This section is presented in the following four subsections:

- 2.1 IFR Requirement for Planning Process,
- 2.2 Description of the Planning Process,
- 2.3 Coordination among Government Agencies, and
- 2.4 Integration with other Planning Efforts

2.1 IFR REQUIREMENT FOR PLANNING PROCESS

IFR §201.4(b) states that "[a]n effective planning process is essential in developing and maintaining a good plan." The IFR continues to include three specific requirements for the process of developing Standard State Hazard Mitigation Plans:

- **Documentation of the Planning Process** per **Requirement §201.4(c)(1):** "[The State plan must include a] description of the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how other agencies participated."
- **Coordination Among Agencies** per **Requirement §201.4(b): "**The [State] mitigation planning process should include coordination with other State agencies, appropriate Federal agencies, interested groups,…"
- **Program Integration** per **Requirement §201.4(b): "**[The State mitigation planning process should] be integrated to the extent possible with other ongoing State planning efforts as well as other FEMA mitigation programs and initiatives."

2.2 DESCRIPTION OF THE PLANNING PROCESS

2.2.1 ANALYSIS OF PLAN

For the purposes of the Plan Update, the newly established Hazard Mitigation Steering Committee (Refer to Section 2.3.2 below) led the Plan Update effort. The 2011 Plan indicated that the Plan would undergo annual evaluations and that VITEMA, and then established three (3) Hazard Mitigation and Evaluation Committees (HMEC) for each island and would initiate the evaluations by contacting agencies identified as responsible parties for the implementation of Mitigation Action. No annual meetings has taken place between 2011 and 2014 to review and update the Plan as outlined in the Plan Maintenance Section of the 2011 Plan Update.

Justification as to reasons why there were no annual meetings was not made available at the time of this Plan Update; however, new personnel involved VITEMA have been engaged in this process and have hired the consultant team to work with VITEMA on an annual basis (contracted for 2015) to document the status of the implementation of Mitigation Actions. This process has been defined during subsequent meetings of the Hazard Mitigation Steering Committee. The changes that have been made to the 2014 Plan Update are as follows:

Section One – Introduction and Adoption

- Add a table or statement of what has changed in the update of Plan
- Ensure that Territorial assurances are in the adoption letter, particularly related to the Plan maintenance process

Section Two – Planning Process

- Explain Plan Update process, invitations, community meetings (include announcements; specify dates, place, and attendees of meetings).
- Summarize findings of meetings
- Updated listing of participants and key stakeholders that were involved in the planning process, meeting information, coordination among government agencies, and integration with other planning efforts.
- Key change is that the island hazard mitigation committees as referenced in previous plans are now called hazard mitigation and evaluation committees, persons identified for each island, and will play a role in the annual maintenance process.

Section Three - Capability Assessment

- Update Virgin Islands policies, programs and capabilities related to pre- and post-disaster hazard mitigation;
- Update Mitigation Project Status;
- Clarify Administration of Mitigation grant funds;
- Update Federal Funding Sources, particularly new Hazard Mitigation Assistance Unified Guidance;
- Elimination of the Severe and Repetitive Loss Claim grant programs;
- Changes to the cost share provisions of PDM, FMA, and HMGP grant programs;
- Update VI funding and responsibilities matrix, as appropriate;
- Update Regulatory Compliance Table update, as appropriate.

- Update Recommendations Table update, as appropriate

Section Four – Hazard Identification and Risk Assessment

- Explain how the HIRA was reviewed, and explain if process has changed
- Update Hazard Identification by explaining how it was reviewed, and explain why hazards were added or removed.
- Note the addition and integration of four recommended hazards: coastal erosion (integrated with coastal flooding), wildfire, drought and rain-induced landslides

Coastal Flooding and Erosion

- No Change, No new events reported or documented

Earthquake

- Update history based on information from the Puerto Rico Seismic Network for earthquakes with a Magnitude of 4.0 or above;
- Update of new seismic hazard map with building code provisions table.

Tsunami

- New Tsunami maps were utilized in hazard profile.
- Update hazard profile accordingly

Wildfire

- Update Hazard Identification and Profile
- Conduct loss estimates for future events based on review of data from NCDC.

Drought

- Update Hazard Identification and Profile
- Conduct loss estimates for future events based on review of data from NCDC

Rain-Induced Landslide

- No Change, No new events reported or documented
- Update Hazard Identification and Profile
- Develop Hazard Susceptibility Map to provide an understanding of spatial extent of hazard
- Describe and/or list historic events to understand frequency of the hazard in the USVI
- Update Vulnerability Assessment
- Conduct loss estimates for future events.

Inventory of Assets

- Describe if the 10 model building types have changed for this Plan Update.
- Update building and Critical Facility values based on rate of inflation, construction price index and compounded inflation factor.
- Update Population figures based on Annual Growth Rate, projected; as to figures derived from the 2010 census information for the USVI is not available.

