

Chapter 6: Mitigation Strategy

The hazard mitigation strategy is the culmination of work presented in the planning area profile, risk assessment and capability assessment. It is also the result of multiple meetings and public outreach. The work of the Hazard Mitigation Council was essential in creating the following mitigation goal, objectives and individual mitigation actions. The Hazard Mitigation Council revised this mitigation strategy several times since 2015. They reviewed the plan formally in 2017 and again in 2018 after Hurricane Gita. American Samoa has seen tremendous benefit from the existence of the mitigation strategy by having projects well formulated and ready to apply for post-disaster funding.

6.1 Multi-Hazard Mitigation Goals and Objectives

S8. Does the mitigation strategy include goals to reduce/avoid long-term vulnerabilities from the identified hazards? [44 CFR §201.4©(3)(i)]

The 2015 Mitigation Strategy goal and objectives have not changed for this update; because of their relevance. The Goal of the 2020 American Samoa Hazard Mitigation Plan, endorsed by the Territorial Hazard Mitigation Council, is to:

Reduce the risk of all natural hazards (identified and unidentified) to the Territory, thus, alleviating loss of life and property to insure the well-being of the people of American Samoa.

Hazard Mitigation Plan Objectives

1. Promote effective land use planning and regulation, as well as public awareness, in order to reduce damage from natural hazards.
2. Improve infrastructure development standards with special attention to mitigating the increasing flood hazard.
3. Develop and implement hazard mitigation projects aimed at reducing the risk of damage and destruction of existing assets and infrastructure from the full range of natural disasters threatening the Territory.
4. Improve building codes and standards, as well as training programs, in order to reduce disaster damage from strong winds, earthquakes and tsunamis.
5. Develop public information and education programs in order to reduce disaster damage from strong winds, earthquakes and tsunamis.
6. Fund related planning projects to strengthen mitigation standards, research, education, and outreach efforts.

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6.1.1 Review of Goal Validity

The Hazard Mitigation Council reviewed the validity of the Goal and the Objectives several times since 2015. Many of the mitigation actions in the plan address chronic and repetitive flooding, power loss, communication issues and transportation problems each of which hinders productivity and livelihoods in the Territory of American Samoa. These problems are exacerbated during repetitive hurricanes and other disasters.

American Samoa has a long history of hazard mitigation going back to pre-European contact times. Samoan houses or fale were designed and constructed to reduce risk of destruction from strong winds and earthquakes—roof framing was lashed together, and thatch sheets were sewn on with coconut sennit. During strong windstorms, roofs could be lifted off of house posts and set on the ground to provide shelters. Structures were flexible and could tolerate earthquakes. House platforms were often elevated which made them less subject to flood damage.

In recent years, building codes and standards, land use regulations, and flood mitigation requirements have been developed to reduce the risk of disaster damage. Building codes aim at reducing the impacts of strong winds and earthquakes. Land use regulations restrict construction and development in areas subject to flooding, tsunami, storm surge, high surf, and landslides. Droughts are mitigated through water conservation programs, agricultural practices, and infrastructure repair. Environmental policies that protect the island ecosystems provide additional protection from storms and flooding. American Samoa is still vulnerable to losses from natural hazards. Mitigation strategies are summarized for each category of natural hazard.

6.1.2 Hazard Mitigation Action Types and Suggestions

FEMA characterizes mitigation actions into four categories, Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection and Education and Awareness Programs. The planning team made the Hazard Mitigation Council aware of these categories as a way to help identify possible mitigation actions. The Planning Team emphasized that Education and Awareness Programs are frequently the least expensive of the four categories but may provide a significant return on investment. Appendix E includes a table taken from the Local Mitigation Planning Handbook, clearly defines each of these mitigation types and provides examples.

The list below shows the major concerns presented for each hazard identified in the risk assessment and potential mitigation strategies to address those concerns.

Coastal Erosion

- Loss of beach area and loss of properties near the beach; erosion acceleration through human activities; loss of cultural assets and ancestral land potentially resulting in relocation of populations; loss of buildable area – limited buildable, flat area on island of which most resides near the coast (making it important to protect for current and future population).

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- Many coastal erosion remedies have negative consequences and must be studied in detail to determine if they are the best solution. Submerged breakwaters (decreases wave velocity); detached breakwaters (artificial islands offshore); Beach nourishment programs; Increased local monitoring and data collection to determine areas in greatest need of protection; update of USACE shoreline status data and mapping (last updated in 2004); continued installation of wave dampening structures (such as Samoa Stone) where appropriate; Identification of at-risk structure through on-island studies.

Drought

- Droughts have historically been related to El Niño-Southern Oscillation (ENSO) events but managed fairly effectively. Drought is expected to decline but may be more severe when it occurs as a result of climate change. A short period without rain may quickly deplete available potable water and harm agriculture and livestock which is growing due to increasing demand for on island produce. A major, long-term drought has potential to cripple cannery industry which could have a ripple effect through the economy.
- ASPA Water Resource Management, Agricultural Extension Programs for Farmers; Wildfire Suppression; Implement water conservation programs and water restrictions if a drought is predicted to be of significant duration; Improve the water supply system and storage system; Continue to eliminate known leaks and damage to the storage containers and distribution lines; Implement agriculture programs through extension agents to help farmers; Provide early warning information and forecasts to improve decision making about planting and harvesting, as well as livestock management prior to the onset of drought; Develop a drought management plan in conjunction with local industry to help address water usage and ability to secure fresh water as needed; Increase public awareness and education about the risks from drought and preventative measures individuals and businesses can adopt to conserve water.

