,499	4-6 feet of flooding on the first floor	1,065	13%
Severe	$7,500 or more	Destroyed and/or 6 or more feet of flooding on the first floor	125	2%
Total			**8,338**	**100%**

* For any given household, the Level of Damage is deemed to be the highest one in which it is placed by either Real Property FVL or Flooding Threshold.
Source: FEMA Individual Assistance Data, effective March 30, 2018; FR 6066-N-01.

Beyond damage to their units, renters were often displaced and unable to find alternative rental units in which to live. Approximately 6,800 renter households received rental assistance from FEMA for at least two months to address this need.

The significant loss of rental units exacerbated an already constricted rental market. Even before the hurricanes, there was a significant shortage of affordable housing for LMI households. The 2010 Census, which is the most recent comprehensive survey of the U.S. Virgin Islands, showed

that 49% of renter households were "cost burdened," spending more than 30% of their income on housing. In fact, 25% were spending more than 50% of their income on rent[34]. The level of cost-burdened renter households by island is summarized in *Table 11*.

Table 11. Cost-Burdened Rental Households

Rent as % of Pre-Tax Income	% of Households in St. Croix	% of Households in St. John	% of Households in St. Thomas	% of Total USVI Households
Less than 30%	55%	42%	51%	51%
30% to 49%	22%	28%	24%	24%
50% or more	23%	30%	25%	25%

Source: 2010 U.S. Census.

In 2015, VIHFA published a Housing Demand Study, which estimated that the gap in affordable rental units was between 2,020 and 4,900 units for the U.S. Virgin Islands. The shortage of affordable rental units was exacerbated by the 2017 storms, as numerous rental units have been taken off-line during repairs while the influx of recovery contractors and volunteers coming to the Territory has increased upward pressure on rental housing stock prices, especially on account of hotel closures due to storm-caused damages. As a result, a significant number of renters have been forced to "double-up" with friends or family.

Demand for rental stock is not isolated to renters: homeowners with damaged homes have themselves entered the housing market to find temporary rental housing until their homes can be adequately repaired. The market for purchasing homes also faces a supply shortage.[35] VIHFA holds a waiting list of mortgage-ready families for their first-time home buyer programs. As of March 2018, 49 families on St. Croix and 92 families on St. Thomas were on the waitlist.

Efforts to increase the supply of rental units in the U.S. Virgin Islands have been hindered by the particularly high costs of construction in the Territory. Construction costs can be prohibitively high due to both a lack of skilled labor and the high cost of shipping materials to the islands, which sit at the end of the supply chain. On St. Thomas, the cost to build can exceed $250 per square foot according to the Global Property Guide[36]. The Territory is committed to the development of affordable housing through private and public financing to combat these affordability challenges, leveraging tools like Low-Income Housing Tax Credits, Project-based Vouchers, and Rural Development Loans to spur private development.

The hurricanes also took a significant toll on federally-supported housing, including public housing, Housing Choice Voucher (HCV) recipients, and other HUD-assisted housing initiatives. All of the four VIHFA-managed HUD-assisted communities with 368 units on St. Croix were damaged. Current repair estimates for the properties are quoted at $20 million. In addition to insurance, VIHFA is working with FEMA to secure PA resources in addition to insurance to make

[34] Most recently available in 2015 Housing Demand Study; with data from the 2010 Census
[35] Updated in 2015 Housing Demand Study, original source 2010 Census
[36] April 2016 Global Property Guide Property Market Report

the repairs. The damage assessment for public housing is further described in the following section.

Based on available data and input from VIHA, VIHFA, DHS, and local communities, the Territory's rental housing needs include:

- Enabling the development of new affordable rental housing in a diverse set of ways; including small and multi-family, affordable and market rate rentals;
- Assisting renters in the financial position to become first time homebuyers, freeing up critical rental stock; and
- Buying down the cost of rent, thus creating affordable units.

3.4.1.3 Impact on Public Housing

The hurricanes caused notable damage to housing that is subsidized by the federal government, which includes public housing as well as housing financed primarily for older adults and Housing Choice Voucher (HCV) recipients. Public housing in the Territory is managed by VIHA, which oversees 26 public housing communities or 3,014 units. These units are shared between St. Thomas (9 communities, 48% of units) and St. Croix (17 communities, 52% of units).

According to preliminary estimates from mid-April 2018, 24 of 26 public housing communities in the U.S. Virgin Islands were damaged. At least four public housing communities were damaged beyond repair and are scheduled for demolition. The damage to public housing was most acute on St. Thomas where 119 of the 304 units at the Estate TuTu housing community were damaged beyond repair. In addition, 85 units at Lucinda Millin Home were seriously damaged and have now been proposed for demolition. A significant portion of the damages sustained by public housing are expected to be covered by FEMA PA, with the first phase of construction for new Estate TuTu housing already obligated. A total of 248 households displaced from TuTu were provided vouchers to lease privately owned housing.

On the eve of the hurricanes, VIHA's waiting list for public housing units consisted of a total 587 households. On January 31, 2018 – more than four months after the hurricanes – VIHA recorded a 35% increase in demand, with another 316 households to 903 households in search of a public housing unit. As of March 20, 2018, VIHA was managing 1,733 tenant-based vouchers for households and a 24-unit VASH Voucher Program for homeless veterans.

Similar to the renter population as a whole, voucher holders were challenged to find available rental units. VIHA reported in April 2018 that about 30% of vouchers are being returned unused, and that many households with vouchers are choosing to "port" their voucher and move away from the Territory to the mainland to find affordable housing. The storm damage to privately-owned rental units reduced the availability of rental units for households with tenant-based housing vouchers, expanding the number of households and time spent on the waiting list as estimated in *Table 12*.

Table 12. Virgin Islands Housing Authority Units and Vouchers

Program	Number of units or vouchers	Number on Wait List
Public Housing	3,014	903
Housing Choice Vouchers	1,733	2,005

Source: Virgin Islands Housing Authority, March 2018

Based on available data, as well as input from local departments and agencies, public housing needs include:

- Repair and rehabilitation of damage to existing public housing not covered by FEMA or other first-in funding sources; and
- Redeveloping vacant public housing and developing new public housing to increase the number of affordable units for rent.

3.4.1.4 Impact on Vulnerable Populations

3.4.1.4.1 Seniors

According to the 2010 Census, 10% of households in the Virgin Islands are single households comprised of an individual 65 or older. FEMA IA data bolsters this estimate of the elderly population in Territory: as of March 30, 2018, 12% of registered households were individuals 65 or older living alone, and 30% of registered households had at least one individual 65 or older in their household. Based on past experiences from other disasters, the U.S. Virgin Islands recognizes that certain senior households may face special challenges after natural disasters. For example, senior owner-occupied households in the Territory are likely to have larger unmet needs following a disaster as large proportion have fully paid off their mortgages and thus are not frequent purchasers of home insurance. Hurricanes Irma and Maria have highlighted the need to increase the resilience of seniors' homes and utilities so that vulnerable senior residents can remain housed safely during future severe weather events. Furthermore, there is a need to ensure a safe potable water supply and prevent the loss of power to maintain medicines at correct temperatures. The senior population is expected to grow significantly, as described in Section 3.3, intensifying the need for special considerations and accommodations for the aging population.

3.4.1.4.2 Special Needs

According to the 2010 U.S. Census, approximately 15% of the population of the U.S. Virgin Islands have disabilities. Hurricanes Irma and Maria had a particularly negative affect on these individuals, who are more likely to have a difficult time navigating assistance programs and finding accommodating housing. Moreover, the storms also inflicted damages on support facilities and impacted service delivery for the special needs population. For example, VIHFA's Emergency Housing Program provides close to 40 units of temporary housing for victims of

domestic violence, natural disaster, catastrophic incidents and financial hardships across four complexes – three in St. Croix and one in St. Thomas. All four complexes sustained damages as a result of the hurricanes. According to the service providers managing the complexes, residents had to be either relocated to other housing or were housed with local families. Other residents chose to leave the territory for the mainland. Estimates of the total amount of damage incurred to the Program's facilities are still being developed. Another example is Lutheran Social Services (LSS), which is the largest provider of housing for adults and children with developmental disabilities and vulnerable seniors with 166 individuals housed in 8 properties. LSS experienced at least some amount of storm-damage to all 8 properties, requiring them to temporarily move some of their vulnerable residents to less damaged units in partially repaired facilities or to place them with local families.

3.4.1.4.3 Homelessness

According to a January 2017 study conducted by the Virgin Islands Continuum of Care consortium (CoC), the organization of service providers, advocacy groups and other stakeholders agency charged with preventing and ending homelessness, there are 381 individuals across the Territory who were homeless, 81% of whom were unsheltered. Both figures have likely increased as a result of the storms. Regardless, the hurricanes had a devastating impact on this population, many of whom were unable to find shelter during the storms. The storms caused severe damage to homeless facilities and providers serving vulnerable populations. According to the Homeless Management Information System (HMIS) maintained by the CoC, there were 14 homeless facilities operating in the territory as of January 2017, providing a total of 136 beds. As of March 2018, only 11 of these facilities were in operation and offered only 99 beds. The lack of insurance or sufficient insurance has left several providers without the resources to repair facilities. Furthermore, several shelters are located in floodplains, thereby inhibiting their ability to consistently provide assistance.

Facilities are in need of immediate and longer-term assistance to return to the level of repair they were before the storm. Few have been able to repair the structures with their own funds and all need improvements to make them more resilient for future disasters.

Based on emerging contractor estimates of repair costs for existing facilities, the unmet need for the Territory's homeless population is approximately $2 million, including efforts aimed at bringing existing facilities back to pre-storm condition and increasing the resilience of those facilities. CoC has further indicated interest in expanding facilities in order to accommodate more homeless individuals and in pursuing permanent supportive housing, transitional housing, mental health services, and substance abuse services.

Based on available data, as well as input from relevant Territorial departments, organizations and agencies, the needs of vulnerable populations include:

- Assisting providers of housing for the vulnerable to repair or replace their damaged units;

- Supporting the expansion or new development of units for the vulnerable, especially for the aged and the mentally ill; and
- Enabling providers to support the most vulnerable through provision of services including those for mental health and crisis counseling, legal counseling and case management, enabling individuals to access the programs they need.

3.4.2 Analysis of Unmet Housing Need

3.4.2.1 Methodology for Calculating Total Need

Following HUD's guidelines, the U.S. Virgin Islands used data from FEMA's IA program to quantify the total amount and severity of unmet need for housing on the islands. Homes are divided into HUD's five damage categories based on their level of real property or personal property Full Verified Loss, which FEMA quantifies based on inspections of the properties. The number of homes in each damage category is then multiplied by the expected cost to repair and reconstruct homes in that category less any assumed assistance from FEMA, SBA, and private insurance. Total unmet need is then calculated by combining the amount of unmet need in each category.

The Territory also took into account the large number of eligible households that registered with FEMA but did not receive damage inspections. Over thirty-two hundred (3,207) owner-occupied homes and 2,530 renter-occupied homes fell into this category. To include these households in the total need of the Territory, the distribution of damage categories among the inspected homes in each census tract was applied to the eligible uninspected homes. This was done separately for owner-occupied homes and for renter-occupied homes in order to apply the most accurate distribution. Using this methodology, 3,774 uninspected homes are included in the total number of damaged homes.

To estimate the expected cost to repair and reconstruct homes less assistance from FEMA and SBA for each damage category, the Territory used repair costs for major and severe damage provided in HUD's "Methodology for Funding Allocation under Public Law 115-123" Memorandum of April 10, 2018.

Standard HUD methodology only accounts for "serious unmet need," i.e. unmet need of homes that incurred major or severe damage. This assumes households with minor damage have been, or will be, covered by the network of existing support available from FEMA, SBA, and other early funding sources. However, in the U.S. Virgin Islands, households with minor damage often still have unmet housing needs, as a significant portion of households do not have insurance or are unable to pay for repairs because they are unable to afford their insurance deductibles. This is especially pronounced for homeowners, approximately 50% of whom do not hold mortgages[37], which indicates low fixed costs budgeted for housing and influences their decision to purchase insurance.

[37] Reported in the 2015 Housing Demand Study commissioned the Virgin Islands Housing Finance Authority

With this in mind, the U.S. Virgin Islands uses a two-pronged approach to calculate unmet needs for homeowners and renters. First, serious unmet need is quantified by calculating damages for homes with major and severe damage. Then, remaining unmet need is quantified by calculating damages for homes with minor damage. The damage for homes with minor damage is estimated using the same multiplier used for homes with major-low damage to get from FVL to the cost of repair less assistance.

CDBG-DR funds are usually used to not only support rebuilding to pre-storm conditions, but also to build back much stronger and more resilient. For damages incurred as a result of Hurricanes Irma and Maria, the U.S. Virgin Islands aims to use their funds to build stronger housing infrastructure in order to mitigate the risk of damage from future disasters. Following Hurricane Sandy, HUD calculated resilience costs by multiplying estimates of total repair costs for seriously damaged homes, small businesses, and infrastructure by 30% (Docket No. FR–5696–N–06). Total repair costs are the repair costs including costs covered by insurance, SBA, FEMA, and other federal agencies. The resilience estimate of 30% of damage is intended to reflect some of the unmet needs associated with building to higher standards, especially hardening. The Territory chose to follow this precedent by adding 30% to repair costs for all levels of damage for mitigation and resilience measures.

The Territory then compiled all funding that has been disbursed to address housing needs as of April 27, 2018. This includes funding from FEMA IA, FEMA PA, FEMA's National Flood Insurance Program (NFIP), SBA Disaster Loans, and private insurance. The total need for housing is calculated by adding all disbursed funding for housing to the total amount of unmet housing need. In order to both ensure adequate representation of housing damages and avoid any duplication of benefits, the U.S. Virgin Islands will continue to evaluate housing needs and funding sources as more information becomes available and update its figures accordingly.

Table 13. Median Family Income (MFI)

Household (HH) Size by Location	Median Family Income	50% of MFI	80% of MFI	120% of MFI
St. Thomas				
HH size: 1	$43,000	$21,500	$34,400	$51,600
HH size: 2	$49,125	$24,563	$39,300	$58,950
HH size: 3	$55,250	$27,625	$44,200	$66,300
HH size: 4	$61,375	$30,688	$49,100	$73,650
St. Croix				
HH size: 1	$34,813	$17,406	$27,850	$41,775
HH size: 2	$39,750	$19,875	$31,800	$47,700
HH size: 3	$44,750	$22,375	$35,800	$53,700
HH size: 4	$49,688	$24,844	$39,750	$59,625
St. John				
HH size: 1	$48,188	$24,094	$38,550	$57,825
HH size: 2	$55,063	$27,531	$44,050	$66,075
HH size: 3	$61,938	$30,969	$49,550	$74,325
HH size: 4	$68,813	$34,406	$55,050	$82,575

Source: HUD 2017 Median Family Income.

3.4.2.1.1 Owner Methodology

FEMA IA data as of March 30, 2018, reports a Full Verified Loss to Real Property (RP FVL) of $82,497,516 for owner-occupied homes, and a Full Verified Loss to Personal Property (PP FVL) of $14,992,556. An owner-occupied home is determined to have unmet needs if the owner reported damage, has no insurance to cover that damage, and the home is outside the 1% flood risk hazard areas. For homeowners inside the 1% flood risk hazard area, only homeowners that do not have insurance and have an income below 120% of AMI are considered to have unmet needs.

3.4.2.1.2 Renter methodology

FEMA IA data as of March 30, 2018, reports a Full Verified Loss to Personal Property (PP FVL) of $22,962,186 for renters. A renter-occupied home is determined to have unmet needs if they reported damage and have a household income that is less than the higher of 50% of AMI or the federal poverty level. For properties with renters who have incomes that are higher than the higher of 50% of AMI or the federal poverty level, their landlords are presumed to have adequate insurance coverage.

Table 14. Federal Poverty Level

Household size	Poverty Threshold
1	$12,752
2	$16,414
3	$19,173
4	$25,283
5	$30,490
6	$35,069
7	$40,351
8	$45,129

Source: 2017 United States Census Bureau.

3.4.2.2 Funding

The main federal funding sources that are available to support impacted residents with impacts to their housing in the immediate aftermath of a disaster are FEMA Individual Assistance, low-interest loans from SBA, and insurance proceeds from NFIP. These funding streams account for the majority of the housing recovery funds made available before CDBG-DR. Other sources of funding include private insurance, philanthropic gifts, and additional programs such as STEP, which is funded by FEMA Public Assistance.

Table 15. Funding Sources as of April 8, 2018

Entity	Funded activities	Obligated or Disbursed
FEMA	Individual Assistance for Homeowners: Repair and Reconstruction awards	$31,216,134
FEMA	Individual Assistance for Renters: Rental Assistance awards	$21,034,401
FEMA	Individual Assistance for Homeowners and Renters: Other Needs Assistance awards	$10,241,160
FEMA	Public Assistance (Public Housing. HUD-assisted housing, and other affordable housing)	$330,275
FEMA	STEP - Temporary repairs to homes	$339,549,349
SBA	Approved Disaster Loans for homes	$385,202,600
NFIP	Publically funded flood insurance	$13,851,443
USDA	Rural Development Grants & Loans	$0
Private insurance	Payout for private insurance	$451,784,946
Total		**$1,253,210,308**

Source: FEMA Individual Assistance Data, effective March 30 2018; FEMA Public Assistance PWs effective April 21, 2018; SBA Disaster Loan Data and NFIP data via April 23, 2018 FEMA Incident Storyboard; Division of Banking, Insurance and Financial Regulation, April 26, 2018.

FEMA Individual Assistance (IA)

The FEMA IA program consists of a multitude of services for individual households in disaster declared counties. Specifically, housing funds are for bridging the gap from sheltering to the return to permanent housing. These funds can be used for limited basic home repairs and replacement of essential household items as well as rental payments for temporary housing. Importantly, FEMA IA is limited to bringing a home back to a basic level of "safe and sanitary living or functioning condition" and may not account for the full extent of the home's damage or need.

FEMA Public Assistance (PA)

The FEMA PA grant program provides supplemental federal disaster grant assistance for debris removal, life-saving emergency protective measures, and the repair, replacement, or restoration of disaster-damaged publicly-owned facilities, and the facilities of certain PNP organizations. The PA program also encourages protection of these damaged facilities from future events by providing assistance for hazard mitigation measures during the recovery process. Depending on the grant activity, FEMA PA requires a local match of 0-25% on its projects. For housing, FEMA PA funds public housing projects as well as FEMA's STEP temporary repairs program. The FEMA Public Assistance anticipates additional PW's from entities that offer affordable housing for vulnerable populations and HUD-assisted housing such as DHS, VIHFA, and nonprofit organizations.

FEMA Direct Housing Mission

FEMA's Direct Housing Mission provides support for Permanent Construction and Reconstruction for homes and rental properties. FEMA's unique Permanent Housing Construction authority under the Section 408 of the Stafford Act allow them to do repairs and reconstruction under the Insular Areas Act well beyond what the normal programs permit. This is a critical addition to the network of FEMA housing services, given it offers support with permanent (instead of temporary) construction of owner-occupied homes. In addition, the Direct Housing Mission provides Direct Leasing and Multi Family Lease and Repair programs for rental properties.

Small Business Administration (SBA) Disaster Loans

SBA provides low-interest disaster loans to businesses of all sizes, nonprofit organizations, homeowners, and renters. SBA disaster loans can be used to repair or replace items damaged or destroyed in a declared disaster, including real estate, personal property, machinery and equipment, and inventory and business assets. Homeowners may apply for up to $200,000 to replace or repair their primary residences, and both renters and homeowners may borrow up to $40,000 to replace or repair personal property, such as clothing, furniture, cars and appliances.

National Flood Insurance Program (NFIP)

NFIP aims to reduce the impact of flooding on private and public structures by providing affordable insurance to property owners, renters and businesses and by encouraging communities to adopt and enforce floodplain management regulations. These efforts help mitigate the effects of flooding on new and improved structures. Overall, the program reduces the socio-economic impact of disasters by promoting the purchase and retention of flood insurance.

U.S. Department of Agriculture (USDA)

USDA considers the entirety of the U.S. Virgin Islands a "rural area," making governmental agencies, individuals, businesses, and nonprofits eligible for several grant and loan programs through USDA's Rural Development program. Their most popular program, the 502 Direct Single Family Housing Program, is focused on expanding homeownership. The agency has observed an increase in applicants who have received assistance from FEMA or SBA looking for this program to fill in the gaps for repair.

Private insurance (Division of Banking, Insurance and Financial Regulation)

Homeowners, renters and businesses may receive private insurance payments for any of their real estate and personal property that is insured. As of April 27, 2018, $1.18 billion had been disbursed in insurance claims according to the Territory's Division of Banking, Insurance, and

Financial Regulation. Of this $1.18 billion in insurance claims, $451.8 million went to households with 3,522 claims settled with payments from Irma and 2,573 from Maria.[38]

Philanthropic funding

Foundations and nonprofit organizations are engaged in the recovery efforts in the Territory, both by channeling their existing resources and programming toward recovery and by building new capacity to address unmet needs. The Community Foundation of the Virgin Islands is one example of such organization. To date, $3.3 million in grants have been disbursed via their Fund for the Virgin Islands, which was established just after the storms to support a broad set of recovery efforts. The fund anticipates additional disbursement of grants to organizations across a broad range of focus areas totaling $2.5 million. Their recipients range from those that are supporting at-risk youth to case management for families to transportation of critical resources between islands. While there is a network of philanthropic and nonprofit support on the islands, funding has largely been dispersed across a diverse portfolio of recovery efforts, not targeted at housing recovery. For this reason, philanthropic contributions have not been accounted for in reducing total need in the housing sector.

3.4.2.3 Unmet Need

Using the methodology outlined above, the U.S. Virgin Islands has identified a total need of $2.29 billion, with its unmet housing need as approximately $1.04 billion. 14,189 owner-occupied homes incurred damage as a result of the storm, including 2,362 that incurred serious damage. Using estimated costs to reconstruct less assumed assistance from the SBA, this amounts to an unmet need for owner-occupied homes of $544.1 million. Similarly, 8,338 renter-occupied homes incurred damage as a result of the storm, including 2,813 that incurred serious damage. Using the estimated cost to reconstruct less assumed assistance from the SBA, this amounts to an unmet need for renter-occupied homes of $496.3 million. The figures are detailed below in Tables 16 and 17.

[38] Information on residential property private insurance compiled by Office of the Lieutenant Governor, Division of Banking, Insurance and Financial Regulation. Total numbers exclude flood insurance.

Table 16. Serious Unmet Housing Need

Category of Damage	Number of units	Serious Unmet Housing Need Multipliers	Estimated unmet need for mitigation	Total unmet need ($ value)
Owner				
Major-low	1,167	$80,142	$24,043	$121,605,401
Major-high	680	$97,672	$29,302	$86,296,565
Severe	515	$116,351	$34,905	$77,845,005
Renter				
Major-low	1,623	$80,142	$24,043	$169,145,222
Major-high	1,065	$97,672	$29,302	$135,186,731
Severe	125	$116,351	$34,905	$18,920,885
Total	**5,175**			**$608,999,809**

Source: FEMA Individual Assistance Data, effective March 30, 2018; FR 6066-N-01

Table 17. Total Unmet Housing Need

Category	Number of units	Unmet Housing Need Multipliers	Estimated unmet need for mitigation	Total unmet need ($ value)
Owner				
Minor-Low	9,133	$10,453	$3,136	$124,115,144
Minor-High	2,694	$38,329	$11,499	$134,232,195
Major-low	1,167	$80,142	$24,043	$121,605,401
Major-high	680	$97,672	$29,302	$86,296,565
Severe	515	$116,351	$34,905	$77,845,005
Renter				
Minor-Low	2,820	$10,453	$3,136	$38,325,407
Minor-High	2,705	$38,329	$11,499	$134,759,541
Major-low	1,623	$80,142	$24,043	$169,145,222
Major-high	1,065	$97,672	$29,302	$135,186,731
Severe	125	$116,351	$34,905	$18,920,885
Total	**22,527**			**$1,040,432,096**

Source: FEMA Individual Assistance Data, effective March 30, 2018; FR 6066-N-01

Current funding, as shown above in *Table 15* above, amounts to approximately $1.25 billion, consisting largely of private insurance, SBA Disaster Loans, and FEMA's STEP program for temporary home repair. By aggregating unmet need with existing funding (met need), the U.S. Virgin Islands calculates its total housing need as $2.29 billion.

It should be noted that $2.29 billion is likely an underestimate of the Territory's housing needs. It does not represent the entirety of damaged homes, but rather, it is limited to individual FEMA applicants determined by FEMA to have sustained damage. It also excludes households that did

not register with FEMA. As additional data are compiled and analyzed, the U.S. Virgin Islands expects this figure to become more accurate and to rise, as the Territory identifies the full impact of outstanding first-in funding support from programs like FEMA's Temporary Sheltering and Direct Lease programs, its Multi Family Lease and Repair program for rental housing, the Permanent Housing Construction program for owner-occupied units, and the Sheltering and Temporary Essential Power (STEP) to address immediate repair needs.

Notably, this needs assessment purposefully includes only owners' primary residences and rental properties. Per guidance provided by HUD, providing CDBG-DR funds to assist owners of vacation homes or non-primary residences that were damaged during the storm is prohibited.

3.5 UNMET INFRASTRUCTURE NEEDS

Hurricanes Irma and Maria damaged much of the critical infrastructure of the U.S. Virgin Islands. The delivery of core utility services was substantially impaired, and due to the high winds and heavy rains, the electric grid suffered catastrophic losses. The telecommunications broadband network lines, attached to the same poles as the grid's transmission and distribution lines, were destroyed. All emergency backup power generation was in overdrive, which put an excessive amount of stress on the telecommunications system. The water systems also suffered physical damage resulting in leaks and had no capacity to pump water to refill tanks because of the lack of power. Within days, the water supply ran out for entire communities, in some cases for more than a month.

In addition to the utilities interruptions, the storms caused extensive damage to transportation infrastructure with roads flooded, washed out, and cut off. The main airports on St. Croix and St. Thomas were closed for two weeks due to extensive damage to facilities. All seaports were shut down for three weeks due to the sinking of over 400 vessels in and around the island due to the hurricanes.[39] Vessel removal operations were completed by the U.S. Coast Guard and its federal partners, working with the U.S. Virgin Islands Department of Planning and Natural Resources, on February 21, 2018.[40]

The Territory has had to contend with extensive damage to other public infrastructure. Its hospitals and clinics were compromised and hundreds of patients had to be evacuated to the mainland for essential lifesaving procedures such as dialysis. All public schools were closed for just over one month; 17 schools were severely affected with damages in excess of 50% to their facilities.[41] As of April 27, 2018, the U.S. Virgin Islands Department of Education still deemed many schools unfit for occupation as a result of hurricane damage. Most of the schools that are open continue to operate in split sessions, with students from two or more schools sharing one campus with shortened class schedules.

In the U.S. Virgin Islands, all major utilities are owned and operated by the government. These public utilities include power, water, waste (landfills), wastewater, and telecommunications broadband middle mile infrastructure. Transportation infrastructure is also owned and maintained by the government, including roads (both federal-aid highways and local), ports, and airports. Critical facilities and services for public safety, healthcare, and education are primarily provided by the government as well.

The repair and reconstruction of the transportation network, utility infrastructure, education system, and public health system is critical to the long-term recovery effort. Given the insular nature of the Territory, plans to improve resilience in the event of another disaster must be at the forefront of the U.S. Virgin Islands' recovery efforts. The Territory has thoroughly assessed the infrastructure damage incurred across agencies and has prioritized funding for repair and

[39] U.S. Virgin Islands Port Authority.
[40] U.S. Coast Guard.
[41] U.S. Virgin Islands Department of Education.

mitigation projects that are critical to operating, maintaining, and sustaining facilities and services for the public.

The U.S. Virgin Islands' primary existing sources of funding for infrastructure projects are described briefly below.

a. FEMA Public Assistance Program

The FEMA Public Assistance (PA) Program is designed to provide immediate assistance to the impacted jurisdictions for emergency work (under FEMA Sections 403 and 407) and permanent work (Sections 406 and 428) on infrastructure and community facilities. For the 2017 disasters, the Territory's nonfederal cost share has been established at 25% for (i) permanent work, (ii) Hurricane Irma-related emergency work after May 3, 2018, and (iii) Hurricane Maria-related emergency work after May 14, 2018. The U.S. Virgin Islands continues to seek 100% federal cost share under the terms of the Insular Areas Act, which allows any federal agency to waive nonfederal matching requirements at its discretion.

As of April 21, 2018, $990,412,260 in project cost estimates has been submitted for review, of which $527,423,101 has been obligated in FEMA PA for the U.S. Virgin Islands. Of the amount obligated, $476,233,841 million is for emergency work and $51,189,259 million is for permanent work.[42] Based on the current federal cost share requirements, the match obligation for FEMA PA is approximately $17,063,086 million. However, obligations for permanent work are anticipated to increase substantially in the coming months and years.

The FEMA PA local match estimates are based on current best available data. The Territory will work with government agencies, nonprofit organizations, and other entities eligible for FEMA PA to gather additional information related to local match. The running estimate of unmet needs will be updated as projects are reviewed and approved through the Project Worksheet (PW) process. The Territory will update the actual unmet needs related to the FEMA PA match once the CDBG-DR-funded Local Match for Federal Disaster Relief Program is underway and information is received directly from applicants to that program.

b. FEMA Hazard Mitigation Grant Program

The FEMA Hazard Mitigation Grant Program (HMGP) will be a critical part of the long-term recovery process in both rebuilding and protecting housing stock and vital infrastructure. These grant funds are calculated as 15% of the total FEMA IA and PA allocations attributable to the disasters. As of April 10, 2018, FEMA's HMGP projected funds ceiling for the Territory is $456 million. Of this amount, $342 million is the federal cost share and $114 million is the local match requirement, which has been established at 25% of eligible project costs. To date, only $12 million has been obligated in HMGP funds, which includes $9 million in federal cost share and $3 million in local match. HMGP projects provide support across multiple infrastructure sectors and

[42] Administrative costs are included as part of the amount obligated for permanent work.

fund hazard mitigation planning activities; thus, HMGP the federal obligation will be included in the total unmet needs but not split across specific sectors.

c. FEMA Pre-Disaster Mitigation Program

The FEMA Pre-Disaster Mitigation Program (PDM) is designed to assist territories in implementing a sustained pre-disaster natural hazard mitigation program. The goal is to reduce overall risk to the population and structures from future hazard events, while also reducing reliance on federal funding in the event of future disasters. This program awards planning and project grants and provides opportunities for raising public awareness reducing future losses before disasters strike.

PDM grants are funded annually by Congressional appropriations and are awarded on a nationally competitive basis. FEMA has approved, though not yet obligated, $8.2 million in PDM grants for four projects in the U.S. Virgin Islands for FY 2017. As with HMGP, the Territory's local match obligation has been established at 25% of eligible project costs. No PDM funds have been obligated to the U.S. Virgin Islands yet.

d. FEMA Mission Assignments

FEMA Mission Assignments (MA) are one of the most significant mechanisms FEMA uses to coordinate federal assistance under the National Response and Recovery Frameworks for mission critical emergency protective measures and debris removal. There are two types of Mission Assignments: Direct Federal Assistance (DFA) and Federal Operational Support (FOS). DFA is assistance requested from FEMA by the Territory. FOS tasks federal agencies to provide federal-to-federal support allowing FEMA to execute its response and recovery missions. For the purposes of unmet needs calculations, DFA applies to the Territory. MAs provide emergency support across multiple sectors; thus, MA obligations will be included in the total unmet needs but not split across specific sectors. As of April 19, 2018, there have been 46 DFA Mission Assignments awarded to the U.S. Virgin Islands totaling $486 million. Approximately ten MAs are still operational. The federal share for MAs is 100% until the extension for emergency federal cost share expires on May 3, 2018 for Hurricane Irma and May 14, 2018 for Hurricane Maria. There is no time limit for the Territory to request assistance through DFA for disaster related support.

e. Federal Highway Administration Emergency Relief (FHWA-ER)

The Federal Highway Administration (FHWA) also offers several funding programs, including an Emergency Relief program (FHWA-ER). FHWA-ER is for the repair or reconstruction of federal-aid highways and roads on federal lands which have suffered serious damage as a result of (i) natural disasters or (ii) catastrophic failures from an external cause. FHWA-ER funds have the following federal share requirements for permanent work: 90% for interstates and 80% for all

other federal-aid highways.[43] Since the U.S. Virgin Islands has no interstates, the federal share for permanent work is expected to be 80%. For costs incurred in the first 180 days after the disaster, the federal share for FHWA-ER is normally 100%. Therefore, the FHWA-ER "quick release" funds made available in November 2017 and January 2018 were not subject to the nonfederal cost share requirement. As of March 21, 2018, $32 million in FHWA-ER quick release eligible projects have been identified and $8.4 million in funds have been obligated at 100% federal cost share.