Vulnerability Assessment

- Based the above, update population data and update social impacts table
- Based on the above, update exposure and vulnerability tables.
- Conduct spatial overlay and queries and update social impacts sections for wildfire, drought and rain-induced landslides
- Conduct spatial overlays and queries and update exposure and vulnerability tables for wildfire, drought and rain-induced landslides

Section Five - Mitigation Strategy

- Review goals / objectives, explain how they were reviewed, and explain any changes to goals or objectives
- Review previous programmatic mitigation strategy and explain progress made on each action, if any
- Review previous island specific mitigation strategy and explain progress made on each action, if any
- Review and reference previous repetitive loss mitigation strategy and explain progress made on each action, if any
- When prioritizing Actions for the Plan Update, explain if STAPLEE review came before or after the actions were put into the mitigation strategy

Section Six - Plan Maintenance

- Describe if any monitoring was actually done since last Plan Update
- Explain if the approach has been successful, and whether, it should be used in this Plan Update.
- Explain why a new approach was chosen
- Explain that there were no annual evaluations of the existing Plan;
- Explain changes to membership of the Hazard Mitigation Steering Committee, and how it differs from the Hazard Mitigation Monitoring and Evaluation Committee; justify or explain changes that occurred
- Explain the Public Notification Process that was used to initiate the plan update; explain when and how notices were issued
- Describe Annual Meetings and Reports
- Explain or describe process for monitoring project closeouts, add to whom quarterly reports are sent
- Describe findings of 3-year evaluations and updates to the plan;
    - In the update, add a schedule for evaluation activities, explain responsible parties
    - In the update, provide a schedule showing how the next update process will be implemented
- Describe the Steering Committee; explain who is on this committee, if it is an effective approach, and if the approach will continue to be used or will be modified

The Hazard Mitigation Steering Committee reviewed all of the above listed comments with the CIPA consultant team. Each section of the Plan was reviewed utilizing a completed FEMA crosswalk.

2.2.2 PLAN UPDATE

As noted, the Disaster Mitigation Act of 2000 (DMA 2000) provides a strong incentive for the development of a Standard State Hazard Mitigation Plan. The planning process began in 2004 and led to adoption of the Virgin Islands Territorial Hazard Mitigation Plan by the Governor and approval by the Federal Emergency Management Agency (FEMA) Region II on April 28, 2005.

The law stipulates that the Plan will be updated and re-submitted to FEMA for re-approval every three (3) years, as required by law. It is the understanding of the planning team, based on (44CFR Part 201).
In April of 2014, FEMA promulgated a Final Rule that changed the frequency of Mitigation Plan Updates (44CRR Part 201). The Final Rule extends the Plan Update requirement for States and Territories from 3 to 5 years.

The process used to update this Plan in accordance with the IFR requirement was formally initiated by VITEMA during a special meeting in April, 2014. The work undertaken consisted of updating all sections of the 2011 Plan Update. This was done by using the best available data and methodologies for a target of June 2014 for FEMA final approval.

The process of planning and review of the Plan Update is detailed in this section. The method utilized includes the appraisal and expansion of the 2011 Plan. In accomplishing the objective of the Plan Update, several areas of importance were addressed. The following summary identifies the process used to revise and update each section of the Plan.

- **Introduction**: The introduction presents a summary of the purpose of the Plan Update. It also acknowledges the primary contributors to the Plan Update. It provides information as to the changes made from the 2011 Plan Update. It also includes a list of acronyms.

- **Section One – Adoption**: This section of the Plan Update includes an adoption letter for signature by the Governor of the US Virgin Islands which includes agreement with the Plan Update and assurances that the Plan Update will be implemented by the various agencies of the government.

- **Section Two – Planning Process**: This section has been updated to reflect the participants involved in this Plan Update. The planning process for the Plan Update was similar to that employed for the 2005, 2008 and 2011 Plan Updates. Meetings of the Hazard Mitigation Steering Committee have been held. The meetings for three Island Hazard Mitigation Monitoring and Evaluation Committees, established for each major island, have been documented as well as other key stakeholders involved in the planning process.

- **Section Three – Capability Assessment**: The assessment of the capability of the US Virgin Islands Government, all programs and policies relating to hazard mitigation were reviewed. Recommendations in regard to an analysis of mitigation actions were updated. Progress since the adoption of the 2011 Plan Update has been noted. Technical and financial capabilities are the most crucial area of concern and have stymied the implementation of actions that were identified in the previous plan. Fiscal uncertainty, adequate staffing and the availability of necessary resources remain as hindrances to the full implementation of hazard mitigation in the Territory, especially in VITEMA. Assistance through federal funding sources and the territorial responsibilities were updated.