Earthquake

- Frequent but minor damage historically. Risk is not fully understood. Buildings not designed to withstand strong shaking events.
- Design new buildings and infrastructure to minimize levels of seismic risk as determined from historic levels of earthquake activity; Adopt and enforce a building code to reflect latest building technologies; Define areas of landfill via a Territorial-wide survey. Earthquake shaking of structures is amplified on unconsolidated sandy soils and areas of known landfill. To understand and define the areas of highest earthquake hazard, complete a study to define known landfill areas in American Samoa; Request the U. S. Geological Survey (USGS) to conduct a comprehensive Seismic Hazards Probability Analysis. These analyses have been completed throughout the United States. A similar analysis is required to understand the earthquake threat to American Samoa from both local and distant earthquake sources in the South Pacific. This information is required to adequately determine seismic building code requirements for

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American Samoa; Request that USGS develop earthquake shake maps for the Territory to assist with planning; Determine areas of liquefaction vulnerability; Further investigate critical facilities at risk to determine if mitigation projects or relocation would be cost effective; Institute a Seismic Monitoring Program for American Samoa. Currently, American Samoa does not have any seismic recording instruments to record ground motions from earthquakes. Deploy an adequate network of seismic recording instruments on Tutuila and the Manu'a Islands in order to understand the nature of local earthquake fault activity; Increase public awareness and education about the risks from earthquakes and tsunamis.

Extreme Heat

- Expected to see rising temperatures and extremes with climate change; recent years have seen record-breaking heat events
- Public education (vary limited variation in temperatures historically means population may not be prepared to deal with 90 degree+ days.

Flood

- Most chronic hazard—threat to roads, homes, businesses, and critical facilities. Anticipated to increase.
- Improvements in Land Use and Flood Plain Management and Regulation; Relocation of Existing Structures; Elevation of Existing Structures; Structural and Non-structural Flood Mitigation Projects. Install a gage in Manu'a to better impacts. Incorporate specific mitigation actions for RL and SRL properties to prevent further damages.

Hazardous Materials

- Abandoned toxic chemicals without proper storage affecting the environment and populations. Unknown locations and amounts of illegally imported hazardous materials. Large tank near the ocean poses a risk population and environment.
- Formalize a partnership with U.S. EPA and A.S. EPA for hazard materials subject matter experts and management assistance; Recognize the dangers posed by hazardous materials; Identify places where hazardous materials are likely to be encountered; Understand when a hazard may exist; Contact the appropriate persons or agencies to give or receive specific hazardous materials information; Hold an “ask no questions” drive for people to bring hazardous materials to a location for proper disposal by A.S. EPA; Identify procedures to minimize personal and community exposure to hazardous materials; Identify and map facilities with hazard materials; Consider relocating the tank farm.

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High Surf

- Debris washes onto roads near the coast and can washout parts of the road. Recent high surf related fatalities by youth and veteran fisherman.
- Construction of barrier to prevent debris from washing onto roadways; Construction of structures to ease wave impacts and prevent road washout; Purchase of additional equipment to aid in swift sand and road removal; Development of a traffic management plan or protocol when roads are blocked by debris; Map areas subject to frequent over wash; Public education to emphasize the danger of high tide for swimmers and fishermen.

Landslides

- Serious threat to villages and roads. Limited land use regulation can result in high-risk development. Anticipated to increase with increased precipitation.
- Improvements in Land Use Management and Regulation (including new building permit approval); Relocation of Existing Structures; Village Mitigation Ordinances; Mitigation of repetitive rock fall hazards to populations; Consider the landslide hazard map zones for land use decisions, where applicable; Enforce building setbacks through Permit Notification and Review System for slopes less than 40% grade and no building on slopes 40% or greater; Build on the least risky areas of the land parcel or leave a buffer between the building and a steep slope (above or below) the property; Relocate or condemn structures that are at high risk; Establish village mitigation ordinances that limit use of high-risk areas while allowing villagers to develop alternative parcels of land; Leave local vegetation in place and replant areas that are barren from development or fire, for example; Enact regulations to require non-eroding drainage for new development; Increase public awareness and education about the risks from landslides including when and where occurrence is most likely; Further investigate critical facilities at risk to determine if mitigation projects or relocation would be cost effective; Track and map all occurrences and include relevant information such as location, type, size and cause; For slopes in agricultural areas, prevent grading and clearance. Cultivate and reforest with deeply rooting plants to prevent erosion on slopes.

Lightning Strike

- Infrequent hazard that has caused deaths and injury in the past. Limited occurrence may hinder public knowledge.
- Public Awareness and Education to ensure the population understand how to react to the hazard; Install lightning protection devices on critical communication facilities; Install surge protection where critical; Track all occurrences locally to determine if there is a season where risk is elevated and if it causes additional issues (such as fire or electrical damage).