Table 18. Required Local Match for Federal Disaster Relief Programs by Category

Federal Disaster Relief Program	Total Amount Obligated	Federal Share Obligated		Nonfederal Share Est. for Federal Obligation	
		%	$	%	$
FEMA PA (Emergency)*	$476,233,841	100%	$476,233,841	0%	$0
FEMA PA (Permanent)**	$60,838,798	75%	$45,629,098	25%	$15,209,699
FEMA HMGP	$12,212,402	75%	$9,159,301	25%	$3,053,101
FEMA PDM	$0	75%	$0	25%	$0
FEMA MA	$486,000,000	100%	$486,000,000	0%	$0
FHWA-ER***	$8,416,428	100%	$8,431,792	0%	$0

* Federal share will be lowered from 100% to 75% for obligated emergency funds that are not spent by May 3, 2018, for 4335-DR and May 14, 2018 for 4340-DR.
** Not including Direct Administrative Costs (DAC).
*** Federal share will be lowered from 100% to 80% 180 days after declared disaster in accordance with FHWA
Source: FEMA Public Assistance, Hazard Mitigation Grant Program, Pre-Disaster Mitigation, and Mission Assignments program data; and Federal Highway Administration Emergency Relief program effective April 21, 2018.

f. U.S. Department of the Interior

The U.S. Department of the Interior's Office of Insular Affairs (OIA) carries out the administrative responsibilities of the Secretary of the Interior and the Assistant Secretary for Insular Areas in coordinating federal policy for U.S. territories, including the U.S. Virgin Islands. The office has indicated that it will provide the U.S. Virgin Islands with hurricane recovery funds of $4 million to $6 million.[44] On March 13, 2018, the OIA announced that $2.8 million of these funds will be dedicated to structural repairs at public schools, road rehabilitation in St. Croix, and upgrades for meter-reading technology for the Virgin Islands Water and Power Authority (WAPA).[45] These funds can also be used to fund the local match for hazard mitigation grants under FEMA HMGP.

[43] https://www.fhwa.dot.gov/programadmin/erelief.cfm
[44] U.S. Department of Interior.
[45] "During Two-Day Visit to USVI, Dept. of Interior Assistant Secretary Provides $2.8M in Funding," *The Virgin Islands Consortium* (March 13, 2018).

Summary

Based on available data for total needs and funding sources, the current unmet need for the Territory's infrastructure is $5.87 billion. The sector-by-sector breakdown of the infrastructure unmet need is summarized in *Table 19*.

Table 19. Infrastructure Unmet Needs by Sector*

Sector	Emergency & Temporary Repairs	Permanent Repairs & Resilience	Total Need	Total Obligated	Unmet need
Energy	$594,000,000	$1,688,000,000	$2,282,000,000	$397,876,333	$1,884,123,667
Roads	$32,000,000	$1,168,000,000	$1,200,000,000	$78,717,136	$1,121,282,864
Education	$112,000,000	$793,000,000	$905,000,000	$1,010,523	$903,989,477
Healthcare	$225,000,000	$572,000,000	$797,000,000	$2,162,984	$794,837,016
Public and Community Facilities	$69,000,000	$500,000,000	$569,000,000	$52,718,253	$516,281,747
Waste and Wastewater	$176,300,000	$291,000,000	$467,300,000	$25,531,676	$441,768,324
Telecom.	$15,600,000	$424,500,000	$440,100,000	$860,550	$439,239,450
Ports and Airports	$35,000,000	$111,000,000	$146,000,000	$603,323	$145,396,677
Water	$10,000,000	$113,000,000	$123,000,000	$141,535	$122,858,465
FEMA HMGP**				$9,159,302	($9,159,302)
FEMA MA***				$486,000,000	($486,000,000)
Total	**$1,268,900,000**	**$5,660,500,000**	**$6,929,400,000**	**$1,054,781,615**	**$5,874,618,385**

* Totals are rounded with the exception of existing funding.
Sources: FEMA Public Assistance, Hazard Mitigation Grant Program, Mission Assignments, and Pre-Disaster Mitigation program data; Federal Highway Administration Emergency Relief program; and input from Government of the Virgin Islands agencies effective April 21, 2018.

The sections below provide a detailed damage and unmet needs assessment for each infrastructure sector, ordered by highest to lowest unmet need excluding FEMA HMGP and FEMA MA funding obligations.

3.5.1 Energy

Hurricanes Irma and Maria had a devastating impact on the supply of electricity to residents and businesses across the U.S. Virgin Islands. Over 90% of all aerial power lines were damaged during the storms, and about 13,478 poles were damaged.[46] The full extent of damage to transmission and distribution infrastructure is summarized in *Table 20*.

Table 20. Damage to Transmission and Distribution Infrastructure

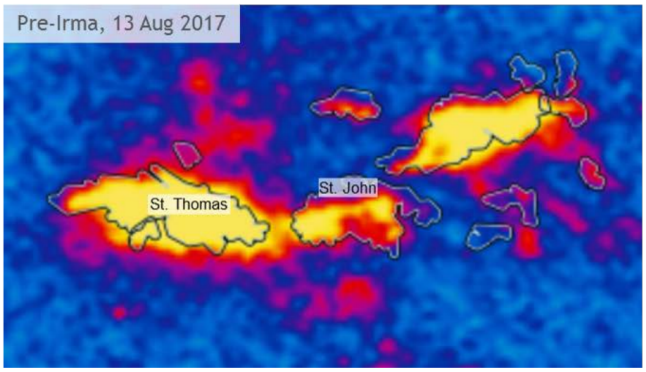
Island	Damaged poles	Damaged line spans*	Damaged transformers
St. Croix	7,534	15,026	2,945
St. Thomas	4,408	7,968	1,900
St. John	1,536	2,313	491
Total	**13,478**	**25,307**	**5,336**

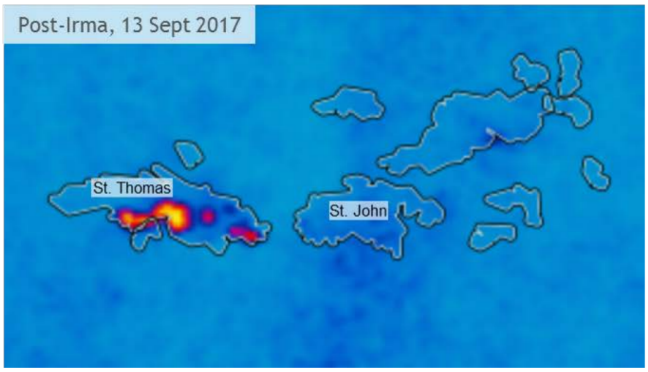
***** A line span is the distance from one pole to another. It is not a standard unit of measurement.
Source: Virgin Islands Water and Power Authority (WAPA)

Approximately 20% of generation capacity was lost for almost one month. The two 4-megawatt utility-scale solar installations in the U.S. Virgin Islands were seriously impacted: Solar I in Estate Donoe on St. Thomas incurred almost total damage and was rendered inoperable, while the Estate Spanish Town Solar Project on St. Croix experienced damage as well, although less by comparison. Damaged submarine transmission lines from St. Thomas to St. John resulted in the entire island of St. John losing its main source of power for more than 40 days. In total, more than 52,000 electric utility customers (about 95%) were left without power as a result of the hurricanes.[47] The storms' decimation of the Territory's electric grid infrastructure is illustrated by Maps 17 and 18, which show geospatial images of night-time light intensity before and after each of the storms. The before and after images, in which the most intense light appears yellow, demonstrate how much of each of the islands lost access to electricity as a result of damage to the electric grid.

[46] U.S. Virgin Islands Water and Power Authority.
[47] U.S. Virgin Islands Water and Power Authority.

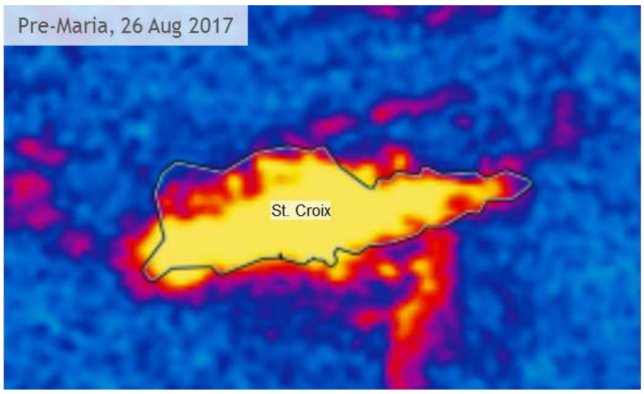
Map 17. Pre- and Post-Irma Night Lights Variation in St. Thomas and St. John

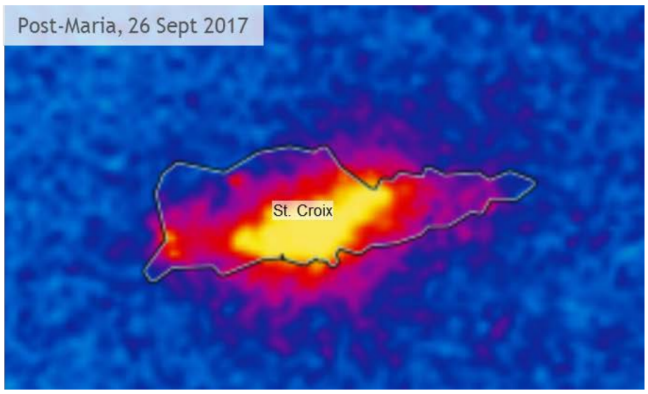




Source: NASA.

Map 18. Pre- and Post-Maria Night Lights Variation in St. Croix





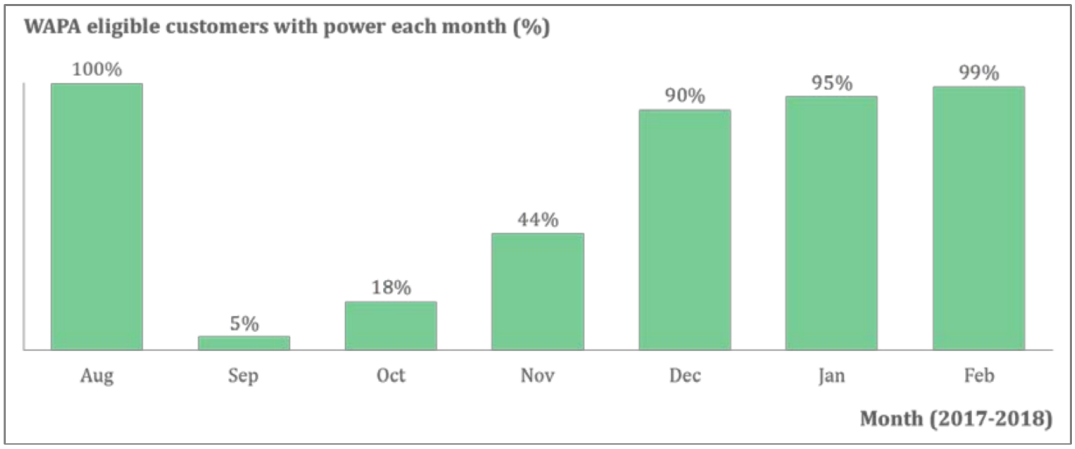
Source: NASA.

Initial recovery efforts focused on providing uninterrupted energy to hospitals and restoring power to water treatment plants and other critical facilities. Emergency activities included installing over 20,000 temporary wooden poles; repairing 1,100 miles of transmission and distribution lines; replacing 5,300 distribution transformers; and repairing four generation units to restore two plants to normal operations.[48]

Three months after Hurricane Maria, only 44% of customers had access to power. Service was restored to 90% of eligible customers by late December 2017 thanks to joint efforts by WAPA, FEMA, mutual aid utilities, other off-island contractors (including over 800 linemen and support personnel), and on-island contractors. Eligible customers are those whose homes or businesses were deemed safe for power restoration and/or reconnection; 93% of all pre-storm WAPA customers were deemed eligible. As shown in Figure 4, by February 2018, electricity was restored to approximately 100% of the eligible electrical customers.[49]

[48] Virgin Islands Water and Power Authority.
[49] Virgin Islands Water and Power Authority.

Figure 4. Trajectory of Power Restoration*



*Based on electrical customers deemed safe for power restoration and/or reconnection
Source: U.S. Virgin Islands Water and Power Authority

Structural, non-storm related challenges to power delivery in the U.S. Virgin Islands affected the resilience of the electric grid. Energy infrastructure is managed by the U.S. Virgin Islands Water and Power Authority (WAPA), an autonomous government agency and the public-power utility for the Territory. WAPA produces and distributes electricity for approximately 55,000 electrical customers. The U.S. Virgin Islands has two electric grids separated by 40 miles of ocean: the system on St. Croix has a generation capacity of 100 megawatts, and the system serving St. Thomas and St. John has a capacity of 138 megawatts.[50] Residents and businesses on St. John and Water Island must rely on an underwater cable originating in St. Thomas to receive power. The isolation of the systems requires a high level of redundancy in both networks: average loads are less than half of each system's capacity in order to maintain sufficient backup power and reserves.

The high costs of purchasing and shipping fuel to the U.S. Virgin Islands, combined with inefficient and aging infrastructure, have contributed to an exceedingly high cost of electricity for residents and businesses on the islands. In 2017, the residential cost of electricity averaged more than 33 cents per kilowatt-hour, almost 3 times the U.S. national average (12.5 cents) and 1.6 times higher than Puerto Rico.[51] Like other remote areas, the Territory's primary source of electricity are combustion and steam turbines powered by fuel oil or propane. WAPA has made some efforts to improve generator efficiency, shift towards propane, and install more renewable generation, but fuel costs continued to add up to approximately half of the residential electricity rate as of February 2017.

High electricity rates substantially increase the cost of living and cost of conducting business in the U.S. Virgin Islands. In fact, high energy costs have deterred many hotels and businesses from opening in or relocating to the Territory. Moreover, many of the islands' existing businesses and

[50] U.S. Energy Information Administration.
[51] U.S. Energy Information Administration.

a small percentage of residential customers use their own generators for electricity, thereby further driving up the price of electricity as fixed costs of maintaining the infrastructure are spread across fewer customers.[52]

Given the dependence of emergency response, basic health and safety infrastructure, and economic activities on the provision of power, additional resilience measures will be required to ensure that the grid can withstand future hazards. Resilience and mitigation measures will also help to reduce risk to federal and state investment from future severe weather events. Such measures could include burying hundreds of miles of wires and installing composite poles to replace or upgrade wooden poles.

The costs of building a more resilient electrical power system will be significant. WAPA has identified a need of $594 million for emergency and temporary repairs to utility infrastructure from Hurricanes Irma and Maria, in addition to $1.69 billion for permanent repairs and measures to prevent future storm damage to generation, transmission, and electricity delivery infrastructure. As of April 21, 2018, $784.6 million in proposed projects have been submitted to the FEMA PA program for emergency response efforts, of which $397.9 million in federal funding has been obligated so far. Hazard Mitigation Grant Program and Pre-Disaster Mitigation funding projects have also been proposed for energy infrastructure. The amount of funding from both sources is yet to be determined as of April 27, 2018.

WAPA also expects to receive a grant from the U.S. Department of the Interior's Office of Insular Affairs to upgrade meter-reading technology, which is currently done manually across the islands. The U.S. Department of Agriculture's Rural Development programs are another potential source of funding.

Additional sources of funding for energy infrastructure will be continuously monitored and unmet needs will be updated accordingly to ensure no duplication of benefits. Therefore, excluding the federal share, the U.S. Virgin Islands' current estimate of its unmet energy infrastructure needs totals approximately $1.88 billion.

3.5.2 Roads

Damage to roadways from washouts, debris, mudslides, and downed power lines caused by the hurricanes disrupted traffic and limited road access, reducing mobility in the U.S. Virgin Islands for over 30 days.

The storms brought torrential rainfall, creating runoff that entered storm water systems from roadways through culverts and guts. For example, Carlton Road on St. Croix reached a point of full saturation to the extent that guts were full and residents had to place pallets on the road in order to reach their homes. The footprints of residents in the mud filled immediately with water,

[52] U.S. Virgin Islands Hotel & Tourism Association.

demonstrating high levels of saturation. Moreover, guts were filled with debris and became blocked, thereby flooding nearby areas.

Saturated soil and excess water created mudslides, erosion, and potholes. In some locations, roads were washed out completely. Roads experienced increased stress and damage due to both flooding and increased traffic loads. As recovery efforts continue throughout the islands, increased load from debris removal trucks and repair equipment, increased traffic due to re-routing, and road closures continue to affect roads throughout the islands.

The U.S. Virgin Islands has 781 miles of public roads across St. Croix, St. John, and St. Thomas. All of the islands' roads are operated and maintained by the U.S. Virgin Islands Department of Public Works (DPW), and just over 40% of roads are also federal-aid highways.[53]

On average, federal-aid highways fared better than local roads, because of their construction requirements in accordance with Federal Lands Highway codes. Due to the constraints of area, elevation, and population density, local roads are essential to providing access throughout the Territory.

As an example, on a hillside, there could be federal-aid highways running parallel along the upper and lower ridge with a local road connecting the two, thereby providing access to homes on the hillside. The drainage design for federal-aid highway on top is not tied to the local road and thus creates more damage to the latter in the event of heavy rain by exacerbating erosion and increasing the overflow that the local road is then expected to manage through its guts.

DPW is surveying the islands to create a comprehensive view of roads damages and identify remaining emergency needs, permanent repair and reconstruction projects incorporating resilience and mitigation. DPW continues to work on identifying the recovery activities and maintenance necessary to address eroded shoulders, filled ditches and culverts, pavement settlement, mud and debris deposits, slope sloughing, and slip-outs in cut or fill slopes. All damaged roads need to be brought up to FHWA codes and standards within the engineering constraints of the Territory's topography. Drainage, slope stabilization, and durable materials must be used to increase resilience for roadways, especially on major roads and routes identified for tsunami evacuation. Wind-resistance signs and traffic signals are also necessary, as well as GIS systems for tracking operations.

At present, DPW has identified a need of $32 million to for emergency repairs roads. DPW expects the cost of resilience and mitigation measures to be up to $1.17 billion for projects to permanently repair, build up to code, and make resilient the islands' road system. As of April 21, 2018, $50.4 million in proposed projects have been submitted to the FEMA PA program for emergency and permanent road work, of which $46.5 million has been obligated in federal funding. There has also been an identified need for HMGP, though the exact amount of funding has yet to be finalized. FHWA is anticipated to be an important source of funding for federal-aid

[53] Federal Highway Administration.

roads. As of March 12, 2018, $32.2 million in FHWA-ER quick release eligible projects have been identified and $8.4 million in funds have been obligated. The U.S. Army Corps of Engineers has the potential to fund additional drainage and stormwater management projects. The U.S. Department of Transportation's Transportation Investment Generating Economic Recovery (TIGER) grants, the Federal Transit Administration, the U.S. Department of the Interior's Office of Insular Affairs, and the Natural Resources Conservation Service's Emergency Watershed Protection Program are other potential sources of funding.

Other sources of funding for roads will be continuously monitored and unmet need will be updated accordingly to ensure no duplication of benefits. The current total unmet need for the U.S. Virgin Islands' roads is approximately $1.12 billion.

3.5.3 Educational Facilities

The U.S. Virgin Islands' education system consists of its K-12 schools, the University of the Virgin Islands, and a few adult learning and vocational programs. The Virgin Islands' Department of Education (VIDE) serves as the U.S. Virgin Islands' largest public facility tenant with over three million square feet of space. It has over 30 schools and that served 13,805 students in the K-12 system in 2016. The University of the Virgin Islands (UVI), a public, Historically Black College and University, has campuses on all three main islands and serves as the Territory's primary institution for higher education. UVI enrolls approximately 2,500 students and has 47 undergraduate and graduate degree programs across its five colleges and schools.[54]

Hurricanes Irma and Maria substantially impacted the students, faculty, administration, and educational facilities. In terms of impact on facilities, the Department of Education estimates that nearly every K-12 public school suffered damage. Of the school buildings deemed repairable, at least 30 are in need of permanent work, estimated at approximately $676 million, including contingency and resilience. In fact, more than half of the schools in the Territory reported that over 50% of their facilities are damaged. The extent of damages includes leaks in roofs, flooding, structural damage, and broken windows.

[54] University of the Virgin Islands.

Table 21. Damage to the U.S. Virgin Islands' Public K-12 Educational Facilities

Percentage of school area damaged	Number of schools	Estimated cost of repair and reconstruction*
0-20%	2	$1,577,659
20-40%	10	$112,094,245
40-60%	0	$0
60-80%	13	$316,129,668
80-100%	4	$244,889,261
Not categorized	1	$1,309,166
Total	**30**	**$675,999,999**

* Estimated cost includes resilience work.
Source: U.S. Virgin Islands Department of Education (accessed on March 21, 2018).

At least five schools are likely to meet the criteria for replacement and will need to be reconstructed, two of which will be relocated and rebuilt outside the flood zone. In the meantime, the U.S. Virgin Islands Department of Education is deploying temporary facilities, comprising 143 modular buildings and 37 sprung structures, which are slated for completion before the start of the fall 2018 semester.

As a result of the damage, most schools were closed for over a month immediately following the storms. Moreover, as of December 2017, over 9,000 students were placed in split-sessions due to lack of classroom space.[55] Based on a faculty survey conducted by the American Red Cross, the mental health of students remains a challenge in the U.S. Virgin Islands' public schools as a result of the storms. While respondents typically stated that students were coping well with school closures, part-time schedules, and the complete loss of after school programs, more than 80% of teachers in St. Thomas and. St Croix reported difficulties engaging with students and problems with morale.

UVI also suffered damages to their facilities on St. Croix, St. Thomas, and St. John, including the main campuses, the St. Croix Technology Park, and St. John Environmental Research Station. Ten of its buildings were severely damaged or destroyed, amounting to an estimated cost of $117 million to repair and reconstruct, including resiliency measures. Furthermore, all classes were cancelled for a month and 325 of nearly 2,400 enrolled students never returned after the storms. Four primary facilities for adult education and vocational training also sustained damage.

VIDE and UVI have identified emergency repair needs of $112 million, with permanent reconstruction and additional resilience and mitigation needs of $793 million. As of April 21, 2018, VIDE has submitted $55.6 million in projects to the FEMA PA program, of which $1 million has been obligated. Hazard mitigation projects have also been submitted by VIDE for HMGP

[55] U.S. Virgin Islands Department of Education.

funding. VIDE also has several other potential funding sources, including the U.S. Department of the Interior's Office of Insular Affairs, the U.S. Department of Agriculture's Rural Development programs, and the U.S. Department of Education's Pell Grant and charter school programs.

Other sources of funding for education infrastructure will be continuously monitored and unmet need will be updated accordingly to ensure no duplication of benefits. The total unmet need for the U.S. Virgin Islands' education infrastructure is $904 million.

3.5.4 Healthcare Facilities

The U.S. Virgin Islands healthcare system incurred direct damage from the hurricanes to care networks and facilities on St. Croix, St. Thomas, and St. John. This created a chain reaction of costly emergency actions required to support patients with critical care needs, including the evacuation of 784 patients to the U.S. mainland. As of March 28, 2018, some 200 residents of the U.S. Virgin Islands must remain in other U.S. jurisdictions to meet their medical needs, as life-saving procedures such as dialysis are still not available in the Territory.[56]

The Virgin Islands Department of Health functions as both the Territory's regulatory agency and the Territorial public health agency for the U.S. Virgin Islands. The Commissioner of Health is also a member of the Virgin Islands' Territorial Hospital Board. The three main hospital facilities are the Governor Juan F. Luis Hospital on St. Croix, the Schneider Regional Medical Center on St. Thomas, and the Myrah Keating Smith Community Health Center on St. John. St. Croix also has the Charles Harwood Complex, a smaller medical clinic and primary location for Department of Health administrative staff. All of these facilities were damaged during Hurricanes Irma and Maria.

Although the damaged facilities are still being used for noncritical patients, temporary clinics, including two portable operating rooms, are anticipated to be built on St. Thomas and St. Croix by mid-July 2018 to provide supplementary patient care. On St. John, a 4,000-square foot temporary clinic is expected to be completed by the end of May 2018. The estimated cost of these emergency measures at $225 million.

There is a critical need for permanent rebuilding of existing facilities with a safe and more resilient structure. The estimated need amounts to $572 million for permanent repair, resilience, and mitigation activities.

As of April 21, 2018, the Department of Health has submitted $5.7 million to FEMA PA for review, with $2.2 million obligated. The Department of Health has also requested HMGP funding. The Center for Disease Control, the U.S. Department of Agriculture's Rural Development programs, and private insurance are also possible sources of funding.

[56] U.S. Virgin Islands Department of Health.

Other sources of funding for healthcare infrastructure will be continuously monitored and unmet need will be updated accordingly to ensure no duplication of benefits. The total unmet need for the U.S. Virgin Islands' healthcare infrastructure is $795 million.

3.5.5 Public and Community Facilities

The U.S. Virgin Islands' many public and community facilities incurred significant damage as a result of Hurricanes Irma and Maria. Over 800 government properties were affected, including judicial, legislative, correctional, and many other types of public facilities. In fact, four historic government houses in Charlotte Amalie, Cruz Bay, Frederiksted, and Christiansted were also damaged. Moreover, essential public safety services, including police and fire service, were disrupted as a consequence of the storms.[57]

Public and community facilities on the islands are managed by the Territory's Department of Property and Procurement (DPP), which is also charged with printing materials for all branches of government, providing warehouse goods to all government departments, managing the government's fleet of vehicles, issuing bids and proposals, and awarding contracts.

DPP has identified repair and reconstruction needs of $69 million, of which about 60% corresponds to debris removal. It has also identified resilience and mitigation needs of $500 million. As of April 21, 2018, DPP has submitted $59.2 million in projects to the FEMA PA program, of which $52.7 million has been obligated. DPP also has several other potential funding sources, including the FEMA Hazard Mitigation Grant Program and Pre-Disaster Mitigation program, as well as the Department of the Interior's Office of Insular Affairs and the U.S. Department of Agriculture's Rural Development programs.

Other sources of funding for public and community buildings will be continuously monitored and unmet need will be updated accordingly to ensure no duplication of benefits. The total unmet need for the U.S. Virgin Islands' public and community facilities is $516 million.

3.5.6 Waste and Wastewater

The U.S. Virgin Islands' waste management infrastructure was severely damaged by Hurricanes Irma and Maria. The hurricanes created an estimated 825,316 cubic yards of debris, a great deal more than the Territory's solid waste infrastructure could handle (see Figure 6 below).[58] Furthermore, excessive storm flow and debris damaged 37 wastewater pumps, leading to an overflow of wastewater and disrupting 95% of WMA sewage service customers.[59]

[57] U.S. Virgin Islands Department of Property and Procurement.
[58] FEMA.
[59] U.S. Virgin Islands Waste Management Authority.

Figure 5. Piles of Storm-related Debris on St. Thomas in March 2018



Source: The Washington Post.

The U.S. Virgin Islands' waste and wastewater infrastructure is managed by the Virgin Islands Waste Management Authority (WMA), a semi-autonomous government agency. WMA provides waste collection, treatment, and disposal services to protect public health and preserve the environment of the U.S. Virgin Islands. The Territory is served by two primary landfills, one in St. Croix and another in St. Thomas. There are no recycling facilities on the islands.

Waste

All of the U.S. Virgin Islands' landfills, which were almost at capacity before the storms, are now expected to reach capacity sooner than anticipated, even accounting for vegetative debris that will be chipped, mulched, composted, or incinerated, and other types of debris that will be shipped outside of the Territory. The sheer amount of debris was exacerbated by the over 400 destroyed vessels that required disposal. The landfills also lost power to their facilities, which halted their ability to compact waste as it arrived on sites. Illegal dumping of household waste has become widespread, requiring crews to work overtime to clear sites.

Due to limited road access and the sheer volume of debris, WMA has had to distribute at least 30 temporary bins in strategic locations across the Territory to create decentralized collection points. Costly barges were needed to transport debris to other islands, which were paid to accept the waste. Additionally, two of the U.S. Virgin Islands' four trash barges were lost during the storm, further slowing recovery efforts. Furthermore, there has already been at least one landfill fire due to lack of capacity to separate solid waste, creating more of an environmental challenge.

The current landfills must be expanded or new sites must be found to handle additional waste. Though there is currently no recycling program on the islands, separating waste would bring multiple benefits. From an environmental perspective, recycled materials can have a second life through reuse, or commercial or industrial use. Recycling also lowers the amount of waste kept in the facility. Therefore, to improve and boost the resilience of the Territory's waste infrastructure, there should be composting to reduce the garbage, compaction to bale the metal into bundles that are easier to move, and recycling to collect the material that can be reused.

For solid waste management and infrastructure development, WMA has identified emergency response needs of $173 million, with additional repair and resilience needs of $169 million.

Wastewater

Most of the wastewater system suffered damage from excessive storm flows and debris caused by Hurricanes Irma and Maria. All 37 wastewater pumps were damaged. Twenty-five percent (25%) of treatment plants failed, and sludge had to be trucked to other plants for treatment. Electrical control panels and equipment had to be repaired to restart operations. Moreover, 65,000 linear feet of sewage line were significantly impacted. As a result, 95% of WMA customers experienced sewage service disruption, 30% of whom had disruptions lasting more than 30 days. At least 138,000 gallons of wastewater spilled over land and into waterways.[60]

After inspecting all wastewater systems, WMA has determined that it needs to replace and repair at least 50% of all wastewater lines and 37 wastewater pumps. To prevent storm water from backing up and overflowing the sewer system, guts (natural drainage waterways) and culverts (man-made drainage waterways) need to be cleaned and widened. Additional efforts are required to harden the system, including replacement of coastal conventional pumps with submersibles, burying of electrical feeder lines connected to pump stations, and backup generation for the lift stations, pump stations, and waste water treatment plants. WMA has also identified other mitigation activities, such as creating redundant lift and pump stations with a minimum of two normal capacity pumps with backup generation. On the larger stations, there is a need for diesel pumps to provide the additional capacity necessary during a storm event or when electrical supply and backup generation both fail. The diesel pumps should also be redundant, as no diesel pump is designed to run continuously without maintenance.

In addition to the redundant system, WMA plans to standardize equipment to more efficiently manage replacement inventory, which also increases the efficiency of the personnel by placing identical equipment at multiple facilities and reducing the amount of training required to operate non-standard plants. It also plans to extend the main lines to service areas where septic tanks or on-site treatment units are failing and implement telemetry, system control and data acquisition (SCADA) systems, or remote control systems of the lift and pump stations for monitoring and for all plants in order to better manage outages.

[60] Virgin Islands Waste Management Authority.

To reduce storm water overflow, WMA and the U.S. Virgin Islands Department of Public Works (DPW) have proposed to eliminate combined sewers, separating storm water drainage pipes from the wastewater system. This will reduce or eliminate the potential for cross-contamination or discharge from the system. Sanitary sewer line replacement will eliminate material failure at Anna's Retreat (St. Thomas), Mon Bijou (St. Croix), and other areas. Upgrades will also include elevating controls at the stations that experienced control damage due to flooding and raising the sanitary sewer manholes on the lines in areas that flood or in the guts to reduce infiltration into the system. The manholes should also be lined or sealed to reduce the inflow of storm water in these areas.

For wastewater, WMA has identified emergency response needs of $3 million, with additional repair and resilience needs of $122 million.