- **Section Four – Risk Assessment**: The Plan Update utilizes data furnished by the Office of the Lieutenant Governor to VITEMA in 2014. It has been updated in this Plan Update to determine and the inventory of structures and their present replacement cost. The inventory developed is more reliable than that previously available as it utilized compounded inflation rates, to the most current year 2013. The Plan Update reflects general increase in the number of buildings and increase in overall total value since the 2011 Plan Update. Using this data, an island specific vulnerability assessment was updated for each of the identified hazards. The hazards included in this Plan update include: hurricane winds, riverine flooding, coastal flooding, earthquake and tsunami, wildfire, drought and rain-induced landslide. It is necessary to note that the profile for Tsunami has been updated to include new mapping data developed by NOAA, and the coastal flooding profile has been updated to include the potential impacts that Climate Change, and specifically sea-level rise, so as to understand on coastal flooding and secondary coastal hazards such as coastal erosion.

- **Section Five – Mitigation Strategy**: This section of the Plan Update presents the goals, objectives and mitigation actions necessary to implement the Territorial Hazard Mitigation Strategy. The goals and objectives in the 2014Plan Update have not changed from those highlighted in the 2011 Plan; however, The Island Hazard Mitigation Committees approved postponing any mitigation actions associated with *Goal 2: Integrate Hazard Mitigation and Sustainable Development principles into ongoing Government operations and long term Planning* because of human resources and operational budget constraints at VITEMA, DPNR and DPW. The strategies contained in the 2011 Plan Update were reviewed and mitigation actions undertaken since the 2011 Plan Update was formally approved. Viable strategies were prioritized according to urgency and evaluated according to economic and social impact. This ranking is detailed in Appendix G (STAPLEE). A comparison between the mitigation actions contained in the 2011 Plan and this Plan Update revealed a more actions focused reducing on severe repetitive loss properties and planning projects that provide needed data to address flooding issues, given the lack of data to participate fully in a Benefit Cost Analysis and due to the limited capacity at VITEMA and other agencies. The strategies developed by the various hazard mitigation committees show a congruency with the Risk Assessment.

- **Section Six – Plan Maintenance**: The maintenance process is detailed in this section of the Plan Update. It explains the changes made to maintenance and implementation of mitigation strategies when compared to those in the 2011 Plan. Even though the membership of the committees has changed, the present membership demonstrates a high degree of dedication and commitment to implement and accomplish a more realistic hazard mitigation strategy.

- **Section Seven – Bibliography**: The bibliography of the Plan Update provides an inventory of resource material, sources of pertinent information and new references that were used in the Plan Update.

The Plan Update represents the efforts and contributions of several governmental agencies and other stakeholders. The 2014 Plan Update was reviewed and analyzed resulting in pertinent modifications. With the incorporation of information concerning climate change, which provides an overview of how susceptibility will increase or decrease, the territory's profile and understanding of natural hazards is more complete. Mitigation strategies were developed and prioritized to address present data concerns. The 2011 Plan along with the recent data formed the foundation for this Plan Update. The Hazard Mitigation Steering

Committee and the island specific Hazard Mitigation Committees have been newly formulated and have expressed a commitment to implementing an effective hazard mitigation program in the USVI, particularly those priority mitigation actions included in this Plan Update.

2.2.3 PLANNING TEAM

During the development of the 2014 Plan Update, VITEMA established a Hazard Mitigation Steering Committee with the charge of the Plan Update. However, for this Plan Update, this new committee was comprised only of VITEMA staff members. Similar to the previous plan update, this Committee had oversight of the Plan Update consultancy, and consequently remained intact for the plan maintenance and monitoring process outlined in Section 6.0 of this Plan. This Committee is responsible for the implementation of actions identified in the Plan Update. FEMA, which played an advisory role on the Hazard Mitigation Steering Committee, emphasized the importance of monitoring and evaluation, and the importance of capturing historic information for the approval of hazard mitigation projects, especially flood drainage construction projects.

The Virgin Islands Territorial Hazard Mitigation Officer, Mr. Haldor Farquhar, has organized the Hazard Mitigation Steering Committee, and will chair the Committee. The members of the Hazard Mitigation Steering Committee are noted below in Table 2.1.

TABLE 2.1 ***Hazard Mitigation Steering Committee***

Name	Agency/ Department
Haldor Farquhar***	VITEMA
Austin Callwood	VITEMA
Joanne White	VITEMA
Malinda Vigilant	VITEMA
Renata Christian	VITEMA
Debra Henneman-Smith	VITEMA
Oliver Morton	VITEMA
*** Chairman	

VITEMA feels that the development of an effective state-level Hazard Mitigation Plan requires inclusion in the planning process of representatives from a wide-range of public, private, and non-profit sectors. Clear lines of communication with the active participants and the general public are necessary. For the 2011 Plan 0Update, VITEMA also re-established three Committees: the St. Thomas Hazard Mitigation Monitoring and Evaluation Committee (covering St. Thomas and Water Island), the St. John Hazard Mitigation Monitoring and Evaluation Committee and the St. Croix Hazard Mitigation Monitoring and Evaluation Committee.

The purpose of the Hazard Mitigation Committees was three-fold:

(1) to provide oversight to the VITEMA contractor during the Plan Update;

(2) to contribute to the development of a revised mitigation strategy; and

(3) to identify and prioritize mitigation actions that were specific to each island.