Public Health Risks

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- Nature of island population (contained in a relatively close spaces) means infections may spread rapidly and medical resources are limited. Favorable climate for many biting insects.
- Increase on island testing capability; Building more clinics across the Territory; Enhance on island food access through commercial farms, private farms and subsistence farming; Review emergency management plans and procedures in light on COVID-19 and other public health emergencies; Enhance the Territory's ability to plan, prepare, mitigation, respond, and recover from public health emergencies.

Sea Level Rise

- Sea-level rise is occurring more rapidly as a result of rising seas globally and increasing subsidence of land in American Samoa. Rising seas means areas further inland are being impacts by coastal flooding, nuisance flooding and King Tides. Such events threaten property, populations and cultural assets and may force relocation of populations in the future. According to the United Nations Confronting Climate Change report, the significant impacts of climate change to the pacific islands and small island nations is: "inundation of low-lying coral islands as sea level rises; salinization of aquifers; widespread coral bleaching; more powerful typhoons and possible intensification of ENSC extremes."²¹⁷
- Enforcement of the shoreline setback rules of the Coastal Zone Management Act through better risk maps and improved PRNS permitting and inspections; Education programs to increase awareness and mitigation of impacts of climate change on island environments; Local monitoring and hazard mapping program; continue to implement and expand actions in Executive Order (EO) 0101A-2007, which focuses on reducing climate change impacts.

Soil Hazards (Including expansion and sinkholes)

- Limited knowledge of this hazard locally (presumed to be low given soil composition). May increase as island becomes wetter with climate change impacts.
- Further assess risk to these hazards to technical studies; Enact a local monitoring program to monitor severity.

Subsidence

- Subsidence increased dramatically following the 2009 earthquake/tsunami event. Threatened all islands in the Territory (structural and foundation issues with built environments; loss of land) and is typically more pronounced in coastal areas. Especially concerning in combination with increased flooding/sea level rise, as more areas will be impacted.

²¹⁷ 2007, February. *CONFRONTING CLIMATE CHANGE*: (n.d.): n. pag. *Carboncounted.com*. Web. 30 Sept. 2014.

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- Technically studies to understand where is most severe. Monitoring program to track it territory-wide.

Tropical Cyclones (including storm surge) and High Wind Storms

- Most serious threat in terms of economic impact and widespread damage to buildings and utilities. Buildings not designed to withstand high winds.
- Harden existing facilities and utilities. For example, install hurricane clips, provide shutters for windows, and anchor roofs; Harden or strengthen infrastructure with anchor utility poles, use steel or concrete poles, install underground wires and cables, harden bridges, and identify bypass roads; Increase public education and awareness, motivating people to prepare their homes and communities against disasters; Consider land use zoning to minimize development in areas of known potential high waves, storm surge, and coastal erosion; Consider new flooding design standards in the International Building Code (or ASCE 24) to minimize risk in identified and/or mapped zones of high waves, storm surge, and coastal erosion; Increase public awareness and education about the risks from high waves, storm surge, and coastal erosion; Locate development away from the shoreline; Harden bridges and roads and allow proper drainage; Relocate facilities and houses out of the designated VE zones or away from eroding shorelines; Public education to anchor loose outdoor items and properly store hazardous chemicals; Regularly maintenance generators at critical facilities and test prior to major events; Maintain stockpile of critical parts for critical functions (e.g., community lifelines; generators; medical)

Tsunami

- Infrequent occurrence but potentially life threatening. Serious threats to coastal roads and beaches due to increased wave action, storm surge and sea level rise.
- Continued mapping and study of potential events and impacts locally; Assess risk to fires following tsunami; construct tsunami shelters; Land use zoning to minimize development in areas of known potential tsunami inundation. This is one of the best mitigation strategies, but it is not very practical in American Samoa. The people of American Samoa own their land; Shoreline Setbacks; Floodplain Management Enforcement (and participation in NFIP); Consider new flooding design standards in the International Building Code (or ASCE 24) to minimize risk in tsunami zones; Review safe zones to ensure safety from flooding and other hazards; Update hazard mapping to reflect potential risk areas; Assess risk to fires following tsunami; Construct tsunami shelters; Relocate/harden critical facilities; Develop scenarios to investigate future risk to tsunamis; Increase public awareness and education about the risks from tsunami; Continue to conduct island evacuation drills.

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Volcano

- Risk from neighboring island eruptions that may bring secondary volcano impacts such as vog, decreased air quality impacts, marine life dies off; commerce impacts.
- Install air quality monitoring station to monitoring air following a nearby event; Assess worst case scenarios from nearby eruptions to determine potential extent of secondary impacts; Update hazard mapping for impact areas; Public education and awareness of volcanic eruptions and impact on island.

Wildfire

- Infrequent occurrence but possible due to drought, earthquake or hazardous material incidents.
- Implement Firewise Communities program; Enact regulations regarding open space and open fires; Maintenance programs for dead or dry underbrush(fuel); Identification and mapping of high-risk areas; Continued Public education on burning and associated risks.