Combining both waste and wastewater, WMA has identified emergency needs of $176 million, with additional repair and resilience needs of $291 million. As of April 21, 2018, WMA has submitted $27.6 million in projects for FEMA PA funding, with $25.5 million obligated to date. Other potential funding sources include the Environmental Protection Agency, the U.S. Department of Agriculture's Rural Development programs, and the U.S. Army Corps of Engineers.

Other sources of funding for waste and wastewater infrastructure will be continuously monitored and unmet need will be updated accordingly to ensure no duplication of benefits. Currently, the total unmet need for the U.S. Virgin Islands' waste and wastewater infrastructure is $442 million.

3.5.7 Telecommunications

Hurricanes Irma and Maria caused considerable damage to the U.S. Virgin Islands' telecommunications infrastructure, including emergency communications services, cellular service, and internet service. The damage ranged from downed radio towers to destroyed fiber optic cables, leading to halted internet, cellular, landline telephone, and radio connectivity for most residents and businesses. Intense winds damaged 11 of 50 radio towers for the U.S. Virgin Islands, thereby causing the emergency response network to lose coverage and severely hampering rescue operations. Landline telephone service was disconnected due to damages across the network, in particular aerial lines. Although it is a privately-owned service, the loss of landline telephone connectivity disproportionately affected those who use it as their primary method of communication, such as the elderly. Furthermore, 57% of private cellular tower sites were not operable for the first month following the storms, leading to a significant decline in cellular coverage. Lastly, 75 miles of above-ground broadband fiber cables were destroyed, causing 90% of internet users to lose access. Because buoys were lost during the storms, underwater broadband cables are at a heightened risk of being damaged by marine activity.

Several public computing centers were damaged by the storms, thereby halting an important access point for 40% of households that do not have at-home devices.[61]

The U.S. Virgin Islands' telecommunications infrastructure is managed by two public entities, as well as private providers. The broadband network is managed by Virgin Islands Next Generation Networks (viNGN), its radio towers are managed by the U.S. Virgin Islands Bureau of Information Technology (BIT), and its cellular network infrastructure is operated privately. According to the 2010 U.S. Census, over 13% of households did not have internet access, and many households still do not have cell phones. For broadband, the islands are connected to the U.S. mainland via underwater cables from New York and Miami, giving the Territory 20 gigabytes of bandwidth.[62] viNGN owns the middle mile fiber network and provides services to 23 Independent Service Providers (ISP), who are responsible for the last mile. The exception is last mile services to the public land mobile radio (LMR) towers, a wireless communications system that is intended for terrestrial users in vehicles and on foot. The LMR is an important piece of the public safety network that is maintained by BIT and was critical to the emergency services response efforts during the hurricanes.

BIT estimates that repairs necessary to resume emergency operations in the immediate aftermath of the hurricanes cost approximately $600,000. In preparation for future disasters, BIT has identified the need to upgrade both radio and 911 systems. The radio upgrade to P25 standards creates a common communications interface across all emergency responders, which is the industry standard. For 911 systems, BIT will upgrade to the nationally-adopted digital or Internet Protocol (IP)-based 911 system, commonly referred to as Next Generation 911 (NG911). The success and reliability of 911 will be greatly improved with the implementation of NG911, as it will enhance emergency number services to create a faster, more resilient system that allows voice, photos, videos, and text messages to flow seamlessly from the public to the 911 network. NG911 will also improve public safety answering points' ability to help manage call overload, natural disasters, and transferring of 911 calls and proper jurisdictional responses based on location tracking.[63]

Combined, upgrades to radio and 911 systems are estimated to cost $14 million. BIT has estimated a need of $16.6 million for additional mitigation measures which include both the planning study and implementation of an enterprise architecture which reduces the vulnerability and threat of cyber-attack by increasing the oversight of security and protective features for the government. Overall, BIT estimates permanent repairs and resilience measures, including upgrades to radio and 911 systems, at $31.2 million.

Recovery efforts for the government-owned broadband network emphasize hardening of viNGN's system. None of the buried cables were damaged, but approximately 75 miles of above-ground broadband cables were damaged. Thus, to improve the resilience of the network and mitigate against damages of future hazard events, viNGN has identified several needs to replace

[61] Virgin Islands Next Generation Network.
[62] Virgin Islands Next Generation Network.
[63] http://www.911.gov

and bury middle-mile and last-mile infrastructure. Activities may include burying aerial last-mile cable, burying and extending fiber to all radio towers, burying and extending fiber optic lines to cellular towers, burying the back-bone or middle mile of the system, burying aerial connectors to submarine facilities, and burying WAPA power lines at all fiber access points (FAPs) or continuous duty generators. viNGN has identified emergency needs of $15 million, with additional permanent repair, resilience, and mitigation needs of $393 million.

As of April 21, 2018, BIT and viNGN have submitted $908,985 in projects to the FEMA PA program, with $860,550 obligated. Other potential sources of funding include FEMA HMGP, viNGN's private insurance, the U.S. Department of Agriculture's Rural Development programs, and the Federal Communications Commission. On March 6, 2018, the Federal Communications Commission proposed providing funding to the U.S. Virgin Islands' telecommunications infrastructure, though it has not obligated or disbursed any funds as of April 27, 2018, nor has the FCC given any further information on expected timing or use of funding for the U.S. Virgin Islands.

Other sources of funding for telecommunications infrastructure will be continuously monitored and unmet need will be updated accordingly to ensure no duplication of benefits. The total unmet need for the U.S. Virgin Islands' telecommunications infrastructure is $439 million.

3.5.8 Ports and Airports

The airports in St. Croix and St. Thomas sustained considerable damage, including damage to terminals and radio towers, and were closed for two weeks. All seaports were closed for three weeks as a result of over 400 vessels sinking due to the storms. The damage and closures imposed limitations on the pace of evacuation efforts and delayed the delivery of essential supplies for emergency relief. Furthermore, the closures led to a complete halt in tourism, the Territory's biggest industry.

Most of the U.S. Virgin Islands' ports are managed by the Virgin Islands Port Authority. The Port Authority operates all of the main seaports on St. Croix and St. John, and 2 out of 3 of the main seaports on St. Thomas. The other port of St. Thomas is managed by The West Indian Company (WICO). Seaports play a crucial role on the islands as gateways for cruise ships, which are a large driver behind the U.S. Virgin Islands' economy.

The Territory has two international airports: the Henry E. Rohlsen Airport (STX) on St. Croix and Cyril E. King International Airport (STT) on St. Thomas. Henry E. Rohlsen Airport is served by three major domestic carriers and receives daily inter-island flights as well as cargo and military aircraft. The two-story terminal has 10 gates and sits on 1,455 acres. The Cyril E. King International Airport is one of the busiest airports in the eastern Caribbean, sometimes processing up to 900 passengers per hour. The two-story terminal has 11 gates and sits on 280

acres. The runway at Cyril E. King Airport features one of the largest deep-water, dredged runways in the Caribbean.[64]

Some of the potential projects to support the Port Authority in repairs and resilience efforts at both the ports and airports include rebuilding facilities to meet building codes as well as hardening facilities to withstand future events. The Port Authority has identified emergency repair needs of $35 million, with permanent reconstruction and additional resilience and mitigation needs of $111 million. The need to dredge the harbors is described in Section 4.5 in the context of Economic Revitalization Programs. As of April 21, 2018, the Port Authority has submitted $5,507,989 in projects to the FEMA PA program, with $603,323 obligated. Hazard mitigation projects have also been identified by the Port Authority for projected HMGP funding, though the exact amount has yet to be finalized. Other potential sources of funding include the Federal Aviation Administration, the Federal Transit Administration, the U.S. Department of Agriculture's Rural Development programs, and the U.S. Army Corps of Engineers.

Other sources of funding for airports and ports will be continuously monitored and unmet need will be updated accordingly to ensure no duplication of benefits. The total unmet need for the U.S. Virgin Islands' airports and ports is $145 million.

3.5.9 Water

As a result of Hurricanes Irma and Maria, the majority of residents connected to the public water network lost access to potable water.[65] Damage to the water utility network (e.g., pumps and tanks) and loss of power severely impacted water flow for over two weeks. Additionally, the sustained loss of power for over 90 days caused a loss of water in homes as electrical pumps and aerator cisterns could not operate. The lack of aeration can lead to the contamination of drinking water, especially in the event of wastewater overflows. As a precautionary measure, a boiling water advisory was implemented for 60 days. Portable backup generation had to be rented for water pumps and equipment. In many communities, tanks had less than two days of water by the time service was resumed.

The storms left lasting damage and vulnerability to water infrastructure, part of which continues to fail at higher rates post-storms. Due to the lack of adequate drinking water, approximately four million gallons of bottled water were distributed as a potable water source for domestic use. By December 2017, water service was for the most part restored throughout the Territory, though it remains intermittent in certain areas due to damages sustained by water pumps.[66]

The U.S. Virgin Islands have a unique water system with no body of fresh water of its own and relative geographic isolation from other fresh water sources. The Territory's public water

[64] U.S. Virgin Islands Port Authority.
[65] U.S. Virgin Islands Water & Power Authority.
[66] U.S. Virgin Islands Water and Power Authority.

systems are managed by the U.S. Virgin Islands Water and Power Authority (WAPA), the same public power and water utility that manages the electric grid. Bottled water is largely imported, and most in-home water is either collected rainwater or water from the three desalination plants operated by private companies on each of the main islands. Rainwater collected in cisterns is the primary source of water for residents.[2] In fact, as of 2010, only 47% of households actually used public water and less than 30% of households relied solely on public water.[67] As of 2017, WAPA had approximately 13,000 potable water commercial and residential customers. [68]

The negative consequences of the low usage of public water can be illustrated by comparing the costs of using public water and private cisterns. The current WAPA rate is $25.62 for the first 1,000 gallons of water and $28.11 for the next 1,000 gallons; with an average consumption of 2,400 gallons per household per month, the average public water monthly bill is $64.97, amounting to approximately $779.69 per year.[69] By contrast, for a household that is not connected to the public water system, the household's cistern will occasionally run out of water due to a lack of rainfall and continued usage. That household will then need to purchase a water truck from a commercial provider; though there are varying sizes of water trucks, customers typically have to pay for an entire truck-load of water for the service to be delivered. A 5,200 gallon truck costs between $400 and $500. These one-time, unpredictably high costs can be particularly taxing for the largely low- and moderate-income population of the Territory. If, in a given year, a household needs to purchase a water truck twice, that household's water costs will exceed the costs of an average household that is connected to the public water system.

In order to bring the U.S. Virgin Islands' water infrastructure back to its pre-hurricane capacity and boost its resilience for future disasters, the system will need to undergo significant repairs and improvements. Permanent repairs are required for network piping, relocating the lines to avoid cross-contamination with wastewater where required. Damaged equipment will have to be replaced at 12 pump and meter stations. To mitigate future risk, WAPA plans to extend water utility feeders to additional isolated communities. Hardened backup generators are needed at 18 pump stations to prevent loss of aeration and the associated contamination of drinking water in future cases of power loss. Segments of corroded iron distribution lines must be replaced with PVC to lower vulnerability due to soil erosion and six tanks must be restored and reinforced (e.g., sealant roofing, bracing).[2]

WAPA has identified potable water emergency repair and reconstruction needs of $10 million, with additional resilience and mitigation needs of $113 million. As of April 21, 2018, WAPA has submitted $834,030 in water-related projects to the FEMA PA program, of which $141,535 has been obligated. Hazard mitigation projects have also been submitted by WAPA for HMGP funding. There is potential for WAPA and the U.S. Virgin Islands Department of Planning and Natural Resources (DPNR) to apply for additional funding from the Environmental Protection Agency (EPA) for programs for which the utility may qualify for such as Water Infrastructure

[67] 2010 U.S. Census.
[68] U.S. Virgin Islands Water and Power Authority.
[69] U.S. Virgin Islands Water and Power Authority.

Improvements for the Nation (WIIN) or the Water Infrastructure Finance and Innovation Act (WIFIA). However, at this time, qualification criteria are unknown.

The Environmental Protection Agency (EPA) has already allocated $100,000 to WAPA for protecting and improving water quality in the Territory.[70] The U.S. Department of Agriculture's Rural Development and Infrastructure programs, as well as the U.S. Army Corps of Engineers, are additional potential sources of funding.

Other sources of funding for water infrastructure will be continuously monitored and unmet needs will be updated accordingly to ensure no duplication of benefits. The total unmet need for the U.S. Virgin Islands' public water infrastructure is $123 million.

[70] U.S. Environmental Protection Agency.

3.6 UNMET ECONOMIC NEEDS

While there is currently no single comprehensive data source that captures the full extent of damage to businesses affected by the storms, the negative impact of Hurricanes Irma and Maria on the overall economy, small businesses, and workforce in the U.S. Virgin Islands was significant and remains a critical area of concern. The vast majority of businesses, large as well as small, were impacted by the storms both directly, through damages to property, loss of inventory, and forced business closures, and indirectly, in the form of damages to critical enabling infrastructure (e.g., power outages and blocked roads).

The U.S. Virgin Islands' small businesses were hit particularly hard given their more limited access to finance and resources to withstand and recover from such devastation, further exacerbating the challenge of recovery efforts after the storms. The revitalization of the economy depends heavily on the renewed health of these small businesses, which account for approximately 85% of the U.S. Virgin Islands' businesses and 72.6% of the islands' 157 exporting companies as of 2013.[71] It is equally important to provide employment opportunities to the local workforce, which will require new skills to execute the Territory's recovery efforts.

Table 22. Number of Businesses in the U.S. Virgin Islands by Size

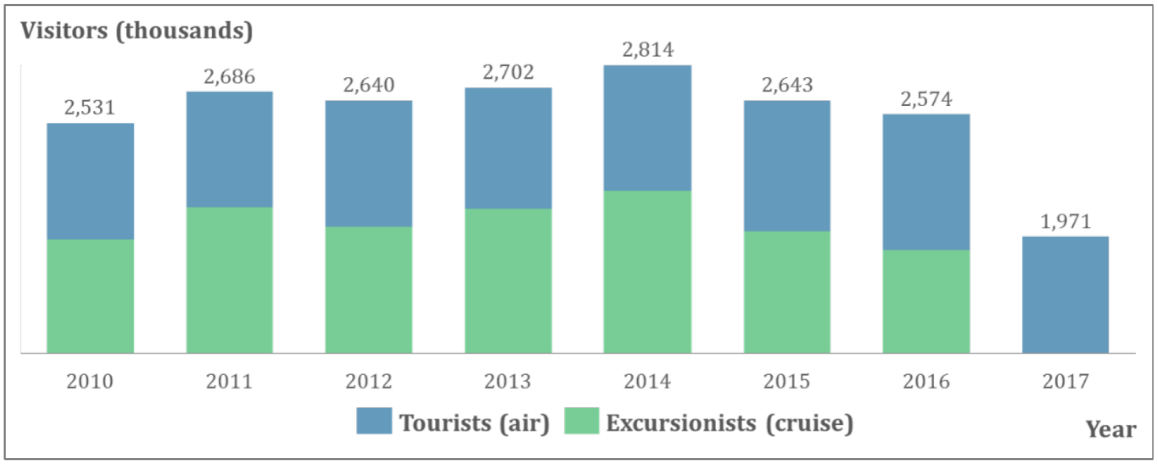
Size of company	Number of establishments	% of companies
All establishments	**2,414**	**100%**
Small Business (less than 20 employees)	2,053	85%
Medium and Large Business (20 or more employees)	295	12%
Establishments with no paid employees	66	3%

Source: 2012 Economic Census of Island Areas.

The Territory's economy has suffered significantly due to the widespread damage to infrastructure, as detailed in Section 3.6. This is particularly true for tourism, which is estimated to make up between 30% and 80% of the economy.[72] Tourism had already been on a slightly declining trajectory before the storm, as illustrated in Figure 6 below. (Note that the 2017 data do not show the full effect of the hurricanes, as it also includes the eight months before the storm.) This decline is largely driven by the emerging competition from newer, "shinier" destinations and the size of new cruise ships being too large to enter most of the Territory's ports.[73]

[71] 2012 Economic Census of Island Areas and Bureau of Economic Analysis, U.S. Department of Commerce.
[72] 2017 World Travel & Tourism U.S. Virgin Islands Report; Euromonitor International.
[73] U.S. Virgin Islands Department of Tourism.

Figure 6. Annual Visitors to the U.S. Virgin Islands, 2010-2017



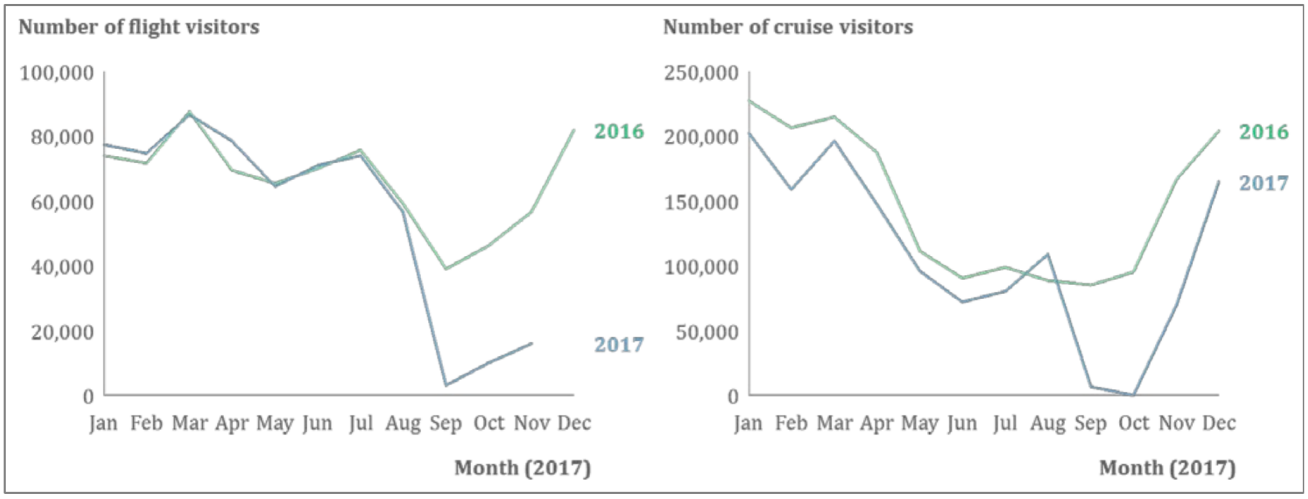
Source: U.S. Virgin Islands Bureau of Economic Research (Accessed 4/1/2018)

The storms brought tourism to a sudden halt, with all airports and seaports closing for several weeks due to the storms. Seaports on St. Croix, St. Thomas, and St. John closed on September 5, 2017 and did not reopen for three weeks. Both of the Territory's airports closed on September 6, 2017, and while the St. Thomas airport reopened on September 28, 2017, St. Croix's airport did not reopen until October 5, 2018.[74] Even as the ports reopened, tourism remained low because of a lack of accommodations (a result of disaster-caused damage to hotels) and the perception that the islands were completely decimated.[75]

The dramatic decrease in visitors to the islands, illustrated in Figure 7, led to a substantial decrease in revenue across the Territory. According to the U.S. Virgin Islands Bureau of Economic Research, tourists (arriving by air) spend an average of $1,373 on their visits to the islands, and excursionists (day visitors, mostly via cruises) spend an average of $224 on their visits to the Territory. Before the storms, that amounted to a total monthly spend of $84.8 million in October 2016. One year later, in October 2017, the month after the hurricanes, lost tourist spending was $49.8 million and lost excursionist spending was $21.3 million, amounting to a total lost spending of $71.1 million in that month alone. This is likely an underestimate of lost spending, as many of the visitors arriving by air in October 2017 were recovery workers, who spend significantly less than regular leisure tourists.[76]

[74] U.S. Virgin Islands Port Authority.
[75] U.S. Virgin Islands Department of Tourism.
[76] U.S. Virgin Islands Department of Tourism and U.S. Virgin Islands Hotel and Tourism Association.

Figure 7. Reduced Cruise and Air Visitors to the U.S. Virgin Islands due to 2017 Hurricanes



Source: The U.S. Virgin Islands' Bureau of Economic Research (Accessed 4/1/2018)

The sharp decline in tourism had a ripple effect across much of the Territory's economy, which relies largely on visitors' spending. The World Travel and Tourism Council (WTTC) has captured the direct, indirect, and induced effects of tourism on the economy of the U.S. Virgin Islands. Direct impacts of tourism are felt through accommodations, transportation, entertainment, attractions, and retail. Tourism has an additional, indirect impact through travel and tourism investing, government spending, and impact of purchases from suppliers, as well as an induced impact, through spending of both direct and indirect tourism employees. For 2017, the WTTC estimated that the total contribution of tourism to the U.S. Virgin Islands' GDP was 31% and total contribution to employment was 28.5%.[77]

As expected, the reduction in visitors and closure of hotels has led to a significant drop in direct tourism revenue. Suppliers, such as food, laundry, and apparel, experienced a drop in business as a result of the indirect effect of tourism. As a consequence of the high number of business closures and employees that were laid off from direct tourism businesses and indirect businesses, the local population has had less disposable income to spend. Therefore, even businesses that are not tourism related, such as gyms, dry cleaners, or beauty salons, are experiencing declining revenues.[78] This has had serious implications for tax revenue, small businesses, and the low- and moderate-income individuals who rely on tourism service industry jobs.

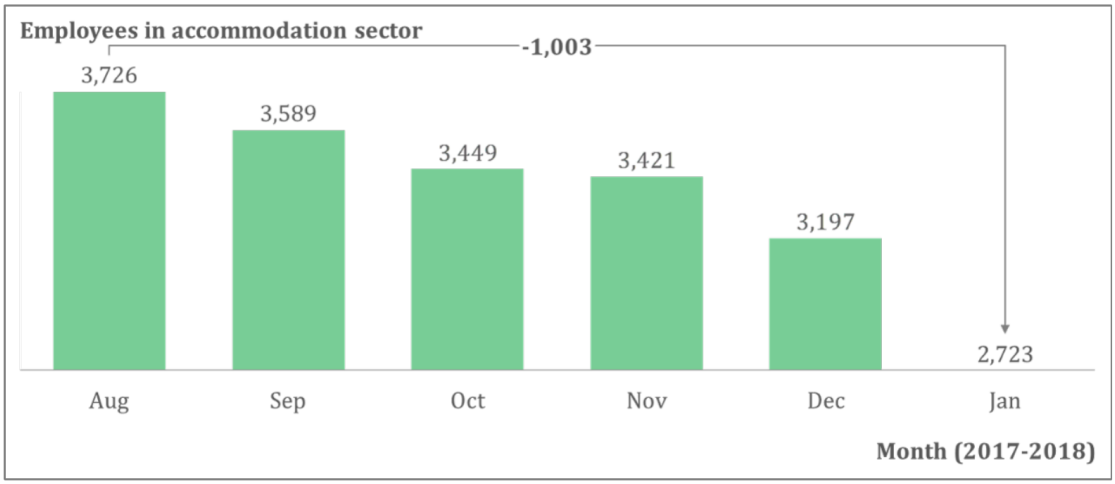
Total tourism-related losses caused by the 2017 disasters are expected to approach $1 billion over the 12 months following the storms, amounting to almost 70% of the total revenue generated by tourism in 2016.[79]

[77] WTTC U.S. Virgin Islands 2017 Report.
[78] WTTC U.S. Virgin Islands 2017 Report.
[79] WTTC 2017 Travel and Tourism Economic Impact Report.

In terms of accommodations, hotels of all sizes, but especially large resorts, took a beating from the hurricanes. Of the top ten largest hotels on the islands, seven are still closed as of April 2018. Most have indicated that they will not be able to open until late 2018, if not early 2019. Marriott's Frenchman's Reef Resort on St. Thomas, one of the islands' largest employers, for example, sustained over $400 million in damages and will not reopen until 2020, if at all.[80]

Given the scale of hotel closures caused by the storms, total Territory-wide weekly accommodation capacity was at 13,000 in February 2018, down from 23,000 in February 2017.[81] While some hotels are making ends meet despite the continued drop in tourism (largely thanks to the influx of recovery workers), many of the largest hotels that are part of hotel chains either relocated employees to other hotels outside the Territory or kept employees on payroll (primarily to help with cleanup work through the end of 2017).[82] Most of these hotels have had to lay off hundreds of employees while they rebuild, which is reflected in the monthly reduction in employment in the accommodations sector following the storms shown in Figure 8.

Figure 8. Monthly Employment in the U.S. Virgin Islands' Accommodations Sector



Source: Virgin Islands Department of Labor (Accessed 4/1/2018).

Most importantly, the storms overwhelmingly affected low- and moderate-income households. With an average annual wage of $25,985, the majority of leisure and hospitality workers remain below the HUD-estimated one-person household low-income threshold for the U.S. Virgin Islands.[83]

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[80] "Estimated Cost to Rebuild Frenchman's Reef Marriott Resort Now $400 Million; V.I. Government Gets Access to Over $400 Million in Federal Loans," *The Virgin Islands Consortium* (November 11, 2017).
[81] U.S. Virgin Islands Commission of Tourism.
[82] U.S. Virgin Islands Hotel & Tourism Association.
[83] U.S. Virgin Islands Bureau of Economic Research. Average annual wage in leisure and hospitality industry is estimated on the basis of the 2013 Annual Wages Survey (reported in the 2015 Housing Demand Study commissioned the Virgin Islands Housing Finance Authority) and assumed to have increased along with inflation between 2013 and 2017 (7.4%). The HUD-estimated 2017 one-person household low-income threshold was $34,400 for St. Thomas, $38,550 for St. John, and $27,850 for St. Croix.

Before the storms, the economy of the U.S. Virgin Islands already faced several challenges. Due to its remote location, the islands are at the end of the supply chain, resulting in a particularly high cost of imported goods and materials. Additionally, the cost of power in the Territory is almost three times the U.S. average, leading to both a higher cost of living and of doing business.[84] There are also regulatory challenges associated with the 2004 Jobs Act residency and income source requirements for tax exemption eligibility. Only income generated outside the Territory is eligible for exemptions and the IRS physical presence requirement for tax residency in the U.S. Virgin Islands is 50% higher than for any State. These restrictions are especially burdensome to businesses that require a moving sales force. Lastly, the economy is also hindered by a population which has been declining since 2000, largely as a result of emigration to the mainland U.S. (see demographic profile in Section 3.3).[85]

The U.S. Virgin Islands' economy also lacks a suitably skilled workforce which could help offset some of the competitive challenges described above. In a 2015 survey distributed by the Bureau of Economic Research to 81 local businesses, half or more rated the local workforce as "poor" in 11 of 12 categories of evaluation, including entry level skills, professionalism, productivity, and computer skills. Furthermore, there is limited offering for certified vocational training for interested residents in the Territory. The availability of skilled labor continues to preempt the relocation, growth, and creation of new, high-value businesses in the U.S. Virgin Islands.

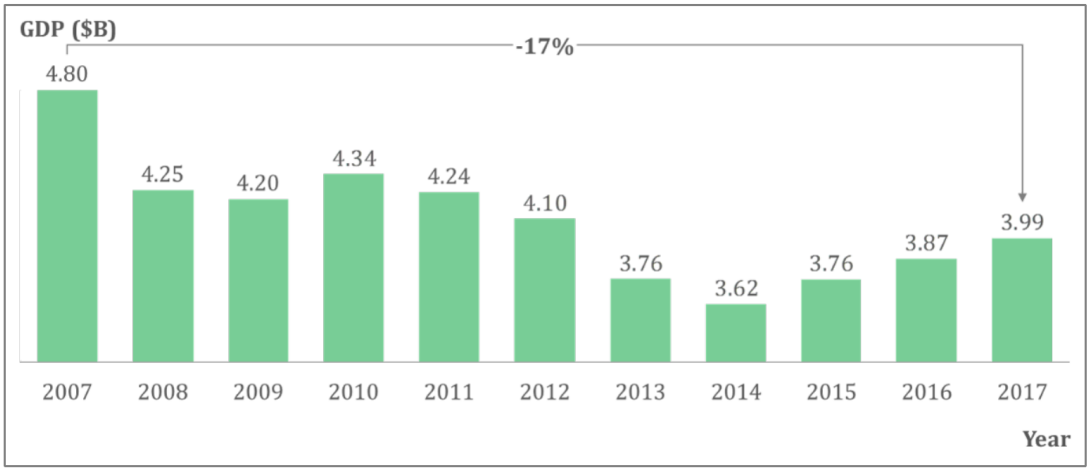
Even prior to the Hurricanes, the economy was on a downward trajectory, experiencing a declining GDP from 2007 to 2014, as shown in Figure 9. This downward trend was exacerbated by the 2012 closure of the HOVENSA oil refinery on St. Croix, previously the largest private employer on the islands.[86] The HOVENSA oil refinery, which opened on St. Croix in 1966, was a joint venture between the Hess Corporation and Petróleos de Venezuela (PDVSA) and employed approximately 2,200 workers. The refinery converted raw crude oil (primarily from Venezuela) into heating oil and gasoline, which it then sold to other Caribbean islands, the U.S. Gulf Coast, and the eastern seaboard.[87] HOVENSA started to struggle in the 2000s due to reduced demand for refined crude products as natural gas became more popular and less expensive. This was exacerbated by the 2008 recession and a Clean Air Act penalty of $5.3 million in 2011.[88]

HOVENSA's closing in 2012 reduced employment on the Territory by almost 5%, increasing poverty levels and making the economy even more dependent on tourism.[89] The closure also reduced annual tax revenue by an estimated $92 million, contributing to the Territory's rising level of public debt, which is currently at 72% of GDP.[90]

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[84] U.S. Energy Information Administration.
[85] World Bank.
[86] U.S. Virgin Islands Bureau of Economic Research.
[87] The Puerto Rico Herald (April 2002).
[88] Environmental Protection Agency
[89] U.S. Virgin Islands Department of Labor (accessed 4/3/2018).
[90] U.S. Dept. of Labor ETA (2012); U.S. Government Accountability Office.

Figure 9. U.S. Virgin Islands' Annual GDP, 2007-2017

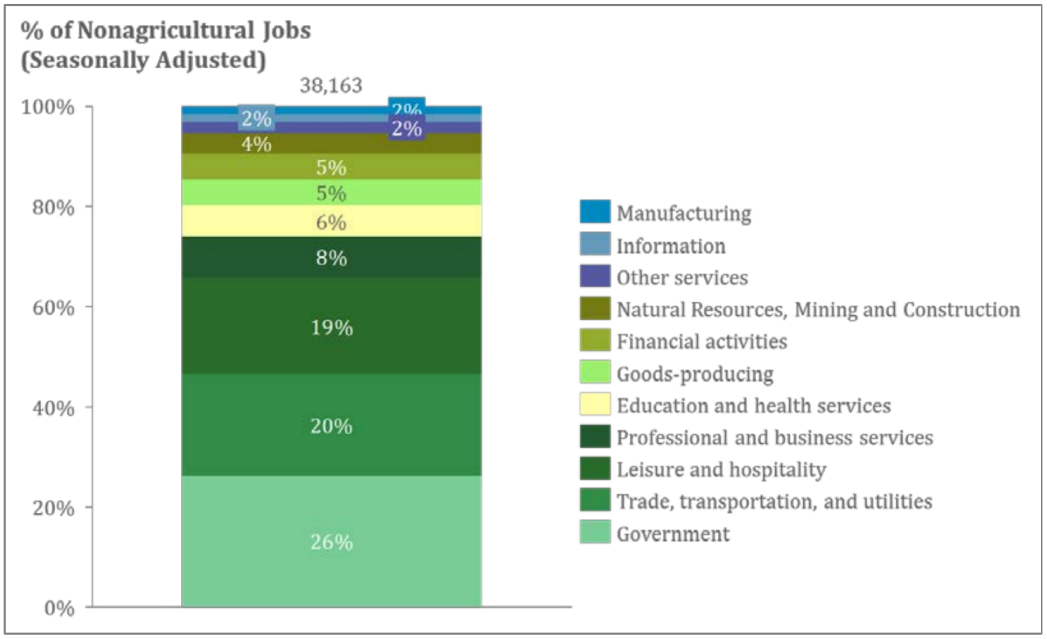


Source: Euromonitor International (Accessed 3/20/2018)

The closing of HOVENSA meant the loss of the U.S. Virgin Islands' primary import and export base, thereby turning the economy into one that was primarily locally-focused, with the exception of tourism.[91] Tourism is now the largest employer, making the Territory especially vulnerable to tourism-specific fluctuations. In fact, the World Travel & Tourism Council estimates that tourism is responsible for over 12,000 jobs, almost one-third of total employment in the Territory. While leisure and hospitality account for just 19% of nonagricultural jobs (see Figure 10 below), the total impact of tourism is felt across all different sectors, including trade, transportation, utilities, and services.

