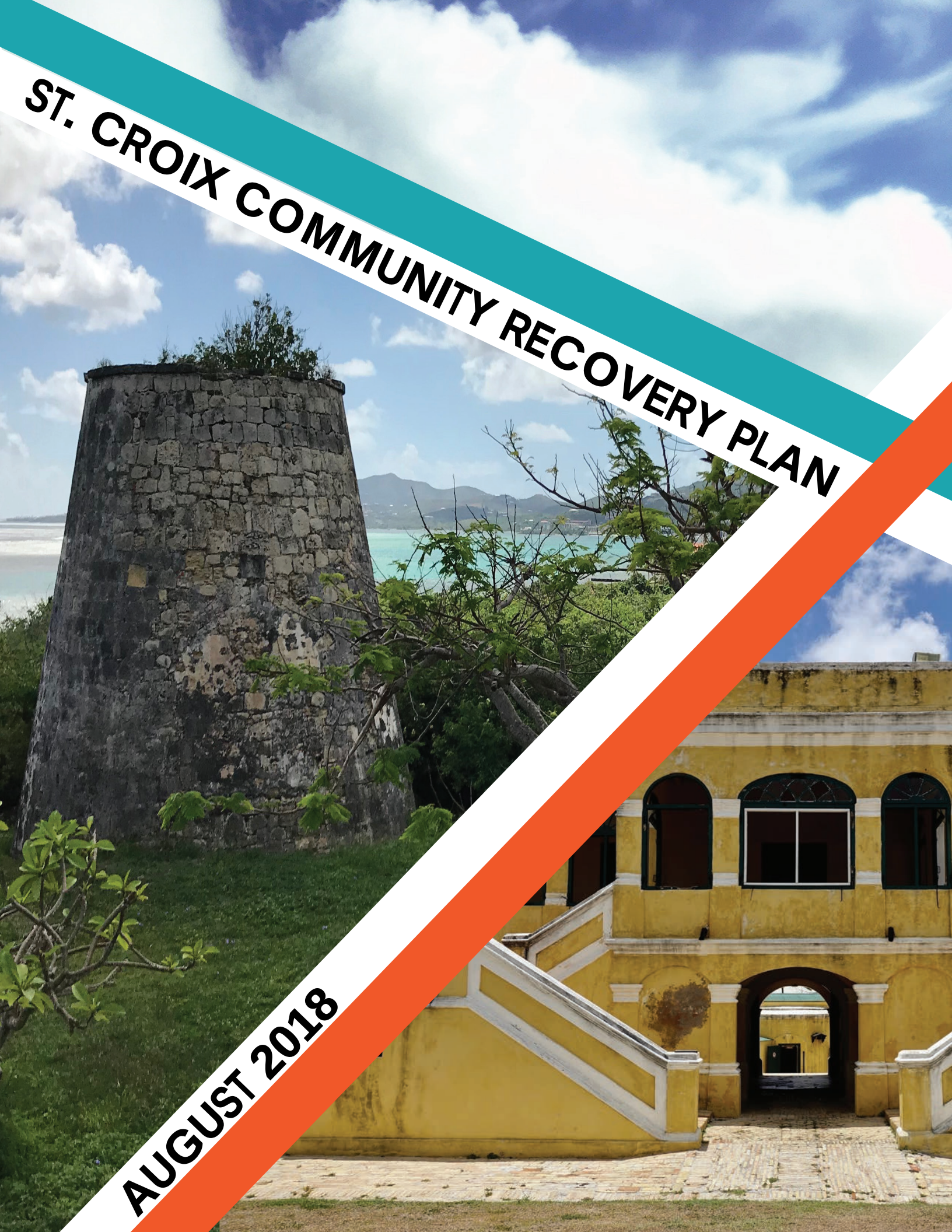

ST. CROIX COMMUNITY RECOVERY PLAN

AUGUST 2018

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FEDERAL EMERGENCY MANAGEMENT AGENCY ENABLING AUTHORITY

The Community Planning and Capacity Building Recovery Support Function (RSF) is a FEMA led inter-governmental partnership focused on providing technical assistance to develop local disaster recovery and community capacity. The RSF derives its mandate from the Robert T. Stafford Act Section 402.3 which provides impacted communities relief via technical and advisory assistance in order to perform essential community services, assess disaster impacts, and perform recovery planning. The Community Planning and Capacity Building RSF further coordinates technical and advisory assistance under the direction of Presidential Policy Directive-8 and the National Disaster Recovery Framework. The projects outlined in this plan do not bind the federal or territory government to any actions or any financial or in-kind commitments.

UNITED STATES VIRGIN ISLANDS

The United States Virgin Islands is a part of the Leeward Islands located approx. 40 miles east of Puerto Rico and 1100 miles southeast of Miami, Florida. St. Thomas and St. John are separated by a mile wide straight and are both located approx. 40 miles north of St. Croix.

DOCUMENT PURPOSE

The St. Croix Community Recovery Plan is a tool intended to guide the St. Croix community through necessary steps in the long-term recovery process following Hurricanes Irma and Maria.

The intention of this plan is for use as a blueprint to assist community leaders in implementing recovery projects identified as priorities. The St. Croix community, its leaders, partner organizations and project stakeholders are the primary audience for this plan; hence, this is a community-driven document that contains significant input from local leaders, as well as the general public. While the community is the primary audience, it is also designed for territorial and federal partners to reference as they make decisions during the recovery process.

This document is designed to be flexible, based on ever-changing needs of the community; over the course of time, community priorities and goals may be modified or evolve. Therefore, projects chosen for implementation may change. The plan contains project-based recommendations and outlines potential paths forward in the community recovery process. Due to the inherent flexibility involved, periodic updates in the form of an implementation report will be necessary.

This word cloud was developed following three community meetings where participants were asked to list three words that describe their vision for the future. The vision statement below was created from the word cloud.

ST.CROIX VISION STATEMENT AND GOALS

St. Croix residents seek to:

1. Invest in the people of the territory and their health, education and well-being
2. Build on the spirit of coordination and partnership in the aftermath of recent disasters and to move forward with fairness and transparency
3. Create a diverse and robust economy that is sustainable, self-reliant and resilient
4. Ensure that the built and natural environments are adaptable
5. Foster the unique culture, community spirit and quality of life that exists on the island

US VIRGIN ISLAND HISTORY

The US Virgin Islands (USVI) was originally settled by the Ciboney, Arawak and Carib tribes. Migrating from the Amazon River Valley, these tribes excelled at both fishing and farming and built successful communities along the coasts of the islands. Crops they commonly grew include maize, tobacco, cotton and guava. Following Christopher Columbus' second voyage in 1493, the territory underwent a centuries-long period of colonial control. Over the next 200 years, the islands now known collectively as the U.S. Virgin Islands were ruled by European powers that included: the Spanish, British, Dutch and French until the mid-18th century when all three islands came under Danish rule.

The Danish West India Company settled on St. Thomas in 1672, St. John in 1694, and purchased St. Croix from the French in 1733. In 1754, the Danes renamed the islands the Danish West Indian Islands and officially designated them as royal Danish colonies. By this time, the native population had largely been wiped out due to enslavement, violence and disease. Native population losses, coupled with a desire by colonial rulers to increase agricultural and cash crop outputs, led to a sharp increase in the utilization of the African slave trade. During this period, slave trading outposts were instituted in the territory and large plantations flourished with African slaves producing massive crop yields for export of sugarcane, coffee, tobacco and cotton. In 1848, non-violent revolts led to the abolishment of slavery, marking the end of the period in the territory. The territory remained under Danish rule until 1917 when the United States purchased all three islands for $25 million.

The 1930's were an especially prosperous decade in the Virgin Islands. The end of prohibition resulted in an increased demand for rum. Subsequently, employment soared on local plantations and the rum industry flourished as export to the mainland United States increased. A submarine base in the territory, utilized during World War I, also continued to be a major employer of the Virgin Islands. In 1927, all residents were officially designated citizens of the United States, further opening up economic opportunities to residents.

In more recent years, the U.S. Virgin Islands has been a hub for tourism, light industry and oil refinement. Up until 2012, when the operation closed, the territory's economy was closely linked to the HOVENSA petroleum refinery, a major economic driver and job creator. At its peak operation, the refinery was one of the top ten largest refineries in the world and was the predominant driver of economic growth for St. Croix. Today, the territory relies heavily on cruise ship docking and sees dozens of ships a year use its ports on St. Thomas and St. Croix. Cruise ships and other tourism activities have resulted in the transition a primarily service-based economy in the territory.

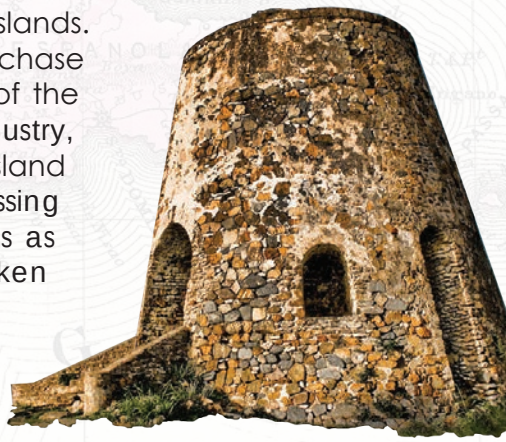
Hurricanes and tsunamis have had major implications for the people of the U.S. Virgin Islands throughout their histories. Historical records detail major storms and their impacts periodically during the entirety of the European colonial period. On average a hurricane passes near one of the Virgin Islands every three years. A direct hit by a hurricane occurs approximately every eight years. Prior to Hurricanes Irma and Maria in 2017, recent major storms have included the Category 4 Hurricane Hugo in 1989 and Category 3 Hurricane Marilyn in 1995. Hurricane Otto, a Category 1 hurricane, also made landfall in the territory in 2010.

Transfer Day is the day that the Danish West Indies were formally transferred to the United States, becoming the U.S. Virgin Islands. On March 31, 1917

ST.CROIX ISLAND HISTORY & CULTURE

Christopher Columbus and his crew were the first Europeans to visit St. Croix on his second voyage to the New World in 1493. The island was named Santa Cruz (Holy Cross) by Columbus and later St. Croix by the French. In over 500 years since Columbus's landing, this island of 82 square miles has alternately suffered and prospered from the forces of nature and history. First colonized by Spain, struggles for control of St. Croix ensued among the English, Danish, Dutch, French and Knights of Malta because of its agricultural advantages and strategic outposts on trade routes to the New World.

When France sold St. Croix to the Danish West India Company in 1733, Denmark took over as Crown Colony and established the towns of Christiansted and Frederiksted, both named after Danish Kings, and designated St. Croix as the capital for all three islands. It was the importance of sugar cane that prompted the Danes to purchase St. Croix, which led to the island's greatest prosperity, becoming one of the wealthiest islands in the West Indies. In addition to the sugar and rum industry, the most important trade was slave traffic. In 1803, the population of the island was 30,000 with 26,500 being slaves engaged in planting and processing sugar cane. Since the English, Scotch and Irish outnumbered the Danes as planters, English eventually became the common language. Also spoken was a Creole blend of Dutch, African, and an English dialect through which slaves and their owners communicated.



Today, we see relics of this era in the shells of old windmills and the ruins of sugar factories which dot the island. Of all these, Estate Whim best tells the visual story of what those days were like. The Whim Plantation in Frederiksted, a former 18th century 12-acre Sugar Estate, is open to the public as a museum, and boasts the territory's most extensive historical collection.

In the early part of the 19th century, a period of depression set in and St. Croix experienced periods of violence and difficult economic and social change. On July 3, 1848, enslaved laborers marched in Frederiksted demanding emancipation. Freedom for the slaves, however, did not mean true emancipation and they still toiled in oppressive conditions. In 1878, labor organizers rebelled again and rioted in Frederiksted, resulting in the great "fire burn" with over 100 lives lost and homes and plantations destroyed. In the ensuing years, sugarcane planters left after losing a large part of their wealth and the Industrial Revolution ended the need for the islands as shipping ports. Little was heard of St. Croix until World War I when the United States realized the strategic position of the Virgin Islands as protection from the hands of Germans and negotiated the purchase of St. Thomas, St. Croix and St. John from Denmark for $25 million in gold on March 31, 1917. However, it was not until 1927 that U.S. citizenship was granted to Virgin Islanders.

In 1954, a revised Organic Act provided for a territorial government and in 1970, Melvin H. Evans became the first popularly elected governor of the U.S. Virgin Islands. The economy was unsteady with its move away from an agrarian society and its last sugar harvest in the 1960's. The economy started to improve with the impact of tourists and the beginning of industrialization.

In 1966, St. Croix's economy turned to the newly built Hess Oil refinery (later known as HOVENSA).

In 2012, the company announced its closure, leading to layoffs of approximately 2,000 employees and having a major adverse effect on the economy which are still felt today. Other major industries in operation today include the Cruzan Rum Distillery, a staple family operation since 1760, and Diageo, the world's second largest rum provider, which opened in January 2010, supplying all of Captain Morgan's rum.

St. Croix's uniqueness exists in its old-world charm and the blending of the historical culture of the seven different nations who have governed the island. Influential Crucians have had a significant impact on United States history, one of the more famous being West Indian-born Alexander Hamilton, who spent some of his early years working on St. Croix before moving to the States. He played a major part in the formation of the United States, became the first United States Secretary of the Treasury, Chief Staff Aide to General George Washington, and a delegate to the Constitutional Convention in 1887. Still standing on King Street in Christiansted is a building named after him.

The landscape of St. Croix is surprisingly diverse. The east end has breathtaking sea vistas, gentle hills dotted with cacti, and boasts the most easternmost point of U.S. land, Point Udall. Buck Island Reef National Monument is a preservation of 176 acres and one of the most renowned attractions. On the west end, Sandy Point National Wildlife Refuge, managed by the U.S. Fish and Wildlife Service, is home to the endangered leatherback turtles that nest there every year.

St. Croix's rich cultural diversity can be seen in its distinctive arts, crafts, music, dance, religion and festivals. Sounds of reggae, calypso, salsa and steel pan music are heard at many events throughout the island. Culture is also celebrated in European-inspired Quadrille Dance and Quelbe or scratch music. Mocko Jumbies, seen at many entertainment venues, are traditional stilt dancers thought to chase away evil spirits. There are approximately 25 holidays celebrated in the US Virgin Islands, some in particular being Puerto Rican Friendship Day and Transfer Day, the anniversary of the transfer of the US Virgin Islands from Denmark to the U.S. in 1917.

In September 2017, Hurricanes Maria and Irma visited all three Virgin Islands with tremendous force and the recovery story of St. Croix remains to be written.

GOVERNMENT STRUCTURE

Government House located on King Street in Christiansted, St. Croix, U.S. Virgin Islands

The United States Virgin Islands (USVI) is an unincorporated and organized territory of the United States. It is administered by the Office of Insular Affairs of the United States Department of the Interior and its broad governmental structure is defined by The Revised Organic Act of the Virgin Islands of 1954. At the local level, the USVI is governed by a territorial government that consists of the governorship, its cabinet, a legislative body and a judiciary. The judiciary consists of both local and federal courts and is separate from the executive and legislative branches.