The members of each Island Hazard Mitigation Committee members are outlined in the tables below:

TABLE 2.2 Hazard Mitigation Monitoring and Evaluation Committee, *St. Thomas*

	Hazard Mitigation Monitoring and Evaluation Committee		
St. Thomas	Tom Mc Coy	Rachael Ackley	Vince Roberts
	Elton George	Alex Bruney	Byron Todman
	Bliss Bully	Daryl George	Stacy George
	Nicole Turner	Vance Pinney	Austin Callwood
	Joanne White	Haldor Farquhar	

TABLE 2.4 Hazard Mitigation Monitoring and Evaluation Committee, *St. Croix*

	Hazard Mitigation Monitoring and Evaluation Committee		
St. Croix	Jayson Parrilla	Amos King	Malika Felix
	Dexter Hypolite	Ellerton Maynard	Barbara Walter
	Tawana Nicholas	Akila Toussaint	Eran Flemming
	Marla Matthew	David Sweeney	Raphael Joseph
	Malinda Messer	Haldor Farquhar	Leonard Gumbs
			Joanne White

TABLE 2.3 *Hazard Mitigation Committee, St. John*

	Hazard Mitigation Monitoring and Evaluation Committee		
St. John	David Rosa	Sharon Coldren	Dale Brathwaite
	Derron Jordon	Attlee Connor	Avery Christian
	Linda Williams	Leonard Gumbs	
	Joanne White	Haldor Farquhar	

2.2.4 MEETINGS AND WORKSHOPS

The Hazard Mitigation Steering Committee and Islands Hazard Mitigation Committees met on eight (8) separate occasions for the Plan Update. The purpose and outcomes of the meetings are included in the matrix provided in Sections 2.2.3.1 and 2.2.3.2.

2.2.4.1 Hazard Mitigation Steering Committee Meetings

The Hazard Mitigation Steering Committee met on six (6) separate occasions while developing the 2011 Plan Update.

TABLE 2.5 ***Hazard Mitigation Steering Committee Meetings***

#	Date/Place	Attendance	Purpose/Outcomes
	1/11/2014 VITEMA Headquarters	VITEMA Mitigation Staff, FEMA	Plan Organization
	1/14/2014 VITEMA Headquarters	VITEMA Mitigation Staff, FEMA	Planning Process
	1/21/2014 St. John EOC	VITEMA EOC St. John	Planning Process
	3/11/2014, VITEMA Headquarters; St. Croix ECO, St. John EOC,	VITEMA Mitigation and Evaluation Committee. All islands	Planning Process, identification of new projects, discussion for all islands.
	3/19/2014 VITEMA Headquarters; St. Croix ECO, St. John EOC,	VITEMA Mitigation and Evaluation Committee, All islands	Planning Process, identification of new projects, discussion for all islands.
	4/22/2014, VITEMA Headquarters	VITEMA Steering Committee	Review of projects and status of plan
	4/24/2014, VITEMA Headquarters	VITEMA Steering Committee, CIPA	Contractor hired, Contractor provided overview of planning process related to the update of the Territory's Hazard Mitigation Plan according to DMA 2000. Consultant discussed key points: timing for plan update, mitigation strategy simplification based on capabilities of territorial agencies, and hazards of concern. Planning process and scheduled public workshop meetings; mitigation strategy updates needed for goals, objectives and actions
	May 6, 2014, VITEMA Headquarters	VITEMA Steering Committee, CIPA	New FEMA funding framework discussed, particularly HMA Unified Guidance and the National Disaster recovery Framework. Plan Update discussed with FEMA and VITEMA and insane time schedule established for submittal of plan for simultaneous FEMA, VITEMA and public review on May 23, 2014.
	5/12/2014/ VITEMA Headquarters	VITEMA Mitigation Staff, Director	Update as to status of the Plan and newly established schedule for Plan Delivery.
	5/22/2014 VITEMA Headquarters	VITEMA Mitigation Staff, CIPA	Review of hazard mitigation strategy and staple, review status of plan update schedule.

Sign-in sheets from these workshops are available in Appendix A of this Plan.

2.2.4.2 Hazard Mitigation Monitoring and Evaluation Committee Meetings

In this Plan Update, VITEMA utilized its state of the art teleconference facility at the VITEMA headquarters building in St. Thomas. Each of the Island Hazard Mitigation Committees was teleconferenced in to the meeting on six (6) separate occasions to contribute to the current update of the Plan (2014):

TABLE 2.6 ***Hazard Mitigation Monitoring and Evaluation Committee Meetings***

#	Date/Place	Attendance	Purpose/Outcomes
1	3/11/2014 VITEMA Headquarters	Government Officials, VITEMA Mitigation Staff	Planning process orientation
2	3/13/2014 VITEMA Headquarters	Government Officials, VITEMA Mitigation Staff	Planning process orientation
3	4/1/2014 VITEMA Headquarters	Government Officials, VITEMA Mitigation Staff	Mitigation action submittal/ review from government agencies
4	5/13/2014 Emerald Beach	VITEMA Mitigation Staff, Hazard Mitigation Committees (St. Thomas), CIPA and FEMA	Review of preliminary HIRA results, and Review of evaluation of new island specific mitigation actions.
5	5/14/2014 St. John EOC	VITEMA Mitigation Staff, Hazard Mitigation Committees (St. John), CIPA and FEMA	Review of preliminary HIRA results, and Review of evaluation of new island specific mitigation actions.
6	5/15/2014 Gertrude's, St. Croix	VITEMA Mitigation Staff, Hazard Mitigation Committees (St. Croix), CIPA and FEMA	Review of preliminary HIRA results, and Review of evaluation of new island specific mitigation actions.