[91] The U.S. Virgin Islands Department of Labor market information

Figure 10. Employment by Sector in the U.S. Virgin Islands (2017)



Source: The U.S. Virgin Islands Department of Labor

Government jobs also account for a large share of total employment (26%). One other industry of note is the U.S. Virgin Islands' rum manufacturing industry, consisting mainly of the Territory's two distilleries, Cruzan Rum and Diageo's Captain Morgan, each of which generates over $100 million in tax revenue annually.[92]

Economic Damage and Loss Assessment

There are various ways to assess overall economic impact of disasters. HUD's standard approach is to estimate the total value of SBA Disaster Loans for small businesses. However, for the U.S. Virgin Islands, this would considerably underestimate the economic impact of the 2017 hurricanes, as small businesses on the Territory tend not to qualify for SBA loans. As of April 27, 2018, only 40% of small businesses have qualified for SBA loans. The businesses that qualify for SBA loans tend to be larger or more established businesses with debt capacity.

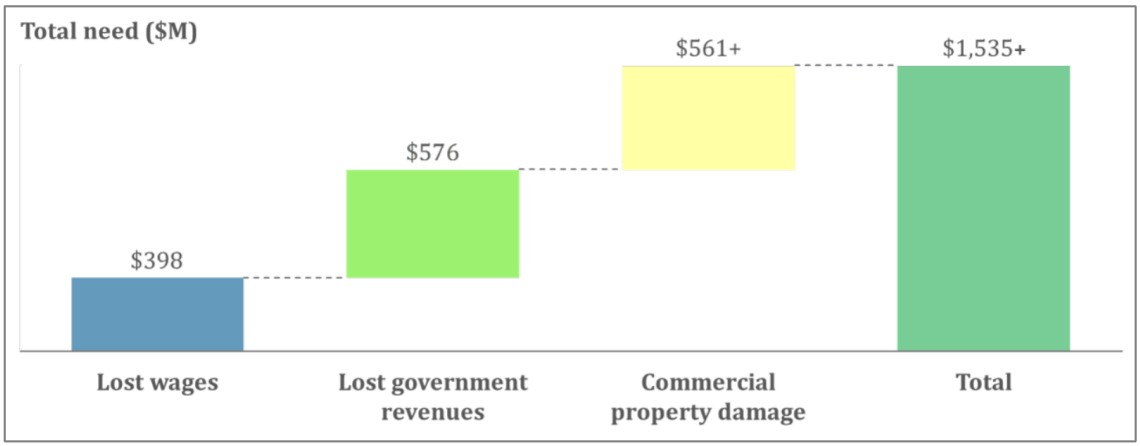
Given the far-reaching impact of the storms, the total damages to the U.S. Virgin Islands' economy are calculated by aggregating lost wages, lost government tax revenue, and damage to commercial property. This approach yields approximately $1.54 billion in damages to the U.S. Virgin Islands economy as a result of Hurricanes Irma and Maria.

Lost wages across the economy due to lower employment are calculated by multiplying the lost monthly employment figures by sector by the average pre-storm sector after-tax wage levels. Lost government revenue is estimated by adding projected storms-related tax receipt losses

[92] The U.S. Virgin Islands Bureau of Economic Research (October 2010)

through 2020. Finally, the total amount of physical damage to businesses (real estate and content loss) is calculated by adding (i) the value of all approved as well as rejected SBA small business disaster loan applications and (ii) the total damage to some of the islands' largest businesses that are not ineligible for SBA small business disaster loans. The results of these calculations are illustrated in Figure 11 below.

Figure 11. Economic Impact of Hurricanes Irma and Maria on the U.S. Virgin Islands

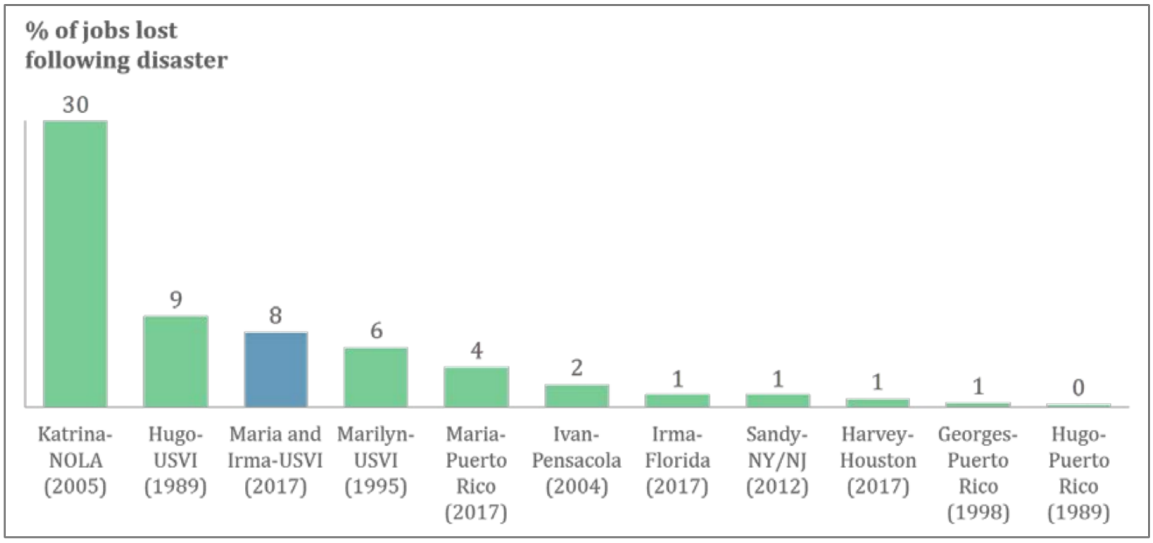


3.6.1 Lost Wages

Tourism, the U.S. Virgin Islands' biggest industry, continues to suffer as a result of the hurricanes. As mentioned before, the damage to the airports and seaports led to a halt in cruise and air tourist arrivals to the Territory. The hurricanes inflicted considerable damage to hotels and vacation rental properties, severely reducing the availability of accommodations. Compounding the impact from hotel closures and the decreasing number of tourists, local businesses have suffered direct damages from the storms; the overall outcome has been a pronounced increase in unemployment. In fact, 5,070 individuals claimed unemployment between September, 2017 and February, 2018, compared with 1,196 claims in the same period last year.[93] As shown in Figure 12, the Territory's job loss impact of 8% places Hurricanes Irma and Maria amongst the most impactful in recent U.S. history, right after Katrina and Hugo—the latter of which also hit the U.S. Virgin Islands.

[93] U.S. Virgin Islands Department of Labor.

Figure 12. Job Losses Caused by Natural Disasters

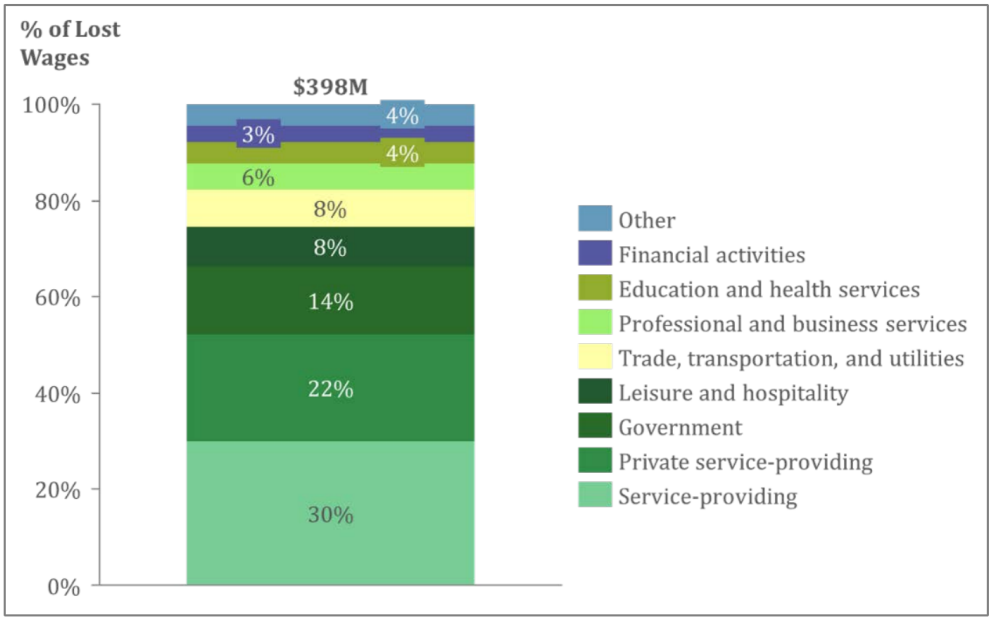


Source: Federal Reserve Bank of New York, Economic Press Briefing: February 22, 2018.

In order to calculate the storms' impact on lost wages, reduced monthly employment estimates by sector through 2020 are multiplied by each sector's average after-tax wage in 2016. The U.S. Virgin Islands' Department of Labor provides average wages as well as civilian employment numbers through January 2018. To supplement this information, projections of future employment by sector are made through 2020 by assuming that the U.S. Virgin Islands' current employment recovery will follow a similar trend as the Territory's employment recovery following Hurricane Marilyn in 1995.

As illustrated in Figure 13, the total amount of wages lost due to the 2017 storms is estimated to be approximately $398.2 million, with over half of the expected impact concentrated on service-providing sectors. This is likely an underestimate as many informal, unreported jobs (i.e. the cash economy) were probably also lost on account of the storms.

Figure 13. Lost Wages in the U.S. Virgin Islands by Sector through 2020



Source: U.S. Virgin Islands Department of Labor

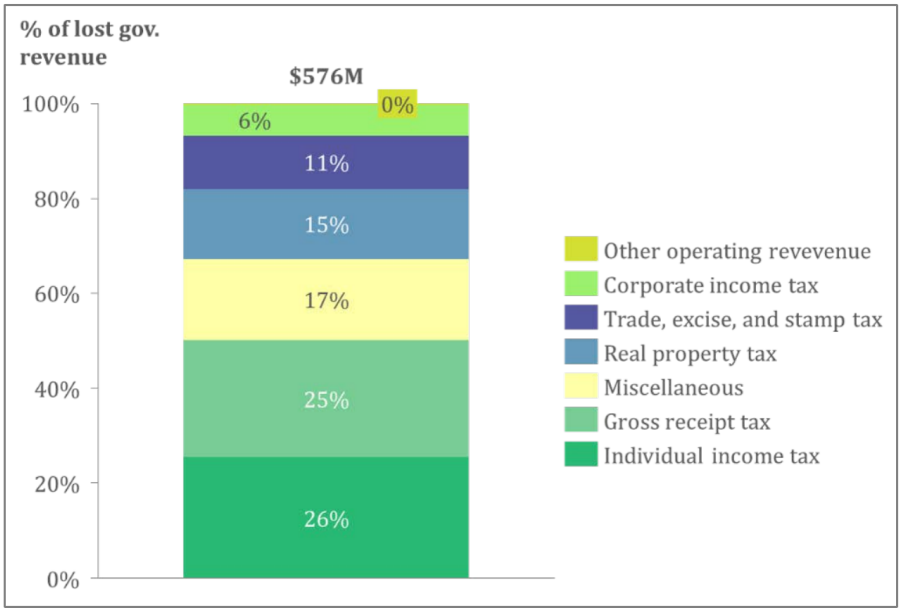
3.6.2 Lost Government Revenues

The combination of hurricane-related job losses, decreased income for local businesses, and an acceleration of hurricane damage income tax credits is expected to lead to a considerable decrease in government revenues in the coming years. This will be only partially offset by disaster and recovery related jobs and funds.

To calculate lost government revenues, the U.S. Virgin Islands Finance Authority, using data from the U.S. Virgin Islands' Bureau of Internal Revenue, aggregated lost government revenues by subtracting actual and projected government revenue (by revenue type) from counterfactual revenue projections assuming no disaster had taken place.

The total amount of projected government revenue losses, shown below in Figure 14, will reach almost $576 million by 2020, driven primarily by reductions in revenues from individual income tax and gross receipts tax.

Figure 14. Lost Government Revenue in the U.S. Virgin Islands by Type through 2020



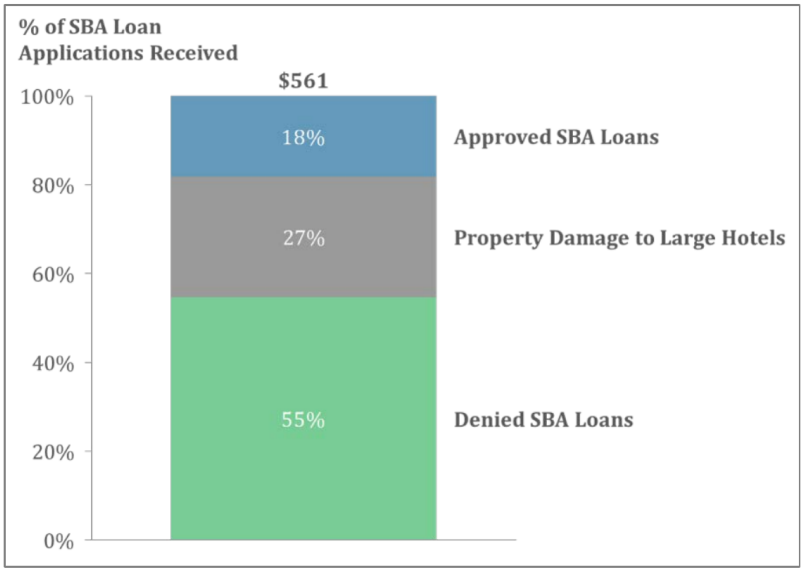
Source: U.S. Virgin Islands Finance Authority and U.S. Virgin Islands Bureau of Internal Revenue (model as of 3/21/2018).

3.6.3 Commercial Property Damage

Commercial property damage is estimated using the value of SBA disaster loans for small businesses and the value of property damage incurred by the Territory's largest hotels.

The total value of approved loans is combined with the estimated value of denied loans; the latter is calculated by multiplying the number of denied loans by the average value of approved loans. The total amount of physical damage to businesses based on SBA loans is estimated to be over $408 million, as shown in Figure 15.

Figure 15. Value of SBA Small Business Disaster Loan Applications



Source: U.S. Small Business Administration. Includes all approved as well as denied applications.

To calculate the damage incurred by the Territory's top hotels and resorts, each of the ten largest hotels listed in *Table 23* was asked to provide their total real estate and content loss assessments and the portions which were covered by insurance. Property damage for three out of the ten largest hotels amounts to $152.8 million. Aggregating the damages to small businesses (based on SBA loan applications) and the damages to the biggest hotels, total commercial property damage amounts to $561 million.

Table 23. Largest Hotels in the U.S. Virgin Islands

Hotel	Island
Frenchman's Reed and Morning Star Marriott Beach Resort	St. Thomas
Sugar Bay Resort and Spa	St. Thomas
The Ritz Carlton	St. Thomas
Marriott Frenchman's Cove	St. Thomas
The Westin St. John Resort Villas	St. John
Gallows Point Resort	St. John
Caneel Bay Resort	St. John
The Buccaneer	St. Croix
Divi Carina Bay Resort and Casino	St. Croix
Renaissance St. Croix Carambola Beach Resort and Spa	St. Croix

Source: U.S. Virgin Islands Hotel and Tourism Association.

3.6.4 Analysis of Unmet Economic Needs

To estimate the extent of unmet needs for the economy of the U.S. Virgin Islands, this assessment subtracts funding provided to date through private insurance payments, unemployment insurance payments, FEMA's Disaster Unemployment Assistance program, and SBA disaster loans for small businesses. So far, recovery funds disbursed amount to $866,077,269. The U.S. Department of Agriculture's Rural Development Program and the U.S. Department of Commerce's Economic Development Administration are other potential sources of funding.

Table 24. Disbursement of Funds for Economic Revitalization

Funding Source	Total Funding to Date
Private Insurance Payments	$731,016,869
SBA Small Business Disaster Loans	$101,987,400
Unemployment Insurance	$20,479,000
SBA Economic Injury Disaster Loans	$7,026,000
U.S. Dept. of Labor Dislocated Worker Grants	$3,000,000
FEMA Disaster Unemployment Assistance	$2,568,000
Total	**$866,077,269**

Source: Small Business Administration, U.S. Virgin Islands Department of Labor, U.S. Virgin Islands Division of Banking, Insurance, & Financial Regulation. Data as of April 27, 2018. Insurance include 177 commercial property claims settled with payment for Maria and 591 for Irma adding up to $722 million. Remaining $9 million includes business interruption and commercial auto insurance.

Unmet need is calculated by estimating the total disaster-caused damage to the economy of the U.S. Virgin Islands and subtracting current sources of funding. This leaves a total unmet need for the Territory's economy of $669.1 million. This analysis is based on the best currently available data and is subject to change.

4 METHOD OF DISTRIBUTION, PROGRAMS, & ALLOCATIONS

4.1 Method of Distribution

All programs will be implemented by the Territory of the U.S. Virgin Islands, its subrecipients, and potentially other entities. The full set of criteria used to select applicants for funding under each program, including the relative importance of each criterion, will be developed in program policies and procedures.

4.2 Connection to Unmet Needs

The Supplemental Appropriations for Disaster Relief Requirements, 2017 (Pub. L. 115-56) requires that all CDBG-DR funded activities address an impact of the disaster for which funding was appropriated. The CDBG-DR provisions require that each activity: (i) be CDBG eligible (or receive a waiver); (ii) meet a national objective as defined by 24 CFR 570.483; and (iii) address a direct or indirect impact of the Presidentially-declared disaster on HUD-identified impacted and distressed areas. A disaster impact can be addressed through eligible CDBG activities listed in Section 105(a) of the Housing and Community Development Act of 1974, as amended. The Territory's recovery activities will make full use of the three national objectives under 24 CFR 570.483 which include benefitting LMI persons, preventing or eliminating slums or blight, and meeting urgent needs to implement a comprehensive recovery for the residents of the U.S. Virgin Islands.

Up to 5% of the overall allocation ($12,134,200 from Tranche 1) will be used for administration of the grant. Also, as required by FR 6066-N-01, the Territory will spend no less than 70% of funds allocated on activities that benefit LMI individuals.

As detailed in the Impact and Unmet Needs Assessment section, Hurricanes Irma and Maria caused extensive and lasting damage to the islands: approximately 52% of households had damage to their residences; critical utility services were disrupted for the majority of connected households and businesses; airports and ports closed for several weeks; and nearly all K-12 public schools and major hospitals suffered severe damages. The fact that the storms occurred less than two weeks apart added a number of unprecedented challenges to the emergency response and recovery operations that followed.

The Territory has identified approximately $10.76 billion in damages and, despite funds committed for emergency response and immediate recovery efforts, at least $7.58 billion in unmet needs remain based on existing data. While the unmet needs far exceed HUD's CDBG-DR allocations, the Territory has developed a portfolio of programs to serve as a framework for its overall recovery. This portfolio prioritizes programs that will address (i) the unmet needs in homeowners' primary residences and rental housing, economic recovery and revitalization, and infrastructure, including enhancement and improvement of electrical power systems; as well as (ii) broader mitigation activities needed to protect the Territory from predictable damage of

future hazard events. All programs will be implemented on the islands of St. Croix, St. Thomas, and St. John, the Presidentially-declared disaster areas designated by HUD as the "most impacted and distressed areas" in the U.S. Virgin Islands (83 FR 5845)

The need for safe, decent, and affordable housing is one of the Territory's top priorities and the Government of the U.S. Virgin Islands is working in coordination with federal agencies to bring to bear the full extent of resources available on this issue. To meet the residents' immediate, short, and long-term needs, the Territory is working closely with FEMA to fund its key priorities through separate programs including FEMA's Temporary Sheltering and Direct Lease programs, its Multi Family Lease and Repair program for rental housing, and the Permanent Housing Construction program for owner-occupied units. In addition, the Territory initiated FEMA's Sheltering and Temporary Essential Power (STEP) program to address immediate repair needs and allow sheltering at home while full repair programs are being developed. As of April 23, 2018, 7,146 applications have been received by the STEP program which provides repairs to make homes safe and habitable.[94] The Territory is also working with FEMA to prioritize public housing and residential facilities for vulnerable populations through FEMA's Public Assistance program. The Territory has also submitted applications to the Hazard Mitigation Grant Program (HMGP) to support buyouts in repetitive flood area and develop much-needed emergency shelters on each island. Lastly, to address infrastructure and overall needs for businesses, the Territory is also leveraging federal funding sources such as FEMA Public Assistance, HMGP, FHWA and EPA.

In addition, a major driver of the first allocation of funds proposed by the Territory is the need for urgent action. With an additional CDBG-DR allocation for remaining unmet needs not anticipated until the summer of 2018, the Territory will prioritize "ready-to-go" projects that are expected to be most impactful for long-term recovery and viability of housing in the U.S. Virgin Islands. This includes identified housing projects that are "shovel-ready," as well as infrastructure and economic revitalization programs that can best help prevent future loss of critical services such as power and water, as well as further job losses and economic destabilization.

To complement the federal assistance programs, and to ensure that CDBG-DR is used as the funding of last resort, the Territory will dedicate 31% of Tranche 1 to housing programs ($72 million). Safe housing for displaced and vulnerable residents and repair of damaged housing units are the highest priorities for the U.S. Virgin Islands.

As such, the Territory will prioritize the use of CDBG-DR funds for unmet housing needs to create the Repair, Reconstruction, and New Construction of Owner-Occupied and Rental Housing for Disaster-Impacted Households program. The program will offer a "one program, many paths" approach. Priority will be given to the most vulnerable Virgin Islanders, especially those who remain displaced or living in severely damaged homes more than seven months after the 2017 hurricanes. The Territory is currently in the process of identifying households that may not get the extent of repairs needed from STEP. These households are being recommended to the FEMA

[94] FEMA Incident Storyboard for April 23, 2018.

Permanent Housing Construction program for evaluation of eligibility under this program. As the Territory identifies additional gaps beyond these two programs, households will be evaluated for CDBG-DR funded supplemental home repairs.

Additionally, the Territory will build new affordable housing for new owners and for renters. The program will case manage disaster-impacted, low- to moderate-income households that may be ready to move up to home ownership or are interested in subsidized and affordable rental housing. The proposed housing program will also support the repair and development of affordable rental and public housing and sheltering initiatives. The program will also support landlords that continue to make repairs or build new rental housing to more quickly repair and expand the availability of affordable rental. New public housing and affordable rental units, the need for which predates but was exacerbated by the storms, will be built to provide long-term housing for LMI families throughout the U.S. Virgin Islands, particularly those impacted by the disaster. Residential facilities for particularly vulnerable populations—the homeless, disabled, mentally ill, and elderly—will also be prioritized. New housing units funded through this Action Plan will meet HUD's resilience standards, which will reduce the future need for emergency sheltering. It is noteworthy to state that none of the single-family homes constructed under the VIHFA Affordable Housing Program lost their roofs as a result of the storms. This is a result of VIHFA's adherence to the building codes of the Territory. Still, new and stronger sheltering facilities will be necessary to guarantee the safety of residents in the likely event of future disasters.

A portion of these funds will be used to create new public housing and affordable rental units to house its most vulnerable residents for the long term. The Virgin Islands Housing Authority (VIHA) is working with FEMA to identify buildings eligible for repair through the FEMA Public Assistance program. To date, approximately $333,275 has been obligated for repairs for public, HUD-assisted housing, and other affordable housing through this program. VIHA is also in the process of identifying projects that may qualify for FEMA's HMGP program to fortify its housing stock against future disasters; this includes an emphasis on repairing public housing units that were damaged in the storms. VIHFA has worked with the VIHA to understand the impact of the storms on each of VIHA's properties and its status within FEMA's PA program and insurance proceeds.

As discussed in the Impact and Unmet Needs Assessment section, the hurricanes caused significant economic disruption, halting the tourism industry—its primary source of revenue—for months. High winds, torrential rainfall, and flooding from the storms had compounding effects on all of the U.S. Virgin Islands' infrastructure sectors, leading to widespread and prolonged failures and further delaying economic recovery. The Territory recognizes that without investment in efforts to make its infrastructure more resilient and revitalize the economy, residents will be vulnerable to loss of critical services such as power and water as well as further job loss and destabilization.

First, the Territory has identified multiple infrastructure priorities that must be addressed and which directly support housing needs. Residents not only suffered from direct damage to their

homes from the hurricanes, but also endured the loss of critical services such as power and water due to damaged public infrastructure. The Territory's reliance on the proper functioning of its infrastructure systems was evident when these systems failed in the aftermath of Hurricanes Irma and Maria. The Territory will commit $75 million from Tranche 1 to make its infrastructure more resilient. A Repair and Resilience program, with a $23 million allocation from Tranche 1, will be dedicated to repair and reconstruction of public infrastructure, including roads and hardening of critical facilities and networks. Further, $45 million will be used for an Electrical Power Systems Enhancement program focused on the transformation of the electrical power generation capacity, including renewables and the modernization of the transmission and distribution network.

Second, the Territory is committed to dedicating 21% of the first allocation of CDBG-DR funds to cover projects deemed eligible for CDBG-DR funding under the Local Match for Federal Disaster Relief Program. Some federal recovery funds, including FEMA Public Assistance, require a "local match" contribution. While the non-federal match is 25% for both FEMA PA and Hazard Mitigation Grant Program, the Territory is actively seeking a reduction of this cost share. This local match or non-federal cost-share is currently anticipated to reach over $600 million—a severe financial burden on general operating funds for the Government of the U.S. Virgin Islands, especially considering the storms' fiscal impact as described in Section 3.6.2. Within the Local Match for Federal Disaster Relief Program, the Territory will prioritize the match for public housing and critical infrastructure repair, reconstruction, and mitigation needs, partly aimed at supporting the viability and resilience of housing programs. Public utility services, especially electricity, potable water, wastewater, and telecommunications, have a significant impact on the ability of residents and businesses to rebound from the damage caused by the storms.

Lastly, the U.S. Virgin Islands will also invest in programs to catalyze the Territory's economy, prioritizing shovel-ready projects to revitalize tourism by boosting air and maritime connectivity. The Ports and Airports Enhancement program, supported by $30 million from Tranche 1, aims to stabilize and grow the tourism industry through key improvements to ports and airports that will increase the Territory's capacity to receive tourists. In addition, given its reliance on tourism, by far the largest contributor to employment and GDP, the Territory has dedicated $5 million for a Tourism Marketing Campaign focused on offsetting the negative perceptions of storm-related damages to the U.S. Virgin Islands and reinforcing the Territory's market position as a top sports and adventure, ecotourism, cultural, and romance destination in the U.S. The Territory recognizes that revitalizing tourism while concurrently developing programs to expand economic activity into other sectors is critical to supporting thousands of LMI jobs and expanding opportunities for small businesses. Consequently, the Territory proposes a Workforce Development program with an allocation of $5 million from Tranche 1. This program seeks to generate opportunities for the local workforce to participate in recovery-related sectors such as construction as well as develop soft skills, digital literacy, and vocational skills training for tourism-related work and other key diversification sectors. The Territory has developed two additional programs to revitalize the economy in the long-term: a Neighborhood Revitalization and a Small Business Technical Assistance program. While no funding from Tranche 1 has been allocated to these programs, both seek to create a more vibrant local

economy that can foster small business growth, housing stock improvements, and new private investments.

Although Tranche 1 of CDBG-DR funds does not include specific planning activities, the Territory is committed to increasing resilience in the face of natural hazards and addressing the risks of potential future natural hazards and how they might evolve with climate change. The U.S. Virgin Islands also recognizes that the success of long-term reconstruction and resilience involves collaboration across stakeholders. The Government of the U.S. Virgin Islands has been working closely with federal, local, nonprofit, and other partners to evaluate the extent of the impacts from the hurricanes. In October 2017, Governor Kenneth E. Mapp created an expert advisory committee to help guide short- and long-term recovery efforts for the Territory. The Virgin Islands Hurricane Recovery Task Force is composed of local officials and community stakeholders, experts in business and the environment, and thought leaders from across the country. The U.S. Virgin Islands Housing Finance Authority (VIHFA), in its capacity as lead agency for the administration of CDBG-DR funds, will continue to coordinate with the Task Force as it develops its framework for recovery and resilience. VIHFA will also participate in the Task Force's efforts to update the Territory's Hazard Mitigation Plan.

The $1,621,058,000 allocation announced on April 10, 2018, and any additional allocations, will enable the U.S. Virgin Islands to create much-needed affordable owner-occupied and rental housing, provide housing for the Territory's most vulnerable, and invest in emergency sheltering while leveraging other funding sources and channeling funds to programs where other interventions are limited and the need is urgent. The Territory will also continue to make local match payments and develop programs to further repair and increase the resilience of its infrastructure, particularly its electrical power system and broadband networks. Finally, the Territory will invest in programs that benefit small businesses and workers and help restore the economic vitality of businesses and communities, an essential element of the long-term economic recovery and revitalization strategy for the islands. The Territory will also continue to update and analyze available data for changes in unmet needs.

Additional connections to unmet needs are detailed in the Proposed Use of Funds under each program.

Table 25. Allocations from Tranche 1 of CDBG-DR Funds (FR 6066-N-01)

Program		Funds allocated
Housing	Repair, Reconstruction, and New Construction of Owner-Occupied and Rental Housing for Disaster-Impacted Households	$57,000,000
	Sheltering Programs	$15,000,000
Infrastructure	Local Match for Federal Disaster Relief Programs	$50,549,800
	Infrastructure Repair and Resilience	$30,000,000
	Electrical Power Systems Enhancement and Improvement	$45,000,000
Economic Revitalization	Port and Airport Enhancement	$23,000,000
	Tourism Marketing Campaign	$5,000,000
	Workforce Development	$5,000,000
	Neighborhood Revitalization	$0
	Small Business and Entrepreneurship Technical Assistance	$0
Public Services		$0
Administration and Planning*		$12,134,200
Total		**$242,684,000**

* Administration costs are capped at 5% of the overall allocation

4.3 HOUSING PROGRAMS

The Territory's housing recovery programs are designed to meet these unmet needs to support the most vulnerable residents impacted by Hurricanes Irma and Maria, including assistance for homeowners and tenants of rental properties to achieve permanent sustainable housing solutions. To address the multiple unmet needs, the Territory proposes to create Repair, Reconstruction, and New Construction of Owner-Occupied and Rental Housing for Disaster-Impacted Households program to support repair and reconstruction efforts that are already in progress in the Territory, including assistance to displaced homeowners, as well as make funding available for new construction of affordable housing and developing new public housing and project-based subsidized housing stock. The Territory also proposes to develop programs to address the Territory's sheltering needs, both in residential housing for vulnerable populations and in emergency shelters from where individuals and families could weather further storms.

Programs to be funded in future tranches will focus on remaining repair, reconstruction, and mitigation needs not covered by other funding sources for owner-occupied residences, and rental units.

The overall objectives of this Action Plan's housing programs directly address the unmet housing needs identified in Section 3.4 in the following ways:

- Aiding in the repair and new development of housing for the most vulnerable, including temporary, emergency housing, and permanent supportive housing;
- Identifying opportunities to develop new housing and rental stock to meet the urgent demand for affordable, habitable stock;
- Leveraging other funding sources and supporting community efforts to both address immediate gaps with flexible funding and maximizing CDBG-DR dollars;
- Supporting individuals directly affected by the storms by replacing and rehabilitating housing units, including mitigation enhancements; and
- Helping affected individuals by improving the resilience of their housing to reduce risk and strengthen neighborhoods for any future disasters while restoring their buildings and residences.