The governor's office contains the governor and lieutenant governor in addition to various appointed commissioners and their corresponding offices. Governors and lieutenant governors are elected conjointly for four year terms of service and are responsible for complete oversight of the executive branch. The territorial governor's cabinet encompasses numerous appointed commissioners. Each commissioner is tasked with the management of its specific department and reports directly to the governor's office. Commissioners are influential entities in the USVI with broad ranging responsibilities pertaining to the implementation of policy and the day-to-day operational functions of their departments. In all, there are a total of 26 departments within the territorial cabinet.

The legislative body in the USVI is unicameral. It is comprised of 15 senators; with 7 from St. Croix, 7 from St. Thomas-St. John and 1 at large senator who is elected by the territory but must hold residency on St. John. Senatorial elections are held every two years.

The judiciary in the USVI contains both territorial and federal courts. These courts include a federal district court, a territorial superior court and a territorial supreme court. Judges on the federal district court are appointed by the U.S. president for ten year terms. Judges seated on both the territorial superior and territorial supreme courts of the USVI are appointed by the governor and confirmed by the legislature.

US VIRGIN ISLAND TERRITORY DEMOGRAPHICS

This demographic profile of the United States Virgin Islands used data from the 2010 Decennial US Census, which is the latest and best available data at the sub-district level. To ensure a more accurate view of demographic characteristics of the US Virgin Islands, US Census data is supplemented with World Bank and Virgin Islands territorial agency data.

The territory is located 40 miles east of Puerto Rico and 1100 miles from the US Mainland. The US Virgin Islands is comprised of the main islands of St. Croix, St. Thomas, and St. John. Populations of under 200 people also live on Water Island and Hassel Island in the Charlotte Amalie harbor south of St. Thomas. The territory also has several dozen small uninhabited cays and islands.

According to the 2010 Census, there are 106,405 residents in the territory, though sources vary as to the status of population increases and decreases in the period since the 2010 census was conducted. St. Thomas and St. Croix have relatively similar demographic economics, while St. John is slightly more affluent. St. Croix and St. Thomas both have populations of roughly 50,000. St. John, the smallest island, has a population of 4,000 concentrated on the western side of the island in the area of Cruz Bay. St. Croix accounts for approximately 60% of the territorial land mass, while St. Thomas and St. John account for approximately 35% of the total land area.

Territory-wide, the median household income in 2010 was $37,254, approximately 35% lower than the national average. Over 65% of individuals over 18 years of age were below the poverty line in 2009, compared to the national average of 13.3% for the same demographic group nationally. The territory is 76% Black or African American and 15.6% White; 17.4% of the population identifies as Hispanic or Latino. Single-headed households account for 29.1% of families in the territory, above the national average of 19.6%. The local population has a disability rate of 9.8%, compared to 13% on the mainland US. For a more in-depth analysis split by island and region, see below.

Census Subdistrict	No. of households	Median HH Income	Race (%)			% Hispanic or Latino	% Owner Occupied Homes	% Renter Occupied Homes	Median Rent ($)	% Below Poverty	Avg. Pop. per sq. mile	% of families w/ single parents	% of pop. w/ disabilities
			Black/African American	White	Other Race								
USVI	43,214	$37,254	76	15.6	6.2	17.4	47.9	52.1	$767	22.5	792.2	29.1	9.8
St. Croix	19,765	$36,043	73.6	14.3	9.3	24.3	56	44	$657	26.2	607.3	30.2	10.8
Anna's Hope Village	1,644	$49,500	72.1	15.4	9.9	21.1	65.3	34.7	$801	14.5	408.6	26.3	8.4
Christensted	1,118	$23,814	74.4	14.4	8.8	34.2	27.6	72.4	$577	37.4	3,462.9	30.1	13
East End	1,122	$56,806	42.7	48.2	6.5	15.1	69.6	30.4	$973	12.5	190.0	14.7	8.5
Frederiksted	1,181	$24,933	80	8.9	8.4	23.9	36.4	63.6	$548	39.9	2,239.4	37.8	12.3
Northcentral	1,999	$32,333	76	12.4	9.8	24.5	68.8	31.2	$656	26.4	393.0	29.5	10.3
Northwest	1,927	$31,910	73.8	16	7.8	18.1	49.3	50.7	$546	34.1	267.3	35.9	11.2
Sion Farm	5,158	$40,547	72	15.1	9.1	24.8	55.8	44.2	$703	22.5	1,383.9	29.6	10.4
Southcentral	2,771	$33,883	74.6	9.3	13.1	28.7	54.1	45.9	$617	26.9	637.7	32.1	11.2
Southwest	2,845	$33,524	81.4	8.9	7.3	23.8	62.5	37.5	$708	24.0	1,361.9	31.3	12
St. John	1,894	$40,644	56.6	38.4	3.6	10.5	46.6	53.4	$1,012	15.0	211.8	21.8	7
Central	360	$43,333	44.8	50.6	3.3	5.3	51.1	48.9	$957	11.7	55.3	25.6	7.3
Coral Bay	301	$37,083	44.2	51.3	2.2	5	55.8	44.2	$988	17.3	332.6	21.6	8.5
Cruz Bay	1,203	$40,472	63.4	31.4	4	13.5	42.6	57.4	$1,024	14.8	976.2	20.9	6.5
East End	30	$37,500	33.3	60.7	0	0	56.7	43.3	$975	15.7	55.5	16.6	9.8
St. Thomas	21,555	$38,232	80	15.1	3.5	11.2	40.6	59.4	$813	19.5	1,649.1	28.8	9.1
Charlotte Amalie	7,692	$28,963	88.1	7.2	3.2	17.2	24.5	75.5	$725	26.0	5,494.5	34	11
East End	3,546	$38,766	81.5	15.9	1.7	7.4	47.6	52.4	$874	17.3	1,596.8	26.7	8.1
Northside	4,511	$53,784	55.9	36.2	5.8	7.7	49.2	50.8	$980	10.2	949.4	18.5	7
Southside	2,131	$41,010	77.4	15.3	6.1	10.2	39.6	60.4	$775	21.0	1,223.7	29	7.2
Tutu	2,634	$38,732	94.5	3.4	1.4	7	55.5	44.5	$824	17.6	4,525.3	36.4	10.6
Water Island	93	$47,917	4.4	92.9	1.6	4.4	62.4	37.6	$1,054	8.2	187.6	4.3	12.6
West End	948	$56,848	83.5	12.5	2.1	7.3	63	37	$894	9.3	431.7	24.1	6.2

The World Bank projects that there has been a slight increase in population while the US Federal Reserve states there was a 4% drop in the same period. https://data.worldbank.org/indicator/SP.POP.TOTL?locations=VI https://www.newyorkfed.org/medialibrary/media/press/PressBriefing-Puerto Rico-USVI-February222018.pdf https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_16_5YR_S1901&prodType=table

Data for the territory often lacks relevance and accuracy due to a variety of factors including, but not limited to Census data which is only updated decennially, the hesitation of residents to answer surveys, federal surveys not conducted for territory, lack of adequate addressing system, among other issues. American Community Survey is not conducted in the territory.

COMMUNITY PROFILE

Located roughly 60 miles east of Puerto Rico in the Caribbean Sea, the island of St. Croix is the largest of the three main islands that make up the United States Virgin Islands. St. Croix spans 82 square miles and as of the 2010 census, had a population of 50,601. Its primary town centers are Christiansted to the east and Frederiksted to the west. St. Croix is broken up into 7 districts.

Company	Christiansted
Frederiksted	Northside
King	Queen
East End	

Company Quarter spans the island north to south on the eastern portion of the island. Condo complexes and resorts are a common sight in this district. Topography varies from flat to moderate hills with more forest-like areas on the west side of the quarter. Shopping, clubs, bars and restaurants make Company Quarter a popular destination for tourists and locals alike.

Located within Company Quarter on the northeast coast, Christiansted is the largest city on St. Croix. Much of the city is contained within a nationally registered historical site and is predominantly known for its preserved 18th century Danish architecture. Solid stone buildings with brightly painted tile roofs and pastel colored walls fill in the districts tightly spaced grid. This unique and historic architecture makes Christiansted a popular tourist destination. A variety of restaurants and boutiques line the streets within Christiansted and along its boardwalk. Ferry service and the island's sea plane make Christiansted a primary entrance to the island from other Caribbean destinations.

Frederiksted is the second largest town on St. Croix. Located within the West End Quarter, the town proper was planned as a grid system with a large market square to its east which has served as a produce market and community meeting venue for nearly two centuries. The sole port for cruise ships to dock on St. Croix is in Frederiksted. The town is also a hub for nightlife on the island with many busy bars and restaurants. The Sandy Point National Wildlife Refuge is a popular point of interest near Frederiksted and contains one of the territory's most popular beaches.

The Northside Quarter stretches along the northern edge of the island from the western coast toward the middle of the island. The western portion of this area is the most tropical and lush on the island with few roads. Notable attractions include a golf course, beaches and the VI Sustainable Farm. Referred to as "mid-island," Prince Quarter borders the Northside Quarter and expands to the southern coast of St. Croix. Landscapes range from heavily forested areas to rolling hills and some fields. Contained within its borders are the Henry E. Rohlson Airport, an industrial park, the Cruzan Rum Plant and Salt River National Park.

Located near the center of St. Croix, King Quarter borders the Northside and the southern coast. Landscapes range from low lying flat lands to rolling and moderate hills. The district also contains the Diageo Rum Production Company, shopping centers and various parks.

Queen Quarter spans from the southern to northern coasts directly in the middle of the island. It is home to the Juan F. Luis Hospital and Cardiac Center. Additionally, the Lime Tree Terminal, formally the Hovensa petroleum refinery, is located within Queen Quarter.

The East End stretches from Christiansted to the eastern edge of St. Croix, the eastern most point of the United States. This area is the driest on the island, where one will find succulent plants rather than lush forests. Buck Island National Park is located on the north side of this district.

USVI VULNERABILITY STUDY

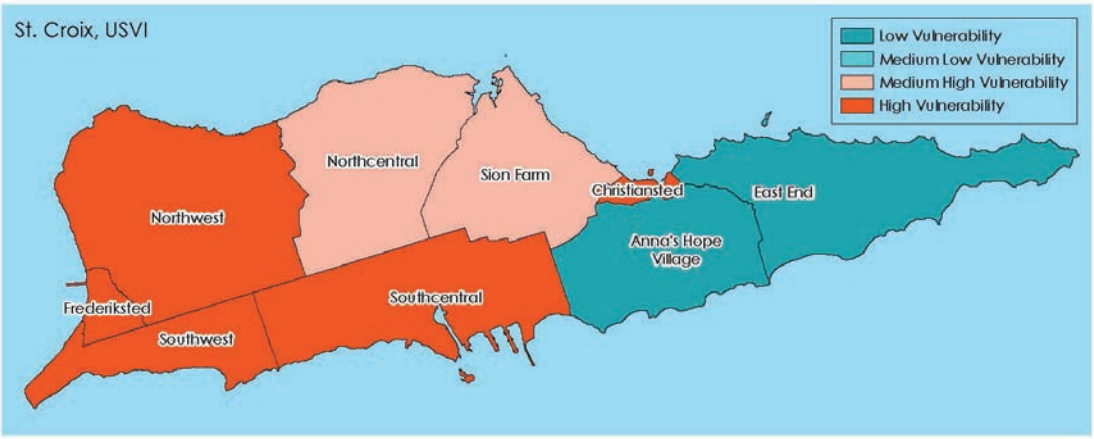
This vulnerability analysis is based on metrics from the 2010 decennial census in an attempt to geographically categorize pre-disaster vulnerability within the US Virgin Islands (USVI). This data is based on historical disaster impact areas including employment, hospitals and healthcare systems, and factors associated with vulnerable populations pre-disaster like educational attainment; Hurricanes Irma and Maria further exacerbated these issues. The metrics used are:

- % over 18 years of age below poverty
- % of median household income
- % of non-institutionalized population with insurance coverage
- % of non-institutionalized population over 18 with a disability
- % 25 years of age and over without a high school diploma

The USVI is comprehensively more vulnerable than the mainland United States, as noted in the USVI Territory Demographics section. Thus, this study is an internal comparison of geographies within the territory. Each pre-disaster variable was selected to be split by US Census Sub-District which are roughly equivalent to the neighborhood or subdivision level. Each variable has been divided into quartiles, with the three points awarded to the most vulnerable sub-districts and zero points awarded to the least vulnerable sub-district. Points were totaled to determine a composite vulnerability score for each sub-district. The top quarter sub-district composite scores were awarded a high vulnerability rating while the bottom quarter composite scores were awarded a low vulnerability ranking; the second and third quarter sub-district composite scores were awarded medium-low and medium-high vulnerability rankings respectively.

While the sub-districts with low and medium- low vulnerability are relatively more affluent than the other sub-districts, they are still vulnerable in comparison to the mainland US; as such, the projects outlined in each island's Community Recovery Plan are not necessarily focused on the vulnerability results of this study.

Island	Subdistrict	Subdistrict Vulnerability Composite	% over 18 below poverty	% of median household income	% with health insurance coverage	% over 18 with a disability	% over 25 with no high school diploma
St. Croix	East End	2	1			1	
St. Croix	Anna's Hope Village	3	1			1	1
St. Croix	Sion Farm	8	3	1	1	2	1
St. Croix	Northcentral	10	2	3	1	2	2
St. Croix	Northwest	11	3	3	1	2	2
St. Croix	Southwest	12	2	2	2	3	3
St. Croix	Southcentral	13	3	2	2	3	3
St. Croix	Christensted	14	2	3	3	3	3
St. Croix	Frederiksted	15	3	3	3	3	3
St. John	Central	3		1	2		
St. John	East End	5		2	1	1	1
St. John	Cruz Bay	5		1	3		1
St. John	Coral Bay	6		2	2	1	1
St. Thomas	Northside	1	1				
St. Thomas	West End	3	3				
St. Thomas	Water Island	4			1	3	
St. Thomas	East End	7	1	1	2	1	2
St. Thomas	Southside	8	2	1	3		2
St. Thomas	Tutu	8	2	2		2	2
St. Thomas	Charlotte Amalie	12	1	3	3	2	3
			- Low	- Medium Low	- Medium High	- High	



Non-institutionalized refers to the part of the population that is not incarcerated or otherwise held against their will in medical facilities.

2017 HURRICANE DESCRIPTION

Hurricanes Irma and Maria devastated the U.S Virgin Islands in the fall of 2017. Hurricane Irma struck the U.S. Virgin Islands on September 6th. With winds sustaining over 185 mph, it is the strongest storm ever recorded in the Atlantic Basin. As it made landfall over St. Thomas and St. John, wind and storm waters separated roofs from houses, planted ships on beaches and flooded structures throughout the two islands.