6.2 Mitigation Actions

The mitigation project identification process has evolved since 2003 in American Samoa. The Hazard Mitigation Council is well aware of FEMA's Pre-Disaster Mitigation Grant Program (PDM) requirements and the Hazard Mitigation Grant Program criteria. The Hazard Mitigation Council has used the guidance which states that the national priority is to address repetitive flood loss properties. It states that the following are eligible projects:

- Acquisition or relocation of hazard-prone property for conversion to open space in perpetuity.
- Structural and non-structural retrofitting of existing buildings and facilities, including designs and feasibility studies when included as part of the construction project, for wildfire, seismic, wind or flood hazards (e.g., elevation, flood-proofing, storm shutters, and hurricane clips).
- Minor structural hazard control or protection projects that may include vegetation management, storm water management (e.g., culverts, floodgates, retention basins), or shoreline/landslide stabilization.

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- Localized flood control projects, such as certain ring levees and floodwall systems that are designed specifically to protect critical facilities and that do not constitute a section of a larger flood control system.

The State Hazard Mitigation Officer, on behalf of the Hazard Mitigation Council, puts out a Call for Projects several times during a five-year period via press release to the Samoa News to gather

mitigation projects. The purpose of the mitigation projects is to protect life and safety and ensure the well-being of the people of American Samoa through a rapid recovery from future disasters. The Territory has a history of success with hazard mitigation. The picture to the right shows a group of students at a STEM Outreach Event organized by the STEM Committee which includes ODAPM and the Hazard Mitigation Council.



Figure 102 Visitors at a Hazard Mitigation STEM Exhibit in 2018

American Samoa experienced two major disaster declarations since 2015, Hurricane Gita and Covid-19. Historically the Territory receives the majority of its mitigation project funding following a presidential disaster declaration. All of the projects funded following a disaster declaration are shown in the Capability Assessment. The two projects from Tropical Storm Gita were Hazard Mitigation Planning and a 5% Outreach Initiative.

6.2.2 Evaluating and Prioritizing Mitigation Actions

S9. Does the plan prioritize mitigation actions to reduce vulnerabilities identified in the risk assessment? [44 CFR 201.4©(3)(iii) and (iv)]

For 2020, the Hazard Mitigation Council has prioritized 57 Hazard Mitigation Projects. Each project includes a title, description, location, hazard addressed, estimated cost, lead department or organization and priority. All of the projects are scheduled for implementation between June 2020 and June 2025. The Hazard Mitigation Council intends to amend this schedule for the 2025 Hazard Mitigation Plan Update by identifying a broader range of potential funding sources that should enable to them to access funds throughout the year, not just following a presidential disaster declaration. For 2020, all of the mitigation actions have identified FEMA (HMA, PA, BRIC) or HUD (CDBG-DR) as their funding source.

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Each department prioritizes the list of projects they submit to the Hazard Mitigation Council who then prioritizes the entire list. Of the 57 projects included in this plan update, 12 are Very High Priority, 15 High Priority, 15 Medium Priority, and 15 Low Priority. The system to rank projects was similar to the one developed for the 2015 plan update, relevancy to the mitigation objectives and protection of life and safety were prioritized.

Of the 41 mitigation projects listed in the 2015 Hazard Mitigation Plan, 5 have been completed (these are shown below), and 31 have moved forward (shown in Appendix E) to the 2020 Hazard Mitigation Plan Update. A complete list of the 41 2015 Hazard Mitigation Plan projects and their status is included in Appendix E.

Table 52 2015 Mitigation Action Projects Completed

Rank (2015)	Project Title	Responsible Agency
1	Fuel Farm Relocation	Port
4	Fagatogo Reservoir Mitigation	ASPA
27	#5 Happy Valley Road Drainage	DPW
29	Wind Shutters EOC Project	DHS
39	#4 Leone Village Road	DPW

For 2020, the Hazard Mitigation Council's top priority is the Tualauta Drainage Project. This project was recently funded under HUD CDBG-DR for FEMA DR-4357, Hurricane Gita. This project has been a priority for the Hazard Mitigation Council for many years. The EPA has frequently put the island under a boil water notice because of water well contamination from surface water flooding. The water wells in Tualauta have been directly affected by surface water runoff.

The table below shows the current list of 56 Hazard Mitigation Projects for this plan.

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Table 53 2020 Mitigation Actions

Rank (2020)	Action Title	Action Description	Estimated Cost	Lead Department
1	Tualauta Drainage	The proposed flood mitigation project is to match the hydraulic capacity of the existing bridges on Route 001-Main Road however the approach structures will be reconstructed by widening and trimming of existing features in order to re-establish original bank lines to provide for 15 year storm event working area limits and to provide greater scour protection and improved conveyance capacity.	\$11,299,062	DPW
2	Fagaima Road Flood Mitigation	Mitigate stream runoff and ponds toward residential and commercial settlement.	\$4,500,000	DPW
3	Cost U Less Drainage (Alternate)	The proposed project is to install a drainage system that will receive the runoff from the watershed of Drainageway 3 based on the recent 2018 Hydrologic and Hydraulic Engineering Analysis, Tafuna Study, Territory of American Samoa. <i>**This is an alternate project in the event Fagaima Road Flood Mitigation project (#2) does not get approved.</i>	\$2,117,156	DPW
4	State Management Costs	The overall project objective is for the Grantee which is the American Samoa Government (ASG), the means to manage the HMGP Program effectively. It is one of ASG's main concerns to solicit program interest and help potential applicants to complete applications, review and submit applications to FEMA. By conducting periodic reviews this will enable ASG to monitor the HMGP program activities and ensuring that applicants adhere to both Federal and Local regulations.	\$700,330	ODAPM
5	Vatia Shoreline	Protect road, homes, church and nearby school as the waves continuously run on the road with debris during high tide and the low embankment is heavily eroded posing a safety hazard to traveling public and nearby residence. 35 lf of shoreline revetment.	\$5,250,000	DPW
6	Water Wells & Boosters Backup Power Supply	Install in-place backup generators at water wells so water can continue to flow during power outages and natural disasters.	\$3,500,000	ASPA