Sign-in sheets from these workshops are available in Appendix A of this Plan.

2.2.3.3 Public Involvement and Outreach

2.2.4.3.1 Public Notification

For the Plan Update, VITEMA's public notification campaign was led by Ms. Christina Lett, VITEMA Public Relations Officer. The public was notified through the media and press releases. Specific information about the project, including mitigation action descriptions were also disseminated to the public through the three Island Hazard Mitigation Monitoring and Evaluation Committee.

Notification of the VITEMA community meetings were published in the major newspapers (VI Source, St. John Trade Winds). The public meetings were also announced on radio shows. Committee members were emailed and kept posted of project progress, including the completion of major milestones. Draft sections of the plan were mailed to the committee members for review and comment.

Public Notices were also prepared following the preparation of the draft Plan encouraging the public to review and comment on the document which was made available by VITEMA on its website (see VITEMA web site posting on May 23, 2014). See Appendix B for documentation of public notification.

2.2.4.3.2 Public Workshops

For the Plan Update, a total of three (3) public information workshops were held in the Territory. These workshops were held on St. Thomas on May 13, 2014, St. John on May 14, 2014 and St. Croix on May 15, 2014. Sign-in sheets from these workshops are available in Appendix A of this Plan. The public informational workshops were held at 5:30 pm.

For this Plan Update, only one (1) public workshop was held on each island. One (1) public informational meeting was deemed to be sufficient as it provided the public with an overview of the planning process, an overview of the DMA 2000 criteria, HMA Unified Guidance, National Disaster Recovery Framework, the results of the HIRA and a preliminary listing of hazard mitigation actions, both programmatic and island specific. Then each workshop was open to participants to express any and all concerns regarding the planning process, natural hazards and hazard mitigation strategy.

These meetings, as in the previous Plan Update, proved to be valuable and provided insight into the desires and concerns of the community related to hazard mitigation actions. The discussions and recommendations of the community meeting provided insight for the identification of Hazard Mitigation Actions included in this Plan Update. A "Cardstorming" session was held, where participants were encouraged to list three personal concerns related to hazard mitigation. This facilitated an interactive consensus-building exercise that provided important feedback from individuals who have been directly affected by recent disasters.

These public information workshops allowed all participants the opportunity to express their issues, concerns and recommendations with regard to disaster recovery, natural hazards and reoccurring damages in their communities. This met the criteria of providing the public an opportunity to comment during drafting.

During the meeting, VITEMA agreed to make the draft Plan available to the public before final approval. This will be done by email notification and via a global press release which will indicate its location on the World Wide Web via a URL. Again, this process is consistent with planning criteria, which does not require formal hearing and that plan comments can be harvested in numerous ways including website participation. VITEMA received public comments and these have been integrated into the Final Plan Update for 2014 (currently targeted for June 8, 2014).

St. Thomas Information Workshop/Town Hall Meeting

The St. Thomas Public Information Workshop was held at the Emerald Beach Resort on May 13, 2014. There were ten (14) participants in the workshop, including residents and representatives of community associations/ businesses. Following are specific concerns identified by participants during this community workshop:

- Water Island Ferry Dock at "Philips Landing" experiences periodic flooding in the main turn around area, which can remain flooded for a week or longer with depths around 2 feet near the center.
- Honeymoon Beach at Druif Bay at the western end of Water Island; flooding blocks passage and covers road with as much as 3 feet on the beach road, which takes 3 weeks to drain.

- Flamingo Bay Upper Road – main access to rescue vehicles and fire station. Road is in very bad condition. Very large potholes and washes out in certain areas after heavy rain.
- Honeymoon Beach at Druif Bay. Upper Main Road; roadside guts on North and South roads do not drain properly; drains are blocked with sludge and debris.
- Ivanna Eudora Kean High School. Water seeps through block wall and floods classrooms.
- Hurricane Shutters are needed for Garden Street Career & Tech Center
- Evelyn Williams School - Main structural system of the facility needs to be addressed.
- Pearl & Larsen School. Roof needs to be addressed for hurricane winds (retrofit).
- Dam on Weymouth Ryhmer Highway needs to be cleaned.
- Black Point Road needs a retaining wall to prevent large rocks from rolling in the road during rains.
- Department of Public Works need to improve drainage along Route 3, especially in front of Banco Popular (Main Branch) to Cancryn School to alleviate flooding in main thoroughfare.
- Address flooding on main roadway in front of Tutu Park Mall
- Northside Village Area – severe flooding and landsliding during heavy rains.
- DPW needs to procure appropriate equipment that will facilitate the cleaning of small guts as this seems to be a recurring problem throughout the island.
- Flooding in Estate Nadir by the St. Thomas Abattoir and race track (Bovoni road)
- A thorough inspection of waste water system should be conducted with focus to separate waste water collection system and storm water drainage to reduce and correct infiltration issues.
- Development of satellite sites to handle debris after storm events (Convenience Center).
- Still flooding problems at the St. Thomas Tutu Fire Station, which can be alleviated by a simple culvert.
- Smith Bay needs a drainage study as it is in a basin and easily floods.
- Human Services building on First Street; that area floods and has a shelter there.