As residents and recovery workers attempted to respond to the impacts of Irma on St. Thomas and St. John, Hurricane Maria made landfall on St. Croix less than two weeks later on September 19th. St. Croix absorbed the primary force of Maria. Intense winds and flash flooding inflicted severe damage to homes and critical infrastructure, leaving residents socially and economically insecure and vulnerable to environmental harm. Additionally, excessive rain coupled with the previous impacts from Irma caused extensive water damage to the already unprotected structures on St. Thomas and St. John.

HURRICANE IMPACTS

The impacts of Irma and Maria have been catastrophic to the U.S. Virgin Islands. Massive damage to homes, public facilities and infrastructure have left residents vulnerable to economic loss, social instability and environmental harm. With regard to housing, the territory has estimated that approximately 22,527 homes were damaged during the 2017 hurricane season. This figure accounts for 52% of all housing stock in the territory and of the 22,527 total, 5,175 homes suffered major or severe damage.

In terms of infrastructure, hurricanes Irma and Maria resulted in extensive physical damage for the energy, transportation, telecommunications and waste management sectors. Territory wide, over 90% of all aerial powerlines were damaged and approximately 13,478 total poles received some level of damage. Moreover, power was not fully restored to the territory until February of 2018. The road networks in the territory saw considerable damage. The USVI Department of Public Works has estimated a need of 32 million dollars for emergency road repairs. All airports were closed for two weeks following the storms and as a result of over 400 vessels sinking in the territory's harbors, all seaports were closed for 3 weeks. The waste management sector has been extremely overburdened as a result of Irma and Maria. Excessive storm flows resulted in damage to all 37 wastewater pumps in the territory. This led to wastewater overflows that disrupted 95% of public sewage services for territorial residents. In total, at least 138,000 gallons of waste water spilled into surface waterways and over land as a result of Irma and Maria. Damage to telecommunications systems resulted in transmission issues for cellular telephones, land lines telephones, internet and radio services. In total, 11 radio towers were damaged, and 75 miles of broadband cables were destroyed.

Irma and Maria impacted public facilities severely. The Virgin Islands Department of Education has reported that nearly every k-12 public school suffered damage due to the storms. More than half of the territory's schools reported that at least 50% of their facilities were damaged and in all, at least 30 schools are in need of permanent renovation. Substantial damage to the health care system forced the evacuation of 784 critical care patients to the U.S. mainland. All of the major medical facilities in the territory were damaged during the storms and estimated repair costs are in the hundreds of millions of dollars. Many other public facilities were damaged during the 2017 hurricane season. Over 800 government properties received damage including critical public safety infrastructure such as fire and police services. This had a substantial effect on local public safety official's ability to respond to storm impacts and emergencies.

HURRICANE IMPACTS

Hurricanes Irma and Maria have had and continue to have an immense impact on the territory's economy. Economic losses can be divided into three major categories that include: lost wages, lost government revenues and commercial property damage. The estimated total lost wages for territorial residents as a result of the storms is approximately $398 million. Whereas lost government revenues are estimated to top $576 million dollars and commercial property damage estimates reach upwards of $561 million. In total, these estimates account for over $1.5 billion in economic losses as a direct result of the 2017 hurricane season.

The following table represents a breakdown of FEMA verified losses by island for both Irma and Maria. Total FEMA Verified Loss is the value of real and personal property losses from storm impacts determined as a result of FEMA inspections. Real Property damage consists of damage to fixed property; most principally this includes damage to homes, structures and land. Personal property includes belongings exclusive of land or buildings. The inspections column represents the total number of home and property inspections performed. "Total per inspection" shows the average value of damages determined from a single inspection.

Irma FEMA Verified Loss		
	St. John	St. Thomas
Real Property	$19,864,258	$29,545,167
Personal Property	$3,093,169	$15,685,278
Total	$22,957,427	$45,230,445
Inspections	1847	10,439
Total per Inspection	$12,429.58	$4,332.83

Maria FEMA Verified Loss			
	St. Croix	St. John	St. Thomas
Real Property	$27,622,718	$18,864,258	$29,545,167
Personal Property	$14,551,803	$3,093,169	$15,685,278
Total	$42,174,521	$22,957,427	$45,230,445
Inspections	13,920	1847	10,439
Total per Inspection	$3,030	$12,430	$4,333

Summary

Hurricanes Irma and Maria inflicted severe damage on the island of St. Croix. The resulting impacts of the 2017 storm season will continue presenting themselves in future years. In lieu of an independent compilation of hurricane impacts on each sector or aspect of life on St. Croix, narratives of damage are included in each project description in the remainder of the report.

[4] All data derived from FEMAa Service Center geospatial view as of 7/29/2018. FEMA Verified Loss is an inspected estimate of damages to real property (physical structure) and personal property (structure contents, vehicles, etc.)

COMMUNITY PLANNING PROCESS

By February 2018, community-driven recovery planning efforts had started on each of the U.S. Virgin Islands. Stakeholders came together to help their communities plan for recovery from the 2017 hurricanes, become more resilient for future storms and build the foundation for a strong and successful future. This document includes recovery focus areas and projects gathered by the St. Croix Community Planning Committee. The planning process has four main components: identifying community needs, creating projects, prioritizing projects, and creating implementation strategies.

Community Planning Committee

The St. Croix Community Planning Committee is comprised of stakeholders from the island who represent various sectors including non-profit organizations, members of the faith community and concerned citizens. The Committee, with support from Federal Emergency Management Agency (FEMA) Community Planning and Capacity Building staff, started their work in January 2018. Since that time, the group met weekly, conducted individual interviews, hosted public meetings and facilitated targeted focus group conversations in order to develop the focus areas and projects listed in this document.

Members

Many stakeholders and organizations participated at different times, throughout the process. Committee members included: Sommer Sibilly Brown, Dion Christopher, Haley Cutler, Sonia Jacobs Dow, Chris Finch, Samantha Harlow, Karen Hunt, Deanna James, AnuMaat Davis Kahina, Angelique McCambry, Gary Moore, Kim Nosek, James Rollins, Jamila Russell, Sheila Scullian, Denyce Singleton, Barbara Walsh, Mike Walsh and Jerry Weninger. Many members of the St. Croix Community Planning Committee were also members of the St. Croix Long-Term Recovery Group. While the groups worked independently, they shared many common goals.

OUTREACH OVERVIEW

Interviews

After the Committee was convened, more than 25 interviews were conducted in order to get preliminary input from key stakeholders about St. Croix's strengths, weaknesses, opportunities and threats to recovery and resiliency. Based on input from representatives across geographic boundaries, demographic profiles and industries, an initial picture of storm impact was developed.

Public Meetings

In April 2018, the Community Planning Committee partnered with the Governor's Hurricane Recovery and Resilience Taskforce to host three public meetings on St. Croix to introduce the long-term recovery planning process and engage attendees in the identification of needs and potential projects for recovery, resiliency and community development. More than 100 people attended the outreach meetings and provided their ideas.

Additionally, in May, the Community Planning Committee participated in a Youth Opportunity Fair, hosted by the St. Croix Long-Term Recovery Group. Over 200 young adults participated in the event. Many outlined their vision for the island, obstacles they face in recovery, and their ideas for St. Croix to become more resilient. The youth input is represented in this report.

Focus Groups

After interviews and public meetings, several gaps in public participants were identified. The Community Planning Committee conducted focus groups to ensure wide public participation in the planning process. To date, the Committee has started engaging in targeted conversations with youth, people with disabilities, farmers, educators and economic development representatives to try to further understand complex recovery needs and help identify solutions. Because not all of these focus groups have been completed, their ideas will be addressed more thoroughly as they are refined.

PROJECT OVERVIEW

The following 19 projects were chosen and prioritized to address the most-pressing needs identified in the St. Croix community planning process. They are organized into three categories:

- **Recovery Projects** to rebuild key community systems and repair facilities damaged by the storms, in the short-term
- **Resilience Projects** to strengthen community systems to restore island services and prepare for future disasters, in the 1-3 year time horizon
- **Community Development Projects** to advance the island as a whole, in the 3+ year timeframe

PROJECTS

Recovery Projects

Develop a Resilient Food System

Improve Access to Healthcare by Piloting a Client-Centered Care Program

Repair, Fortify, and Preserve Vulnerable Historical and Cultural Archives

Resilience Projects

Assist Local Non-profits In Supporting Response Efforts

Develop Additional Local Organizational Capacity to Implement Recovery Projects

Repair, Re-open, and Re-evaluate Community Spaces

Implement a Volunteer Check-up Program

Pilot Off-Grid Boxes for Neighborhood Disaster Preparedness

Improve Individual Resilience through Community Mental Health Services

Protect Coral Reefs, Beaches, and Heritage Trees

Provide Solutions to Shelter Vulnerable Populations

Educate Public on Managing Waste Before, During, and After Disasters

Community Devleopment Projects

Establish Small Business Industry Clusters

Provide More Resilient Support Services for Youth Following Disasters

Actively Promote Heritage Tourism to Diversify the Economy

Promote Solutions for Low-income Homeowners Resilience

Enhance Job Training and Vocational Programs

Update and Enforce New Comprehensive Land Use Plans

Recovery Support Function Alignments

Projects align with Federal Recovery Support Functions (RSF) and, where applicable, appropriate Federal Agencies. Each RSF is led by a corresponding Federal Agency. This is done to provide a starting point to identify additional funding avenues, technical assistance, and training for each project.

Community Planning and Capacity Building **(CPCB)** - FEMA
Economic **(Econ)** - Department of Commerce
Health and Social Services **(HSS)** - Department of Health and Human Services
Housing RSF - Department of Housing and Urban Development
Infrastructure Systems **(IS)** - United States Army Corps of Engineers
Natural and Cultural Resources **(NCR)** - Department of the Interior

Other federal partners include US Department of Agriculture (USDA), Enviornmental Protection Agency (EPA), and Department of Education.

RECOVERY PROJECTS

Rebuilding Key Community Systems and Repair Facilities Damaged by the Storm

DEVELOP A RESILIENT FOOD SYSTEM

Project Champion:
VI Good Food Coalition

Alignment:
NCR , Econ, and USDA

Cost:
$500,000

Timeline:
6 months - 5 years

IMPLEMENTATION STEPS

1. **Conduct a Community Food Assessment**
   Build upon recent local and USDA studies of farming on St. Croix.
2. **Prepare for future disasters**
   Establish pre-disaster farming best practices specific to St. Croix's agricultural system.
   Use community food assessment and existing agroforestry and perennial systems research.
   Pre-determine supply of local food from farmers to post-disaster food distribution points.
   Utilize national farmer recovery tools.
   Include discussion of loose animals and livestock in preparatory guidelines.
3. **Develop a local farm revolving fund**
   Catalogue and identify gaps in existing post-storm loan opportunities for farmers.
   Identify non-profit fiduciary home for revolving fund.
   Provide funds to farmers for projects like: rebuilding farm stands, fence repairs, off-grid power systems, and piloting farm pod usage.
4. **Train local leaders**
   Conduct training for local food leaders on how to conduct food system assessments and advocate for better food policy.
   Establish youth-oriented agriculture programs to encourage the next generation of ag leaders.
5. **Expand and sustain growth**
   Create a Local Food Policy Council made up of local food leaders to advocate for better food policy.
   Explore opportunities in agri-tourism industry.

Post-hurricanes access to fresh food was severely limited. Significant damage was inflicted on producers, wholesalers, and private household sources of food. Beyond this direct damage, the disaster illuminated other shortcomings of the island's food system including the overwhelming dependency on imported food, the disconnect between local producers and post-disaster food distribution points, limited guidance on pre-disaster farming protocols, and the dearth of local leaders currently bringing together strong voices to address these issues.

During the public engagement process, residents identified areas for improvement throughout the entirety of the island's food system. In order to explore these needs in greater depth, the St. Croix Community Planning Committee, the Virgin Islands Good Food Coalition and Iowa State University's Community Food Systems Program hosted a series of farmer conversations where producers expressed post-storm, current, and long-standing needs.

Work then began to develop best practices for farmer pre-disaster preparation, conduct training for local food leaders (farmers, grocers, chefs) to advocate for better food policy, and build a coalition for future work. A forthcoming report from USDA on agroforestry systems may impact and further develop the implementation of this project.

IMPROVE ACCESS TO HEALTHCARE BY PILOTING CLIENT-CENTERED CARE

Project Champion:
Virgin Islands Partners for Healthy Communities, Continuum of Care Inc., Frederiksted Health Care Inc., Plessen Healthcare

Alignment: HSS

Cost: <$100,000

Timeline: 6 months

Hurricanes Irma and Maria severely limited access to healthcare on St. Croix, leaving the most vulnerable population with limited or no access to proper healthcare. The hospital was critically damaged, local healthcare clinics were unable to meet the needs and non-profit organizations were operating in limited capacity. The result was that individuals with disabilities, the elderly, chronically ill persons, those who are socially isolated, and children with medical conditions were unable to access healthcare services. Those who require durable medical equipment requiring power (e.g., breathing machines and refrigerators for insulin) were in desperate need. Those with generators needed to navigate to and from gas stations within curfew hours to obtain fuel. Some did not properly prepare for the hurricane and did not have food and water stored or medical records on hand. To compound these issues, some of these individuals did not have family or friends to check on their well-being post storm.

IMPLEMENTATION STEPS

1. **Identify active and supporting organizations**
   Assess technical assistance needs, identify entities that have expertise
2. **Identify pilot participants**
   Create eligibility requirements, solicit clients, achieve consent from clients, adhere to HIPPA compliance
3. **Conduct initial client meetings**
   Assign a case manager, conduct initial review
4. **Equip clients**
   Medical records, disaster preparedness education, hurricane preparedness kits
5. **Track clients**
6. **Assess, share findings and expand**

Care for vulnerable populations arose from public meetings and Community Planning Committee conversations as a critical need. Post-storm, several organizations provided referral services in a collaborative effort to provide this population access to the care they need. These organizations realized that in the aftermath of a storm, they need a more formalized approach to help the Virgin Islands' most vulnerable population with their healthcare needs while also incorporating disaster preparedness. This led to the development of a pilot program that provides customized care to individuals with significant barriers to this care otherwise.

This program, a partnership between Virgin Islands Partners for Healthy Communities, Continuum of Care Inc., Frederiksted Health Care Inc., and Plessen Healthcare, will couple individualized healthcare and disaster preparedness to reduce hospital and clinic services needed during and after a disaster. Upon successful completion of this pilot, the results will be shared with the islands of St. Thomas and St. John in efforts to provide improved access to healthcare across the Territory of the U.S. Virgin Islands.