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Rank (2020)	Action Title	Action Description	Estimated Cost	Lead Department
7	Water Tanks Mitigation	Install reinforcements for water tanks and install berms and retaining walls so that the water tanks can continue to operate after an earthquake or hurricane.	\$4,000,000	ASPA
8	Runway Shoreline Protection	Proposed rock seawall/revetment will be designed and constructed along the Airport's shorelines to protect the Runways and Security Perimeter Fence and Road from wave action from cyclones or natural disasters.	\$5,000,000	DPA
9	#2 Landslide: Rte.6 (Afono, Masefau), Rte.1 (Matuu, Gataivai)	The proposed project is a permanent stabilization of higher grounds adjacent to the road by removing the loose rocks and soil that are potentially dangerous to the approaching traffic and reduce the severity of damages in some cases that cannot be avoided.	\$4,000,000	DPW
10	Ottoville Drainage Flood Mitigation	The proposed project is located at Route 018 Ottoville Road, Tafuna Village, Tutuila Island, American Samoa. As a consequence of the terrain, the existing Portland Cement Concrete (PCC) paved road was constructed with a soakage pit structure. The existing soakage pit was construction under the PCC pavement to serve as an outlet for runoff water from road and recharge it to the ground through infiltration.	\$466,331	DPW
11	Fatuoaga Drainage Flood Mitigation	Mitigate stream runoff and ponds toward residential and commercial settlement.	\$300,000	DPW
12	Faleasao Wharf Structure	Existing Faleasao wharf structure is exposed to incoming waves.	\$25,000,000	DPA
13	#7 Electrical Upgrades Campus Grounds Drainage 10 Schools	**Due to soil erosion through the years, electrical wires are exposed to natural elements and becomes a liability to the students as well as a fire hazard. Electrical wires installed in the late 1960's were buried in a trench without proper conduits.	\$1,220,000	DPW
14	#1 Rockfall: Rte.009 (Utumea, Poloa, Amanave)	The proposed project is a permanent stabilization of higher ground adjacent to the road by removing the loose rocks that are potentially dangerous to the approaching traffic and reduce the severity of damages in some cases that cannot be avoided.	\$2,400,000	DPW

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Rank (2020)	Action Title	Action Description	Estimated Cost	Lead Department
15	Permanent Landslide Repair Route 11	Slope stabilization to resist movement of loose material.	\$350,000	DPW
16	Afono Culvert Improvement	Mitigate stream runoff and ponds toward residential and commercial settlement.	\$250,000	DPW
17	Permanent Landslide Repair Route 005	Slope stabilization to resist movement of loose material. Install/construct drainage improvement.	\$520,000	DPW
18	#6 Pava'ia'i Elementary	Alleviate the overflow of accumulating run-off water originating from the fall and run-off of water from the Pava'ia'i Elementary Upper Campus grounds and (4) 2-Story Classroom Bldg. Structures at the lower Campus, causing major ground erosion to the affected lower campus grounds.	\$310,000	DPW
19	Faga'alu Booster Station	Install reinforcements for critical columns and structures and install berms and retaining walls so that the booster station can continue to operate after a tsunami.	\$250,000	ASPA
20	Pago Water Booster Station Mitigation	Install reinforcements for critical columns and structures and install berms and retaining walls so that the booster station can continue to operate after a tsunami.	\$250,000	ASPA
21	Utumoa River Flood Mitigation	Protect from further erosion from mudslides, landslides, and high flood waters.	\$257,500	DPW
22	Afono Pass to Blue Sky Tower U/G Communications Lines	This is an ASTCA project to replace overhead utility poles and cable with underground conduits and vaults. The project location is from Afono pass to Blue Sky tower.	\$924,000	ASTCA
23	Amouli to Aoa U/G Communications Lines	This is an ASTCA project to replace overhead utility poles and cable with underground conduits and vaults. The project location is from Amouli to Onenoa. Cu. Yds (7400)	\$2,590,000	ASTCA
24	Fagaitua, Masefau, Masausi, Sailele U/G Comm. Lines	This is an ASTCA project to replace overhead utility poles and cable with underground conduits and vaults. The project location is from Fagaitua to Masefau, Masausi and Sailele. Cu. Yds. (6336)	\$2,217,600	ASTCA