- Flooding of VITEMA entrance due to poor drainage in front of building that needs to be improved to prevent intrusion of storm water runoff from parking lot into the building.

- Structural retrofit of critical facilities used for sheltering on St. Thomas, including: Lockhart School, Bertha Bochulte Middle School, and Humans Services Head Start.

- Water Catchment at Hospital Ground, near the Danish Burial Grounds. Following severe storm events, the water in the catchment basin rises, and then drains through a gut within the burial ground. Storm water flows, often at least 2 feet in depth, leads to damage on the road, preventing access and egress and continual road damage that needs to be maintained. Elderly and persons with disabilities live in the area and cannot evacuate following severe storm events.

- Concern about WAPA power plant – what would happen if STT was faced with a tsunami event that took out the power plant.

- Would like to see road repair and guts and drainage improvements by Al Mc Bean Park. Water and rocks settle on the main road from storm water flowing down from the surrounding hill.

- Frenchman Bay Estate. The main road on Frenchman Bay is failing due to a major road slippage. The roadway is cracked and with a 40 feet slab of roadway hanging over a private property. This is a hazard to property owners and those traveling down the road. Emergency vehicles have difficulty traversing the road. Rain causes rock and dirt land slippage onto the road and adjacent private property. Engineering study is needed to develop a cost-effective solution to this problem.

- Wintberg Estate public road is being undermined by erosion. The road is higher than the retaining wall of private homes.

- At the Blue Water Bible College there is a need to retrofit the electrical service so that all 3 main buildings can be connected to the same power back-up generator.

St. John Public Information Workshop/Town Hall Meeting

The St. John community workshop was conducted at the Julius Sprauve School on May 14, 2014. There were nine (9) participants in the workshop, including residents and representatives of community associations/ businesses. Following are specific concerns identified by participants during this community workshop:

- Cruz Bay Fire Station. Flooding from new construction road. Extra drain needs to be put in place at the top of the road.

- Functional replacement of the Fire Station in Coral Bay due to flooding and building sinking because it is too close to the ocean.

- St John local roads need to be inspected so as to identify areas for culvert replacement/improvement, especially enlarging existing rusted galvanized steel at least one diameter size.

- Slope stabilization on both the high and low sides of watershed in coral bay is required to identify Best Management Practices (BMPs) to reduce erosion and sedimentation of culverts and guts.

- Seek agency in territory to conduct a Hydrologic and hydraulic (H&H) study of Coral Bay drainage basins and determine engineering solutions for current and projected residential development so as to address outlet locations, natural guts, and the need to adjust storm water flows.

- Expand repetitive loss strategy by developing phased approach to resolving clusters repetitive loss properties on St. John and throughout the territory.

St. Croix Public Information Workshop/Town Hall Meeting

The St. Croix Public Workshop was conducted at Gertrude's on May 15, 2014. There were eight (8) participants in the workshop, including residents and representatives of community associations/ businesses. Following are specific concerns identified by participants during this community workshop:

- Pursue a shutter project for windows for Lew Muckle School (St. Croix) as the windows are quite old.

- Address the corroded light poles at Complex High School (St. Croix).

- Southern Coast at Container Port represents a Tsunami hazard and the Tsunami warning siren not heard in this portion of St. Croix.

- Coastal Interceptor should be relocated in the Little Princess area, approximately 2000 feet of a submerged sewer line needs to be replaced to reduce sewage spillage and health hazards.

- Clean out and increase the capacity of the Frederiksted Gut, to alleviate flooding near the Ball Park.

- Separation of storm and sanitary sewers in the Christiansted Collection System.

- Flood prevention upgrades for all pumping stations on the island; including elevating and grading access road, and drainage improvements to nearby gut to reduce flooding of stations.

- Initiate a project to have St Croix become eligible for reduced flood insurance costs by developing a strategy and action plan for improving the flood management program on the Island so that we can participate in the community rating system. This effort would include an outreach strategy and series of community meetings on the NFIP program, First living floor and base flood elevation

determinations, LOMARs, and other flood insurance questions and concerns.

- Installation of a culvert and other drainage improvements in Estate Rust-up-Twist. A hydrological study of the drainage basin will be required to provide factual basis for upgrades.