REPAIR, FORTIFY & PRESERVE HISTORICAL AND CULTURAL ARCHIVES

Project Champion:
St. Croix Landmarks Society, Crucian Heritage & Nature Tourism

Alignment: NCR RSF

Cost: >$1M

Timeline: < 1 year

IMPLEMENTATION STEPS

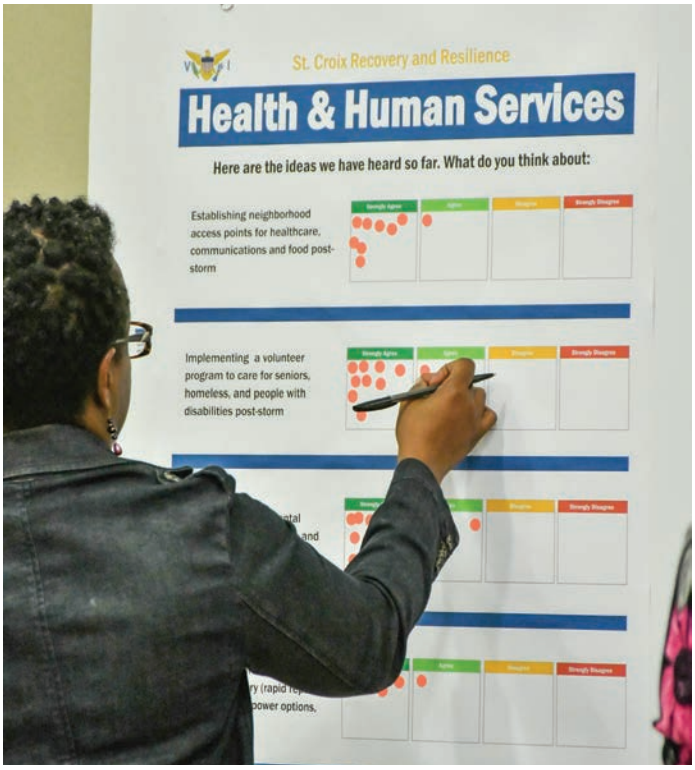
1. **Get Organized**
   Form a standing committee on archives, develop and update a master list of collections and status.
2. **Prioritize**
   Identify and prioritize remediation steps for archives, existing gaps in storage, best-practices in archive preservation during disasters, and digitizing deteriorating documents.
3. **Train and Educate**
   Develop and institute protocols across agencies for disaster preparedness.
   Bring archival experts for local organizational training.
   Identify individuals with collections management, library science experts and translators
   Provide public education about preserving private family collections
   Work with the UVI to develop a training program for preservation
4. **Plan and Mitigate**
   Develop a shared database to track archives.
   Identify and map ancestral cemeteries to mitigate against future damage.
   Assess permanent storage solutions and consider consolidating locations to reduce risk of further damage.

The island experienced major destruction following the 2017 hurricanes including significant damage to valuable historical and cultural resources. Among the archives affected were paper documents, maps, books, paintings, furniture, government and church records, and personal collections. Ancestral burial grounds were also impacted by road and electric crews working during the recovery. Archive recovery efforts continue to face significant challenges due to limited capacity, materials, funding and local preservation expertise. Preserving archives is of great importance in order to maintain the history and rich cultural heritage of St. Croix.

Following the storm a team from the Smithsonian Institution Conservatories and a National Archives Records Manager traveled to the Virgin Islands to assess 27 cultural, historical and territorial government institutions and document depositories impacted by the storms. The conditions varied from minor to catastrophic loss. On St. Croix, those locations included: The Estate Whim Museum, Friedensfeld Moravian Church, Sunshine Mall, Lord God of Sabaoth Lutheran Church, Petersen Library, Fort Frederik, Mars Hill Storage Facility, and the Brugal Rum Factory Murals and Archives. In addition to the work from the Smithsonian, local community planning efforts identified other at-risk collections from the St. Croix Landmarks Society, University of the Virgin Islands, St. Patrick's Catholic Church and several other churches. As of July 2018, remediation hasn't been completed and collections are being moved around, posing a permanent risk to the valuable historical and cultural archives. Immediate actions are needed to plan for the restoration and maintenance of these treasures.

RESILIENCE PROJECTS

Strengthening Community Systems to Restore and Prepare for Future Disasters



ASSIST LOCAL NON-PROFITS IN SUPPORTING RESPONSE EFFORTS

Project Champion:
St. Croix Foundation for Community Development

Alignment:
CPCB, HSS RSFs

Cost:
> $500,000

Timeline:
< 1 year

IMPLEMENTATION STEPS

PRE-DISASTER PLANNING WITH THE NON-PROFIT COMMUNITY

1. Continuity of operations plans
2. Create non-profit hubs
3. Equip hubs

NON-PROFITS AND GOVERNMENT AGENCIES COOPERATION

1. Request that a non-profit representative be appointed to the Emergency Operations Center
2. Request curfew passes for non-profits and develop a curfew pass incentive program for non-profits with VITEMA
3. Prioritize clean-up and repairs for non-profits to come online quickly
4. Create a grant or loan program for funding repairs to non-profits

St. Croix communities leaned heavily on non-profit organizations to provide emergency resources for recovery, especially in the first 90 days after the disaster. However, as the demand for services was increasing, many agencies had severely limited operational capabilities. Due to factors including facility damage, power issues and connectivity problems, non-profit organizations were challenged to meet those needs. As front-line responders in emergency situations, changes in procedures and additional resources are needed to support the non-profits who support the community in the greatest times of need.

Throughout the public engagement process, residents identified that they needed more services from non-profit organizations. Although their needs changed from food and water immediately post-storm, to more services to fill gaps in government program over time, key obstacles for non-profits remained. The St. Croix Foundation for Community Development published a Non-Profit Disaster Recovery and Capacity Assessment and Summary Report to further detail the storm impacts on local non-profits as well as the primary barriers to continued work following the storm. There is strong community support for efforts that encourage coalition and capacity building to enhance disaster recovery tools for non-profits on St. Croix.

DEVELOP LOCAL ORGANIZATIONAL CAPACITY TO IMPLEMENT RECOVERY PROJECTS

Project Champion:
All non-profit organizations and government agencies that need additional capacity

Alignment:
All Recovery Support Functions

Cost:
< $500,000

Timeline:
< 1 year

IMPLEMENTATION STEPS

SHORT TERM

1. Identify a program sponsor and bring volunteers to assist in immediate project management needs
2. Bring national training opportunities and technical assistance

LONG TERM

3. Support initiatives in commerce, education, philanthropy and culture sectors
4. Create or partner with existing leadership training program
5. Establish and improve professional, vocational and trade programs

Following the storms, nearly every system on the island had to be assessed and repaired, including: government services, non-profit services, infrastructure, health systems, food systems and natural/cultural preservation. Many federal resources flooded the territory, but the number of local community leaders available to implement the recovery remained at the same level. Pre-storm non-profit staffs and systems were already over-taxed, so the storms exacerbated the need for more local organizational capacity.

Early in the community planning process, local stakeholders came together to form committees and working groups to implement disaster recovery projects. In addition to their regular public service roles, many stakeholders took on several additional recovery effort roles, expending much of their time. Throughout the public engagement process, many public service organizations voiced a need for additional manpower to funnel needed services to the public. An isolated community of 50,000 people will not be able to meet every need after Category 5 storms; however, there are steps that can be taken to enhance the capabilities of the civic leaders of today and develop more leaders for the future. As of July 2018, there are a number of short and long-term solutions identified to build local capacity across functional areas. The implementation of short-term strategies has begun.

ENHANCE MOBILITY SYSTEM

Project Champion:
Individuals interested in participating in decisions regarding the mobility system

Alignment:
HSS, Econ, IS, CPCB, NCR RSFs and EPA

Cost: < $500,000

Timeline:< 1 year

Existing transportation challenges were exacerbated by the two Category 5 hurricanes in 2017. These challenges included limited access to the island's economic centers resulting in a lack of access to necessary supplies and services. One significant limitation was mobility, including access to an efficient public transportation system. In addition to not being able to get to distribution points, bus shelters were badly damaged, leaving folks trying to get across the island waiting in the elements for public and private services. These challenges disproportionally affected seniors, people with disabilities and low-income individuals, hindering their recovery. Improving connections within communities, beyond car travel, not only positively impacts access to goods and services, it can also promote public safety and economic development, and strengthen the overall sense of community.

IMPLEMENTATION STEPS

1. Transit Citizen Advisory Group: Develop a citizens' advisory group for public mobility
2. Roadways: Plan for bike lanes, sidewalks, curb extension, crosswalks, signage, and accessible, lighted bus stops
3. Transit Routes: Encourage non-profit groups and citizens to participate in the federally-required public planning process for the 2040 Comprehensive Transit Plan Report that is developed by the VI Department of Public Works
4. Bus Shelters: Repair and rebuild accessible bus shelters

Three key components of a sustainable mobility system that are important to stakeholders on St. Croix are additional greenways (i.e., corridors of land that connect people and places together), safer walkways (e.g. sidewalks, lighting and crosswalks) and additional ways to move around the island (e.g., bus service). Establishing better connections is generally a government function, however, citizens and community groups have opportunities for transit advocacy in the planning process.

REPAIR, RE-OPEN & RE-EVALUATE COMMUNITY SPACES

Project Champion:
St. Croix Foundation for Community Development

Alignment:
HSS, Econ, IS, CPCB, NCR RSFs, and Dept. of Education

Cost:
< $1 million

Timeline:
1-5 years

Before, during and after the 2017 hurricane season, there was a shortage of open public spaces on St. Croix. Before the storms, there were not enough spaces for people, including youth and seniors, to gather to access public services. During the storms, schools served as the main public shelters, limiting the capacity for schools to serve students post-storm. Immediately after Hurricane Maria, there were not enough community spaces for people to get information or access needed supplies. As more libraries, senior facilities and civic centers have been closed, or allowed to fall into states of disrepair, the access to public services and the ability to establish a sense of community has been dramatically diminished.

IMPLEMENTATION STEPS

1. Expand parks through land acquisition and preservation like Spring Gaut Park
2. Repair St. Croix's two senior living facilities: Herbert Grigg Home for the Aged and Richmond Senior Center
3. Renovate and Reopen the Aldershville Senior Center
4. Retrofit Alexander Theatre to become a performing arts theatre and a community shelter in times of disaster

Throughout the public engagement process, three main issues related to public spaces were identified. First, at the Youth Opportunity Fair, one of the top priorities for people under the age of 20, was a lack of safe places to gather and learn about recovery tools and opportunities. The split school schedule contributed to this need, however it is ongoing. Second, seniors, especially in Frederiksted, continue to have very limited access to public services. They are currently bussed to Christiansted, but reported inconsistent transportation and a lack of reliable information about programming. Finally, members of the general public reported little or no ability to access goods, services and information following the hurricanes. Private businesses opened to serve as a link to supplies and civic programs, at their own expense, with some success, however a more comprehensive approach would be beneficial. These three issues together led to the community to identify the need for new and/or revitalized public spaces and more options for public sheltering.

IMPLEMENT A VOLUNTEER-RUN CHECK-IN PROGRAM

Project Champion:
LTRG, American Red Cross, additional non-profits

Alignment:
HSS RSF

Cost:
$100,000

Timeline:
1 year

Following Hurricanes Irma and Maria, there was no organized system to check on elderly individuals and those with disabilities who may have been stuck in their homes needing help. Socially or geographically isolated individuals could not reach points of distribution for food and water. Some individuals with disabilities needed care but did not have anyone to transport them or any access to electricity to power their medical equipment. Their individual struggles weren't known until well after the storms had passed.

IMPLEMENTATION STEPS

1. Host Program: select an organization to manage the program
2. Create Registry: Set up self-registration online, in person, and by phone
3. Recruit: Use existing volunteer networks to solicit participants
4. Train: Orient participants to the program and provide basic training
5. Assign Volunteers: Match participants with volunteers in their geographic area
6. Condut Check-Ins: Immediately post-disaster have volunteers check on participants and refer participants to resources

Residents identified a need to organize a check-in process for the most vulnerable individuals on St. Croix following a disaster. In early 2018, various local non-profits, local and federal government entities began considering a self-disclosed registry for individuals who may need additional assistance following a storm. In July 2018, the Legislature of the Virgin Islands proposed an Act providing for the establishment of a registry for persons 60 years and older, with disabilities, and living alone. The national emPOWER program tracks individuals who require electrically-run medical equipment and can be of great use in creating a registry. An opportunity exists to coordinate registries with National Volunteer Organizations Active in Disasters in order to have additional non-profit support to check on individuals who may be in need after a disaster. The steps in this project primarily guide a leading organization or committee in administering a volunteer check-up program.

PILOT OFF-GRID BOXES FOR NEIGHBORHOOD PREPAREDNESS

Project Champion:
Faith-based Organizations

Alignment:
HSS, CPCB RSFs

Cost:
< $500,000

Timeline:
< 1 year

Following the storms, public distribution points were not conveniently located and were difficult to access due to limited transportation and blocked roadways. As a result, some residents were not able to get to distribution points. For those who were able to go, many of them, especially the most vulnerable, were unable to stand in lines in the elements for lengthy periods of time and did not receive any supplies. In addition, government distribution sites didn't have the ability to provide charging stations or communication assistance, like solar outlets, WIFI or satellite phones, which survivors desperately needed post-event.

IMPLEMENTATION STEPS

1. Identify organizations to properly assess what needs to be in each box
2. Determine what supplies are included in the boxes necessary to meets the needs of the volunteer groups
3. Determine security measures necessary to maintain each distribution site
4. Identify potential sites at faith-based organizations, community centers, or other facilities that could potentially store and distribute short-term emergency supplies
5. Purchase solar-powered boxes
6. Implement maintenance plan and continuity of operations plan

As part of community planning engagement efforts, residents identified a need to establish a volunteer-led effort to supply distribution points in their own communities without having to travel distances to pick up commodities and primary basic needs immediately post-disaster. This project seeks to place a network of self-contained solar-powered boxes in community locations island-wide to distribute life sustaining supplies and communications equipment for 0-14 days post-disaster.

IMPROVE INDIVIDUAL RESILIENCE THROUGH COMMUNITY MENTAL HEALTH SERVICES

Project Champion:
LTRG, USVI Mental Health Coalition, Behavioral Health Planning Advisory Council
Alignment:
HSS RSF

Cost:
< $100,000

Timeline:
< 5 years

On St. Croix mental healthcare was identified as a significant missing service. While it was one of the top St. Croix community-identified projects, mental health care is a territory-wide concern and likely best solved at the territory level. As of July 2017, local and federal health providers and partners are coordinating on long-term strategic plans for the territory to develop a comprehensive mental health system. While the system needs to take form at a departmental and governmental level locally, there are ways individuals and community groups can enhance both individual and community resilience in regards to mental health post-disasters. Additionally, an organized advocacy unit rooted in community groups, including faith communities, has the potential to carry weight in the eyes of local and federal health entities.