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Rank (2020)	Action Title	Action Description	Estimated Cost	Lead Department
25	Weather Proof Sewage Lift Stations	Install and raise computerized controls above ground level and install in weatherproof panels rated to weather tsunami.	\$500,000	ASPA
26	Lauli'I/Breaker's Point Tower Replacement Parts	This is an ASTCA project to replace parts of the Breakers Point tower due to deteriorating parts from weather conditions.	\$44,127	ASTCA
27	Aunu'u Tower Replacement Parts	This is an ASTCA project to replace parts of the Breakers Point tower due to deteriorating parts from weather conditions.	\$45,000	ASTCA
28	Ili'ili Drainage Flood Mitigation	Mitigate stream runoff and ponds toward residential and commercial settlement.	\$1,310,000	DPW
29	Nu'uuli To Mesepa U/G Lines	U/G powerlines, improve overhead lines to non-curch and water well locations.	\$1,400,000	ASPA
30	Poloa To Fagamalo U/G Lines	U/G powerlines, improve overhead lines to non-curch and water well locations.	\$3,300,000	ASPA
31	#3 Amouli Stream Mitigation Project Ofu, Manu'a	The proposed project is to improve stream flow capacity to prevent flooding on the residents within the area. The proposed improvement is consist of bankline stabilization to prevent soil erosion that would lower the flow capacity of the stream.	\$300,000	DPW
32	Tago Vaitele Stream Flood Mitigation (Name Correction Passed By Council)	Reconstruction of the existing damaged flood protection structure on upstream off of the main road (Route 001) and redefining/structural hardening of the stream bankline downstream off the main road.	\$500,000	DPW
33	Generator (5% Initiative)	To provide fully automated and robust standby power system for the Ili'ili Communication Office; both Low Voltage and Medium Voltage side.	\$150,000	ASTCA
34	Manu'a Islands U/G Comm. Lines	This is an ASTCA project to replace overhead utility poles and cable with underground conduits and vaults for Ta'u, Ofu and Olosega.	\$10,000,000	ASTCA
35	Industrial Park U/G	Underground transformers - Islandwide	\$1,500,000	ASPA

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Rank (2020)	Action Title	Action Description	Estimated Cost	Lead Department
36	Sewer Lift Stations Backup Power Supply	Install in-place backup generators at each lift station so sewer can continue to flow to the WWTPs during power outages and natural disasters.	\$1,500,000	ASPA
37	Amouli To Aoa U/G	This is an ASTCA project to replace overhead utility poles and cable with underground conduits and vaults. The project location is from Amouli to Aoa.	\$1,232,000	ASTCA
38	T&D Hardening	Transmission & Distribution Building Rehabilitation and Hardening - very important.	\$500,000	ASPA
39	Island Wide U/G Rehab & Stabilize U/G Feeders, Closures, Sealing Water Penetration	ASTCA Island Wide underground Plant	\$125,000	ASTCA
40	U/G Bridge Crossing Asili	Convert OH communication lines into underground conduits in Asili	\$11,550	ASTCA
41	U/G Bridge Crossing Malaeimi	Convert OH communication lines into underground conduits in Malaeimi	\$11,550	ASTCA
42	U/G Bridge Crossing Ta'u	Convert OH communication lines into underground conduits in Ta'u	\$11,550	ASTCA
43	Breaker Pt Road Hardening	Repave/harden the access road to communication tower.	\$11,550	ASTCA
44	Ili'ili DCO Roof Hardening	Fortify and harden the roof for 'Ili'ili telecom facility building (i.e., hurricane ties, etc.).	\$38,400	ASTCA
45	Retaining Wall	Retain run offs of storm water from hill side behind the Lumana'i building.	\$250,000	DBAS
46	Resurface Post Office Parking Lot	To repair and resurface the three parking lots at the Lumana'i Building which also houses the US Post Office.	N/A	DBAS
47	Storm Drain	Improve storm water drainage system around the Lumana'i building.	\$100,000	DBAS

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Rank (2020)	Action Title	Action Description	Estimated Cost	Lead Department
48	Utulei Shoreline Revetment Wall	The proposed project seeks to construct a 784-foot revetment rock wall along the Utulei beach shoreline, beginning at the south end of the beach behind South Pacific Watersports and DDW Beach Café and ending at the rock jetty where the angel ring station is posted. The total acreage of impact from dredging along the shoreline and in the navigable waters of the U.S. is estimated to be 3,390 cubic yards, with a total placement of 4,040 cubic yards of rock and/or backfill material.	\$400,000	DOC
49	Televisé Beach Shoreline Protection	The objective of the project is to install a rock wall along the shoreline across from Young Mart in Utulei to prevent further erosion. Additionally, the project aims to rehabilitate the stream mouth across from Young Mart (Utulei) and the street drainage stream that sits adjacent to the Manulele Tausala boathouse. There is significant erosion occurring at both streams. The street drainage system adjacent to the boathouse directs water from the street into the stream at a point that sits below sea level, resulting in constant back up and flooding, standing water, and erosion.	\$500,000	DOC
50	Afono Road	Waiting on info from DOC		DOC
51	Vatia Road	Waiting on info from DOC		DOC
52	Rainmaker Shoreline	Waiting on info from DOC		DOC