The Territory will prioritize LMI households. The Territory is aware of how planning decisions may affect racial, ethnic, and low-income populations on the islands. In addition, all planning decisions in relation to the following housing programs will address ways to prevent concentrations of poverty, including ways to create mixed-income housing and affordable housing in low-poverty, non-minority areas.

New construction or replacement of substantially damaged buildings will be done in accordance with the international building and residential zoning codes and local standards. For a detailed explanation of the building standards that pertain to the programs in this Action Plan, see Section 5.1.1.

Table 26. Summary of Housing Programs, inclusive of Local Match funding

Category	Program	Total Allocation
Housing Assistance Program	Repair, Reconstruction, and New Construction of Owner-Occupied and Rental Housing for Disaster-Impacted Households	$57,000,000
Sheltering programs	Residential support for vulnerable populations	$15,000,000
	Emergency Shelter Development	$0
Local Match for Federal Disaster Relief Programs	*Local Match – Housing (Public Housing, STEP and other eligible housing)*	$30,000,000
Total Allocation for Housing Programs, including Local Match		**$102,000,000**

All the programs proposed herein u95ndertake eligible activities per the Housing and Community Development Act of 1974 (HCDA). The following housing programs allow for activities such as: clearance, rehabilitation, reconstruction, reimbursement, replacement, and new construction; rental housing for LMI households; public housing; emergency shelters and housing for the homeless; private market units receiving project-based assistance or Section 8 or any other HUD-assisted housing; interim rental assistance; housing incentives; public services; and buyouts. Per the Federal Register (FR-6066-N-01), funds may also be used for the creation of new units or rehabilitation of units not damaged by the flood events if the activity can be clearly linked to LMI populations.

The following activities will be ineligible for funding through any of the following housing programs: forced mortgage payoffs; SBA home/business loan payoffs; funding for second homes; assistance for homeowners or landlords who previously received Federal flood disaster assistance and did not maintain flood insurance; and compensation payments.

Maximum award has been determined for funded programs. For programs not funded at this time, awards have not been determined, as allocation drives the amount and extent of the Territory's support. The Territory will further develop program guidelines in the policies and procedures. The Territory will also consider exceptions to program policies including maximum award amounts for applicants who demonstrate undue hardship. Applicants in this situation will be reviewed to determine whether denial of program assistance further perpetuates circumstance attributing to such hardship. Demonstrable hardship may include but is not limited to: prolonged job loss, substantial reduction to household income, death of a family member, unexpected and extraordinary medical bills, disability, etc. VIHFA will further define "demonstrable hardship" in program policies and procedures.

All applicants located in the flood zone who receive federal assistance under the housing programs must obtain and maintain flood insurance in perpetuity.

4.3.1 Repair, Reconstruction, and New Construction of Owner-Occupied & Rental Housing for Disaster Impacted Households Program

Eligible Activities: Acquisition of Real Property (HCDA Section 105(a)(1)); Clearance, Rehabilitation, Reconstruction, and Construction of Buildings (including Housing) (HCDA Section 105(a)(4)); Public Facilities and Improvements (HCDA Section 105(a)(2)); Disposition of Real Property (HCDA Section 105(a)(7)); Public Services (HCDA Section 105(a)(8)); FR 6066-N-01

National Objective: Low- to Moderate-Income Housing; Slum and Blight or Urgent Need.

Reconstruction and rehabilitation of impacted housing provides an opportunity to create more resilient structures than existed prior to the 2017 storms and to incorporate modern building standards such as:

- *Reconstruction Standard*: When applicable, replacement and new construction will meet the International Residential Zoning Code and the green building standards; and

- *Rehabilitation Standard*: All reconstruction, new construction, and rehabilitation will be designed, as required by HUD, to incorporate principles of sustainability, including water and energy efficiency, resilience, which will mitigate the impact of future disasters.

Proposed Use of Funds:
Repair and rebuilding of storms-damaged homes can bring a host of challenges, including the high costs of reconstruction and temporary housing arrangements while displaced. In addition, homeowners and landlords both must navigate the best course to rebuild in a way that boosts resilience from future storms, while surmounting difficult building conditions, higher costs of building supplies, and the shortage of licensed contractors. The Territory's housing programs will provide support to get homeowners and renters back on their feet and into their homes for the long term by rebuilding and repairing for them to be safer and stronger.

While homeowners and renters may have an unmet need for repairs, reconstruction, and other support as a result of the storms, there are already programs in place to address their needs. This includes, but is not limited to, FEMA's Individual Assistance program which provides resources to improve properties to decent safe, and sanitary conditions and temporary rental assistance for up to 18 months; and Emergency Home Repairs VI (STEP) which offers temporary repairs enabling homeowners to safely shelter in their homes until more permanent repair programs are in-place. Under Section 408 of the Stafford Act in keeping with the Insular Areas Act, FEMA has also deployed a Direct Housing Mission which allows FEMA to conduct permanent construction and reconstruction to owner-occupied homes as well as repairs to multi-family housing. With ongoing FEMA funding and planned expenditures of $339 million for STEP and approximately $150 million for the Permanent Housing Construction program, the Territory is coordinating between the programs to ensure that unmet housing repair needs are met and that CDBG-DR resources can be brought to bear for both owner-occupied and rental housing as necessary.

Within the Repair, Reconstruction, and New Construction program, the U.S. Virgin Islands is proposing a range of owner-occupied and affordable rental components that include: repair and rehabilitation of owner-occupied and rental units damaged and uninhabitable by the storms; options for first time homebuyers; voluntary buyouts of high-risk properties; increased affordability of rental stock; and restoring and making more resilient the inventory of units for particularly vulnerable populations, especially those living in public housing and supportive housing. Program components are described in more detail below.

4.3.1.1 New Construction for Homeownership Opportunity and First Time Home Buyer Assistance

Eligible Activities: Clearance, Rehabilitation, Reconstruction, and Construction of Buildings (including Housing) (HCDA Section 105(a)(4)); Public Services (HCDA Section 105(a)(8)).

National Objective: Low- to Moderate-Income Housing; and Urgent Need.

Proposed Use of Funds:

Hurricanes Irma and Maria caused significant damage to both owner-occupied and rental stock, depleted the already-limited housing stock, and drove up prices beyond affordable levels. Individuals displaced after the storm by damage to their accommodations frequently turned to informal housing scenarios; most commonly causing overcrowding in existing single-family homes. To reduce the pressure on the stock and improve the quality of life for residents of the U.S. Virgin Islands, this program will provide LMI households the opportunity to purchase a home through direct financial incentives, effectively creating first time home buyers. The program will provide an affordable alternative to renting by creating new homeowner stock; thus, it will alleviate some of the pressure on the rental market post-storms.

The creation of new single-family homes in the Territory faces a unique set of challenges, such as limited buildable land due to the steep grade and topography and consequently high cost of site preparation and construction. This difficulty is especially pronounced in St. Thomas and St. John, where buildable land is limited and the cost to build may exceed $250/square foot, according to the Global Property Guide.[95] To overcome these challenges and address variations in the availability of land and building preferences, the component will support three methods:

- The first method will enable the creation of new, turn-key stock for first time home buyers in the form of modular homes or newly built single-family homes. This program will enable developers to build on land owned by the U.S. Virgin Islands Housing Finance Authority.

[95] April 2016 Global Property Guide Property Market Report

Eligible Applicants: In order to support the development of mixed-income environments; eligible applicants may utilize funds for the development of land (including but not limited to infrastructure, grading, installation of utilities, and land preparation) for mixed income communities. Program funds used directly for home construction must be for homes offered for sale to households with AMI <120%. Eligible applicants include the VIHFA, and private developers who meet the above criteria.

- The second method offers second mortgages in the form of forgivable loans for first time homebuyers of the modular homes or newly built single-family homes created by developers in the above component. These homes will be offered to individuals with up to 120% of AMI via forgivable second mortgages (forgiven 10% per year over a 10-year period).

  Eligible Applicants: Potential LMI home buyers who are mortgage ready and whose household income is below 120% of AMI. Individuals must have been a residents of the Territory at date of the storm.

- The third method enables the creation of new, custom stock for first time homebuyers. This will support the development costs of the land (including but not limited to infrastructure, grading, and land preparation) in the form of grants. Grants will be awarded to (i) qualifying LMI individuals to build on land they own or (ii) directly to the VIHFA for development of housing on land currently owned by VIHFA. This program is an extension of existing support given to first time homebuyers in VIHFA's 'Buy a Lot, Build a Home' program, for individuals with incomes up to 80% of AMI.

  Eligible applicants: Potential LMI home buyers who are mortgage ready, with income below 120% of AMI, or the VIHFA, acting as a developer

Eligibility Criteria: LMI home buyers who are beneficiaries under this program must agree to occupy this home as their primary residence for a ten-year affordability period, forgivable at 10% per year.

Prioritization Criteria: Due to limits in the funding available in the initial allocation, the Territory will prioritize the construction of infrastructure for mixed income communities and the development of new homes for families with AMI less than 120% in Phase 1. Phase 1 will prioritize VIHFA as they are the primary developer of affordable homes in the Territory. If funds are not fully expended during the first phase of the program for the prioritized population below, the Territory may expand the criteria to include additional rental populations.

Total Allocation: $18,000,000

Maximum Award per Beneficiary: Awards may be up to $300,000 per home including the infrastructure and construction of homes for first time home buyers. Circumstances where additional costs may be incurred will be reviewed against cost reasonableness guidelines.

4.3.1.2 Homeowner Repair and Reconstruction Program

Eligible Activities: Acquisition of Real Property (HCDA Section 105(a)(1)); Code Enforcement (HCDA Section 105(a)(3)); Clearance, Rehabilitation, Reconstruction, and Construction of Buildings (including Housing) (HCDA Section 105(a)(4)); Disposition of Real Property (HCDA Section 105(a)(7)); Public Services (HCDA Section 105(a)(8)).

National Objective: Low- to Moderate-Income Housing; and Urgent Need.

Proposed Use of Funds:

Given the time elapsed since Hurricanes Irma and Maria in September 2017, homeowners are in different stages of their rebuilding process depending on the extent of damage to their homes and the private and public resources that have been available for recovery.

The Territory will enter into grant agreements with homeowners that will result in the repair and reconstruction of storm-damaged residential owner-occupied structures. The program covers eligible costs for the repair or replacement of damage to real property, replacement of disaster-impacted residential appliances, and environmental health hazard mitigation costs related to the repair of disaster-impacted property. For residences considered substantially damaged, support will be granted for reconstruction or provision of a modular home in place of their original unit.

- *Repair and Replacement*: The Program pays for approved and eligible costs to complete repairs to homes that have not yet been completed, including eligible improvements for resilience.

- *Reconstruction*: The Program pays for approved and eligible costs of reconstruction when a home is destroyed or determined not feasible to repair. Eligible expenses include new home construction on an existing plot, or, in some cases, provision of a resilient modular home in replacement for the damaged unit.

- *Mitigation and resilience measures*: Mitigation measures such as structural retrofitting and non-structural retrofitting (e.g., impact resistant shutters, windows and doors) of existing structures to meet or exceed applicable building codes relative to hazard mitigation and increase the ability to shelter in place will be eligible. Additional resilience measures will also be eligible.

- *Voluntary Buyouts*: Based on further analysis of unmet needs, the Territory may execute voluntary buyouts in limited situations where it is more cost-effective, relative to other alternatives strategies, to remove homeowners from high-risk areas where homes have been subject to exhibited repetitive loss. The program will develop a cost benefit analysis

procedure, including a threshold for cost-effectiveness, to determine whether voluntary buyout should be considered in lieu of a repair or reconstruction.

The Territory does not anticipate elevating homes given the cost and structural limitations of cisterns, which are most often substantially connected to slabs. Thus, the Territory has put mechanisms in place to ensure structures prone to repetitive loss go through an analysis to determine whether repair and rehabilitation, demolition and reconstruction, or voluntary buyout is the most cost-effective approach to helping that homeowner.

The Territory understands that it can be costly to implement a buyout program and will consider the costs of buying out a property at pre-storm value, including additional support for eligible moving expenses.

- *Other support fees*: Eligible expenses could include the following: Funding assistance to service providers who provide critical resources necessary for housing recovery, legal services to assist low- and moderate-income homeowners and applicants in overcoming storm-related legal obstacles to obtaining necessary recovery assistance. Additional capital grants may be given for elderly or mobility disabled households for the removal and replacement of architectural barriers including the addition of ramps, railings, and select electronic accessibility support in the rebuilding process.

Eligible Applicants: Owner occupants at time of disaster events who meet the following conditions:

- Damaged home was applicant's primary residence at the time of the disaster events;
- Damage was the result of Hurricane Maria and/or Hurricane Irma; and
- Eligible structure as determined by program, including but not exclusive to, one- and two-family homes as well as condominiums and mobile homes.

Duplication of Benefits: Applicants must complete a process to verify previously received disaster recovery benefits. Unmet need is determined after accounting for all federal, Territory, local, and/or private sources of disaster-related assistance, including, but not limited to, homeowners and/or flood insurance proceeds per the Stafford Act.

Prioritization Criteria: Due to limits in the funding available, the Territory will fund eligible homeowners in phases described in the criteria outlined below. If funds are not fully expended during the first phase of the program, the Territory may expand the criteria to include additional homeowner populations. This may include households of all income levels with primary residences that can exhibit a remaining need for funding to repair or rebuild their homes within the guidelines and parameters of the program.

Territory staff and/or contractors will provide guidance to homeowners on the requirements of this component.

Phase 1 applicants must meet the following criteria:

- The impacted home experienced Major/Severe Damages by either a FEMA-designation or have damage which meets the Major/Severe damage standard that FEMA has defined AND/OR tenants were displaced; and
- The applicant household meets federal LMI requirements AND applicant or co-applicant is elderly (age 62 on the date of the disaster event) OR is a person with disabilities or has a person with disabilities in the household.

Phase 2 applicants must meet the following criteria:

- The impacted home experienced Major/Severe Damages by either a FEMA-designation OR have damage which meets the Major/Severe Damage standard that FEMA has defined; and
- The applicant household meets federal LMI requirements.

Phase 3 applicants must meet the following criteria:

- The applicant household meets federal LMI requirements OR applicant or co-applicant is elderly (age 62 on the date of the disaster event) OR is a person with disabilities or has a person with disabilities in the household; or
- Applicant households have income between 80-120% of AMI AND the impacted home experienced Major/Severe Damage.

Phase 4 applicants must meet the following criteria:

- Applicant households have income exceeding 120% of AMI and the impacted home experienced Major/Severe Damage.

Note: If the applicant's home is located in the Special Flood Hazard Area floodplain and the household did not have NFIP flood insurance at the time of the flood, their income must be below 120% of AMI to be eligible for the Homeowner Repair and Reconstruction Program.

Total Allocation: Future CDBG-DR funds will be allocated to this program as it aligns with remaining unmet needs.

4.3.1.3 Interim Rental Assistance for Displaced Homeowners

Eligible Activity: Public Services (HCDA Section 105(a)(8)).

National Objective: Low- to Moderate-Income Housing; and Urgent Need.

Proposed Use of Funds:

A substantial number of households remain unable to inhabit their primary residences because of Hurricanes Irma and Maria. Many of these displaced families are paying rent in addition to

mortgages on damaged homes. The share of homeowners in the U.S. Virgin Islands who hold mortgages is just under 50%, according to the 2010 Census. The rest of homeowners own outright, often residing in long-standing familial homes that allow them to live on low, fixed expenses each month.

The cost of renting temporary housing following the storms was both unforeseen and far above the planned monthly housing costs for most residents whose homes were too damaged to be occupied. Individuals and families may have expended or do not qualify for FEMA resources for rental assistance, exhausted available mortgage forbearances, or may have utilized any rental assistance provided by insurance companies. The Territory has developed this program to assist homeowners with short-term rental housing costs so that they are not overburdened by displacement while their homes are repaired or reconstructed.

This program will provide rental support to eligible applicants for up to 9 months, with no single month of rental support exceeding the fair market rent for families of their size (assuming 1.5 persons/bedroom).

Rental support may include reimbursement of rental costs for the six months prior to application approval.

Eligible Applicants: A property owner participating in the Homeowner Repair and Reconstruction Program may be eligible for interim rental assistance payments if the owner is displaced from his or her storm-damaged owner-occupied primary residence and holds a rental lease in temporary housing while displaced during reconstruction.

Duplication of Benefits: Applicants must complete a process to verify previously received disaster recovery benefits. Unmet need is determined after accounting for all federal, Territory, local and/or private sources of disaster-related assistance, including, but not limited to any or all of the following, FEMA, SBA and flood insurance proceeds.

Prioritization Criteria: Due to limits in the funding available, the Territory will fund eligible homeowners in phases described in the criteria outlined below. If funds are not fully expended during the first phases of the program, the Territory may expand the criteria to include additional homeowner populations. This includes households of all income levels with primary residences that can exhibit a remaining need for funding for rental assistance within the guidelines of the program. Territory staff and/or contractors will provide guidance to homeowners on the requirements of the program.

Phase 1 applicants must meet the following criteria:

- The applicant household meets federal LMI requirements AND has been displaced from their home as a result of the storms AND applicant or co-applicant is elderly (age 62 on the date of the disaster event) OR is a person with disabilities or has a person with disabilities in the household.

Phase 2 applicants must meet the following criteria:

- The applicant household meets federal LMI requirements AND has been displaced from their home as a result of the storms.

Total Allocation: Future CDBG-DR funds will be allocated to this program as it aligns with remaining unmet needs.

4.3.1.4 Public Housing and Affordable Housing Development

Eligible Activities: Acquisition of Real Property (HCDA Section 105(a)(1)); Public Facilities and Improvements (HCDA Section 105(a)(2)); Clearance, Rehabilitation, Reconstruction, and Construction of Buildings (including Housing) (HCDA Section 105(a)(4)); Public Services (HCDA Section 105(a)(8)).

National Objective: Low- to Moderate-Income Housing; and Urgent Need; Preventing or Eliminating Slums or Blight

Proposed Use of Funds:

This program seeks to redevelop and create new public housing and Affordable rental housing stock, expanding the amount of rental stock, especially of affordable units. Eligible development activities include development of low-income and mixed-income small- and multi-family stock, infill construction of new units for existing homeowners, and substantial rehabilitation of vacant commercial or uninhabitable dwellings to bring more mixed-use rental stock online.

The program will incentivize the development of new low-income and mixed-income small and multi-family stock, including public housing. While low-income stock remains an urgent priority, mixed-income stock is also needed on the islands given the unmet need for rental units across the full spectrum of citizens, from low-income individuals typically supported by Low-Income Housing Tax Credit housing, low-income households with incomes that make them ineligible for traditional tax credit units (e.g. households with incomes between 60% of AMI and market rate) and tenants that can afford market rate units. This program intends to enable the development stock which prevents concentrations of poverty. To address these needs, there are three component parts:

- Developing new public housing and mixed-income rental housing via:

  Public housing or Low-Income Housing Tax Credit housing development: Including demolition, repair, rehabilitation, and redevelopment as it pertains to the development of affordable units for LMI individuals. A per unit cap of $100,000 is expected; circumstances where additional costs may be incurred will be reviewed against cost reasonableness guidelines.

Small rental development of 7 units or less: To incentivize the development of this stock, the Territory will provide a 0% forgivable loan with a per unit cap of $250,000.

Multi-family rental development of 8 units or more: To incentivize the development of this stock, the Territory will provide a 0% forgivable loan with a per unit cap of $250,000, provided they agree to a 20-year affordability period for LMI units created.

- Offering homeowners, with existing infrastructure in place, the opportunity to build additional units for rental, as infill development. Many homeowners, especially in densely developed St. Thomas, built their homes with the infrastructure in place to one day expand their livable square footage, or create rental income within the same footprint. For these individuals, creating units on the second floor or uninhabited first floor of their homes is a low-cost way to increase rental stock, given much of the existing infrastructure (cistern material, utilities connections) is in place.

  Support for the infill development program will be given via a grant, in the form of a five-year forgivable mortgage. When homeowners sign onto this program, they agree to a five-year affordable rental period for any additional units built as a result of the program. A per unit cap of $50,000 is expected; circumstances where additional costs may be incurred will be reviewed against cost reasonableness guidelines.

- Supporting neighborhood revitalization by partially subsidizing the cost of rehabilitating vacant properties into mixed-use developments (of up to 4 rental units). The Territory will provide a fixed grant to cover some of the costs of rehabbing vacant existing units (e.g. meeting historic preservation restoration requirements). A maximum grant award of $25,000 is expected; circumstances where additional costs may be incurred will be reviewed against cost reasonableness guidelines.

Eligible Applicants: Eligible applicants include owners of one- and two-unit owner-occupied homes, with existing infrastructure, to build infill construction on, as well as for-profit and nonprofit developers, providers of supportive housing, VIHA, and VIHFA.

Eligibility Criteria:

- The projects must help replenish the supply of rental units; and
- Units developed by this program will require compliance with long-term rental use requirements, guaranteeing year-round tenants and no transient use.

Prioritization Criteria: Due to limits in the funding available in the initial allocation, the Territory will prioritize the development of public housing by VIHA and small and multi-family mixed-income development by VIHFA in Phase 1. If funds are not fully expended during the first phase of the program for the prioritized population below, the Territory may expand the criteria to include additional rental populations.

Total Allocation: $30,000,000 for public housing or Low-Income Tax Credit housing development; $2,000,000 for small and multi-family mixed-income rental housing development.

4.3.1.5 Rental Repair and Reconstruction

Eligible Activities: Clearance, Rehabilitation, Reconstruction, and Construction of Buildings (including Housing) (HCDA Section 105(a)(4)); Public Services (HCDA Section 105(a)(8)).

National Objective: Low- to Moderate-Income Housing; and Urgent Need.

Proposed Use of Funds:

Given the limited emergency and temporary repair funds available to rentals thus far, providers of rental units on the islands are at varying stages in their rebuilding process depending on the extent of damage and resources available to date. Rental damage from the storms can have a far-reaching impact on the local population, displacing individuals and families, constricting the rental income on which landlords rely, and leaving individuals and families to live in sub-par housing stock.

In response to this situation, the Territory will implement this program to cover eligible costs for repair or replacement of damage to real property; replacement of disaster-impacted residential appliances; and environmental health hazard mitigation costs related to the repair of disaster-impacted rental property. For residences identified as substantially damaged, support will be granted for reconstruction.

- *Repair and Replacement*: The Program pays for approved and eligible costs to complete repairs to rental units that have not yet been completed, including eligible improvements for resilience.

- *Reconstruction*: The Program pays for approved and eligible costs of reconstruction when a unit is destroyed or determined not feasible to repair. Eligible expenses include new unit construction on existing plot or, in some cases, development of a unit in a new location

- *Mitigation and resilience measures*: Mitigation measures such as structural retrofitting and non-structural retrofitting (e.g., impact resistant shutters, windows and doors) of existing structures to meet or exceed applicable building codes relative to hazard mitigation and increase the ability to shelter in place will be eligible. Additional resilience measures will be eligible.

Funds for repair and replacement will be delivered in the form of forgivable construction loans. These loans will be forgivable over a five-year period, based on tenant income. When the loan is given, applicants agree to a five-year affordable rental period providing affordable rent to LMI populations for any units repaired or reconstructed by the program.

Eligible Applicants: Eligible applicants include private landlords, providers of supportive housing, the Public Housing Authority (VIHA), and the Virgin Islands Housing Finance Authority (VIHFA)

Eligibility Criteria:

- Units must have verified damage from Hurricanes Irma or Maria;
- Units developed by this program will require compliance with long-term rental use requirements guaranteeing year-round tenants and no transient use; and
- Applicants must complete a process to verify previously received disaster recovery benefits. Unmet need is determined after accounting for all federal, Territory, local and/or private sources of disaster-related assistance, including, but not limited to, FEMA, SBA, and flood insurance proceeds.

Prioritization Criteria: Due to limits in the funding available in the initial allocation, the Territory will prioritize in this first phase of the program rental units meeting the criteria outlined below. If funds are not fully expended during the first two phases of the program for the prioritized population below, the Territory may expand the criteria to include additional rental populations.

Phase 1 applicants must meet the following criteria:

- The impacted unit experienced Major/Severe Damage and tenants were displaced;
- The tenants meet federal LMI requirements AND tenants are elderly (age 62 on the date of the disaster event) OR have a person with disabilities in their household; OR
- Units that are Major/Severely Damaged and vacant, and eligible applicant agrees to rent to LMI individuals displaced by the storms.

Phase 2 applicants must meet the following criteria:

- The impacted unit experienced Major/Severe Damage and tenants were displaced.

Total Allocation: $7,000,000.

4.3.2 Sheltering Programs

The Territory is proposing two programs to address the urgent sheltering needs as a result of Hurricanes Irma and Maria. Before the storms, the Territory already faced a shortage of temporary and supportive units for its most vulnerable residents, including the elderly, disabled, mentally ill, and homeless, as well as individuals with substance abuse issues and victims of domestic violence. The storms exacerbated the challenges these individuals regularly faced by damaging the properties in which they live and severely limiting their access to mental and physical health services.

The Territory will prioritize the creation of a Residential Support for Vulnerable Populations program which covers eligible costs to repair or replace damage to residential environments for the Territory's most vulnerable. The program also allows funds to be allocated for the creation of new temporary and supportive housing, and for the expansion or development of support services.

Another sheltering need the Territory faces is for disaster shelters where individuals and families can weather future storms and live as they transition back into permanent housing in the aftermath of a natural disaster. Though the U.S. Virgin Islands faces the risk of hurricanes and other storms seasonally, the supply of shelters is radically insufficient. The Emergency Shelter Development program will address this need by funding the creation of new emergency shelters and hardening existing community structures to become safe and secure shelters. This program is unfunded in Tranche 1 while the Territory further investigates other potential funding sources to support this need including the Hazard Mitigation Grant Program.

4.3.2.1 Residential Support for Vulnerable Populations

Eligible Activities: Acquisition of Real Property (HCDA Section 105(a)(1)); Clearance, Rehabilitation, Reconstruction, and Construction of Buildings (including Housing) (HCDA Section 105(a)(4)); Public Services (HCDA Section 105(a)(8)); Housing Services (HCDA Section 105(a)(20)).

National Objective: Low- to Moderate-Income Housing; and Urgent Need.

Proposed Use of Funds:

Hurricanes Irma and Maria significantly impacted the limited housing stock that accommodates the most vulnerable populations in the U.S. Virgin Islands, including but not limited to, the elderly, disabled, mentally ill, homeless, as well as individuals with substance abuse issues and victims of domestic violence. To illustrate the extent of this challenge, it is worth noting that according to the 2010 Census, 11% of the Territory's population has one or more disabilities. Within this group, the share of unemployment is high, resulting in a wide range of social services and subsidies required for these households.

The repair and reconstruction of the existing stock to support vulnerable populations is a significant need. Further, the development of additional stock is needed to serve the growing needs of the existing population that came to light in the aftermath of the storm, as well as the growing number of individuals who have become vulnerable as a result of the storms. The occurrence of two back-to-back Category 5 storms, and the displacement and chaos that followed, has also increased the need for supportive services in addition to housing.

This program will fund repair and reconstruction, development of new housing, and enhancement of the support service network for vulnerable populations:

To address this need, the program will:

- Fund eligible repair and reconstruction expenses. The Territory will implement this program to cover eligible costs for the repair or replacement of damage to real property; replacement of disaster-impacted residential appliances; and environmental health hazard mitigation costs related to the repair of disaster-impacted property. For residences identified as substantially damaged, support will be granted for reconstruction.

  Funds for repair and replacement will be delivered in the form of forgivable construction loans. These loans will be forgivable over a five-year period (forgiven 20% per year over a 5-year period.);

- Support the expansion or new development of units for the vulnerable, via loans. Eligible uses include financing for the acquisition of land, buildings, or new construction; and

- Enable providers to support the most vulnerable through provision of services. This support will be provided in the form of grants for projects that increase and improve the support service network for these individuals.

Eligible Applicants: This program is available to nonprofit and for-profit providers of supportive services for the vulnerable including but not limited to, the elderly, disabled, mentally ill, homeless, as well as individuals with substance abuse issues and victims of domestic violence, who charge no more than to 20% of AMI as rent for units improved through this program. Public agencies that support housing for the vulnerable, including the Department of Human Services, are eligible.

Any units provided for vulnerable populations above this monthly price threshold may be eligible for the Rental Repair and Reconstruction or the Public Housing and Affordable Housing Development programs.

Eligibility Criteria:

- Applicants must complete a process to verify previously received disaster recovery benefits. Unmet need is determined after accounting for all federal, Territory, local and/or private sources of disaster-related assistance, including, but not limited to FEMA, SBA, and flood insurance proceeds;
- Applicants must utilize program funds to serve vulnerable populations; and
- Applicant must demonstrate that the program dollars can be fully expended within the allowable time frame (two years).

Prioritization Criteria:

Funding will be allocated to the individual program components as needed to ensure that the most vulnerable are served expediently and effectively. Due to limits in the funding available in the initial allocation, the Territory will prioritize the repair, reconstruction, and new development of units for the elderly and most vulnerable for properties managed by the Department of Human Services in Phase 1. If funds are not fully expended during the phase of the program for the prioritized population below, the Territory may expand the criteria to include additional vulnerable populations.

Total Allocation: $15,000,000

Maximum Award per Beneficiary: Awards up to $300,000 per unit are anticipated. Circumstances where additional costs may be incurred will be reviewed against cost reasonableness guidelines.

4.3.2.2 Emergency Shelter Development

Eligible Activities: Acquisition of Real Property (HCDA Section 105(a)(1)); Code Enforcement (HCDA Section 105(a)(3)); Clearance, Rehabilitation, Reconstruction, and Construction of Buildings (including Housing) (HCDA Section 105(a)(4)).

National Objective: Low- to Moderate-Income Housing; and Urgent Need.

Proposed Use of Funds:

When Hurricanes Irma and Maria hit the U.S. Virgin Islands in September of 2017 there were limited locations for individuals, families, and the most vulnerable to seek shelter from the storms. Unlike in the contiguous United States, only a small fraction of the Territory's population is in a position to evacuate the islands in advance of a natural disaster, further exacerbating the need for shelters and homes hardened to withstand potential disasters. During Hurricanes Irma and Maria school buildings served as make-shift emergency shelters, despite the frequent incompatibility with emergency shelter standards. Once the storm passed shelters were required to remain open to accommodate individuals and families whose homes were rendered uninhabitable. In some cases, the lack of alternative accommodations for shelters delayed the re-opening of schools by up to one month.

This program addresses the urgent need for adequate, permanent emergency shelters in the U.S. Virgin Islands. To this end, the program will support the hardening and upgrading of existing community, public or private infrastructure to bring it up to sheltering standards as well as the creation of new emergency sheltering stock.

Eligible Applicants: Eligible applicants include private developers, for-profit and nonprofit community organizations, Department of Human Services, VIHA, and VIHFA

Eligibility Criteria:

- The projects must increase the number of beds for individuals and families who cannot or choose not to shelter in place during the storms; and
- Shelters developed or hardened in this program will require compliance with emergency sheltering standards (including number of restroom facilities).

Prioritization Criteria: Project will be selected based on their projected performance against a set of factors, including but not limited to: cost effectiveness, speed with which shelters can be developed, number of individuals served, location and accessibility, and proposed use(s) outside of hurricane season.

Total Allocation: Future CDBG-DR funds will be allocated to this program as it aligns with remaining unmet needs.

4.4 INFRASTRUCTURE PROGRAMS

The U.S. Virgin Islands' reliance on the proper functioning of its infrastructure systems—including energy, transportation, and telecommunications infrastructure—was evident when these systems failed in the aftermath of Hurricanes Irma and Maria. As described in Section 3.5, the high winds, torrential rainfall, and flooding from both disasters had compounding effects on all of the U.S. Virgin Islands' infrastructure sectors, leading to widespread and prolonged failures which has served to delay economic recovery. High winds toppled above-ground utility lines; storm water runoff flooded roads and induced mudslides; and flooding, wind, and heavy rain severely damaged water and wastewater treatment plants, hospitals, and other buildings that provide critical services. Electrical substations were crippled, causing power failures to 95% of electrical customers. Water pump failures and sewage overflows from storm water surges led to potable water safety precautions such as "boil water" advisories and EPA drinking water assessments. Lacking both a steady power supply and functioning transportation and water infrastructure, many businesses were forced to shut down, some for extended periods. Closure of the ports and airports for more than two weeks, had significant effects on the Territory's connectivity, limiting the pace of voluntary evacuation efforts, delaying the delivery of essential supplies for emergency relief, and causing further disruption to the economy.