IMPLEMENTATION STEPS

1. Psychological First Aid (PFA): PFA is an established, evidence-based training that equips individuals to serve as emergency support to others in time of stress and trauma.
2. United Advocacy: Several entities on St. Croix including the Long Term Recovery Group's Wellness Committee, the USVI Mental Health Coalition, and the territorial Behavioral Health Planning and Advisory Council are advocating for more comprehensive mental health services.

PROTECT CORAL REEFS, BEACHES, AND HERITAGE TREES

Project Champion:
Nature and conservation focused organizations and agencies

Alignment: NCR RSF

Cost:
> $1M (scalable)

Timeline:
> 5 years

St. Croix's coral reefs, beaches, and trees were negatively impacted by Hurricanes Irma and Maria. The coral system serves a critical role in spurring tourism and maintaining small scale fishing industries. Beaches on St. Croix were filled with debris and collected large amounts of waste as the storm passed. These are the same beaches that attract thousands to the island yearly. The trees on the island were especially hard hit. Of highest concern were the leaners and hangers that were destroyed during hasty post-storm debris removal, the standing dead trees that require removal, and living heritage trees that are susceptible to future damage from electrical lines and storm damage. Protecting these natural resources for future generations requires assessment, significant coordination with federal and local agencies, and strategic planning.

IMPLEMENTATION STEPS

CORALS

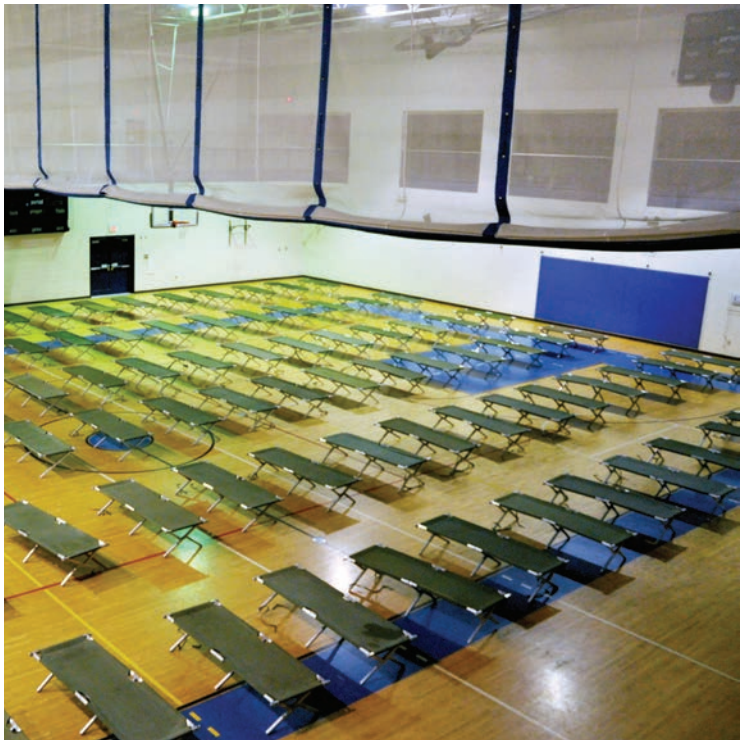
1. Triage and Restore the coral.
2. Establish nurseries and develop long-term restoration plans.
3. Determine the best ways to enhance reefs under warming temperatures.

BEACHES

4. Reduce contribution of debris to marine environment through public education and community clean-up events.

TREES

5. Conserve and utilitze the standing dead trees
6. Remove, clean, and disperse tropical hardwoods to artisans
7. Use existing materials to repair historic buildings
8. Map all standing heritage trees



PROVIDE SOLUTIONS TO SHELTER VULNERABLE POPULATIONS

Project Champion:
Non-profits, faith-based organizations, VI health and human service agencies

Alignment:
HHS RSF

Cost: > $1M

Timeline:1 year

During Hurricanes Irma and Maria, senior citizens, the homeless and residents with disabilities did not receive adequate support in storm shelters due to a lack of resources, staff, and a strategy for their care. In some cases, residents placed their elderly relatives in senior centers and other facilities with already limited resources because there was no communicated plan for people with additional needs during the storms. At public meetings, various local non-profits, faith based organizations and stakeholders identified the most vulnerable of St. Croix may require additional accommodations. The options for meeting this need are: 1) creating a dedicated storm shelter for individuals with access and functional needs; 2) designating space in existing shelters for these individuals; 3) equipping and encouraging safe sheltering at home. Considering the varied level of services and lengths of time it would require to implement each of these, the three options should be viewed as a multi-pronged approach to providing both temporary and long-term solutions to sheltering vulnerable populations.

IMPLEMENTATION STEPS

1. Dedicated Storm Shelter: Build a separate shelter for seniors, the homeless, and individuals with disabilities.
2. Non-dedicated Storm Shelter: Assign dedicated space within an existing shelter separate from the general population.
3. Shelter at Home: Conduct pre-storm check-ins to ensure vulnerable populations are properly prepared with food, water, medication, and emergency plans.

EDUCATE PUBLIC ON MANAGING WASTE BEFORE, DURING & AFTER DISASTERS

Project Champion:
Non-profits

Alignment:
HSS RSF, USDA, and EPA

Cost:
< $100,000

Timeline:
> 1 year

Following the hurricanes, mounds of roadside debris were abundant and limited information was available about how to best deal with storm-related household debris. Input from public meetings led to the fact that debris issues were not only a result of the storm but rather due to a limited adoption of household sustainability practices on the whole. In order to better understand the state of waste on the island, the territory could benefit from several waste-related studies.

IMPLEMENTATION STEPS

1. Create a household emergency debris plan
2. Conduct public sustainability education
3. Educate youth at school about ways to limit waste at home
4. Organize clean up days
5. Conduct waste characterization and recycling market study
6. Solicit technical assistance for island-wide studies

EMERGENCY DEBRIS PLAN

Develop an emergency debris plan for government entities and individual households alike. Widely publicize guidance for household debris management, waste drop off sites, and recycling opportunities for damaged material

PUBLIC SUSTAINABILITY EDUCATION

Draw from federal and local sustainability programs to disseminate sustainability tips to the public to limit household waste. Educate youth at school about ways to limit waste at home. Organize clean up days to engage the public in limiting waste in marine areas and watersheds and to expose the public to the existing state of waste on the island. Align where appropriate with existing waste clean-up initiatives like the VI Clean Coasts Campaign

COMMUNITY DEVELOPMENT

Advancing the St. Croix Community as a Whole

ESTABLISH SMALL BUSINESS INDUSTRY CLUSTERS

Project Champion:
USVI Department of Tourism
St. Croix Chamber of Commerce

Alignment:
Econ, CPCB RSFs and USDA

Cost:
< $100,000

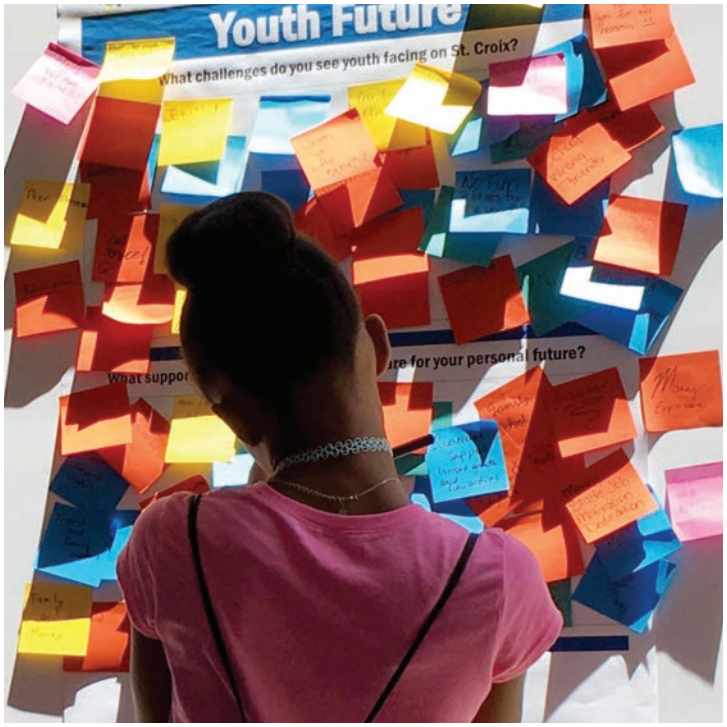
Timeline:
< 1 year

Throughout the territory, approximately 98% of the businesses qualify under the U.S. Small Business Administration definition of "small". Small businesses have a tendency to be more vulnerable to environmental and economic changes such as those introduced through the hurricanes. After Hurricanes Irma and Maria, St. Croix's small businesses faced immense challenges, including limited access to capital, distribution chains, communication capabilities, electricity, available labor force, and operational hours.

IMPLEMENTATION STEPS

1. Set up business industry clusters with local businesses that wish to participate; determine key goals and schedules
2. Promote businesss to business links
3. Develop public private partnerships
4. Help gain access to additional markets
5. Outline best practices of clusters
6. Create a long-term plan for how the clusters will be managed, funded, and will grow and adapt to ever-changing needs of the business community

As part of the community planning outreach efforts, business owners were interviewed about their specific challenges. There was overwhelming support to establish industry-specific small business clusters to increase post-storm resiliency. Industry clusters are groups of related firms concentrated in a small geographic area. They create shared prosperity by advancing economic competitiveness. Some of the common themes expressed on St. Croix, across business owners, included the need to develop disaster planning tools, to address supply chain issues, to partner on marketing and financial training and to prioritize workforce development needs. Establishing small business groups with the same interests adds to the overall island resilience and has the potential to encourage additional economic development.



PROVIDE MORE SUPPORT SERVICES FOR YOUTH FOLLOWING DISASTERS

Project Champion:
LTRG

Alignment:
HSS, Econ, CPCB RSFs, USDA and Dept. of Education

Cost:
< $500,000

Timeline:
< 1 year

St. Croix's youth support systems were negatively impacted by Hurricanes Irma and Maria. The storm resulted in the permanent closure of six public schools, causing the remaining schools to share their academic space and conduct split sessions. As a result, students were left without their social support system and had limited access to school counselors, teachers, and other staff. These challenges exacerbated limitations in the existing services offered to students on the island, including few accessible after school and summer programs as well as the heavy strain on parents to support students. Barriers remain to providing needed support and services to students, outside of schools.

IMPLEMENTATION STEPS

1. Reconvene and engage youth in recovery by organizing a 2nd Annual Youth Opportunity Fair
2. Expand and enhance existing after school & summer programs
3. Develop new career and technical training programs in conjuction with the Department of Labor and the University of the Virgin Islands
4. Encourage parent support of students and encourage new forums for parent peer-to-peer support networkds

The St. Croix community, including youth at a targeted outreach event, expressed great concern about available support for youth throughout the public engagement process. The concerns were: a) engaging young adults in disaster preparedness and recovery, b) offering more training and job opportunities, c) identifying opportunities for after-school and summer programming and d) additional student support outside of school. The youth also expressed interest in being included in the recovery of their community as well as learn preparedness techniques. Continued engagement with students is critical to developing a resilient community. The implementation steps outlined in this project can be housed in a variety of organizations or across organizations including the Long Term Recovery Group, government departments, other non-profit organizations, and local businesses.

ACTIVELY PROMOTE HERITAGE TOURISM TO DIVERSIFY THE ECONOMY

Project Champion:
Local organizations interested in promoting heritage tourism

Alignment:
NCR, Econ, CPCB RSFs, and USDA

Cost:
< $100,000

Timeline:
< 1year

Prior to Hurricanes Irma and Maria, a large portion of the territory's economy was based on tourism. St. Croix's tourism industry suffered after cruise ship dockings and the number of open hotels and room rentals were reduced in 2018. A renewed push to revive tourism on St. Croix should focus on the island's living history and culture that spans hundreds of years. St. Croix has an unparalleled collection of nationally significant natural, cultural, historical, and scenic resources that relate to the larger story of American and Caribbean history and heritage. Heritage tourism refers to a tourism based on attracting people to places where they can experience artifacts and activities that represent the stories and people of the past and present. It includes cultural, historic, and natural resources. There are similar variations, including the National Geographic Society term, Geotourism. Promoting this type of tourism does not require an official designation — it can be a community-led effort to identify and promote sites of local significance.

IMPLEMENTATION STEPS

1. Establish a St. Croix Heritage Tourism working group
2. Identify and map heritage sites
3. Partner with National Geographic Society Center for Sustainable Destination to start a geotourism program
4. Determine feasibility of obtaining a National Heritage Area designation
5. Determine the feasibility of obtaining a United National Educational, Scientific, and Cultural Organization (UNESCO) World Heritage Site designation

The need to enhance St. Croix's tourism offerings was identified during the planning process. This was often coupled with the desire to promote a more sustainable tourism industry and an emphasis on highlighting the island's land, culture and history. In the last several years, there have been several market and feasibility studies related to Heritage Tourism and its viability on St. Croix. There is a push to reconvene locals with an interest, gain consensus on a direction, brand the initiative, create tools for visitors to use and publicize the efforts.

PROMOTE SOLUTIONS FOR LOW-INCOME HOMEOWNER RESILIENCE

Project Champion:
St. Croix Foundation for Community Development

Alignment:
IS, CPCB, Housing RSFs and EPA

Cost:
< $500,000

Timeline:
1-3 years

St. Croix has a significant number of low-income residents and homeowners. Hurricanes Irma and Maria disproportionally impacted these residents. Some impacts are known, like access to power and electricity. Many St. Croix residents were without power for months post-storm. Low-income homeowners faced acute power problems post-storm because they had no alternatives like personal generators. In addition, serious household problems including improper cistern maintenance, mold remediation needs and poor indoor air-quality were reported. There is a need to address the known issues faced by low-income homeowners, to foster healthy homes, and to identify other obstacles this population faces in keeping and maintaining their properties after disasters.

IMPLEMENTATION STEPS

1. Implement a Solar Energy Pilot Project: Identify pilot participants, outfit homes with solar-pv power storage systems, assess energy saved, money saved, level of engagement, and feedback
2. Conduct trainings to educate homeowners at-large about healthy homes
3. Conduct a long-term study to address low-income homeowners resilience
4. Utilize the data collected to enhance support for and the recovery of low-income homeowners

Non-profit organizations and other individuals emphasized the need to rebuild and repair homes with an emphasis on sustainability and resilience. One proposal that arose was a household solar-powered pilot project. The pilot has a dual purpose of addressing current energy needs and educating residents about alternative energy sources while emphasizing disaster preparedness skills and creating sustainable energy jobs. Another key component of making homes more resilient is to educate homeowners about how to address common environmental issues. This can be done with a robust communication outreach campaign. Finally, because there is insufficient information about the long-term implications of disasters on low-income homeowners, a study of the obstacles to maintaining homeownership could support resilience efforts.