- La Grange Gut still remains to be a problem area where there was a recent fatality from flooding. A retention pond needs to be constructed upstream to lessen the velocity of storm waters.

- Old Castle Coakley, south of the Red Cross keeps flooding due to storm water runoff coming from Zion farm community which require swales to be constituted to curb the excess runoff to the gut leading to Hovensa.

- North of Williams Delights ponds need to be developed to retain the excess storm water coming from Blue Mountain. This will reduce storm water runoff reaching the community of Williams Delight. In addition, small-diameter culverts need to be installed on the local roads of Williams Delight to reduce the localized flooding. The culverts can be connected to the major box culvert that was constructed a number of years ago at Williams Delight.

- Hannah's Rest where there is flooding of localized roads. A comprehensive drainage plan needs to be done for Hannah's Rest to address the many valleys in the roadways where water often seems to pond.

- Structural retrofit of the critical facilities used for sheltering should be considered such as Claude O. Markoe School and St. Croix Educational Complex.

- A generator is needed for the Red Cross Chapter Building for Saint Croix.

- Land erosion protection and vegetative cover plantings at the Red Cross Chapter Building for St. Croix.

- Retrofit existing and ensure new utility/infrastructure meet current earthquake standards for the USVI, such as pump stations, waste water treatment facilities, water treatment facilities, and power generation facilities.

- Provide additional drainage features along roadways with excessive sheet flow during rain events, roadside swales, and provide additional drainage inlets and culverts

- Provide seawall to protect Tsunami prone-infrastructure in main towns.

- Retrofit portions of Juan F. Luis Hospital roof for hurricane hazards.

- Clear drainage system in front of JFL Hospital to alleviate local flooding.

2.3 COORDINATION AMONG GOVERNMENT AGENCIES

For a State Hazard Mitigation Plan to become an effective tool in implementing hazard mitigation it cannot remain the sole province of VITEMA. Coordination among government agencies that have a role in implementing hazard mitigation is essential. For this plan update, coordination with government agencies was very similar to the process utilized during the 2011 Plan development. There were some changes in this process during this Plan Update; these include:

- Establishment of the Hazard Mitigation Steering Committee. This committee was formed for the specific intent of not only the Plan Update, but also its implementation. Unlike the Hazard Mitigation Monitoring and Evaluation Committee (HMMEC), established for each island, which included multi-agency participation, the HM Steering Committee included members only from VITEMA. It is necessary to note that initially the same government agencies were invited to participate in the steering committee, but it was decided that only VITEMA members would have a role in the steering committee. It also should be noted that FEMA played an advisory role in the Steering Committee meetings in that it emphasized the importance of addressing certain items in the Plan Update, particularly the importance of reviewing and integrating the HMA Unified Guidance, emphasizing the importance of updating severe repetitive loss strategy by integrating recommendations into the Territory's Mitigation Strategy and emphasizing the need to integrate climate change into the Hazard Identification and Risk Assessment, specifically sea level rise.

- Different Participants from Government Agencies. There was a marked reduction of Federal and Territory agencies that played a role in this Plan Update. During this Plan Update, many participants that were included on committees were familiar with the Hazard mitigation planning process. However, there were new members that required more information in order to arrive at a basic understanding of emergency management and hazard mitigation. As these persons gain a better understanding of FEMA programs, processes and terminology, the Plan Update process in the future will become more efficient.

- Identification of Key Stakeholders. Key stakeholders such as the Virgin Islands Territorial Emergency Management Agency (VITEMA), Department of Planning and Natural Resources (DPNR), and Department of Public Works (DPW) were identified during the planning process. These key agencies participated in the Hazard Mitigation Monitoring and Evaluation Committee Meetings and/or Public Informational Workshops. These agencies also made staff available for the Plan update, namely DPW and DPNR.

2.3.1 FACILITATING INTERAGENCY COORDINATION

There were numerous ways in which VITEMA encouraged coordination among US Virgin Island governmental departments, agencies and authorities. The most important way that VITEMA encouraged coordination was to invite representatives of the relevant agencies to participate in the Hazard Mitigation Monitoring and Evaluation Committees. The list of Public Sector participation in the Committees, presented in Section 2.3.2, reflects the success that VITEMA had in involving a broad range of Territorial and Federal agencies in the mitigation planning process from the very beginning.

Public Sector participants were encouraged to discuss the planning process with other staff in their respective departments. This brought their collective insight and enabled identification of potential mitigation projects that could be brought back to subsequent Committee meetings. By interfacing with

representatives of other VI departments within the setting of the Hazard Mitigation Committee meetings, participants gained an understanding of the respective roles of many agencies and departments. All of the agencies that participated in the Hazard Mitigation Committees meetings had a stake and a vote in identifying and prioritizing new hazard mitigation actions at the Territorial-level as well as for each major Island.