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Rank (2020)	Action Title	Action Description	Estimated Cost	Lead Department
53	Aerial Tramway	The objective of the project is to install a new aerial tramway at the site of the previous tramway to provide quick and safe access to the transmitters atop Mt. Alava. This tramway would provide a more direct and convenient route to access essential telecommunications equipment located atop Mt. Alava as the access road that currently exists is prone to landslides and flooding. Additionally, this tramway would provide residents of Afono and Vatia an additional egress route out of their respective villages should something block access to the Afono road/pass.	\$15,000	DOC
54	Office of Public Information Building (KVZK-TV)	Building stabilization and safety to maintain public information communications.	\$3,000,000	OPI/SHPO
55	High Court and District Court Building Relocation - Change to Elevation Project	**Relocation of the high court to safer grounds to avoid future damages caused by flooding or storm surge.	\$2,750,000	HC/SHPO
56	#8 Upgrading of DPW-M&O Building	**Upgrade structure for reliability in emergency response.	\$400,000	DPW

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6.3 Future Mitigation Actions to Consider

As stated previously, the Hazard Mitigation Council has historically considered large infrastructure projects that may be funded post presidential disaster declaration by FEMA or CDBG. They intend to consider a fuller range of projects moving forward.

FEMA has recommended, the creation and use of FEMA Integration Teams focused on preparedness and long-term recovery as a way for FEMA to do business with our states/territories through partnership building throughout all phases of disasters. Integrating Federal Interagency Coordination at the focal point with the American Samoa Government will maximize preparedness and resiliency and can be used as a model for the other Pacific territories. In addition, the Advance Evaluation Team Report, May 24, 2018, FEMA 4357 recommended the following FEMA support capabilities to consider accessing.

- FEMA Mitigation Advisor to ensure that preparedness and resiliency are fully integrated.
- FEMA Philanthropic Advisor (Voluntary Agency Liaisons [VAL]) and Recovery Resource team (NDRS) to assist in finding additional funding sources outside of traditional Stafford Act programs.
- NDRS Geospatial and Data Analysis Cell (GDAC) to ensure transparent and data-driven decision-making by ASG and its partners.
- MAX-TRAX training to allow data to be captured and for activity tracking.

Below is a list of other potential projects sorted by type of mitigation action.

Local Plans and Regulations

- Update the building code.
- Update Territory's existing plans.
- Conduct study to continue understand areas where subsidence is occurring. Recent studies showing the island has sunk 5 inches and sinking several inches a year. This also has impacts on increased sea level rise.
- Update the critical shoreline study to indicate areas of coastal erosion criticality. The previous study was done in 2004 by the USACE.
- Review emergency management plans and procedures in light of COVID-19 and other public health emergencies.

Structure and Infrastructure Projects

- Put backup generators on key infrastructure facilities for water
- Install a rain gauge on Manu'a.
- Maintain and test generators pre-event on critical assets.

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- Maintain stockpile of critical parts for generators, during Gita, generators that malfunctioned could not be repaired because parts were not available. for critical functions (e.g., community lifelines; generators; medical)

Natural Systems Protection

- Remove invasive plant species.
- The American Samoa Department of Marine and Wildlife is seeking funding to remove a vessel that ran aground and is on the reef, broken in two. The vessel floated into the area and also caused some oil pollution.
- A proposal for land acquisition funds is also being produced, in order to secure a lowland lava rainforest for conservation. The land is currently privately owned and if purchased will be titled to the American Samoa government and protected as a wildlife sanctuary.

Education and Awareness Programs

- Increase public education for high surf and rip tide safety. Five deaths have been reported since 2015, four of them since 2019.
- Enhance on island food access including subsistence farming, especially useful during or after a disaster, such as Covid-19.
- Conduct public education campaign on the importance of home insurance; only 9% of homes impacted by Gita were insured.

6.4 How the Territory Supports Local Mitigation through Funding and Technical Assistance

S10. Does the plan identify current and potential sources of funding to implement mitigation actions and activities? [44 CFR §201.4©(3)(iv)]

Historically, all counties in Tutuila and the Manu'a Islands have received benefits from mitigation projects constructed and completed over the past two decades. All mitigation project-funding decisions are the responsibility of the Hazard Mitigation Council for the benefit of all the citizens through strengthening of critical facilities, flood control projects, and other mitigation projects.

The criteria for which projects receive funding rests with the active, well-informed, and well-educated Hazard Mitigation Council the advisory authority. The Council has demonstrated a history of prioritization on past mitigation projects based on criteria described in this plan. All of the counties in Tutuila and the Manu'a Islands are considered for local funding through the master mitigation project list presented above, in this chapter. The Hazard Mitigation Council understands that funding opportunities may present themselves in an order that is different than the project priority order. For this reason, projects are frequently funded in what appears to be a random order.

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An important island-centric issue to mention is the extraordinary time and distance issues related to completing any and all projects in American Samoa and all the Pacific islands: FEMA project timelines are not very flexible and do not consider logistics related to the Pacific Islands. Transportation and logistics of shipping goods and services to the islands can add many months to a typical project. Transport of heavy equipment requires extra costs and time.