ENHANCE JOB TRAINING AND VOCATIONAL PROGRAMS

Project Champion:
Workforce Investment Board, non-profits

Alignment:
All Recovery Support Functions

Cost:
< $500,000

Timeline:
1-5 years

The economy of the U.S. Virgin Islands was in a tenuous financial situation prior to the storms. Many workers on St. Croix were left without jobs after the closing of the territory's largest private employer in 2012. Additional job training will be needed to position local workers to fully take advantage of the opportunities territory-wide, especially in the areas of construction, hospitality, internet-technology, retail, health, and administrative services. Job training was one of the top issues identified by the community. Attendees at public meetings expressed the need for expanding job training programs (especially for youth) to more closely link to the available jobs. Employers reported the inability to find qualified workers, highlighting a potential mismatch in the types of training provided and the employers' needs. There was also high priority placed on specialized recovery skills, including historic preservation techniques and renewable energy.

IMPLEMENTATION STEPS

1. Conduct a labor market study
2. Develop a St. Croix regional economic plan
3. Engage employers in the conversations to fill talent pipelines through focus groups
4. Develop trainings to enhance customer service skills for front-line employees
5. Prioritize apprenticeship programs and training in recovery jobs like construction laborers, supervisors, equipment operators, small engine mechanics and truck drivers
6. Create a forward-looking, long-range (20+ years) economic vision

UPDATE AND ENFORCE NEW COMPREHENSIVE LAND USE PLANS

Project Champion:
VI Department of Planning and Natural Resources

Alignment:
CPCB, IS, Econ, Housing RSFs

Cost:
< $100,000

Timeline:
< 1 year

Land-use planning is a foundational component for all local decision-making. An updated land-use plan provides direction for future development that is then implemented through a development code. This is a best practice for natural hazard risk management by considering disaster risks and their spatial distribution to steer more sustainable land development and use, and reduce the vulnerability of people who may be settled on sites with significant risks and constraints. The current land-use plans and regulations in the U.S. Virgin Islands are dated. The territorial Zoning and Subdivision Law chapter of the Virgin Islands Code was passed between 1968 and 1972. Other than a string of updates in the late `80s and early `90s, there have been few substantial updates to it since it was first put on the books.

IMPLEMENTATION STEPS

1. Create a land-use plan working group
2. Conduct studies that are relevant to plan elements
3. Utilize existing analysis to incorporate into the back-up documentation
4. Define scope and sections of plan
5. Facilitate community engagement and input
6. Work with various levels of government and communities to produce a comprehensive land use plan

In order to prepare a true comprehensive plan for the territory, the planners will need to prepare supporting studies that are relevant to plan elements, making use of previous analyses and any new analysis that may be necessary. Information incorporated from studies undertaken should include descriptions and analyses of the natural and manmade environment, the population, labor force, and economic characteristics, and projections of population and employment for a period of 20 years, in 5-year increments, for the territory as a whole, and for St. Thomas, St. John, and St. Croix, individually. The plan should also engage community members on each of the islands and incorporate their input. This will ensure the resulting plan is fully inclusive, equitable, and readily applicable to all parts of the territory, including St. Croix.

CONCLUSION

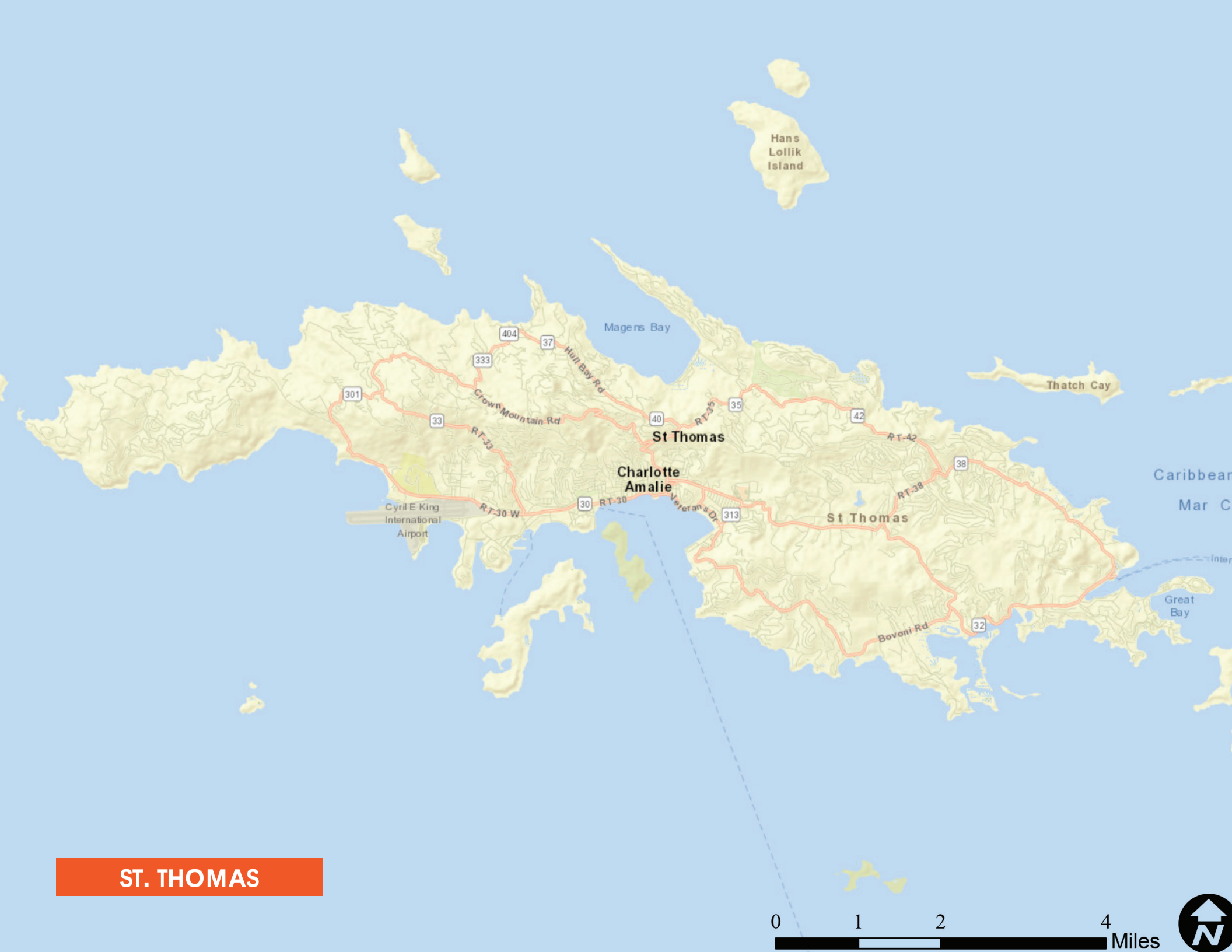
This report marks the conclusion of seven months of community engagement, research, and conversations led by the St. Croix Community Planning Committee and supported by FEMA's Community Planning Capacity Building team on the island. The projects discussed in the report originated from, and were prioritized by, a broad range of community members and community leaders. The intention is for individuals and community groups on the island to use this document as a guide to implement projects that contribute to the recovery, resilience, and community development of St. Croix. While many of these projects are components of larger, more complex systems, this document intends to provide steps that can be taken on an individual or community level as opposed to system-wide interventions. While the report marks the conclusion of the planning process, the work of making these recovery, resilience and community development projects a reality, is just beginning.

APPENDIX

maps
acronyms
funding list
implementation steps
planning tools


Buck Island
Reef National
Monument
Cane Bay Rd
80
North Shore Rd
75
Northside Rd
Christiansted
East End Rd
82
69
Midland Rd
72
St Croix
76
St Croix
RT-85
Lower Hill Rd
South Shore Rd
60
Kingshill
Frederiksted
Queen Mary Hwy
E Airport Rd
62
62
Lowry Hill Rd
70
Henry E Rohlsen
Int'l Airport
64
Melvin H Evans Hwy
66
0
1
2
4
Miles

ST. CROIX


Hans Lollik Island
Magens Bay
Thatch Cay
St Thomas
Charlotte Amalie
Cyril E King International Airport
St Thomas
Caribbean
Mar C
Great Bay
Hull Bay Rd
Crown Mountain Rd
RT-35
RT-42
RT-38
RT-30
RT-30 W
RT-32
Veterans Dr
Bovoni Rd
404
37
333
301
33
40
35
42
38
30
313
32
0
1
2
4
Miles

ST. THOMAS


Leinster Bay
RT-20 E
RT-20
20
St John
RT-10
10
Coral Bay
Hurricane Hole
Virgin Islands National Park
St John
St John
Cruz Bay
Virgin Islands National Park
Mar
0
1
2
4
Miles

ST. JOHN

ACRONYMS

ACRONYM	DEFINITION
ADA	Americans with Disabilities Act
CERT	Community Emergency Response Team
CPCB	Community Planning and Capacity Building
Econ	Economic Recovery Support Function
EDA	Economic Development Administration
EOC	Emergency Operations Center
EPA	Environmental Protection Agency
FEMA	Federal Emergency Management Agency
HHS	US Department of Health and Human Services
Housing	Housing Recovery Support Function
HIPAA	The Health Insurance Portability and Accountability Act
HSS	Health & Social Services Recovery Support Function
HUD	US Department of Housing and Urban Development
IS	Infrastructure Systems Recovery Support Function
NCR	Natural and Cultural Resources Recovery Support Function
NDRF	National Disaster Recovery Framework
NVOAD	National Association of Voluntary Organizations Active in Disaster
PFA	Psychological First Aid
ROTC	Reserve Officers' Training Corps
RSF	Recovery Support Function
UNESCO	United Nations Educational, Scientific and Cultural Organization
USDA	United States Department of Agriculture
USVI	United States Virgin Islands
VITEMA	Virgin Islands Territorial Emergency Management Agency
VITRAN	Virgin Islands Transit

FUNDING LIST

This list provides a starting point for project funding. Organizations and programs featured are not bound or commited to the projects but are intended to guide implementers regarding initial funding.

DEVELOP A RESILIENT FOOD SYSTEM

American Red Cross: USVI Farmer Micro-Grants Program
National Sustainable Agriculture Coalition
US Department of Agriculture: National Institute of Food and Agriculture: Community Foods Program
US Department of Agriculture: Rural Development Intermediary Relending Program, Rural Business Development Grant, Rural Cooperative Development Grants, Rural Micro entrepreneur Assistance Program
US Economic Development Administration: Economic Adjustment Assistance Disaster Supplemental funding
US Environmental Protection Agency: Local Food Local Places Program

IMPROVE ACCESS TO HEALTHCARE BY PILOTING CLIENT-CENTERED CARE

American Red Cross
Americares
Episcopal Relief and Development
Local Initiatives Support Corporation
Private Foundations

REPAIR, FORTIFY & PRESERVE VULNERABLE HISTORICAL AND CULTURAL ARCHIVES

National Preservation Institute
National Trust for Historical Places
Private Foundations (e.g., The Mellon Foundation)
The Smithsonian Institution
US Department of Homeland Security: Federal Emergency Management Agency: Hazard Mitigation Grant Program
US Department of Interior: National Park Service Historic Preservation Fund
US Department of Interior: Office of Insular Affairs: Technical and Maintenance Assistance Programs
US National Archives and Records Administration

ASSIST LOCAL NON-PROFITS IN SUPPORTING RESPONSE EFFORTS

Community Foundation of the Virgin Islands
Local Initiatives Support Corporation
National Voluntary Agencies active in Disasters
Private Foundations
St. Croix Foundation for Community Development
St. Croix Long Term Recovery Group

FUNDING LIST

DEVELOP ADDITIONAL LOCAL CAPACITY TO IMPLEMENT RECOVERY PROJECTS

AmeriCorps VISTA Program
Existing leadership center grants (e.g., Creative New Jersey or Kansas Leadership Center)
National Park Service Olmstead Preservation Training Center
National Trust for Historic Preservation
Private Foundations
US Department of Homeland Security: Federal Emergency Management Agency: Technical Assistance

ENHANCE MOBILITY SYSTEM

American Planning Association: Technical Assistance Grants
US Department of Health and Human Services: Title III - Older Americans Act: Grants for State and Community Programs on Aging
US Department of Housing and Urban Development Community Development Block Grant Disaster Recovery Program
US Department of Transportation: Federal Transit Administration: Urban and Non-urbanized Formula Grant Program, Bus and Bus Facilities Grant Program
US Department of Transportation: Federal Transit Administration: National Rural Transit Assistance Program

REPAIR, REOPEN AND REEVALUATE COMMUNITY SPACES

American Planning Association: Technical Assistance
National Association of Chronic Disease Directors & Center for Disease Control and Prevention: Walkability Action Institute
National Recreation and Parks Association
Sierra Club Foundation
US Department of Homeland Security: Federal Emergency Management Agency: Public Assistance and Hazard Mitigation Grant Programs
Walkable and Livable Communities Institute
US National Park Service: Rivers and Trails Conservation Assistance

IMPLEMENT A VOLUNTEER CHECK-UP PROGRAM

Americares
American Red Cross
Catholic Charities
Episcopal Relief Development
Lutheran Social Services
Private Foundations
St. Croix Long Term Recovery Group

FUNDING LIST

PILOT OFF-GRID BOXES FOR NEIGHBORHOOD PREPAREDNESS

US Department of Agriculture: Rural Development Programs
Private Foundations (e.g. Ford Foundation)
Local Initiatives Support Corporation

IMPROVE INDIVIDUAL RESILIENCE THROUGH COMMUNITY MENTAL HEALTH SERVICES

Americares
National Child Traumatic Stress Network: Technical Assistance
National Council on Behavioral Health: Technical Assistance
US National Institute of Mental Health
US Department of Health and Human Services: Substance Abuse and Mental Health Services Administration: Mental Health Disaster Assistance and Emergency Mental Health Program
US Department of Veteran Affairs- National Center for Post-Traumatic Stress Disorders

PROTECT CORAL REEFS, BEACHES, AND HERITAGE TREES

The Nature Conservancy
Private Foundations (e.g., Sierra Club Foundation)
US Department of Agriculture: Natural Resources Conservation Service, Tree Assistance Program
Olmsted Center for Landscape Preservation
US Department of Homeland Security: Federal Emergency Management Agency: Hazard Mitigation Grant Program
US Department of the Interior: National Park Services: Technical Assistance
US Department of Interior: Office of Insular Affairs: Coral Reef & Natural Resources Initiative
US Environmental Protection Agency: Technical Assistance

EDUCATE PUBLIC ON MANAGING WASTE BEFORE, DURING AND AFTER DISASTERS

US Department of Agriculture: Solid Waste Management Grant
US Environmental Protection Agency
St. Croix Foundation for Community Development
Private Foundaitons

PROVIDE MORE SUPPORT SERVICES FOR YOUTH FOLLOWING DISASTERS

St. Croix Foundation for Community Development
St. Croix Long Term Recovery Group
US Department of Homeland Security: Federal Emergency Management Agency: Children and Disasters Initiative
US National Endowment for the Arts
US Virgin Islands Department of Agriculture
US Virgin Islands Department of Education