The U.S. Virgin Islands' has identified multiple infrastructure priorities that must be addressed and which directly support housing needs. Residents not only suffered from direct damage to their homes from the hurricanes, but also endured the loss of critical services such as power and water due to damaged public infrastructure. Without water or power, residents were forced to evacuate their homes and seek shelter and emergency assistance. If the Territory's infrastructure is made more resilient, critical services could be stabilized and maintained for residents in the event of a future disaster, creating a safer and more secure environment.

Like housing programs, all infrastructure programs will meet a HUD national objective. The most applicable national objective for infrastructure will likely be LMI benefit. A subcategory of LMI benefit is the low- and moderate-income area benefit (LMA). LMA allows activities that benefit all persons in a particular service area to count towards the LMI objective when at least 51% of residents in the service area are classified as LMI. For each activity, the Territory will determine the appropriate service area based on factors including: the nature of the activity; the location of the activity; accessibility issues; the availability of comparable activities; and boundaries for facilities and public services. The Territory will ensure that projects will be prioritized to provide services to LMI persons and support unmet housing needs.

Primary needs for the proper preparedness for, and recovery from, future natural disasters include: (i) comprehensive planning to identify resilience opportunities; (ii) adoption and enforcement of codes to bring critical infrastructure up to industry standards; (iii) holistic mitigation designs to meet future challenges and hazards; and (iv) implementation of innovative technology and other best practices to create a more reliable, sustainable, and cost effective electric grid.

The Territory will be strategic in optimizing the mix of the allocation towards infrastructure programs to ensure effective and efficient use of funds. The U.S. Virgin Islands has requested a waiver of the nonfederal cost share for FEMA funding under the Insular Areas Act. However, to ensure that FEMA obligated permanent repair and reconstruction work is expedited and completed as soon as possible, 22% of the programmatic funding from Tranche 1 of CDBG-DR funds will be allocated to nonfederal cost share for HUD eligible activities.

The Bipartisan Budget Act of 2018 provides an opportunity for the Territory to receive more funding from FEMA PA to not only repair and replace damaged elements of critical infrastructure systems, but to also rebuild the entire system to meet industry standards. This would allow the U.S. Virgin Islands to optimize the use of CDBG-DR funds by reducing the unmet need for infrastructure resilience programs, although it will increase the need for funding to cover the nonfederal cost share.

Updates to the infrastructure unmet needs and match program allocations are anticipated as more guidance is provided by Congress on the interpretation of Section 20601 of the Bipartisan Budget Act of 2018. For reference, Section 20601 directs FEMA to provide assistance: "for critical services in section 406 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act for the duration of the recovery for incidents DR-4340-USVI and DR-4335-USVI to: (1) replace or restore the function of a facility or system to industry standards without regard to the pre-disaster condition of the facility or system; and (2) replace or restore components of the facility or system not damaged by the disaster where necessary to fully effectuate the replacement or restoration of disaster-damaged components to restore the function of the facility or system to industry standards."

Beyond covering part of the Territory's federal match obligations, there are further opportunities to build resilience and harden critical infrastructure using CDBG-DR funding. Additional CDBG-DR funds are expected to be allocated towards infrastructure programs as the Territory continues to refine its assessment of unmet needs and receives subsequent CDBG-DR allocations.

Table 27 below summarizes the total infrastructure CDBG-DR allocations in accordance with basic eligible activities per 24 CFR 570.201:

Table 27. Summary of Proposed Infrastructure Programs

Program	Sectors	HCDA Eligible Activities (Section 105(a))	Total Allocation
Local Match for Federal Disaster Relief Programs	• Educational Facilities • Energy • Government Facilities • Hospitals & Healthcare Facilities • Telecommunications • Transportation (including roads, ports, & airports) • Waste: Solid Waste / Landfill Debris • Water & Wastewater	• Payment of the Nonfederal Share • Acquisition of Real Property • Public Facilities and Improvements • Clearance, Rehabilitation, Reconstruction, and Construction of Buildings • Public Services • Relocation • Assistance to Institutions of Higher Education	$50,549,800
Infrastructure Repair and Resilience	Same as above	• Acquisition of Real Property • Public Facilities and Improvements • Clearance, Rehabilitation, Reconstruction, and Construction of Buildings • Public Services • Relocation • Assistance to Institutions of Higher Education	$30,000,000
Electrical Power Systems Enhancement and Improvement	Energy	• Acquisition of Real property • Public Facilities and Improvements • Clearance, Rehabilitation, Reconstruction, and Construction of Buildings • Relocation • Payment of the Nonfederal Share	$45,000,000
Total			**$125,549,800**

4.4.1 Local Match for Federal Disaster Relief Program

Eligible Activities: Acquisition of Real Property (HCDA Section 105(a)(1)); Public Facilities and Improvements (HCDA Section 105(a)(2)); Clearance, Rehabilitation, Reconstruction, and Construction of Buildings (including Housing) (HCDA Section 105(a)(4)); Public Services (HCDA Section 105(a)(8)); Payment of Nonfederal Share (HCDA Section 105(a)(9)); Relocation (HCDA Section 105(a)(11)); Assistance to Institutions of Higher Education (HCDA Section 105(a)(21)).

National Objective: Low- and Moderate-Income Area, Low- and Moderate-Income Limited Clientele, and Urgent Need.

Proposed Use of Funds:

In most cases, federal programs require local government organizations to pay a share of the cost of a project, called the "local match." In the aftermath of a disaster, the local match requirements can be burdensome on grant recipients with limited resources that have been overwhelmed by emergency and relief work and further weakened by lost government revenues.

To offset this burden, Congress allows CDBG-DR funds to be a source of federal funding that can be used to provide the local match. The Federal Register Notice from February 14, 2018 (FR-6066-N-01) provides guidance on the utilization of the first allocation of funds for disasters in 2017, allows the U.S. Virgin Islands to use CDBG–DR funds as the local match portion for disaster-related programs or activities administered by other federal agencies. Specifically, the Notice states that "[a]s provided by the HCD Act, funds may be used as a matching requirement, share, or contribution for any other federal program when used to carry out an eligible CDBG–DR activity." This includes activities carried out by FEMA, the USACE, FHWA, and other federal agencies. The Notice limits the amount of CDBG–DR funds that may be contributed to a USACE project at $250,000 or less. The Appropriations Act specifically "prohibits the use of CDBG–DR funds for any activity reimbursable by, or for which funds are also made available by FEMA or USACE."

The U.S. Virgin Islands has developed the Local Match for Federal Disaster Relief Program to provide the cost share for CDBG-DR-eligible projects. To maximize the leverage of CDBG-DR, the Territory is considering coordinated match and global match approaches to fund eligible projects. The U.S. Virgin Islands intends to use 21% of the first tranche of CDBG-DR funds as the local match requirement for federally-funded projects related to the disaster. Leveraging these funds will allow the U.S. Virgin Islands to better address disaster-related needs and help the Territory minimize its financial exposure, with the intention of spending federal funds efficiently and effectively. Projects supporting housing needs such as Public Housing facility repairs will be prioritized for matching funds; priority will also be given to infrastructure projects providing critical services directly related to housing needs. That said, CDBG-DR funds for local match will be used as the funding of last resort and only after an eligibility determination has been made and a duplication of benefits analysis has been conducted.

The U.S. Virgin Islands is receiving FEMA Public Assistance (PA) funds through two disasters: FEMA-4335-DR-VI for Hurricane Irma and FEMA-4340-DR-VI for Hurricane Maria. As of April 21, 2018, FEMA has obligated 350 Project Worksheets (PWs) for a total of $527,423,101 which includes $43,794,785 for DR-4335 and $483,628,316 for DR-4340. For both of these disasters, FEMA covered 100% of the cost of projects for the first six months after the Major Disaster Declaration. FEMA's 100% share for PA was scheduled to end for DR-4335 on March 7, 2018, and for DR-4340 on March 15, 2018, respectively. However, on March 16, 2018, the President signed an extension for 60 days for 100% federal cost share for debris removal and emergency protective measures, including direct federal assistance. Once the 60-day extension lapses (May 3, 2018, for 4335-DR and May 14, 2018, for 4340-DR), the U.S. Virgin Islands will be responsible for the local cost share match for FEMA PA debris removal and emergency protective measures.

The Territory has requested a further extension of the 100% cost share coverage for all emergency work. The U.S. Virgin Islands is anticipating that FEMA PA will require cost share for all permanent work.

In addition to FEMA PA, and as described in Section 3.5, there are several other federal grant programs that require a cost share. Two are hazard mitigation assistance (HMA) programs from FEMA: the Hazard Mitigation Grant Program (HMGP) and the Pre-Disaster Mitigation (PDM) grant program. HMGP supports cost-effective post-disaster projects taking sustainable action toward reducing or eliminating long-term risk to people and property from future disasters.[96] PDM is designed to assist in implementing a sustained pre-disaster natural hazard mitigation and reducing overall risk to the population and structures and reliance on federal funding in future disasters.[97] For both HMGP and PDM, the federal cost share is 75% and the local cost share is 25%. In addition, the Federal Highway Administration Emergency Relief (FHWA-ER) program will provide emergency support at 100% federal share for 180 days and 80% beyond 180 days for federal-aid eligible projects.[98]

The Territory will ensure that each project which receives funding under the Local Match for Federal Disaster Relief Program corresponds to a CDBG-DR eligible activity, meets a national objective, and demonstrates a direct connection to the disaster. Funds will be provided as payment to governmental agencies, eligible organizations, or other entities for eligible activities within approved PWs or relevant documentation from other agencies.

Eligible Applicants: All entities eligible for FEMA PA, FHWA, USACE, and other federal agencies requiring a local match. Eligible applicants for the local match program include, but are not limited to, the following entities:

- Territory and municipal governments;
- Territorial agencies and authorities;
- Public and parochial schools (K-12);
- University of the Virgin Islands;
- First responders;
- Critical infrastructure facilities as defined by FEMA (e.g., wastewater and potable water facilities); and
- Other local program applicants eligible to receive federal recovery funds, including eligible private non-profit organizations.

CDBG-DR funds may be used as local match as described in *Table 28* below.

Duplication of Benefits: The Local Match for Federal Disaster Relief Program will include a duplication of benefits review as part of the application review and award calculation process.

[96] https://www.fema.gov/hazard-mitigation-grant-program
[97] https://www.fema.gov/pre-disaster-mitigation-grant-program
[98] https://www.fhwa.dot.gov/programadmin/erelief.cfm

Total Allocation: $50,549,800

Maximum Award: The maximum award will be based on the cost-share requirement.

Table 28. Match Requirements for Federal Programs

Federal Agency	FEMA Section	Program	Type of Work	Federal Cost Share*	Nonfederal Cost Share
FEMA	Section 403	Emergency Protective Measures	Emergency	100%; 75%**	0%; 25%
FEMA	Section 407	Debris Removal	Emergency	100%; 75%**	0%; 25%
FEMA	Section 406	Public Assistance	Permanent	75%	25%
FEMA	Section 428	Public Assistance Alternative Procedures (PAAP)	Permanent	75%	25%
FEMA	Section 404	Hazard Mitigation Grant Program (HMGP)	Mitigation	75%	25%
FEMA	Section 203	Pre-Disaster Mitigation (PDM)	Mitigation	75%	25%
FHWA	N/A	Emergency Relief Program	Emergency, Permanent	100% emergency first 180 days, 90% for interstate; and 80% for all other highways	0% emergency first 180 days; 10% for interstate; and 20% for all other highways
USACE	N/A	N/A	Permanent	100%	$250,000 max. per project

*Subject to change per Congress. **100% federal cost share for 240 days from the start of the incident period for Hurricanes Irma and Maria, ending May 3, 2018, for Hurricane Irma and May 14, 2018, for Hurricane Maria; 75% thereafter.

4.4.2 Infrastructure Repair and Resilience Program

Eligible Activities: Acquisition of Real Property (HCDA Section 105(a)(1)); Public Facilities and Improvements (HCDA Section 105(a)(2)); Clearance, Rehabilitation, Reconstruction, and Construction of Buildings (including Housing) (HCDA Section 105(a)(4)); Public Services (HCDA Section 105(a)(8)); Relocation (HCDA Section 105(a)(11)); Assistance to Institutions of Higher Education (HCDA Section 105(a)(21)).

National Objective: Low- and Moderate-Income Area, Low- and Moderate-Income Limited Clientele, and Urgent Need.

Proposed Use of Funds:

Damage to the public networks and facilities for energy, transportation, communications, potable water, education, and health and safety was extensive. For example, transportation networks were devastated throughout the islands. Flooding, storm water overflow, soil erosion, culvert failures, mud slides, pot holes, complete washouts, and other damages to road infrastructure inhibited freedom of movement throughout the Territory. Residents were cut off from neighborhoods and forced to take ad hoc detours that were created through saturated mud in the immediate days, weeks, and months following the storms. Islands were cut off from each other, as inter-island travel was restricted while the ports (air and sea) were closed. Moreover, damages to the transportation network impeded delivery of emergency services to vulnerable populations. To return infrastructure to industry standards, permanent repair and reconstruction work is needed, adding up to a current estimate of $5.87 billion for the U.S. Virgin Islands. The cost of repair and reconstruction is likely to increase as the full extent of the damage to infrastructure is assessed.

Hardening public facilities and networks is critical to the Territory's ability to respond swiftly in the aftermath of an extreme weather event. A high priority for the U.S. Virgin Islands will be funding activities that mitigate damage to utility, transportation, and telecommunications networks, particularly for the facilities and networks that serve the health and safety of the community. As of April 27, 2018, the Territory has identified several resilience and mitigation measures, which include hardening public facilities (e.g., water pump stations, public schools), installing on-site power generation, burying utility lines, reducing the risk of storm water runoff erosion and flood exposure, and extending utility services to isolated populations. The estimated cost of these measures is included in the $5.87 billion above. This excludes integrated planning and mitigation studies that, while critical, will be eligible under a separate program.

Part of the hardening activities include ensuring public facilities have uninterrupted access to critical services, particularly electricity. Electricity provides not only lighting, heating, cooling, and refrigeration, but also powers the pumps supplying water to and removing waste from the facilities. During and immediately after the hurricanes, the need for electricity was essential, particularly for those public facilities that were used to mobilize emergency response services or to serve as shelters for residents of the U.S. Virgin Islands. For example, schools were used as primary sheltering locations for the residents of the U.S. Virgin Islands. However, during the hurricanes, the schools in the Territory were without power and thus unable to provide basic sheltering needs and services. Even with the construction of new emergency shelters, which will occur over the course of several years, it is likely that some schools will still have to be used as emergency sheltering facilities; with secondary sources of power, they may at least be sufficiently functional to protect and service residents during future natural disasters.

Extending public utilities to the greater population of the Territory can also improve resilience. Several communities within the U.S. Virgin Islands are disconnected from public utilities and function off the grid for some or all of their utility needs. Common means by which residents are "off the grid" are cisterns for water and satellite internet services or no internet services at all (as

opposed to connected to a fiber optics broadband for internet). In the event of a disaster, these off-the-grid populations are further distressed because of their lack of connection to the public utility. For example, only 47% of the Territory is connected to the water utility in the latest census and most rely on cisterns fed by rainwater.[99] Once the cistern runs out of water, it must be bought from water treatment plants and delivered by truck. If these residents are connected to the public water utility, there would be no need to purchase water from an independent supplier at a time that demand for water is high and may not be available post-disaster. For residents who are connected to the public water system, access to potable water would not be dependent on electricity to power a pump. Thus, once the potable water system is operational, homes would have water regardless of whether they have electricity. Connecting more customers to public utilities creates an additional source of revenue for the publicly-owned utilities which will serve to support activities such as operations and maintenance. There is a reciprocal benefit for the government as an additional source of revenue which can benefit the Territory with maintenance as well as operations upkeep and potential rate stabilization.

The goals of the Infrastructure Repair and Resilience Program are to:

- Repair and replace damaged infrastructure;
- Harden infrastructure against extreme weather events; and
- Construct new infrastructure to improve the level and breadth of service to communities.

The demand for repair and resilience interventions, as described above, will exceed the investment in this program; however, this investment will provide a significant improvement to a weakened energy infrastructure and will aid to fill a gap identified as a result of the hurricanes.

The Territory will ensure there is no duplication of benefits and will follow the guidance for proper documentation. There will be an application process for project selection based on the priorities identified and Subrecipient Agreements used as deemed necessary.

Program funds will be used to meet the three goals described below. Priority will be given to projects directly supporting housing needs and critical services. Roads and public and community facilities will be prioritized as they are sectors with the greatest unmet need.

- *Repair and Replacement*: The Program will pay for eligible costs to complete repairs and replacements for public infrastructure that have not yet been completed (e.g., repair of nonfederal aid roads).

- *Hardening*: The Program will cover activities to harden infrastructure against severe weather events. This will include both structural and non-structural measures to harden facilities against high winds, heavy rainfall, flood exposure, storm water run-off, and their effects (e.g., erosion). For example, the Department of Public Works (DPW), with assistance from FEMA and FHWA, has identified potential mechanisms to reduce overall

[99] 2010 U.S. Census

vulnerability of the transportation infrastructure. Structural projects for DPW may include, repair, reconstruct, and improve resilience to transportation infrastructure including roads, bridges, guts, culverts, additional drainage systems, embankments, traffic signals, and signage to industry standards, as applicable to the Territory. Non-structural approaches may include hydrologic and hydraulic studies, flood-risk modeling, monitoring systems such as GIS, public outreach and education, and future planning measures.

Energy resilience measures will keep public facilities operational in times of disaster. Making these facilities less vulnerable to future disasters, will provide communities with that first layer of support beyond the home. Energy resilience measures may include, but are not limited to: backup solar power with or without battery storage, standby generators for emergency purposes (not base load), and other types of distributed energy resources located on site or within a nearby community (e.g., microgrids).

- *New Construction*: The Program will cover the cost of new construction to extend public services to populations that are not currently connected and/or to deliver services more effectively. Eligible projects may include construction of new trenches to bury or extend multiple utilities, e.g., burying telecom fiber optic network in a trench built to extend a water line to an isolated community. This reduces the cost of each individual project, minimizes disturbances to traffic flow, and decreases the risk of damage to previously placed but unmarked utilities.

Eligible Applicants: Any agency, including agencies providing critical services associated with health and safety for the community, particularly those used as shelters.

Prioritization Criteria: Individual projects will be prioritized based on metrics in the following categories:

- *Sector:* Sectors with the largest unmet need determined in the Action Plan;
- *Criticality*: Areas with low connectivity to utilities, areas with high traffic or number of beneficiaries served by the facility or network;
- *Resilience*: Resilience measures considered in the project to improve and harden the facilities or networks to prevent vulnerability in the future;
- *Technical Feasibility*: Degree of specialized equipment, difficulty of the prevention measures, including terrain and elevation challenges, as well as proximity to the current distribution network for ease of extension;
- *Sustainability*: Degree to which green, LEED, Energy Star, sustainable materials, and other similar measures are taken into consideration for the project;
- *Economics*: Cost benefit analysis or comparable financial analysis for the project; and
- *Execution Timing*: Project timeline and duration ensure project meets CDBG-DR funding, disbursement, and draw down requirements.

Due to the limited funds available in the first allocation, the initial focus of the program will be shovel-ready projects in sectors with the highest unmet needs. As energy projects will be able to receive funding under the Electrical Power Systems Enhancement and Improvement Program, the Infrastructure Repair and Resilience Program will prioritize road improvement projects. Projects that benefit LMI and/or vulnerable populations are also a first priority. Other types of projects are expected to be funded in future allocations.

Award Conditions: Must be a project that meets the proposed goals stated above. Infrastructure projects must exhaust other eligible funding sources such as FEMA prior to receipt of CDBG-DR. Applicants need not meet all prioritization criteria to be eligible.

Total Allocation: $30,000,000

Maximum Award: There is no maximum award for an individual project. Awards will be based on project cost estimates and cost benefit analysis.

4.4.3 Electrical Power Systems Enhancement and Improvement Program

Eligible Activities: Acquisition of Real Property (HCDA Section 105(a)(1)); Public Facilities and Improvements (HCDA Section 105(a)(2)); Clearance, Rehabilitation, Reconstruction, and Construction of Buildings (including Housing) (HCDA Section 105(a)(4)); Public Services (HCDA Section 105(a)(8)); Payment of Nonfederal Share (HCDA Section 105(a)(9)); Relocation (HCDA Section 105(a)(11)); Assistance to Institutions of Higher Education (HCDA Section 105(a)(21)).

National Objective: Low- and Moderate-Income Area, Low- and Moderate-Income Limited Clientele, and Urgent Need.

Proposed Use of Funds:

As of April 20, 2018, the energy sector has the greatest unmet need of any sector. As described in Section 3.5.1, the U.S. Virgin Islands electrical power system was heavily damaged by Hurricanes Irma and Maria, with over 80% of the transmission and distribution line-miles damaged, and 20% of the generation capacity for the islands offline for nearly a month.[100] The extent of the damages resulted in loss of service for over 95% of customers. The impacts were exacerbated by aging infrastructure in need of replacement, vulnerability of network design to system-wide outages, and dependence on off-island fuel supplies for energy needs. In particular, the high costs of purchasing and shipping fuel to the U.S. Virgin Islands have driven up the cost of electricity for residents and businesses on the islands. At 33 cents per kilowatt-hour, residential electricity rates are almost 3 times the U.S. national average (12.5 cents per kilowatt-hour) and 1.6 times higher than Puerto Rico (21 cents per kilowatt-hour). High electricity rates substantially increase

[100]Congressional Research Service. "Potential Options for Electric Power Resilience in the U.S. Virgin Islands." R45105. 14 February 2018. (https://fas.org/sgp/crs/row/R45105.pdf). Accessed: 3 April 2018.

the cost of living and cost of conducting business, which has deterred many hotels and businesses from opening on the islands. Moreover, many of the Territory's existing businesses use their own generators or solar photovoltaic (PV) systems for electricity, which further raises electricity rates because the fixed costs of maintaining public energy infrastructure are spread across fewer customers.

The main objectives of the Electrical Power Systems Enhancement and Improvement Program will be to invest in optimizing the generation mix, improving asset productivity, and providing more sustainable, more reliable, and more cost-effective energy for the U.S. Virgin Islands. To achieve these goals, WAPA will need to deliver a number of projects across the different areas of investment. Eligible activities may include but are not limited to the following:

- Enhancement of existing generation and/or storage, including supporting infrastructure;
- Development of new generation and/or storage, including supporting infrastructure;
- Repair and reconstruction of energy infrastructure, including structures;
- Hardening of energy infrastructure, including structures;
- Mitigation measures to prevent and/or reduce service disruptions or failures;
- Public facilities and improvements;
- Energy efficiency/conservation programs; and
- Code enforcement.

Generation is a major determinant of both cost and performance of the electrical power system in the U.S. Virgin Islands. Similar to other remote areas, the Territory's primary sources of electricity are combustion and steam turbines powered by fuel oil or propane, which must be shipped to the island and kept in storage facilities owned by third-party providers. The program will help to reduce the Territory's dependence on oil and propane by allowing for projects that replace existing, conventional generator units with advanced, high efficiency technologies or build new capacity with more advanced technologies. Such projects may also have health and environmental benefits to improve air quality for communities near the power generation plants and decrease the overall emissions into the atmosphere.

Enhancing the electrical power system also involves optimizing the type of generation, including conventional and renewable sources. One of the initial priorities for the Territory is to invest in utility-scale solar and wind projects, and eventually consider community-scale or rooftop solar programs. The abundance of solar and wind make the Territory a prime location for investment in renewable energy. Decreasing capital costs and zero marginal fuel costs also make renewable energy technologies an increasingly attractive opportunity for investment. This reduction in variable operating cost could also be passed on to customers, thus decreasing the cost of electricity for ratepayers, including LMI households.

Projects may also include the adoption of grid-scale energy storage systems to smooth intermittent generation from renewable energy sources, supported by interconnection infrastructure to supply energy directly or provide ancillary services to the grid. By combining renewables and battery storage, WAPA would have more freedom to store energy when power

generation is high but demand for electricity is low, then dispatch electricity to the grid when generation is low but demand is high. For example, electricity demand typically spikes in the early evening, while solar power generation is decreasing as the sun sets. By storing excess energy when solar output is peaking in the middle of the day, the utility can supply power to the electric grid without incurring additional marginal costs from other fuel sources. This is a key feature to the success of utility scale renewable energy resources.

Generation optimization has the added effect of increasing the reliability of electricity delivery to customers. Creating a more diversified energy mix means the Territory will no longer rely so heavily on fuel and its delivery to the islands. Projects that reduce the Territory's dependence on off-island fuel sources will allow the U.S. Virgin Islands to become more independent and resilient in the aftermath of severe weather events and lead to greater energy security overall. Renewables are a large part of this diversification effort. If there are global or regional fuel shortages or crisis, this allows for the Territory to remain more self-sufficient than it has been in its history. The first allocation for this program will prioritize funding of shovel-ready projects related to utility-scale generation optimization.

Beyond generation, WAPA is also evaluating best practices from other utilities to incorporate into the delivery of standard operations and maintenance activities. Projects in future allocations may include digital monitoring through system control and data acquisition (SCADA) systems, and geographic information systems (GIS) for preventative maintenance (e.g., vegetation control). Other projects that may be supported in future allocations are those that reduce line losses or limit disruptions to service. For example, closing loops between substations can localize the effects of grid failure and reduce system-wide outages, as well as minimizing the duration of outages, since WAPA could utilize loops and bypasses to be able to redirect power as needed. WAPA may also begin to sectionalize its system, isolating a faulted part of the system from the rest of the network, which would also reduce the time and frequency of outages.

Modernization of services is another element of this program. Investments will be made to increase the utilities ability to response to outages more quickly using Outage Management Systems (OMS) and ease billing from customers through advanced metering infrastructure. With an advanced metering infrastructure in place, there will no longer be a need for workers to read individual meters, which is more time-consuming and less accurate. More active monitoring will enable for the utility to respond to outages or local increases in load prior to outages and can redirect load to support changes or spikes in usage.

Eligible Applicants: Water and Power Authority (WAPA)

Prioritization Criteria: Individual projects will be prioritized based on metrics in the following categories:

- *Criticality*: Based on the overall need of customers. Prioritization will be given to projects that have potential to reduce rates to customers, particularly in LMI areas;

- *Severity*: Duration and frequency of outages in particular areas, where the most strain on capacity, load, and demand exists;
- *Resilience*: Resilience measures considered in the project to improve and harden the electric line infrastructure to prevent vulnerability in the future;
- *Technical Feasibility*: The degree of specialized equipment, and the use of innovative technology e.g. industry standard versus leading edge;
- *Sustainability*: Degree to which green, LEED, Energy Star, sustainable materials, and other similar measures are taken into consideration for the project;
- *Execution Timing*: Project environmental study status, permitting, design and construction timeline ensure project meets CDBG-DR funding, disbursement, and drawdown requirements; and
- *Economics*: Cost benefit analysis for the project.

Due to the limited funds available in the first allocation, the initial focus of the program will be shovel-ready generation diversification projects that reduce the Territory's dependence on off-island fuel sources, including development of utility-scale renewable energy. Projects that benefit LMI and/or vulnerable populations are also a first priority. Other types of projects are expected to be funded in future allocations.

Award Conditions: Must be a project that meets proposed goals stated above. Infrastructure projects must exhaust other eligible funding sources such as FEMA prior to receipt of CDBG-DR. Applicants need not meet all prioritization criteria to be eligible.

Total Allocation: $45,000,000

Maximum Award: There is no maximum award for an individual project. Awards will be based on project cost estimates and cost benefit analysis.

4.5 ECONOMIC REVITALIZATION PROGRAMS

Hurricanes Irma and Maria had profound and lasting effects on the already fragile economy of the U.S. Virgin Islands. Prior to the devastating 2017 storms, the Territory had lost its largest private employer, the oil refinery HOVENSA. HOVENSA's unexpected closure in 2012 harmed numerous small businesses that provided support services to the refinery. Because it was by far the Territory's largest exporter, this further constrained the fiscal situation of the U.S. Virgin Islands.[101]

Since HOVENSA's closure, the U.S. Virgin Islands has become increasingly reliant on tourism and, despite continued efforts, it has only made modest progress to diversify the economy and attract new businesses. As detailed in Section 3.6, tourism remains by far the largest contributor to employment and GDP, with estimates ranging between 30% and 80%, and most small businesses in the Territory are directly or indirectly dependent on tourism. As a result, revitalizing tourism is critical to job creation and expanding economic opportunities for small businesses throughout the Territory.

The severe impact of the hurricanes on tourism has been detailed in Section 3.6. Revitalizing tourism will involve considerable efforts on various fronts. It will be necessary to rebuild lodging capacity, improve connectivity to the Territory, and enhance the travel experience for visitors to the U.S. Virgin Islands. Changing the reality on the ground and communicating it effectively to potential visitors will strengthen the U.S. Virgin Islands as a prime Caribbean destination, open for business and ready to provide a memorable experience to the low-budget, adventure-seeking traveler and the luxury cruise visitor alike.

The challenge of revitalizing tourism is particularly acute with respect to cruise visits, which represent over 70% of total visitors to the Territory (1.8 million out of 2.5 million in 2016).[102] In the months following the 2017 hurricanes, airlifts and cruise ship arrivals plummeted; they remain considerably low relative to pre-disaster levels. Cruise ship calls in January 2018 were down 30% as compared to January 2017. [103] This exacerbates an already downward tourism trend for the U.S. Virgin Islands, which has become less competitive relative to other Caribbean destinations.[104] While the Territory was receiving significantly fewer cruise visitors in 2017, St. Lucia, Belize, and Bermuda saw their numbers rise by more than 10%.[105] To protect thousands of low- and moderate-income jobs that are still depend on day visitors coming through the ports, it is crucial that the Territory regains its share of the cruise passenger market.

While reinvigorating tourism is an urgent need, it cannot be the sole focus of a comprehensive economic revitalization effort. It is equally important to support the sustainable diversification of the economy of the U.S. Virgin Islands. A more diversified economy will be more resilient in

[101] Government of the United States Virgin Islands, Five-Year Financial Plan (Fiscal Years 2017-2021).
[102] U.S. Virgin Islands Bureau of Economic Research.
[103] Caribbean Tourism Association; U.S. Virgin Islands Bureau of Economic Research.
[104] U.S. Virgin Islands Bureau of Economic Research and Department of Tourism.
[105] Caribbean Tourism Association.

the face of future natural disasters and will incentivize the creation of higher-earning jobs in the long-run.

Economic diversification poses a major challenge, as there are considerable obstacles to attracting private investment and expanding existing businesses. In addition to higher-than-average shipping and electricity costs, and regulatory hurdles, the lack of a skilled labor force continues to preempt the relocation, growth, and creation of new, high-value businesses. Furthermore, access to financing is seriously limited, especially for small business ventures. It is critical that entrepreneurs in the Territory have a supportive business environment with easier access to capital and adequate technical support in the design and implementation of viable business plans.

The programs detailed herein are intended to enable a broad spectrum of activities to support the varied needs of communities recovering from the disaster. For CDBG-DR purposes, economic revitalization can include any activity that demonstrably restores and improves some aspect of the local economy. Thus, an eligible activity also may address job losses, or negative impacts to tax revenues or businesses. All economic revitalization activities must address economic impact caused by the storms, such as loss of jobs, loss of public revenue, and profits lost due to interruption of business.

Therefore, the U.S. Virgin Islands proposes an economic revitalization portfolio to support the Territory's long-term housing recovery in the following ways:

- Stabilize and grow the tourism industry through key infrastructure improvements to ports and airports that will increase the Territory's capacity to receive tourists;
- Invest in an advertising campaign that offsets negative perceptions of storm-related damages to the U.S. Virgin Islands and reinforces the Territory's market position as a top sports & adventure, ecotourism, cultural, and romance destination in the U.S.;
- Generate opportunities for the local workforce to participate in recovery-related sectors such as construction as well as develop essential skills, digital literacy, and vocational skills training for tourism-related work and other key diversification sectors;
- Provide financial support to impacted communities for economic revitalization efforts; and
- Provide loans, grants, and technical assistance to small businesses that sustain income-producing jobs for residents of the disaster-impacted communities.