The Hazard Mitigation Council and ODAPM will continue to take advantage of the various funding programs available and described herein for the projects that have been developed, scrutinized, prioritized, and described via this Mitigation Plan Update planning process.

6.4.1 FEMA Funding Options

The purpose of Hazard Mitigation Grant Program (HMGP) is to help communities implement hazard mitigation measures following a Presidential Major Disaster Declaration in the areas of the state, tribe, or territory requested by the Governor or Tribal Executive. The key purpose of this grant program is to enact mitigation measures that reduce the risk of loss of life and property from future disasters. The primary guidance document for this program is the [HMA Guidance](#). HMGP is authorized under Section 404 of the [Robert T. Stafford Disaster Relief and Emergency Assistance Act](#).

The Pre-Disaster Mitigation Program (PDM), authorized by Section 203 of the [Robert T. Stafford Disaster Relief and Emergency Assistance Act](#), is designed to assist states, territories, federally-recognized tribes, and local communities in implementing a sustained pre-disaster natural hazard mitigation program. The goal is to reduce overall risk to the population and structures from future hazard events, while also reducing reliance on federal funding in future disasters. This program awards planning and project grants and provides opportunities for raising public awareness about reducing future losses before disaster strikes. Mitigation planning is a key process used to break the cycle of disaster damage, reconstruction, and repeated damage. PDM grants are funded annually by Congressional appropriations and are awarded on a nationally competitive basis.

Building Resilient Infrastructure and Communities (BRIC) will support states, local communities, tribes and territories, as they undertake hazard mitigation projects reducing the risks they face from disasters and natural hazards. BRIC is a new FEMA pre-disaster hazard mitigation program that replaces the existing Pre-Disaster Mitigation (PDM) program and is a result of amendments made to Section 203 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act) by Section 1234 of the Disaster Recovery Reform Act of 2018 (DRRA). The BRIC program guiding principles are supporting communities through capability- and capacity-building; encouraging and enabling innovation; promoting partnerships; enabling large projects; maintaining flexibility; and providing consistency.

FEMA is now providing mitigation assistance using [HMGP](#) funds for Fire Management Assistance declarations on or after October 5, 2018. This assistance is called the HMGP Post Fire. The Disaster

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Recovery Reform Act (DRRA), Public Law 115-254, was enacted on October 5, 2018, and made numerous legislative changes to the [Robert T. Stafford Relief and Emergency Assistance Act \(Stafford Act\)](#). Section 1204 of the DRRA amended Section 404 of the Stafford Act to allow FEMA to provide HMGP assistance for hazard mitigation measures that substantially reduce the risk of future damage, hardship, loss, or suffering in any area affected by a major disaster, or any area affected by a fire for which assistance was provided under Section 420 [Fire Management Assistance Grant \(FMAG\)](#). The HMGP Post Fire framework is outlined in [FEMA HMGP Post Fire Policy #207-088-2](#).

The Flood Mitigation Assistance (FMA) program is authorized by Section 1366 of the National Flood Insurance Act of 1968, as amended with the goal of to reduce or eliminate flood risk of severe repetitive and repetitive flood damage to buildings insured by the National Flood Insurance Program (NFIP). The program provides funding to states, territories, federally recognized tribes and local communities for projects and planning that reduces or eliminates long-term risk of flood damage to structures insured under the NFIP. Funding is also available for management costs.

The [Repetitive Flood Claims \(RFC\) grant program](#) provides funding to reduce or eliminate the long-term risk of flood damage to structures insured under the National Flood Insurance Program (NFIP) that have had one or more claim payment(s) for flood damages. It was authorized in Section 1323 of the National Flood Insurance Act of 1968, as amended by the Bunning-Bereuter-Blumenauer Flood Insurance Reform Act of 2004 (FIRA 2004). RFC funds may only be used to mitigate structures that are located within a state or community that is participating in the NFIP that cannot meet the requirements of the Flood Mitigation Assistance (FMA) program because they cannot provide the non-federal cost share, or do not have the capacity to manage the activities.

The table below shows the types of projects eligible for HMGP, PDM, or FMA.

Table 54 Eligible Activities for HMGP, PDM, and FMA.

Eligible Activities	HMGP	PDM	FMA
1. Mitigation Projects	√	√	√
Property Acquisition and Structure Demolition	√	√	√
Property Acquisition and Structure Relocation	√	√	√
Structure Elevation	√	√	√
Mitigation Reconstruction			√

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Eligible Activities	HMGP	PDM	FMA
Dry Floodproofing of Historic Residential Structures	√	√	√
Dry Floodproofing of Non-residential Structures	√	√	√
Minor Localized Flood Reduction Projects	√	√	√
Structural Retrofitting of Existing Buildings	√	√	
Non-structural Retrofitting of Existing Buildings and Facilities	√	√	√
Safe Room Construction	√	√	
Wind Retrofit for One- and Two-Family Residences	√	√	
Infrastructure Retrofit	√	√	√
Soil Stabilization	√	√	√
Wildfire Mitigation	√	√	
Post-Disaster Code Enforcement	√		
Generators	√	√	
5 Percent Initiative Projects	√		
Advance Assistance	√		
2. Hazard Mitigation Planning	√	√	√
3. Management Costs	√	√	√