FUNDING LIST

ACTIVELY PROMOTE HERITAGE TOURISM TO DIVERSIFY THE ECONOMY

St. Croix Chamber of Commerce
St. Croix Foundation for Community Development
US Committee of the International Council on Monuments and Sites
US Virgin Islands Department of Tourism
Private Foundations

PROMOTE SOLUTIONS FOR LOW-INCOME HOMEOWNER RESILIENCE

Local Initiatives Support Corporation
Private Foundations
St. Croix Foundation for Community Development
US Department of Energy: Solar Energy Technologies Office
US Environmental Protection Agency
US Department of Housing and Urban Development Community Development Block Grant Disaster Relief

ENHANCE JOB TRAINING AND VOCATIONAL PROGRAMS

American Planning Association: Technical Assistance
National Association of Chronic Disease Directors & Center for Disease Control and Prevention: Walkability Action Institute
National Recreation and Parks Association
Sierra Club Foundation
US Department of Homeland Security: Federal Emergency Management Agency: Public Assistance and Hazard Mitigation Grant Programs
Walkable and Livable Communities Institute
US National Park Service: Rivers and Trails Conservation Assistance

UPDATE AND ENFORCE NEW COMPREHENSIVE LAND USE PLANS

American Planning Association: Technical Assistance Grants
Urban Land Institute
US Army Corps of Engineers
US Department of Transportation

DEVELOP A RESILIENT FOOD SYSTEM	
Implementation Steps	**Status - February 2019**
Conduct an Isand-wide Community Food Assessment	
• Build upon recent local and USDA studies of farming on St. Croix • Assess existing conditions of island production, distribution, consumption, and resource management • Assess the island food system related to policy, public health, the built and natural environment, economy, and recovery	
Prepare for Future Disasters	
• Establish pre-disaster farming best practices specific to St. Croix's agricultural system utilizing community food system assessment and existing agroforestry and perennial systems research • Predetermine supply of local food from farmers to post-disaster food distribution points and develop a standard operating procedure to fortify the connection • Utilize national farmer recovery tools like: farmers.gov/recover from USDA to align with other region's approaches to natural disasters • Include discussion of loose animals and livestock in preparatory guidelines for farmers and homeowners with animals	
Develop a local farm revolving fund	
• Catalogue and identify gaps in existing post-storm loan opportunities for farmers • Identify non-profit fiduciary home for revolving fund • Provide funds to farmers for projects like: rebuilding farm stands, fence repairs, off-grid power systems, and piloting farm pod usage	
Train Local leaders	
• Conduct training for local food leaders on how to conduct a food system assessments and advocate for better food policy • Establish youth-oriented agriculture programs to encourage the next generation of ag leaders	
Expand and sustain growth	
• Create a Local Food Policy Council made up of local food leaders to advocate for better food policy • Explore opportunities in agri-tourism industry • Build a food incubator: a physical space utilized for small-scale production, food and agriculture education, store food & seed, and promote agriculture-related business development	

IMPROVE ACCESS TO HEALTHCARE THROUGH PILOTING CLIENT-CENTERED CARE	
Implementation Steps	**Status - February 2019**
Identify Active and Supporting Organizaitons	
• Identify organizations that will actively conduct and track healthcare and disaster preparedness • Assess technical assistance from local and non-local organizations required to implement pilot (e.g. create data elements like consent forms and risk analysis tools, tracking, and budgeting) • Identify supporting organizations that can contribute technical expertise as necessary	
Identify Pilot Participants	
• Create eligibility requirements for clients • Solicit client recommendations from participating organizations • Receive consent from clients to adhere to HIPAA compliance	
Conduct Initial Client Meetings	
• Assign a case manager to each client • Conduct an initial appointment to review medical history • Assess existing strengths and resources of each client like points of contact on and off island	
Equip Clients	
• Provide laminated and digitized copies of medical records, identification, and lists of medications • Provide disaster preparedness education and an emergency preparedness guides available through organizations like the American Red Cross in order to prepare their home • Ensure clients have a hurricane preparedness kit containing emergency supplies like flashlights, batteries, phone chargers, blankets and food and water stocks for two weeks at home	
Track Clients	
• Follow clients as they receive necessary care • Ensure clients maintain disaster preparedness practices over time • Contact clients within 72 hours of a disaster on island • Support clients as necessary prior to a disaster • Connect client to the appropriate medical services if needed post-storm • Bring participant organizations together to meet monthly and discuss pilot progress	

IMPROVE ACCESS TO HEALTHCARE THROUGH PILOTING CLIENT-CENTERED CARE	
Implementation Steps	**Status- February 2019**
Assess and Expand	
• Identify organizations that will actively conduct and track healthcare and disaster preparedness • Assess technical assistance from local and non-local organizations required to implement pilot (e.g. create data elements like consent forms and risk analysis tools, tracking, and budgeting) • Identify supporting organizations that can contribute technical expertise as necessary	
Disseminate Findings	
• Create eligibility requirements for clients • Solicit client recommendations from participating organizations • Receive consent from clients to adhere to HIPAA compliance	

REPAIR, FORTIFY, AND PRESERVE HISTORICAL AND CULTURAL ARCHIVES	
Implementation Steps	**Status - February 2019**
Get Organized	
• Form a standing committee on archives to create a comprehensive view of preservation • Build upon the Smithsonian report and develop a master list of collections and status • Build local capacity for archive preservation and maintenance immediately through national volunteer programs (e.g., AmeriCorps VISTA)	
Prioritize	
• Use the Smithsonian report to identify and prioritize remediation steps for archives • Identify existing gaps in storage (e.g., space capacity, water leaks, humidity, etc…) and develop short, medium and long-term solutions across organizations • Identify best-practices in archive preservation during disasters and begin immediately • Institute a shared method for digitizing deteriorating documents	
Train and Educate	
• Develop and institute protocols across agencies for disaster preparedness • Research technical assistance opportunities to bring archival experts for organizational training • Identify and hire individuals with collections management and library science backgrounds to help care for archives • Identify volunteers who can translate from Danish and Latin and share services across organizations • Provide education to public about preserving and caring for private family collections • Work with the University of the Virgin Islands to develop a training program for preservation • Connect with national and international organizations working to protect archives in times of natural disasters (e.g. International Centre for the Study of the Preservation and Restoration of Cultural Property)	
Plan and Mitigate	
• Develop a shared database to track archives • Identify and map ancestral cemeteries to mitigate against future damage • Assess permanent storage solutions and consider consolidating locations to reduce risk of further damage, including: finding or building a structure with adequate roof, windows and foundation, storing items more than 10 inches off of the floor, protecting archives from light, maintain a stable temperature and relative humidity, buy and use acid free boxes and folders	

DEVELOP LOCAL CAPACITY TO IMPLEMENT RECOVERY PROJECTS	
Implementation Steps	**Status - February 2019**
Short-Term	
• Identify a program sponsor and bring a team of national volunteer program workers (e.g., AmeriCorps VISTA or National Trust for Historic Preservation) to assist in immediate project management needs to enhance recovery efforts for existing non-profits • Bring national training opportunities and technical assistance providers to assist existing organizations and agencies in foundational areas including continuity of operations planning, grant writing and data collection techniques	
Long-Term	
• Support initiatives dedicated to fostering creativity, collaboration, and inclusion by empowering cross-sector partnerships in areas like commerce, education, philanthropy and culture, with a goal of developing more dynamic communities and leaders (e.g., St. Croix Foundation for Community Development's Non-profit Consortium and programs like Creative New Jersey) • Create or partner with existing leadership training programs for current and aspiring community leaders to enhance their tangible skills in areas that may include: effectively diagnosing situations, intervening skillfully and energizing others (e.g., Kansas Leadership Center, Pace Land Use Leadership Academy) • Establish or improve existing professional and vocational programs (e.g., Danish School of Architecture Program or University of the Virgin Islands training program in Historic Preservation) • Establish or improve existing trade programs	

ASSIST LOCAL NON-PROFITS IN SUPPORTING RESPONSE EFFORTS	
Implementation Steps	**Status - February 2019**
Pre-disaster Planning with Non-profit Community	
• Facilitate a training or assist non-profit organizations in writing continuity of operations plans • Identify two main facilities (in Christiansted and Frederiksted) to serve as non-profit office hubs immediately post-storm with appropriate management and maintenance • Equip the office hubs with tools needed to assess the operations of key non-profits immediately post-storm, including generators, satellite phones and portable internet technologies	
Pre-disaster Planning between Non-profit Community Partners	
• Request the Virgin Islands Territorial Emergency Management Agency (VITEMA) add a non-profit representative to the Emergency Operations Center (EOC) and pre-storm planning • Apply for curfew passes from VITEMA for non-profit organizations to assess needs (application available at vitema.vi.gov) • Work with VITEMA to develop a curfew pass incentive program for non-profits with up-to-date Continuity of Operations Plans • Prioritize clean-up and repairs for non-profit service organizations to come online quickly • Create a grant program or revolving loan program to get funding for repairs to non-profit organizations while they wait on federal assistance programs	

ENHANCE MOBILITY SYSTEM	
Implementation Steps	**Status - February 2019**
Greenways	
• Develop new greenways help connect residents, parks and commercial centers	
Walkways	
• Improve safety and connectivity with design elements. Consider implementing components of complete street design in key areas on the island. These can include: lane widths with space for bike lane, sidewalks for pedestrians, curb extensions for safer street crossing, bus stops that are ADA-accessible and lighting for safety. • One priority area on St. Croix is East End Road and Spring Gut Road. This area is a major connector to the east end of the island and presents pedestrian and automotive safety hazards in its present state. Suggested improvements include lighting, crosswalks, signage, sidewalks and bike lanes.	
Transit Citizen Advisory Group	
• To ensure regular communication between the transportation users and the service operator, a citizens' advisory group should be instituted. This group could provide useful information about how the services are performing and where improvements could be made.	
Transit Routes	

• The efficiency and effectiveness of bus routes are measured by:
  • Availability
  • Service monitoring: assessing passengers' day-to-day experiences using transit
  • Community impacts
  • Route structure
• If non-governmental organizations or citizens have issues related to the provision of bus service, they are encouraged to participate in the federally-required public planning process required by Federal Transit and Federal Highway Administrations. In the territory, that plan is developed by the Virgin Islands Department of Public Works. The current version is the 2040 Comprehensive Transit Plan Report.	

ENHANCE MOBILITY SYSTEM	
Implementation Steps	**Status - February 2019**
Bus Shelters	
• Bus shelters are an eligible expense under Federal Transit Administration formula programs, for which the territory is an existing recipient. • An additional way for non-governmental organizations to engage in transportation decisions, is for them to participate in the planning process for shelter placement and design, including accessibility features. They can also assist in developing new shelters and repairing existing shelters by providing funding for the local matching requirements for access federal funds, which is typically up to 20% of the total cost.	

REPAIR, REOPEN, AND RE-EVALUATE COMMUNITY SPACES	
Implementation Steps	**Status - February 2019**
Expand Parks	
• Spring Gaut Park: Acquire 50-acre of land for public access to create a park and conservation site that mitigates storm damage to nearby neighborhoods. Applications for this project have been submitted for funding to the Hazard Mitigation Grant Program and for technical assistance to the American Planning Association	
Senior Facilities	
• Repair St. Croix's two senior living facilities: Herbert Grigg Home for the Aged and Richmond Senior Center. They provide recreational and cultural activities, physical programs, arts and crafts, educational outreach and workshops, and spiritual services as well as the opportunity to attend a variety of community events. • Renovate and Re-open the Aldershville Senior Center in Frederiksted: The building is in poor condition and suffer from significant water infiltration and deferred maintenance. In order to reopen the center, extensive repairs are necessary to restore the exterior and rehabilitate the interior, including installation of new kitchen, bathrooms, doors, windows, and replacement of roofs, among other repairs.	
Other Community Spaces	
• Alexander Theatre: Retrofit the Alexander Theatre in Christiansted into a fully functioning performing arts theatre with the ability to serve as a community shelter in times of disaster. An application for this project has been submitted to the Hazard Mitigation Grant Program for property acquisition, re-building, and inserting shelter capabilities.	

IMPLEMENT A VOLUNTEER CHECK-UP PROGRAM	
Implementation Steps	**Status - February 2019**
Host Program	
• Select an organization to manage the check in program • Ensure sufficient staff capacity and funding for organizational costs to manage program • Organize an emergency communication plan for volunteers and staff management to communicate in the case of downed power and communications post-disaster	
Create Registry	
• Set up self-registration online, in person, and by phone • Collect participant recommendations from local organizations that cater to people with access or functional needs • Ask recommended participants to opt in or opt out based on recommendations • Maintain up-to-date registry by reviewing monthly, asking participants to opt out on an annual basis, and consistently promoting for additional participants • Combine registry with existing programs collecting similar participants like the emPOWER program – a national database of residents dependent upon electricity to power medical equipment and medications • Ensure privacy of participants is respected and cared for lawfully • Provide registry to National Voluntary Organizations Active in Disaster response volunteers to conduct wellness checks in the event that no volunteers are available	
Recruit	
• Utilize existing volunteer networks to solicit volunteers • Solicit volunteers representing every geographic area on the island proportional to anticipated number of participants in that area	
Train	
• Conduct an initial orientation for all volunteers • Ensure each volunteer understands emergency communication plans, their role as a primary or alternate volunteer • Provide volunteer with basic emergency health care measures and resources like CPR training and best emergency phone numbers to use • Provide volunteer with a take-home manual of home visit instructions	

IMPLEMENT A VOLUNTEER CHECK-UP PROGRAM	
Implementation Steps	**Status - February 2019**
Assign Volunteers	
• Match participants with a primary volunteer in their geographic area • Select a first and second alternate volunteer per participant in case the primary volunteer is unavailable • Ensure participants and volunteers meet once a year or when pairing changes	
Conduct Check-Ins	
• Report availability as a volunteer immediately following a disaster • Activate secondary or tertiary volunteer in case of primary volunteer unavailability • Conduct home visits per training instructions • Refer participant to resources for help, support when possible • Report completion of check-in to management staff	

PILOT OFF-GRID BOXES FOR NEIGHBORHOOD DISASTER PREPAREDNESS	
Implementation Steps	**Status - February 2019**
Adopt-A-Box	
• Identify organizations with the capacity to properly assess what needs to be in each box • Determine what supplies are included in the boxes (e.g., WIFI, phone, solar panels or basic medical supplies) • Assess number of sites necessary to meet the needs of the volunteer groups • Determine security measures necessary to maintain each distribution site • Identify potential sites at faith-based organizations, community centers, or other facilities that could potentially store and distribute short-term emergency supplies • Purchase solar-powered boxes • Implement maintenance plan and continuity of operations plan	

IMPROVE INDIVIDUAL RESILIENCE THROUGH COMMUNITY MENTAL HEALTH SERVICES	
Implementation Steps	**Status - February 2019**
Psychological First Aid	
• Psychological First Aid (PFA) is an established, evidence-based training that equips individuals to serve as emergency support to others in time of stress and trauma. Leading organizations that provide this and similar trainings include the National Child Traumatic Stress Network and the National Council on Behavioral Health. Developing and conducting additional trainings in PFA for community members, establishing train-the-trainer opportunities, and engaging those trained in PFA during a disaster would increase community-wide capacity to bounce back from a disaster. Those trained in PFA could employ those skills for their own lives, for their families, and to support neighbors community-wide.	
United Advocacy	
• Several entities on St. Croix including the Long Term Recovery Group's Wellness Committee, the USVI Mental Health Coalition, and the territorial Behavioral Health Planning and Advisory Council are advocating for more comprehensive mental health services. Other individuals and community groups could engage in the ongoing conversation by uniting and organizing in advocacy as opposed to initiating a new working group to do so. A consistent mental health advocacy presence made up of more than just health providers and health-related organizations could serve as a strong voice for accountability.	