Figure 16. Economic Revitalization Programs and Tranche 1 Allocations

Program	HCDA Eligible Activities	Total Allocation
Ports and Airports Enhancement Program	• Public Facilities and Improvements • Clearance, Rehabilitation, Reconstruction, and Construction of Buildings • Special Economic Development Activity	$23,000,000
Tourism Marketing Program	• Waiver Request Submitted.	$5,000,000
Workforce Development Program	• Public Services	$5,000,000
Neighborhood Revitalization Program	• Code Enforcement • Clearance, Rehabilitation, Reconstruction, and Construction • Public Services • Special Economic Development Activity	$0
Small Business and Entrepreneurship Technical Assistance Program	• Technical Assistance • Special Economic Activity	$0
Total		**$33,000,000**

4.5.1 Ports and Airports Enhancement Program

Eligible Activity: Public Facilities and Improvements (HCDA Section 105(a)(2)); Clearance, Rehabilitation, Reconstruction, and Construction of Buildings (HCDA Section 105(a)(4)); Special Economic Development Activity (24 CFR 570.203).

National Objective: Low- and Moderate-Income Area Benefit; Urgent Need.

Proposed Use of Funds:

This program is aimed at improving maritime and air connectivity for the U.S. Virgin Islands with the objective of increasing cruise ship arrivals to St. Thomas and St. Croix and increasing air traffic to and from the islands, particularly through recurrent international commercial flights. Both initiatives are key to the tourism sector, which accounts for over 30% of the economy of the U.S. Virgin Islands.

Cruise connectivity is critical to the Territory, as cruise passengers represent approximately 70% of all visitors to the U.S. Virgin Islands.[106] The capacity to attract cruise ships is vital to an economy that is so dependent on tourism. The need to increase the influx of cruise day visitors is especially acute due to the noted drop in overnight tourists for the foreseeable future as hotels remain closed following the 2017 hurricanes.

[106] U.S. Virgin Islands Bureau of Economic Research Annual Tourism Indicators (2016).

Over the last few years, cruise travel demand for the Caribbean has remained strong and growing, but the U.S. Virgin Islands has been losing ground to other destinations. St. Lucia, Belize, and Bermuda all grew by more than 10% in 2017; by contrast, the number of cruise passenger arrivals to the Territory decreased by 5.4% between 2015 and 2016. In 2016 passenger arrivals – at 1.78 million – were only marginally higher than they were in 2008, when the effects of the Great Recession were just beginning to impact the tourism sector. [107]

One major reason for the loss in cruise arrivals is the limited capacity of the U.S. Virgin Islands' ports to accommodate the newer and larger cruise vessels that are being introduced into the market, notably the Oasis-class cruise vessels pioneered by Royal Caribbean International. Oasis-class cruise ships are the largest in the world, with capacity for up to 6,400 passengers and crew members and weighing over 230,000 tons. Other cruise lines are following suit: MSC Cruises alone has announced 12 new vessels to be delivered by 2026, all with capacity for at least 5,500 passengers. MSC's industrial plan includes 4 new World-class ships with total capacity for 2,000 crew and over 6,800 passengers.[108]

The rapid increase in vessel size is a visible industry trend. According to the Cruise Lines International Association, based on the ships on order as of December 2016, the average cruise ship making its maiden voyage between 2020 and 2026 will have over 3,700 passengers, up from the 2,400 passenger average for ships expected to enter the market in 2019.[109] As of March 2018, there are at least 23 cruise vessels to be delivered between 2019 and 2024 with a capacity of over 4,000 passengers.[110]

There are now four Oasis-class vessels servicing the Caribbean and plenty of others of comparable capacity and similarly large dimensions such as the Quantum- and Voyager-class ships. Common to these larger cruise ships is their deeper draft requirements, which require deeper ports.

Awareness of the growing size of vessels has driven governments across the Eastern Caribbean to invest heavily in port enhancement. A clear example of this is Sint Maarten/Saint Martin's Pointe Blanche, which remains the most popular destination in the region with over 2 million passenger arrivals per year thanks in large measure to its capacity to dock several Oasis-class ships at the same time.[111] As cruise vessels become larger, ports have to increase their draft (depth) to avoid sheer obsolescence.

As Caribbean ports invest in dredging to accommodate the growing size of cruise vessels, they have also expanded berthing capacity to fit the same number of larger ships simultaneously. The Port of Bridgetown in Barbados, for instance, undertook a large-scale dredging project of its inner harbor "to accommodate the large mega-cruise ships" that have become a new industry standard.

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[107] U.S. Virgin Islands Bureau of Economic Research Annual Tourism Indicators (2016).
[108] MSC Cruises Presentation, PAMAC Cruise Summit (January 2018).
[109] Cruise Lines International Association, Inc. 2017 Cruise Industry Outlook Report
[110] Seatrade Cruise Review, March 2018 Quarterly.
[111] Cayman Compass, "Cruise Ports Expand Around the Caribbean" (July 30, 2015).

As part of a large-scale, $100 million-project, Bridgeport has also added two new berths to make room for larger cruise and cargo vessels.[112] Without berth expansion, ports cannot enter preferential berthing access agreements with cruise lines. The West Indian Company, which operates the largest cruise harbor in St. Thomas, was unable to enter into preferential berth agreement with Royal Caribbean for lack of capacity to harbor its Oasis-class ships.[113] As recent studies have pointed out, cruise companies have gained negotiating power vis-à-vis ports and they increasingly consider the size and quality of port infrastructure in selecting destinations.[114]

Expanding port capacity through dredging and additional berthing space will enable the Territory to enter formal berthing access agreements for larger cruise ships, thus increasing the number of cruise passenger arrivals and overall tourism expenditures in the Territory. The ultimate beneficiaries will be the thousands of low- and moderate-income residents whose livelihood depends on tourism and the small businesses in the areas adjacent to ports whose revenue stream is highly dependent on the increasingly competitive Caribbean cruise travel market. In towns like Charlotte-Amalie or Frederiksted, hundreds of taxi drivers, street vendors, small jewelry retailers, tour guides, housekeepers, wait-staff, and other service providers depend on a steady influx of cruise visitors. Thousands of low- and moderate-income workers stand to benefit from revitalizing tourism.

While enhancing ports for cruise ships is critical, it is equally important to improve the quality of air service to the U.S. Virgin Islands. The number of flights fell dramatically as a result of the 2017 hurricanes and have only very slowly recovered since. By late March 2018, there were approximately 9,086 flight seats per week coming to the Territory, 54% less than the average number of seats per week during 2017 prior to the hurricanes.[115] Though local authorities estimate that the number of flight seats per week will reach 15,000 by midsummer, that would still represents 25% fewer seats than the pre-disaster 2017 average.[116] Insufficient air connectivity severely limits demand for overnight tourism to the Territory, at a significant opportunity cost; the average overnight tourist to the U.S. Virgin Islands spent six times as much as day-visitors in 2016, benefitting a wider range of low- and moderate-income workers in the hospitality sector.[117]

One important challenge for the Territory is to develop the capacity to attract direct international flights, which could significantly boost tourism revenue and overall attractiveness for other businesses. The runway of the Henry E. Rohlsen Airport in St. Croix is long enough to accommodate larger aircraft, but the airport's passenger processing infrastructure is radically insufficient. The Cyril E. King Airport in St. Thomas is currently underutilized, with a second floor that is not operational at present due to the lack of jet bridges.

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[112] Barbados Port, Inc. Accessible online: http://www.barbadosport.com/modern-bridgetown-port
[113] U.S. Virgin Islands Department of Tourism, West India Company, Ltd.
[114] Jack Daly and Karina Fernandez-Stark, "Barbados in the Cruise Tourism Global Value Chain" (2017). Duke Global Value Chain Center, Duke University.
[115] U.S.V.I. Bureau of Economic Research.
[116] U.S.V.I. Department of Tourism.
[117] U.S.V.I. Bureau of Economic Research.

Total Allocation: $23,000,000

Eligible Applicants: Port and airport operators in the U.S. Virgin Islands.

Award Conditions: For dredging projects, sea port operators must provide evidence of direct engagement with cruise lines aimed at reaching preferential berthing agreements when said agreements are necessary to increase utilization of existing berths. Similarly, airport operators will be expected to show direct engagement with airlines to increase airlifts upon expansion of passenger processing capacity. Projects should be shovel ready.

4.5.2 Tourism Marketing Program

Eligible Activity: Waiver request submitted.

National Objective: Low- and Moderate-Income Area Benefit; Urgent Need**.**

Proposed Use of Funds:

As mentioned in Section 3.6, tourism is a critical industry to the Territory. Efforts to revitalize tourism in the U.S. Virgin Islands face a critical short-term challenge: overcoming the perception that the Territory's leisure and hospitality industry are closed for business following the 2017 hurricanes. National press coverage of the devastation caused by Irma and Maria is likely to have influenced public perception of the islands. Studies of tourist areas that have suffered widely-publicized natural disasters indicate that misperceptions of damage can continue to affect demand as long as two years after the event.[118] The impact of the public's perception on travel demand for the U.S. Virgin Islands should not be underestimated, as perceptions of safety and stability have become a key decision-making factor for tourists.[119]

The lingering effects of the perception that the U.S. Virgin Islands is closed for business will delay the positive returns on various programs designed to boost the tourism industry. More importantly, it will exacerbate economic losses for small businesses and low- and medium-income households that depend on tourism. The most recent cruise passenger arrival statistics highlights the extent of the problem: although ports have been fully operational for months, there were 88,000 fewer cruise day-visitors to the Territory in January and February 2018 than the year before, representing a 24% decline.

The U.S. Virgin Islands Department of Tourism has ample experience leading marketing and advertisement campaigns in the past. In fact, up until May 2017 (shortly before the hurricanes), the Territory was undertaking various advertising activities as part of the "Real Nice" campaign.

[118] Potential Impact of the Gulf Oil Spill on Tourism, Oxford Economics.
[119] 2015 World Economic Forum Travel and Tourism Competitiveness Report, Box 3: Seven Transformations that May Change the Travel and Tourism Sector – A Business Perspective (p. 24).

Following the storm, the messaging strategy shifted –the campaign was now called "Still Nice"—but most sales efforts had to be scaled back significantly, as the entire marketing budget came from hotel room taxes. With most hotels closed following the hurricanes, there were no funds to continue such marketing efforts beyond inexpensive social media platforms.

Despite the lack of funding, marketing is more urgent than ever, as tourists and travelers will not otherwise know of the Territory's quick recovery and readiness to welcome visitors. As hotels reopen in the coming years, the U.S. Virgin Islands needs to remain a top-of-mind destination to ensure tourism growth and retention of associated low- and moderate-income jobs.

In dedicating CDBG-DR funding for a marketing campaign to revitalize the tourism sector, the U.S. Virgin Islands follows the example of the Lower Manhattan Development Corporation, the Louisiana Tourism Marketing Program, State of New York and the State of New Jersey. As these localities knew, "tourism marketing" is much more than simply marketing. In the wake of a devastating natural disaster, for a community whose main economic driver is tourism, a campaign of this kind is a message to the world about the strength and resiliency of a people and their identity in the place they call home.

Given the devastation the U.S. Virgin Islands has witnessed and from which it is still working to recover, and considering the Territory's greater comparative dependence on tourism, the need for this program is especially urgent. The livelihood of thousands of low- and moderate-income households will be deeply impacted by the Territory's ability to attract large numbers of tourists once again.

The U.S. Virgin Islands will initially allocate $5,000,000 to support the first year of this marketing campaign effort to support the tourism industry. Future funding will depend on subsequent funding availability. To ensure maximal efficacy and impact, marketing initiatives will target specific travel and tourism niches in which the U.S. Virgin Islands are known to be competitive, especially among U.S. mainland residents. The niches identified by the Department of Tourism include sports and adventure, MICE (meetings, incentives, conferences, and exhibitions), romance market (destination weddings, honeymoons, and vow renewals), and yachting. The marketing campaign program will be designed under the direction of the Department of Tourism.

Prioritization Criteria:

Priority will be given to marketing and advertising actions that meet the following criteria:

- *Geographic segmentation:* Marketing medium (TV, radio, social media, print media, etc.) will target top domestic markets in the U.S. Virgin Islands such as New York, Miami, and Chicago;
- *Demand niche:* Messaging must be tailored to niches prioritized by the Department of Tourism based on the appropriate market studies; and

- *Diaspora engagement:* Comprehensive marketing efforts should engage Virgin Islanders living abroad and the US mainland to become actively involved in the promotion of the U.S. Virgin Islands as a Caribbean destination.

Eligibility Criteria

- The projected use of funds for national marketing and outreach efforts will be focused as follows: event and festival planning and sponsorship in impacted areas within the Territory; advertising creation; and media placement (social media/ television/ radio/ digital and out-of-home advertising) in targeted markets.
- National campaigns with a focus on niche marketing areas as noted above.

Total Allocation: $5,000,000

4.5.3 Workforce Development Program

Eligible Activity: Public Services (HCDA Section 105(a)(8)).

National Objective: Low- and-Moderate Income Limited Clientele; Urgent Need.

Proposed Use of Funds:

The Workforce Development Program is a centerpiece of the approach to economic revitalization proposed in this Action Plan. This program will fund vocational training consortia or established providers such as universities to provide free training programs to LMI residents. At present, the U.S. Virgin Islands has virtually no certified vocational training programs, which severely limits LMI workers' access to higher-paying jobs.[120] The Workforce Development Program addresses this gap with a demand-driven approach to vocational training focusing on the skill sets typically required for construction and tourism.

The experiences of disaster-impacted areas in New Jersey, Louisiana, Texas, Florida, and New York show that recovery and rebuilding efforts can last for several years. Training the local workforce to meet the needs of disaster relief construction and related projects is key to maximizing the benefits for local LMI households and also to reduce the cost of reconstruction. Absent enough skilled labor in the Territory, contractors are led to mobilize workers from outside the Territory at significant cost and at the expense of much-needed job opportunities for local workers.

[120] 2014 U.S. Virgin Islands Targeted Competitive Industry Report commissioned by the Government of the U.S. Virgin Islands. Vocational training capacity has seen no significant expansion since then according to the Department of Labor.

The immediate workforce needs of recovery and rebuilding initiatives in the Territory represent both a challenge and an opportunity with the potential to benefit hundreds of LMI households across the U.S. Virgin Islands.

In addition to construction and other types of employment related to disaster relief, the Workforce Development Program seeks to meet the evolving demands of tourism. The hospitality and leisure industries are becoming increasingly reliant on online and highly personalized services.[121] Protecting LMI jobs associated with tourism will require improving digital literacy and enhancing the customer service culture skills.[122]

Well-designed training programs can also aid small businesses to reap the benefits of identified tourist spending patterns. According to a large cruise passenger survey conducted by the Florida-Caribbean Cruise Association, 56% of cruise passengers purchase local tours and 65% make onshore retail or food and beverage purchases. Watches and jewelry, local tours, and clothing together account for 63% of total spending by cruise passengers.[123] These patterns represent an opportunity for small businesses to manufacture high-value products and offer top-quality niche tours for day visitors to the U.S. Virgin Islands.

Given the difficulty of attracting new businesses to the Territory, the Workforce Development Program will also emphasize entrepreneurship and innovation as critical skills to foster the creation and growth of small businesses.

The Workforce Development Program will strengthen collaborations between workforce, education and training centers, and businesses with a shared goal of providing solutions to promote growth and stability of the local economy. Several pathways will be developed jointly to ensure that training is timely and relevant.

As a way to ensure job placement after training, the Workforce Development Program will prioritize training curricula that include an on-the-job training component. The on-the-job training component may include a stipend paid to participants.

Funds from the Workforce Development Program may be used to purchase equipment, supplies, and technology required for specific vocational programs only for nonprofit or public training providers that are physically located in the U.S. Virgin Islands.

The U.S. Virgin Islands Department of Labor will be directly involved in the selection of beneficiaries for the Workforce Development Program through the Workforce Development Board, an existing organization within the Department of Labor. The Department of Labor's subsidiary agencies and programs will remain eligible to apply for funds per the program guidelines and requirements.

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[121] 2015 World Economic Forum Travel and Tourism Competitiveness Report

[122] 2014 U.S. Virgin Islands Targeted Competitive Industry Report (from a surveys administered by the Bureau of Economic Research).

[123] Economic Contribution of Tourism to the Destination Economies Report (2015).

Eligible Applicants: A consortium of accredited educational institutions; certified vocational program providers; private businesses with in-house, certified on-the-job training programs; certified apprenticeship program providers and nonprofit workforce and soft skills providers; and/or other organizations approved for workforce training by the U.S. Virgin Islands Workforce Development Board.

The grantee may create an additional option to support for qualifying individual workers seeking vocational training not offered by the training providers otherwise funded through this program.

Prioritization Criteria: Priority will be given to applicants that can meet the following conditions:

- Serving predominantly LMI individuals;
- A clear placement program for trainees;
- A curricular plan that is demonstrably tailored to meet market labor demand and is clearly connected to a career path and available jobs, apprenticeships, and on-the-job training opportunities; and
- When appropriate, incorporation of digital literacy and soft skills training in the program's curriculum.

Total Allocation: $5,000,000

4.5.4 Neighborhood Revitalization Program

Eligible Activity: Code Enforcement (HCDA Section 105(a)(3)); Clearance, Rehabilitation, Reconstruction, and Construction (HCDA Section 105(a)(4)); Public Services (HCDA Section 105(a)(8)); Special Economic Development Activity (24 CFR 570.203).

National Objective: Low- and Moderate-Income Area; Low- and Moderate-Income Jobs; Urgent Need**;** Prevention or Elimination of Slum and Blight.

Proposed Use of Funds:

The Neighborhood Revitalization Program targets several key economic revitalization needs at once. First, the programs promote sustainable modes of civic and private sector engagement for the preservation and development of commercial and historic districts with the potential to increase tourism revenue. Second, the program seeks to create a more vibrant local economy that can foster small business growth, housing stock improvements, and new private investments in designated urban areas across the U.S. Virgin Islands, including Charlotte Amalie in St. Thomas; Frederiksted and Christiansted in St. Croix; and the Cruz Bay Port area in St. John.

The Neighborhood Revitalization Program is intended to improve the quality of life of residents in urban areas close to the ports and to create a more vibrant business environment. The program will support activities such as aesthetic and functional enhancements, preservation of historic sites, increased security, better services for tourists and residents alike, and promotion of private investment. Potential projects associated with this program include, but are not limited to:

- Façade and code-related improvement grants for small businesses;
- Grants for reconstruction and renovation of key mixed purpose buildings (residential and commercial) in designated areas;
- Grants for public facility improvements such as streetscapes, lighting, and sidewalks;
- Grants for clearing slum and blight around disinvested properties in designated low- and moderate-income areas; and
- Resources to support local business incubators.

Direct community involvement is key to the sustainability of revitalization efforts. The grants awarded under the Neighborhood Revitalization Program will prioritize projects to be implemented in partnership with the local business and resident community. Drawing on the experience of the State of New York's 2013 CDBG-DR Action Plan, which funded the creation of nonprofit business improvement districts, the Neighborhood Revitalization Program will encourage small businesses and residents to work together by forming business improvement districts and local development corporations. Supporting nonprofit community organizations committed to neighborhood revitalization is critical to the long-term sustainability of the activities sponsored by this program.

As experiences like the Rockaway Business Alliance in New York indicate, such nonprofit organizations can go a long way towards ensuring the community's commitment to further revitalizing neighborhoods and extending the durability of renovations and improvements
.
In addition, U.S. Virgin Islands government officials as well as private businesses in the Territory agree that neighborhood revitalization is critical to the Territory's competitiveness as a travel and tourism destination in the Caribbean. Cruise passengers have, on average, comprised 70% of visitor arrivals in the U.S. Virgin Islands over the last 15 years, but these visitors, on average, spend only 4 hours on island, mostly engaging in retail shopping and taking local tours. The quality of such brief experiences in the Territory—usually limited to the urban areas surrounding the ports— is pivotal to visitors' likelihood of return and, in the long run, to overall tourist demand for the U.S. Virgin Islands. Whereas the Port Enhancement Program is critical to the Territory's capacity to welcome cruise visitors, the Neighborhood Revitalization Program is key to sustaining demand for the U.S. Virgin Islands, increasing the likelihood of visitor return, and promoting the conversion of day-visitors into overnight tourists.

Furthermore, the urban areas adjacent to the ports are uniquely positioned to showcase products and services offered by small businesses to cruise excursionists, who, in 2015, spent nearly 50%

more in the U.S. Virgin Islands than they did at other Caribbean destinations.[124] More vibrant urban areas in the proximity of the Territory's ports will help the islands retain high-spending cruise visitors and compete for the new adult-only cruise services expected to enter the Caribbean market by the year 2020.[125]

The Neighborhood Revitalization Program will be administered by the Enterprise Commission Zone in coordination with the Virgin Islands Historic Preservation Commission. The Enterprise Commission Zone is a subsidiary entity of the Economic Development Authority with ample experience in community revitalization and with jurisdiction over specific neighborhoods in Christiansted, Frederiksted, and Charlotte-Amalie. The Enterprise Zone Commission typically invests in the renovation of specific abandoned, vacant, and mixed-use buildings on the condition that building owners contribute to the renovation efforts and with prior extensive community engagement and consultation. The eligible buildings are selected with an eye to spurring further renovations in the area and to meet the Commission's strategic objectives, including community aesthetics, public safety and crime prevention, and neighborhood development.

Project selection and implementation will proceed in consultation with private sector and resident community leaders in designated urban areas to target key infrastructure improvements, aesthetic and historical preservation efforts, and on-going services necessary to ensure effective and sustainable revitalization.

Eligible Applicants: Eligible entities will include redevelopment agencies, small businesses, and nonprofits such as (but not limited to) newly formed business improvement districts and local development corporations.

Prioritization Criteria: Neighborhood Revitalization grants and projects will prioritize urban areas with substantive small business presence and low- and moderate-income jobs.

Total Allocation: Future CDBG-DR funds will be allocated to this program as it aligns with remaining unmet needs.

4.5.5 Small Business and Entrepreneurship Technical Assistance Program

Eligible Activity: Technical Assistance (HCDA Section 105(a)(19)); Special Economic Development Activity (24 CFR 570.203).

National Objective: Low- and Moderate-Income Clientele; and Urgent Need

Proposed Use of Funds:

[124] 2015 Economic Contribution of Cruise Tourism to the Destination Economies Study - Florida-Caribbean Cruise Association

[125] "Virgin Voyages: Richard Branson Launches Adults-Only Cruise Line," *The Independent* (November 2, 2017). https://www.independent.co.uk/travel/news-and-advice/virgin-voyages-cruise-adults-only-richard-branson-tom-mcalpin-how-to-book-a8033061.html

Virtually all the businesses that operate in the U.S. Virgin Islands are small businesses, 96% of them having fewer than 50 employees.[126] Small businesses are not well positioned to face the challenge of post-disaster recovery. Profits lost due to interruption of business and limited access to capital make them less financially resilient, while changes in demand and customer base may force them to restructure their business models unexpectedly. Technical assistance is necessary to help hundreds of small businesses adapt to the economic landscape in a disaster-impacted economy.

At the same time, recovery efforts create new economic opportunities for local workers as well as business and social entrepreneurs, in the construction and services sectors and beyond. This technical assistance program is also intended to help entrepreneurs materialize their business and social innovation plans to promote the creation of low- and moderate-income jobs and rebuild the human capital of local communities hit by the 2017 hurricanes.

Technical assistance activities include but are not limited to: development of business continuity plans or new business models; financial management guidance; and long-term recovery and sustainability plans.

Eligible Applicants: Certified technical assistance providers, including but not limited to the Small Business Development Center operated by the University of the Virgin Islands and local nonprofits with a proven track record of technical assistance programs for businesses and nonprofits.

Total Allocation: Future CDBG-DR funds will be allocated to this program as it aligns with remaining unmet needs.

[126] 2012 Economic Census of the U.S. Virgin Islands; cf. Small Business Administration's Small Business Standard.

5 GENERAL ADMINISTRATION

5.1 PROGRAM REQUIREMENTS

5.1.1 Building Standards and Construction Methods

Resilience
In the interest of reducing the risks associated with natural hazards, the Territory will seek to incorporate an industry-recognized standard for building resilient or disaster resistant structures, such as those set by the Insurance Institute for Business and Home Safety's FORTIFIED Home program, in any new construction or substantial rehabilitation projects.

Sustainability
All construction will implement methods that emphasize high quality, durability, energy efficiency, sustainability, and mold resistance. All rehabilitation, reconstruction, and new construction will be designed to incorporate principles of sustainability, including water and energy efficiency, resilience, and mitigation against the impact of future disasters**.**

Accessibility
The use of recovery funds must meet accessibility standards, provide reasonable accommodations to persons with disabilities, and take into consideration the functional needs of persons with disabilities in the relocation process. A checklist of accessibility requirements under the Uniform Federal Accessibility Standards (UFAS) is available at: http://www.hudexchange.info/resources/796/ufas-accessibility-checklist/. The HUD Deeming Notice 79 FR 29671 (May 23, 2014) explains when HUD recipients can use 2010 ADA Standards with exceptions, as an alternative to UFAS to comply with Section 504.

Green Building Standards
All new construction of residential buildings or replacement and/or reconstruction of substantially damaged buildings must incorporate Green Building Standards, and rehabilitation of non-substantially damaged residential buildings must follow guidelines in the HUD Community Planning and Development Green Building Retrofit Checklist. Any construction subject to the Green Building Standards must meet an industry-recognized standard and achieve certification under at least one of the following programs: Energy Star; Enterprise Green Communities; LEED; ICC-700 National Building Standard; EPA Indoor AirPlus; or any other equivalent comprehensive green building program deemed acceptable to HUD and approved by VIHFA.

Broadband Infrastructure
Per 83 FR 8362, any substantial rehabilitation, as defined by 24 CFR 5.100, or new construction of a building with more than four rental units must include installation of broadband infrastructure, except where the U.S. Virgin Islands documents that: a) The location of the new

construction or substantial rehabilitation makes installation of broadband infrastructure infeasible; b) the cost of installing broadband infrastructure would result in a fundamental alteration in the nature of its program or activity or in an undue financial burden; or c) the structure of the housing to be substantially rehabilitated makes installation of broadband infrastructure infeasible.

Construction Standards
The Territory will develop within its policies and procedures a mechanism for homeowners and businesses to appeal the quality of rehabilitation work per 83 FR 5850-5851.

5.1.2 Fair Housing

VIHFA will ensure that the Territory complies with all fair housing requirements applicable to the CDBG-DR Program. The Territory has created programs in this Action Plan to affirmatively further fair housing. When gathering public input, planning, and implementing housing related activities, VIHFA and its subrecipients will include participation by neighborhood organizations, community development organizations, social service organizations, community housing development organizations, as applicable, as well as members of each distinct affected community or neighborhood which might fall into the assistance category of low- and moderate-income communities. Addressing the housing needs of impacted residents is a priority to ensure housing stock is increased and housing quality is improved.

5.1.3 Flood-Resistant Housing

Sea Level Rise
The program will promote sound, sustainable long-term recovery planning informed by a post-disaster evaluation of hazard risk, especially construction standards and land-use decisions that reflect responsible floodplain and wetland management and consider continued sea level rise, when applicable; and coordinate with other local and regional planning efforts to ensure consistency. All programs will incorporate, where applicable, appropriate mitigation measures and floodplain management.

Elevation
Elevation, in most cases, is not a viable option in the U.S. Virgin Islands where homes are built of reinforced masonry up through and including the building – all of components are tied together by a system of columns and beams. As a result, the typical USVI home cannot be separated from its foundation once built.

Special Needs Population
It is the intention of VIHFA to prioritize the homeless population and other vulnerable, special needs populations through its rental housing and sheltering programs.

Homeless and Special Needs Support

The following organizations and institutions were consulted in preparation for this Action Plan: the V.I. Department of Human Services, Continuum of Care, Catholic Charities of V.I., Frederiksted Health Care, Lutheran Social Services, Methodist Training and Outreach Center, and others. As outlined in the housing unmet needs section (Section 3.4), there is an extensive need for housing and services for homeless and special needs populations. If additional funds are made available, there is a proposal that shelters and transitional facilities be funded for repairs that are not covered by FEMA. There is also a proposal for new sheltering facilities for the vulnerable populations affected by the storm.

Public Housing and HUD-assisted Housing

Public Housing is an integral part of housing resources for low-income persons. VIHFA's rental programs are designed specifically to address the housing needs of low- and moderate-income individuals and families. HUD-assisted housing, private market units receiving project-based assistance, and units that were occupied by tenants participating in the Housing Choice Voucher Program are eligible for assistance through the proposed programs. Recognizing that the storms also impacted homeless shelters and elder care, VIHFA is working in coordination with the Housing Authority and not for profits that serve these vulnerable populations to determine how to best address the needs of individuals that used shelters and elder housing prior to the storms and develop long-term rehabilitation solutions.

5.1.4 Anti-Displacement and Relocation

VIHFA will have in effect and will follow a residential anti-displacement and relocation assistance plan in connection with any activity associated with CDBG-DR funding. The assistance plan will minimize displacement of persons or entities and assist persons or entities displaced as a result of implementing a project with CDBG-DR funds. VIHFA will ensure that the assistance and protections afforded to persons or entities under the Uniform Relocation Assistance and Real Property Acquisition Policies Act (URA), and Section 104(d) of the Housing and Community Development Act of 1974 are available. VIHFA will exercise the waivers set forth in Federal Register 6066-N-01 pertaining to URA and HCD Acts given its priority to engage in voluntary buyout and optional relocation activities to avert repeated flood damage and to improve floodplain management.

5.1.5 "Demonstrable Hardship" and "Not Suitable for Rehabilitation"

VIHFA may consider exceptions to program policies for applicants who demonstrate undue hardship. Applicants in this situation will be reviewed to determine whether denial of program assistance further perpetuates circumstances attributing to such hardship. Demonstrable hardship may include but is not limited to: prolonged job loss, substantial reduction to household income, death of a family member, unexpected and extraordinary medical bills, disability, etc. VIHFA will further define "demonstrable hardship" and "not suitable for rehabilitation" as they

relate to recovery programs in the policies and procedures associated with the programs in this Action Plan.

5.1.6 Ineligible Activities

In general, any activity that is not authorized under the provisions of §§ 570.201-570.206 (or, where applicable, the statute and Federal Register notices governing these disasters) is not eligible to be assisted with CDBG-DR funds.

5.1.7 LMI and Overall Benefit Requirement

Per the February 14, 2018 Federal Register Notice, the HCD Act requires that not less than 70% of the aggregate of CDBG-DR program funds be used to support activities benefitting low- and moderate-income persons. The 70% overall benefit requirement shall remain in effect for this allocation, unless waived pursuant to HUD's approval of a request by the U.S. Virgin Islands to authorize a lower overall benefit for its CDBG–DR grant based on a demonstrated compelling need for the reduction.

5.1.8 Urgent Need

While at least 70% of the entire CDBG–DR grant will be used for activities that benefit LMI persons, for certain activities the U.S. Virgin Islands will use the Urgent Need national objective. Activities carried out under the urgent need objective will not count towards the 70% LMI benefit.

5.2 ADMINISTRATION AND PLANNING

5.2.1 Reimbursement of Disaster Recovery Expenses

VIHFA is tracking those activities undertaken prior to execution of its grant agreement with HUD for reimbursement including tracking time spent on CDBG-DR related activities including development of this Action Plan.

5.2.2 Consultation with Local Governments and Public Housing Authority

The U.S. Virgin Islands has no units of local government. However, this Action Plan has been prepared by the Government of the U.S. Virgin Islands in consultation with Territorial government agencies and authorities (and/or their consultants), including VIHA, and community stakeholders detailed in *Table 2* above.