PROTECT CORAL REEFS, BEACHES, AND HERITAGE TREES	
Implementation Steps	**Status - February 2019**
Coral Reef Preservation	
• Triage and Restore: Includes an aerial assessment of reefs in the Territory, identifying, turning over and cementing down overturned coral, and retrieving coral that ended up on the sand. • Nurseries and Long-Term Restoration: Focuses on establishing new and enhancing existing coral nurseries to support long term restoration of coral life in St. Croix. • Resilience under Warming Conditions: Study the best ways to enhance coral reefs under warming temperatures.	
Beach Preservation	
• Reduce local contribution of debris into the marine environment • Conduct a public outreach campaign, youth clean-ups and education amongst other environmental initiatives.	
Tree Preservation	
• Conserve and utilize the removed and standing dead trees, while protecting living heritage trees • Remove, clean and disburse tropical hardwoods to artisans, allowing for additional woodworking related economic activity as well as opportunities for knowledge transfer and woodworking apprenticeship • Use existing materials to repair historic buildings that require local wood • Map all standing heritage trees, conduct an assessment of their state, potential nearby damage, and necessary interventions.	

PROVIDE SOLUTIONS TO SHELTER VULNERABLE POPULATIONS	
Implementation Steps	**Status - February 2019**
Dedicated Storm Shelter	
• Build a separate storm shelter for seniors, the homeless and individuals with disabilities. • Provide trained staff and required medical equipment.	
Non-Dedicated Storm Shelter	
• Assign dedicated space within an existing shelter separate from the general population. • Train additional staff, partner with non-profit organizations such as the Red Cross to provide volunteers. • Provide equipment to meet the needs of senior citizens, homeless and individuals with disabilities	
Shelter At Home	
• In the event of another disaster before shelters can be secured, communities may choose to provide pre-storm check-ins to vulnerable residents who must shelter in their homes to ensure they are properly prepared for the storm with food, water, medications and emergency plans. • Utilize emergency healthcare planning tools such as the emPOWER program, a national database used by the Virgin Islands Department of Human Services which identifies residents with medications and medical equipment that are electricity dependent. • Partner with non-profit organizations providing client-centered case work for the vulnerable. In the event that individuals are unable to shelter in their homes, send them to caregivers equipped to provide services	

EDUCATE PUBLIC ON MANAGING WASTE BEFORE, DURING AND AFTER DISASTERS	
Implementation Steps	**Status -- February 2019**
Emergency Debris Plan	
• Develop an emergency debris plan for government entities and individual households alike • Widely publicize guidance for household debris management, waste drop-off sites, and recycling opportunities for damaged material	
Public Sustainability Education	
• Draw from federal and local sustainability programs to disseminate sustainability tips to the public to limit household waste • Educate youth at school about ways to limit waste at home • Organize clean-up days to engage the public in limiting waste in marine areas and watersheds and to expose the public to the existing state of waste on the island • Align where appropriate with existing waste cleanup initiatives like the VI Clean Coasts Campaign	
Waste Studies	
• Solicit technical assistance for a Waste Characterization Study to understand the type and spread of waste across the island's waste facilities • Solicit technical assistance for a Recycling Market Study to identify opportunities for increased on-island recycling	

ESTABLISH SMALL BUSINESS INDUSTRY CLUSTERS	
Implementation Steps	**Status - February 2019**
Set-Up	
• Identify businesses who wish to participate and develop active clusters • Invite an expert on creating successful clusters to speak to interested businesses and provide advice for how to achieve success going forward • Determine key goals, schedule, and regularity of any necessary or desired meetings	
Cluster Functions	
• Promote business-to-business links • Foster more comprehensive disaster planning • Foster responsible business practices • Develop public/private partnerships • Create tools to better implement shared projects and programs • Assist in identifying and proposing industry friendly policies and regulations • Help gain access to additional markets	
Long-Term Sustainability	
• Determine if there is a need for a dues-paying, staff-supported, association • If so, create a long-term plan for how the groups will be managed, funded, and will grow and adapt to ever-changing needs of the business community	

PROVIDE MORE RESILIENT SUPPORT SERVICES FOR YOUTH FOLLOWING DISASTERS	
Implementation Steps	**Status - February 2019**
Reconvene and Engage Youth in Recovery	
• Organize a second Youth Opportunity Fair in order to keep youth connected • Establish a concrete role for youth in the Long Term Recovery Group and other recovery efforts • Develop outreach strategy to get more youth involvement • Establish an electronic system to match volunteers with existing projects • Provide students with community service hours for volunteer activities • Establish a Teen Community Emergency Response Team (Teen CERT)	
Expand and Enhance Existing After-School & Summer Programs	
• Create a database of existing after school and summer programs to assess the capacity of each program and identify gaps in age groups not targeted • Connect youth programs with schools to heighten awareness of program availability • Support the existing Youth Farm Program through promotion and publicity	
Develop New Career and Technical Training Programs	
• Develop partnership with Department of Labor and University of the Virgin Islands to assess existing job training programs for youth and disseminate training opportunities through public announcements, local events and school meetings • Develop a youth-oriented entrepreneurship training program through engaging the business community including individual training and train-the-trainer opportunities • Develop new arts programs to train youth in artistic careers • Develop new agriculture and food system related training programs (farming, food service, cooking, baking, and more)	
Encourage Parental Support of Students	
• Pilot new forums for parent peer-to-peer support networks, where parents can develop a social network for support to mitigate the negative impacts of trauma (e.g., Beehive Program) • Provide resources and strategies for parents to strengthen families in the face of a disaster • Establish strong connections between parents and school administrators and staff through training	

ACTIVELY PROMOTE HERITAGE TOURISM TO DIVERSIFY THE ECONOMY	
Implementation Steps	**Status - February 2019**
Short-Term	
• Reconvene a working group to create a vision, brand and plan for preserving and promoting St. Croix's heritage tourism product(s) • Identify key heritage tourism destinations from previously completed studies • Create a destination map with key information for tourists • Partner with the National Geographic Society Center for Sustainable Destinations to start a Geotourism Program to help develop products, increase local capacity and focus on sustainability • Promote the products/program under joint branding • Evaluate longer-term strategies	
Medium-Term	
• Build on existing work from the 2010 St. Croix National Heritage Area Feasibility Study and determine whether or not to pursue a Congressional designation for a National Heritage Area on St. Croix • Build on existing work and determine whether or not to pursue a United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Site designation on St. Croix	

PROMOTE SOLUTIONS FOR LOW-INCOME HOMEOWNERS' RESILIENCE	
Implementation Steps	**Status - February 2019**
Implement a Solar Energy Pilot Project	
• Solicit applications and recommendations for pilot solar program participants • Select approximately 20 homeowners in highly impacted communities as participants • Outfit participating homes with appropriate solar-PV systems including power storage systems, status monitors, safety breakers, and an inverter system • Assess success of program in energy saved, money saved, level of engagement, and participant feedback	
Educate Homeowners About Healthy Homes	
• Collect outreach materials on ways to prevent mold, improve indoor air quality, cistern maintenance and alternatives to lead-based paints • Disseminate informational packets to solar pilot participants and in areas with high concentrations of low-income homeowners • Conduct trainings and informational sessions reviewing key components of a healthy home • Attend community events and meetings to disseminate information	

ENHANCE JOB TRAINING AND VOCATIONAL PROGRAMS	
Implementation Steps	**Status - February 2019**
Short-Term	
• Develop a regional economic plan (St. Croix-specific) • Engage employers in the conversations to fill talent pipelines through focus groups • Enhance customer service skills for front-line employees • Prioritize apprenticeship programs and training in immediate recovery jobs, including construction laborers, supervisors, equipment operators, small engine mechanics and truck drivers	
Long-Term	
• Create a forward-looking, long-range (20+ years) economic vision	

MAP AND DESIGN TOOLS

CommunityViz
http://www.placeways.com/communityviz/index.htm
CommunityViz planning software is an extension to ArcGIS Desktop that shows you the implications of different plans and choices. Planners, resource managers, local and regional governments, and many others use CommunityViz to help them make decisions about development, land use, transportation, conservation and more.

Urban Footprint
https://urbanfootprint.com
Urban Footprint is a cloud-based urban planning software that gives the user access to comprehensive environmental, social, and fiscal data to assess existing conditions, compare impacts, and build proposals.

Envision Tomorrow
http://www.envisiontomorrow.org/
Envision Tomorrow (ET) is an open-access scenario planning package that allows users to analyze how their community's current growth pattern and future decisions impacting growth will impact a range of measures from public health, fiscal resiliency and environmental sustainability.

PostGIS
http://www.postgis.net/
PostGIS is a spatial database extension for SQL that allows for basic location awareness.

QGIS
http://www.qgis.org/
QGIS is a free and open source geographic information system (GIS) for any computer operating system that allows users to create, edit, visualize, analyze, and publish geospatial information.

GRASS
https://grass.osgeo.org/
GRASS GIS is a free and open source GIS software suite used for geospatial data management and analysis, image processing, graphics and maps production, spatial modeling, and visualization.

SketchUp
http://www.sketchup.com/
SketchUp is an intuitive graphic design software for architects, engineers, and other users to draw scale plans and models of renovations, buildings, landscapes, and other physical design applications.

HAZUS
www.fema.gov/hazus
HAZUS uses Geographic Information Systems (GIS) technology to estimate physical, economic, and social impacts of disasters. It graphically illustrates the limits of identified high-risk locations due to earthquake, hurricane, flood, and tsunami.

MAP AND DESIGN TOOLS

SWMM

https://www.epa.gov/water-research/storm-water-management-model-swmm

The US Environmental Protection Agency's Storm Water Management Model (SWMM) is used for single event or long-term simulations of water runoff quantity and quality in primarily urban areas–although there are also many applications that can be used for drainage systems in non-urban areas. It is used throughout the world for planning, analysis, and design related to storm water runoff, combined and sanitary sewers, and other drainage systems.

NOAA Digital Coast Tools

https://coast.noaa.gov/digitalcoast/

Digital Coast is a platform of training and tools focused on helping communities address coastal issues.

EJ Screen

https://www.epa.gov/ejscreen

In order to better meet the Agency's responsibilities related to the protection of public health and the environment, EPA has developed a new environmental justice (EJ) mapping and screening tool called EJSCREEN. It is based on nationally consistent data and an approach that combines environmental and demographic indicators in maps and reports.

Google Earth

www.google.com/earth/

Google Earth is a mapping tool hosted either on the web or on your desktop that computes distances and areas using measuring tools, allows for visualization, manipulation, and export of GIS data, and allows you to go back in time with historical imagery.

Surging Seas

http://sealevel.climatecentral.org/

Surging Seas is a mapping software that allows planners to visualize the level of sea rise due to climate change and determines risk to land areas for the future.

UrbanSim

http://www.urbansim.com/home/

UrbanSim is a simulation platform for supporting planning and analysis of urban development, incorporating the interactions between land use, transportation, the economy, and the environment.

LocalData

http://localdata.com/

LocalData is a cloud-based mapping platform that helps cities and communities make data-driven decisions by capturing and visualizing street-level information in real time.

TRANSIT TOOLS

SeeClickFix
http://en.seeclickfix.com/
SeeClickFix is a customizable smartphone application that allows users to snap pictures of issues that need to be corrected and geo-locates each issue to form reports for designated entities to correct.

OpenBike
http://openbikeinitiative.org/
The Open Bike Initiative was a project with the goal of designing and developing a model for bike sharing based on open hardware and open source software.

Walk [Your City], Wayfinding Signs
https://walkyourcity.org/
Walk [Your City] helps boost community walkability, linking informational street signs for people with web-based campaign management and data collection to complement traditional approaches to way finding.

WALKscope
http://www.walkscope.org/
WALKscope allows residents and visitors to collect data related to sidewalks, intersections, and pedestrian counts. This information will help create an inventory of pedestrian infrastructure, identify gaps, and build the case for improvements

PRIORITIZATION, COMMUNICATION, AND ENGAGEMENT

CrowdGauge
http://crowdgauge.org/
CrowdGauge is an open-source framework for creating educational online games. It first asks users to rank a set of priorities, then demonstrates how a series of actions and policies might impact those priorities. The third part of the sequence gives users a limited number of coins, asking them to put that money towards the actions they support most.

UserVoice, ideation platform
https://www.uservoice.com/product/
UserVoice ties rich customer data to product feedback so you can prioritize your roadmap and quantify the business impact of features.

Field Papers, capturing data using paper maps
http://fieldpapers.org/
Field Papers allows for the making of an atlas online that you can print to take into the field and record observations and upload your field notes into an organized database.

PRIORITIZATION, COMMUNICATION, AND ENGAGEMENT

Engaging Plans

https://www.urbaninteractivestudio.com/engagingplans/

EngagingPlans reaches, informs, and involves citizens and stakeholders in public projects and decision making. This one-stop hub forms the backbone of your project communications, keeping documents, events, news and FAQs clear and up-to-date in one accessible location. Give community members a voice and collect feedback via discussions, surveys, or an idea wall.

NationBuilder

https://nationbuilder.com/software

NationBuilder empowers you to tackle your website content, email communications, social insights, and people management all in one place. Work seamlessly with data imported from the apps you're using now, in a system built to grow with you.

MetroQuest

https://metroquest.com/

MetroQuest is a website design application that focuses on building engaging websites, collecting user data, and producing reports for analysis

Textizen

https://www.textizen.com/

Interactive Text's web platform sends, receives, and analyzes text messages.

Park[ing] Day

https://www.asla.org/uploadedFiles/CMS/Events/Parking_Day_Manual_Consecutive.pdf

Park[ing] Day is an annual event that encourages community members, students, and designers to transform metered parking spaces into temporary parklets.

Project for Public Spaces (PPS)

https://www.pps.org/

PPS is a nonprofit planning, design, and educational organization dedicated to helping people create and sustain public places that build stronger communities.

The NCI Charrette System

www.charretteinstitute.org/

The National Charrette Institute is a collaborative system that helps people work together for building design capacity through group map analysis community planning activities