Consolidated Plan waiver

HUD has temporarily waived the requirement for consistency with the consolidated plan (requirements at 42 U.S.C. 12706, 24 CFR 91.325(a)(5) and 91.225(a)(5)), because the effects of a major disaster alter a grantee's priorities for meeting housing, employment, and infrastructure needs. In conjunction, 42 U.S.C. 5304(e), to the extent that it would require HUD to annually review grantee performance under the consistency criteria, has also been waived.

Hurricane Recovery Task Force

On October 16, 2017, U.S. Virgin Islands Governor Kenneth E. Mapp created the U.S. Virgin Islands Hurricane Recovery Task Force. The expert advisory committee is intended to help guide reconstruction and resilience efforts in the U.S. Virgin Islands in the wake of Hurricanes Irma and Maria. This Action Plan has been informed throughout by the Task Force's efforts.

5.2.3 Planning Activities

The U.S. Virgin Islands will spend no more than 15% of its total allocation on eligible Planning activities. This includes all Action Plan development activities, which are considered Planning activities. The U.S. Virgin Islands also intends to fund planning-only grants for studies, technical reports, or the like. This may include costs incurred for data gathering, studies, analysis and preparation of plans. For the purposes of this grant award, the cost of engineering or architectural plans in support of construction activities will be treated as direct project delivery costs. Only VIHFA and its subrecipients can incur planning costs. Additional resources to assist in this process are available on the HUD exchange website: https://www.hudexchange.info/programs/cdbgdr/resources/#natural-hazard-risk-andresilience-tools

5.2.4 Program Income

VIHFA will comply with HUD requirements found in 24 CFR 570.489. In the event program activities generate program income, those funds will be allocated to projects which further recovery and to the maximum extent possible will be distributed before the program makes additional withdrawals from the Treasury. Program Income proceeds will continue to be considered CDBG-DR funds and will be subject to all regulations and DR waivers.

5.2.5 Performance Schedule

In accordance with HUD Guidance, VIHFA will amend its Action Plan within 90 days to provide detailed performance metrics. Performance metrics will be based on quarterly expected expenditures and outcomes and will contain estimated and quantifiable performance outcome factors.

5.2.6 Assessment of Natural Hazard Risks

Plans will include an assessment of natural hazard risks, including anticipated effects of future extreme weather events and other hazards. The U.S. Virgin Islands will refer to the Natural Hazard Risk and Resilience Tools on HUD's website.

5.2.7 Administrative Capability

Timely Distribution of Funds

In accordance with Federal Register Notice FR-6066-N-01 and under Public Law 114-113, the definition of timely expenditures is within six (6) years from the date that HUD signs the grant agreement. In addition, there are requirements surrounding the obligation, timely draw down and payment within that six-year timeline as a requirement of the financial management of the CDBG-DR funds. In addition to HUD's review of the progress being made in the drawdown of Grant funds, VIHFA will maintain its own review of all expenditures in order to ensure grant compliance. Timelines will be established to ensure that obligations and requirements are met.

There are four types of program costs:

- **Project Costs** are the direct costs of undertaking the project;
- **Activity Delivery Costs (ADCs)** are costs incurred by a grantee or subrecipient directly related to delivery of a specific CDBG-DR project or service by a beneficiary. Developers, property owners, businesses & other beneficiaries cannot have ADC;
- **Planning Costs** are costs incurred planning for a specific project (or ADC if undertaken by the grantee/subrecipient). The "end product" of a Planning Activity is the Plan; and
- **Program Administration Costs (PACs)** are costs incurred for the general management, oversight, and coordination of the CDBG-DR grant.

5.2.8 Public Services Activities

CDBG-DR regulations allow the use of grant funds for a wide range of public service activities. To utilize CDBG-DR funds for a public service, the service must be either a new service or a quantifiable increase in the level of an existing service which has been provided by the state or another entity on its behalf through state or local government funds in the 12 months preceding the submission of the Consolidated Plan Annual Action Plan to HUD. An exception to this requirement may be made if HUD determines that any decrease in the level of a service was the result of events not within the control of the local government. Public services are capped at 15% of the allocation.

5.2.9 Amendments

Amendments to the action plan will be made to update its needs assessment, modify or create new activities, or reprogram funds, as necessary. HUD requires amendments to be included in a contiguous document to make easier tracking of program and budget changes.

Substantial Amendments are characterized by either an addition or deletion of any CDBG-DR funded program, any funding change greater than 1% of the total CDBG-DR allocation, or any change in the designated beneficiaries of a program. Substantial amendments will be available on the U.S. Virgin Islands CDBG-DR Action Plan website (https://www.vihfa.gov/community-development-block-grant-disaster-relief) for public review and comment for at least 14 days.

Technical Amendments are minor changes that do not materially alter the activities or eligible beneficiaries. The grantee must notify HUD five business days before the effective date of any technical amendments. Technical amendments are not subject to public notification and public comment requirements.

5.2.10 Website

VIHFA will maintain a comprehensive website dedicated to the U.S. Virgin Islands' CDBG-DR programs and related activities associated with these funds. The webpage can be found on VIHFA's website: https://www.vihfa.gov/community-development-block-grant-disaster-relief. The website will ultimately include the following:

- CDBG-DR Action Plan, including all amendments;
- The current approved DRGR Action Plan;
- All QPRs created in DRGR;
- Citizen participation requirements;
- Procurement policies and procedures;
- Program policies and procedures;
- A description of services or goods currently being procured using CDBG-DR funds;
- Redacted PDF copies of all contracts that have been directly procured; and
- A summary of all procured contracts, including those procured by the U.S. Virgin Islands, recipients, or subrecipients (e.g. a summary list of procurements, the phase of the procurement, requirements for proposals, and any liquidation of damages associated with a contractor's failure or inability to implement the contract, etc.).

5.3 MONITORING AND COMPLIANCE

VIHFA will oversee all activities and expenditures in connection with the CDBG-DR funds. Existing VIHFA employees, additional personnel and contractors will be hired to aid in the administration of, and to carry out, the recovery programs. These partners will ensure that the

programs meet all requirements, including: the disaster threshold, eligibility, national objective, compliance, fair housing, labor standards, nondiscrimination, environmental regulations, and procurement regulations at Part 85.

VIHFA will create a monitoring plan in accordance with CDBG-DR requirements so that each activity funded will meet the disaster threshold and one of HUD's three national objectives, with emphasis on eligible activities achieving the primary national objective of benefiting low- and moderate-income persons.

All projects must comply with applicable federal laws and regulations and are effectively meeting their stated goals. VIHFA will monitor funds using the HUD Disaster Recovery Grant Reporting (DRGR) system. In accordance with HUD requirements, VIHFA will submit a Quarterly Performance Report (QPR) through DRGR no later than thirty days following the end of each calendar quarter. QPR's will be posted on a quarterly basis until all funds have been expended and all expenditures have been reported. U.S. Virgin Islands will utilize the HUD-provided contract reporting template (for PL 113-2) for upload to the DRGR on a quarterly basis: https://www.hudexchange.info/resource/3898/public-law-113-2-contract-reporting-template/

5.3.1 Prevention of Duplication of Benefits

The requirements the Robert T. Stafford Act (Stafford Act), as amended, prohibit any person, business concern, or other entity from receiving federal funds for any part of such loss for which they have already received financial assistance under any other program, private insurance, charitable assistance or any other source. This duplicative funding is called Duplication of Benefit (DOB). Any government entity that provides disaster recovery assistance must both prevent and correct any DOB by the establishment and implementation of policies and procedures to identify and adjust for such duplicative assistance payments. VIHFA will develop appropriate policies and procedures accordingly.

5.3.2 Fraud, Waste, and Abuse

All contractors, vendors and subrecipients must demonstrate they have procedures and systems to identify and report fraud, waste and abuse. If suspected fraud is identified it should immediately be reported to the Program Manager, who will refer the issue to the HUD Office of the Inspector General (HUD OIG) and other law enforcement agencies as appropriate. VIHFA will make every effort to ensure the proper reporting and communications of CDBG-DR grant funds on the webpage.

5.4 CITIZEN PARTICIPATION

To permit a more streamlined process and ensure disaster recovery grants are awarded in a timely manner, provisions of 42 U.S.C. 5304(a)(2) and (3), 42 U.S.C. 12707, 24 CFR 570.486, 24

CFR 1003.604, and 24 CFR 91.115(b) and (c), with respect to citizen participation requirements, are waived and replaced by the requirements below. The streamlined requirements do not mandate public hearings during the plan amendment process but do require the Territory to provide a reasonable opportunity (at least 14 days) for citizen comment and ongoing citizen access to information about the use of grant funds.

VIHFA will ensure that all residents have equal access to information about the programs, including persons with disabilities and limited English proficiency (LEP). The streamlined citizen participation requirements for a grant under this notice are:

a. Publication of the action plan, opportunity for public comment, and substantial amendment criteria;
b. Non-substantial amendment;
c. Consideration of public comments;
d. Availability and accessibility of the Action Plan;
e. Public website; and
f. Application status.

The Territory is experienced in Citizen Participation through its regular CDBG program. For the Public Comment period for the Action Plan, while not required to hold a public hearing, VIHFA will conduct a robust outreach campaign including radio, TV, and newspaper spots to let residents know where to access copies of the Action Plan and the process to submit comments. VIHFA will also host public meetings on each island to give residents the opportunity to give comments. The Territory will also update its Citizen Participation plan in its overall policies and procedures.

5.4.1 Application Status

VIHFA understands the importance of providing all program applicants current, accurate, and clear information throughout their application process. The processes required to deliver benefits, particularly in housing related activities, are multi-step complex processes that require extensive documentation. Not only do applicants need to keep up to date on any missing supporting documentation or impediments to their grant award, but the program can assist applicants in staying aware of other resources that may be available to them. Real time access to information about grant status is a priority, together with effective case management including the ability to contact their case manager by appointment or phone during operation hours or by email. Parameters will be set so that applicants will understand their expected return response times. Printed status updates to applicants who do not have access to electronic media and phone service will be provided.

In addition to program-wide information available on the CDBG-DR area of the VIHFA's website, the Program will use printed and electronic materials, various forms of media including television and radio, publications, direct contact, and placement of flyers/posters in public facilities, neighborhood facilities, churches and community centers to provide timely

information. Program information and documents will also be available in multiple languages to accommodate the non-English speaking participants.

Prior to scheduling an in-person appointment for the intake process of their application, program applicants will receive a detailed listing of all required documentation needs. Applicants with physical disabilities and/or a need for translation services will be accommodated as needed. Scheduled updates will be made to keep the applicant updated on missing documentation and application status. Application statuses will be accessible to the program applicant during the processing of the application, until the eligibility determination is made and the grant award is determined via the applicant's preferred contact method selected in their application. This determination of grant award will be provided to the applicant in writing.

Applicants will have an opportunity to appeal the determination of eligibility and grant award as well as provide additional documentation to support their appeal through an appeals process that will be provided to all applicants at the initial intake and posted on the Program website. All applications, guidelines, and websites will include details on the right to file an appeal, and the process for beginning an appeal.

6 APPENDICES

6.1 Initial Action Plan Review Checklist

Criteria:			Yes *(provide page #)*	No *(provide justification)*
A.		**General Action Plan Requirements**		
Does the Action Plan for disaster recovery identify the proposed use(s) of grantee's allocation, including criteria for eligibility, how the uses address long-term recovery, restoration of housing and infrastructure and economic revitalization in the most impacted and distressed areas? Specifically:				
5.2.8 (1)	**Needs Assessment**	An impact and unmet needs assessment, as described in the Notice (83 FR 5849):	Section 3 (p. 18)	
		(a) Does the assessment evaluate the three core aspects of recovery – housing, infrastructure, and economic revitalization?	Section 3.2 (p. 20)	
		(b) Does the assessment of housing needs address interim and permanent; owner and rental; single family and multifamily; affordable, and market rate; and housing to meet the needs of pre-disaster homeless persons?	Section 3.4.1 (p. 32)	
		(c) Does the assessment take into account the various forms of assistance available to, or likely to be available to, affected communities and individuals to identify needs not addressed by other sources?	Section 3.4.2.2 (p. 41)	
		(d) Does the grantee produce an estimate of unmet need by estimating the portion of need likely to be addressed by insurance proceeds, other federal assistance, or any other funding source by using the most recent available data? Did the grantee cite data sources?	Section 3.4.2.2 (p. 41), Table 15 (p. 42), Table 16 (p. 45), and Table 17 (p. 45).	
		(e) Does the grantee assess whether public services are necessary to complement activities intended to address housing and economic revitalization needs? Does the grantee address how those services are to be	Section 5.2.8	

Criteria:			Yes *(provide page #)*	No *(provide justification)*
		made accessible to individuals having wide-ranging disabilities including mobility, sensory, developmental, emotional, and other impairments?		
		(f) Does the grantee describe how the planning activities will benefit the HUD-identified "most impacted and distressed" (MID) areas?	Section 3.3 (p. 22)	
		(g) Are impacts described by type at the lowest geographical level practicable (e.g., county level, zip code, or lower if available), using the most recent available data?	Map 8 (p. 12); Map 9 (p. 13); Map 10 (p. 13); Map 11 (p. 21); Map 12 (p. 22); Map 15 (p. 31); Map 16 (p. 31).	
		(h) Does the assessment take into account the costs of incorporating mitigation and resiliency measures to protect against future hazards?	See page 40.	
(2)	**Connection between Needs and Allocation(s) of Funds**	Does the assessment describe the connection between the identified unmet needs and the allocation of CDBG-DR resources, proposing an allocation of CDBG-DR funds that primarily considers and addresses unmet housing needs? (83 FR 5849)	See page 83.	
		(a) If allocating funds for economic revitalization and infrastructure activities, does the assessment identify how any remaining unmet housing needs will be addressed or how its economic revitalization and infrastructure activities will contribute to the long-term recovery and restoration of housing in the most impacted and distressed areas? (83 FR 5849)	See Section 1 (esp. page 4) and page 83.	
		(b) If allocating funds through a Method of Distribution, does the Action Plan describe how the needs assessment informed the funding determinations, including the rationale behind the decision(s) to provide funds to areas that were identified by the grantee as being most impacted and distressed, if applicable (i.e., how the grantee	Sections 4.1 (p. 82) and 4.2 (p. 82)	

Criteria:			Yes *(provide page #)*	No *(provide justification)*
		determined that these areas are most impacted and distressed)? (83 FR 5849)		
(3)	**Rehab/Reconstruction of Public Housing, Affordable Housing, and Other Forms of Assisted Housing**	Does the Action Plan include a description of how it will identify and address the rehabilitation, reconstruction, replacement, and new construction of housing and shelters in the areas affected by the disaster? (83 FR 5849)	Sections 4.3.1.1 (p. **Error! Bookmark not defined.**), and 4.3.1.3 (p. **Error! Bookmark not defined.**)	
		Does the Action Plan identify how it will address the rehabilitation, mitigation, and new construction needs of each disaster-impacted PHA within its jurisdiction, if applicable? (83 FR 5849)	Sections 4.3.1.4 (p. 97).	
		(a) Does the Action Plan identify necessary and reasonable costs and ensure that adequate funding from all available sources, including CDBG-DR grant funds, are dedicated to addressing the unmet needs of damaged public housing? Each grantee must identify funding to specifically address the unmet needs of PHAs as identified in the needs assessment. (83 FR 5862)	Sections 4.3.1.4 (p. 97).	
		Does the Action Plan identify how it will address the rehabilitation, reconstruction, replacement, and new construction of rental housing that is affordable to low- or moderate-income households in the most impacted and distressed areas? (83 FR 5849)	Sections 4.3.1.4 (p. 97).	
		(a) Does the Action Plan identify funding from all available sources, including CDBG-DR grant funds, are dedicated to addressing the unmet needs for affordable housing? (83 FR 5862)	Sections 1.1.1 (p. **Error! Bookmark not defined.**)	
		(b) Does action plan provide (1) a definition of "affordable rents"; (2) the income limits for tenants of rental housing; (3) and minimum affordability period of twenty (20) years? (83 FR 5862)	See page 21.	

Criteria:			Yes *(provide page #)*	No *(provide justification)*
		Does the Action Plan identify and address the rehabilitation, reconstruction, or replacement of private market units receiving project-based assistance or with tenants that participate in the Section 8 Housing Choice Voucher Program; and any other housing that is assisted under a HUD program? (83 FR 5849)	Section 3.4.1.3 and page 100.	
		Does the Action Plan identify and address the rehabilitation, reconstruction, or replacement of emergency shelters and transitional housing, permanent supportive housing, and permanent housing needs of individuals and families that are homeless and at-risk of homelessness? (83 FR 5849-5850)	See pages 88 and 101.	
(4)	**Promote housing for vulnerable populations**	Does the Action Plan describe how the grantee will promote housing for vulnerable populations, including a description of activities that will address the following (83 FR 5850):	Section 4.3.2.1.	
		(a) the transitional housing, permanent supportive housing, and permanent housing needs of individuals and families that are homeless and at-risk of homelessness;	Section 4.3.2, p. 100	
		(b) the prevention of low-income individuals and families with children (especially those with incomes below 30 percent of the area median) from becoming homeless;	Section 3.4.1.4.3 and Section 4.3.2.1.	
		(c) the special needs of persons who are not homeless but require supportive housing (e.g., elderly, persons with disabilities, persons with alcohol or other drug addiction, persons with HIV/AIDS and their families, and public housing residents, as identified in 24 CFR 91.315(e));	Section 4.3, page 92.	
		Does the grantee address how planning decisions may affect racial, ethnic, and low-income concentrations, and ways to provide the availability of affordable housing in low-poverty, non-minority areas where appropriate and in	Page 88.	

Criteria:			Yes *(provide page #)*	No *(provide justification)*
		response to natural hazard-related impacts? (83 FR 5850)		
(5)	**Minimize or Address Displacement**	How the grantee plans to minimize displacement of persons or entities and to assist any persons or entities displaced? (83 FR 5850)	Section 5.1.4.	
(6)	**Maximum Assistance and Cost Reasonable Assessment**	Does the Action Plan include a description of the maximum amount of assistance available to a beneficiary under each of the grantee's disaster recovery programs? (83 FR 5850)	Pages 91, 100, and 103.	
		(a) Does the Action plan describe the process the grantee will use to make exceptions to the maximum award amounts? (83 FR 5850)	Page 89.	
(7)	**Planning & Coordination**	Does the Action Plan describe how the grantee will promote sound, sustainable long-term recovery planning informed by a post-disaster evaluation of hazard risk, especially land-use decisions that reflect responsible flood plain management and take into account possible sea level rise (for example, by using FEMA floodplain maps, frequency and intensity of precipitation events, and designs applying the new Advisory Based Flood Elevations (ABFE) or higher)? (83 FR 5850)	Section 5.1.3.	
		Does the Action Plan describe how the grantee will coordinate with other local and regional planning efforts to ensure consistency? (83 FR 5850)	See pages 16 and 132.	
(8)	**Elevation Standards**	Does the grantee indicate that it will apply the elevation standards for new construction, repair of substantially damaged structures, or substantial improvements to residential structures in flood hazard areas, such that the lowest floor is at least 2 feet above the 1 percent annual floodplain elevation (or ABFE +2)? (83 FR 5850 and 83 FR 5861)		**Not applicable.** Elevation, in most cases, is cost-prohibitive in the U.S. Virgin Islands where homes are built on top of cisterns, which are large holding tanks that collect rain for running water.
		(a) Does the Action Plan include an estimate of the average costs associated with elevating structures? (83 FR 5850)		**Not applicable.** Elevation, in most cases, is cost-

Criteria:			Yes *(provide page #)*	No *(provide justification)*
				prohibitive in the U.S. Virgin Islands where homes are built on top of cisterns, which are large holding tanks that collect rain for running water.
		(b) Does the Action Plan describe how the grantee will document on a neighborhood or local government level that elevation, as opposed to alternative strategies, is cost reasonable to promote a community's long-term recovery? (83 FR 5850)		**Not applicable.** Elevation, in most cases, is cost-prohibitive in the U.S. Virgin Islands where homes are built on top of cisterns, which are large holding tanks that collect rain for running water.
		Does the Action Plan describe how the grantee will (83 FR 5850):		
		(a) design and implement programs or activities with the goal of protecting people and property from harm?	See page **Error! Bookmark not defined.**.	
		(b) emphasize high quality, durability, energy efficiency, sustainability, and mold resistance?	See page 131.	
(9)	**Protection of People and Property; Construction Methods**	(c) support adoption and enforcement of modern and/or resilient building codes and mitigation of hazard risk, including possible sea level rise, high winds, storm surge, and flooding?	See pages 66 and 91.	
		(d) comply with the Green Building Standard established in the Notice for the following activities:	See page 131.	
		(i) comply with the Green Building Standards for: (i) all new construction of residential buildings and (ii) all replacement of substantially damaged residential buildings? Meaning the grantee will require that all new construction or replacement of substantially damaged residential buildings will meet an industry-recognized	See page 131.	

Criteria:			Yes *(provide page #)*	No *(provide justification)*
		standard that has achieved certification under at least one of the programs listed in paragraph B.32.a of Section VI. (83 FR 5850 and 83 FR 5861)		
		(ii) comply, to the extent applicable, with guidelines specified in the HUD CPD Green Building Retrofit Checklist for the rehabilitation of non-substantially damaged residential buildings where the repair costs are less than 50% replacement cost, including standards for appliances and products when replaced as part of rehab? This requirement does not apply when Energy star, Water-Sense Labeled, or FEMP-designated products do not exist. (83 FR 5850 and 83 FR 5861)	See page 131.	
(10)	**Resilience to Natural Hazards**	If a grantee is using grant funds for infrastructure, does the Action Plan include a description of how the proposed infrastructure activities will advance long-term resilience to natural hazards and how the grantee intends to align these investments with other planned State or local capital improvements? (83 FR 5850)	See pages 112.	
		Does the Action Plan describe how the grantee will address the construction or rehabilitation of storm water management systems in flood impacted areas? (83 FR 5850)	See pages 62 and 112.	
		(a) Does the Action Plan describe how the grantee will work with local governments in the most impacted and distressed areas to identify the unmet needs and associated costs of needed storm water infrastructure improvements? (83 FR 5850)	See pages 65.	
(11)	**Disaster recovery and response plan**	Does the Action Plan include a description of the grantee's proposed use of CDBG-DR funds to develop a disaster recovery and response plan that addresses long-term recovery and pre- and post-disaster hazard	See pages 16 and 48.	

Criteria:			Yes *(provide page #)*	No *(provide justification)*
		mitigation, if one does not currently exist? (83 FR 5850)		
(12)	**Leveraging Funds**	Does the Action Plan describe how the grantee will leverage CDBG disaster recovery funds to generate a more effective and comprehensive recovery? (83 FR 5850)	See page 108.	
(13)	**Construction Standards**	Does the Action Plan describe the grantee's standards for housing and small business rehabilitation contractors performing work in the jurisdiction, including a mechanism for homeowners and businesses to appeal the quality of rehabilitation work? (83 FR 5850-5851)	See pages 132 and 140.	
B.		**Projects and Activities**		
For State grantees, the action plan shall describe the method of distribution of funds to local governments and Indian tribes and/or descriptions of specific programs or activities the grantee will carry out directly.				
(14)	**For funds awarded to a State (MOD or Programs/ Activities)**	Does the Action Plan describe the method of distribution of funds to local governments and/or descriptions of specific programs or activities the state will carry out directly? (83 FR 5851)	Section 0.	
(15)	**Basis for Allocations**	Does the Action Plan explain how the needs assessment informed allocation determinations identified in the Plan, including the rationale for State-identified most impacted and distressed areas not identified by HUD? (83 FR 5851)	Sections 4.1 and 4.2.	
		(a) Are, or will, all activities be located in a Presidentially-declared county that is eligible for assistance under this Notice? (83 FR 5851)	Page 83.	
		In allocating funds for economic revitalization or infrastructure activities, does the Action Plan identify how any remaining unmet housing needs will be addressed or how its economic revitalization/ infrastructure activities will contribute to the long-term recovery and restoration of housing in the most impacted and distressed areas? (83 FR 5851)	See pages 105 and 119.	

Criteria:			Yes *(provide page #)*	No *(provide justification)*
		(a) Does the Action Plan identify the economic loss or need resulting from the disaster and how the proposed activity will address that loss or need? (83 FR 5851)	Section 4.	
(16)	**Program/Activity Details**	For each program or activity carried out by the State (83 FR 5851):		
		(a) The threshold factors or applicant eligibility criteria, grant size limits and proposed start and end dates?	See pages **Error! Bookmark not defined.**, **Error! Bookmark not defined.**, **Error! Bookmark not defined.**, 100, 102, 104, and 125.	
		(a) The projected uses of the CDBG-DR funds, including the administering entity, budget and geographic area?	See pages 91, 91, 100, 100, 100, 100, 101, 103, 108, 111, 114, 120, 123, 125, 127, 129.	
		(c) How the projected use will meet CDBG eligibility criteria and a national objective?	See pages 91, 91, 100, 100, 100, 100, 101, 103, 107, 110, 114, 120, 123, 125, 127, and 129.	
		(d) How the projected uses relate to a specific impact of the disaster and will result in long-term recovery?	Section 4.	
		(f) Has the grantee identified any ineligible activities (e.g., use of CDBG-DR for forced mortgage payoff, construction of dam/levee beyond original footprint, incentive payments to households that move to disaster-impacted floodplains, assistance to privately-owned utilities, not prioritizing assistance to businesses that meet the definition of a small business , or assistance for second homes)? Are all activities and uses authorized under title I of the Housing and Community Development Act of 1974 or allowed by waiver or alternative requirement published in this Notice?	Section 5.1.6.	

Criteria:			Yes *(provide page #)*	No *(provide justification)*
(17)	**Criteria to Determine Method of Distribution**	When funds are allocated to local governments through a method of distribution, does the Action Plan describe all criteria used to determine the distribution, including the relative importance of each criterion? (83 FR 5851)		Not applicable as funds are not being allocated to local governments.
		When applications are solicited for programs are carried out directly, does the Action Plan describe all criteria used to select applications for funding, including the relative importance of each criterion? (83 FR 5851)	See pages **Error! Bookmark not defined.**, 100, 100, **Error! Bookmark not defined.**, **Error! Bookmark not defined.**, 100, 103, 104, 113, 116, 124, 127, and 129.	
(18)	**Mitigation Measures**	Are mitigation measures a necessary expense related to the disaster relief, long-term recovery, and restoration of infrastructure, housing, or economic revitalization? (83 FR 5851)	See pages 48 and 91.	
(19)	**Use of Urgent Need**	For each activity that uses the Urgent Need national objective, does the grantee reference the type, scale, and location of the disaster-related impacts that each program and/or activity is addressing? Are the impacts in the needs assessment? (83 FR 5856)	Section 3.4 (p. 29), 3.5 (p. 57), 3.6 (p. 69), Section 4.2 (p. 82) and 5.1.8 (p. 134)	
C.		**Clarity of Plan and Citizen Participation**		
(20)	**Clarity**	Does the action plan include sufficient information so that citizens, local governments and other eligible subgrantees or subrecipients, or applicants will be able to understand and comment on the action plan, as well as prepare responsive applications (if applicable)? (83 FR 5851)		
(21)	**Substantial Amendment**	Does the Action Plan define what constitutes a substantial amendment to the Plan, including change in program benefit or eligibility criteria; the addition or deletion of an activity; or the allocation or reallocation of a monetary threshold specified by the grantee? (83 FR 5853-5854)	Section 5.2.9, page 166	

Criteria:			Yes *(provide page #)*	No *(provide justification)*
(22)	**Consultation**	Was the proposed Plan published before its adoption? (83 FR 5853)		
		Did the manner of publication including prominent posting on the grantee's official website (with topic of disaster recovery navigable from the homepage of the grantee or relevant agency) and afford citizens, affected local governments and other interested parties a reasonable opportunity to examine the Plan and provide comments? (83 FR 5853)		
		(a)Did the grantee provide at least 14 days for citizen comment and ongoing citizen access to information about the use of grant funds? (83 FR 5853)		
		(b) Was the Plan available in a form accessible to all, including persons with disabilities and non-English-speaking persons? (State which disabilities and which languages.) (83 FR 5853)		
		Did the grantee consult with all disaster impacted local governments, public housing authorities and Indian tribes on the Action Plan? Did the grantee consult with nongovernmental organizations, the private sector and other stakeholders and affected parties in the surrounding geographic area to ensure consistency of the plan with application regional redevelopment plans? (83 FR 5854-5855)		
		If comments were made, does the Plan include a summary of those comments and the grantee's response? (83 FR 5854)		
(23)	**Application Status**	Does the Action Plan describe how the grantee will communicate to program applicant regarding their application status? (83 FR 5854)	Section 5.4.1.	
D.		**Grant Management and Budget**		
(24)	**Budget**	Does the Plan include a chart or table that illustrates, at the most practical level, how all funds are budgeted (e.g., by program, subrecipient, grantee-administered activity, or other	See Table 1. Program Allocations from Tranche 1 CDBG-DR Funds (page 7).	

Criteria:			Yes *(provide page #)*	No *(provide justification)*
		category)? (83 FR 5851)		
		Do the amounts for all the activities in the Plan add correctly? Are the combined activities equal to or less than the total CDBG-DR amount available? Are the amounts consistent throughout the plan?		
		At least 80 percent of the funds provided under the Notice must address unmet needs within the "most impacted and distressed" counties identified in Table 1 of the Notice. Does the Action Plan currently show that not more than 20 percent will be spent in locations other than those identified in Table 1? (83 FR 5844-5845)	Page 85.	
		Does the budget allocate not less than 70 percent of the aggregate of CDBG-DR program funds be used to support activities benefitting low- and moderate-income persons (overall benefit requirement)? (83 FR 5855)		
(25)	**Program Income**	Does the Action Plan describe how the grantee will manage program income, and the purpose(s) for which it may be used? (83 FR 5856-5857)	Section 5.2.4.	
(26)	**Uniform Relocation Act**	Did the grantee define "demonstrable hardship" and "not suitable for rehabilitation" in the Action Plan or in policies and procedures? If the grantee plans on defining this in the policies and procedures, the Action Plan may be approved without a definition. (83 FR 5858)	See page 89 and Section 5.1.5.	
(27)	**Deadlines.**	Does Action Plan include a projection of expenditures and outcomes that shows the grantee will expend funds within the six year timeframe, as required by the Notice? (83 FR 5852)		
(28)	**Certification and Risk Analysis Documentation**	Has the grantee submitted the Certification and Risk Analysis Documentation as described in the Notice in paragraphs A. 1. a and A.1.b of section VI? (83 FR 5847-5849)	Yes.	

Criteria:			Yes *(provide page #)*	No *(provide justification)*
(29)	**CDBG-DR Certifications**	Does the Plan include the required CDBG-DR certifications? Are the certifications signed by the Chief Executive Officer? (Please see the certifications tab.) (83 FR 5867-5868)		
(30)	**SF-424**	Does the Plan include a completed and executed Federal form SF-424? Is the SF-424 signed by the correct grantee official? (83 FR 5852)		
E.		**Conclusion**		
(31)	**Complete and Compliant**	Based on the reviewer's responses to the above questions, is the Action Plan complete and in compliance with the Federal Register notice and Public Law 115-56?		
(32)	**Approved**	Is the Plan approved?		
(33)	**Reason(s) for Resubmittal**	If the Plan needs to be re-submitted, please indicate the reasons.		
This checklist is part of the administrative record of the Department's review of a disaster recovery Action Plan Amendment submitted pursuant to The Supplemental Appropriations for Disaster Relief Requirements, 2017 (Pub. L. 115–56) and the Federal Register Notice published February 9, 2018 (83 FR 5844). In using the checklist, reviewers are reminded that each of the criterion as stated on the checklist is necessarily an abbreviated and generalized summary of the more detailed requirements outlined in the Federal Register Notice for each criterion. Reviewer answers to each question on the checklist must be informed by applying the requirements of each criterion as outlined in the Federal Register Notice to each element of the Action Plan. Use of the checklist does not substitute comparison of the Action Plan Amendment submission against the requirements of the applicable Notices and making a determination based on the Standard of Review set forth in 24 CFR 91.500, as augmented by the applicable Notices.				

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