2.3.2 PARTICIPANTS

These workshops and meetings were facilitated by VITEMA and its consultants. A number of individuals from private and public sector played key roles in preparing the Plan Update. On a territory-wide basis, the three Committees reflected the participation from the following Federal and Territorial agencies, businesses, institutions, associations, and organizations:

Public Sector

- Virgin Islands Territorial Emergency Management Agency (VITEMA)
- Department of Planning and Natural Resources (DPNR),
- VI Housing Authority
- VI Port Authority
- VI Property and Procurement
- VI Fire Service
- VI Police Department
- VI Department of Education
- Emergency Management Services (EMS)
- VI Department of Human Services
- VI Water and Power Authority

Private Sector

- Tropical Shipping
- Caneel Bay Hotel
- Coral Bay Community Council

Organizations

- University of the Virgin Islands
- The American Red Cross

Federal Emergency Management Agency, Region II

FEMA Region II, through its Caribbean Area Office, San Juan, Puerto Rico participated in the Plan Update planning process. FEMA CAO's representative provided the territory training in Hazard Mitigation and the FEMA territory representative in the Virgin Islands, Mr. Leonard Gumbs, participated in an advisory capacity in the Hazard Mitigation Steering Committee, and in all public meetings.

Consultants

The consultant for the Hazard Mitigation Plan Update was the Council for Information and Planning Alternatives, Inc. (CIPA). The consultant assisted in the following ways:

- Developing an appropriate planning process for the Plan Update;
- Providing technical support in performing the risk assessments for the Plan Update;
- Developing written materials for meetings and web postings;
- Facilitating VITEMA meetings and workshops and addressed Plan elements;
- Assembling information for inclusion in the Plan Update.

2.3.3 STAKEHOLDERS

VITEMA has undertaken a number of steps to encourage the widest range of stakeholder involvement from the onset of the Plan Update process. The Update of the US Virgin Islands Territorial Hazard Mitigation Plan was a collaborative effort resulting from dedicated efforts of a number US Virgin Islands agencies, departments, and authorities, in addition to the vital involvement of the public and private sectors.

1) Public notices were provided to the print and voice media, encouraging the general public and special interest groups to participate in the Plan Update process (Appendix B).

2) Representatives of government agencies were identified as key stakeholders and were invited to be members of the three Island Hazard Mitigation Monitoring and Evaluation Committees and/or participate in public workshops. The term "Stakeholders" as used in the rest of this Plan Update includes the following:

- Virgin Islands Territorial Emergency Management Agency (VITEMA)
- Department of Planning and Natural Resources (DPNR),
- Department of Public Works (DPW)
- VI Water and Power ((WAPA)
- VI Department of Education

2.3.3.1 Outreach to Virgin Island Agencies

In addition to involvement on the hazard mitigation committees, contacts were made with the important government agencies for the Plan Update in order to solicit their involvement in the review of key elements of the Plan. The meetings were held with the following agencies:

<u>The Department of Public Works (DPW)</u>
DPW has lead responsibility for the design, construction and maintenance of drainage infrastructure and public roads throughout the Islands;

<u>The Department of Planning and Natural Resources (DPNR)</u>
DPNR is responsible for administration of the Natural Flood Insurance Program (NFIP). It is also responsible for the following activities that have the potential to reduce the future vulnerability of the US Virgin Islands:

- Reviewing subdivision plans and development proposals

- Developing long-range land use plans and policies for the US Virgin Islands
- Approving building permits
- Conducting building inspections
- Protecting natural resources

VI Housing Authority
The Virgin Islands Housing Authority is empowered with the responsibility for planning, financing, constructing, maintaining and managing Public Housing Developments in the Territory, and in the future should play an important role in recovery efforts given the importance of the role given to the US Housing and Urban Development (HUD) under the new National Disaster Recovery Framework.

Meetings were held with each of the above referenced agencies to review existing plans, program and policies. Discussions focused around the development of appropriate hazard mitigation actions that should be included in this Plan Update.

Further to these discussions, a series of one-on-one interviews were held with mid-level representatives of key US Virgin Islands agencies. Their goal was twofold: to obtain legislation, regulations, plans, and policies relevant to hazard mitigation; and, to jointly discuss opportunities to encourage hazard mitigation in the agencies day-to-day, and strategic, long-term planning activities.

These meetings and discussions proved beneficial for improving coordination among these key agencies with a major role in implementing hazard mitigation.

2.3.3.2 Contributions from Interagency Coordination

First and foremost, the contributions to Plan's development from interagency coordination were reflected in the broad-based composition of the Hazard Mitigation Planning Committees. Representatives of Federal and Territorial agencies, departments and authorities actively participated in the Committee meetings. They provided oversight to VITEMA, contributed to the development of goals and objectives, and by voting to prioritize programmatic and island-specific mitigation actions. However, it is also important in the Plan Update to acknowledge the specific contributions made by key government agencies. They include:

- **Tax Assessor's Office**. The Tax Assessor's Office did not provide a copy of the Territory's tax database for this Plan Update. Instead, through its consultant, the CIPA consultant team was provided a summary of real property values so as to validate and calibrate its estimates. This data was used to develop damage estimates for specific natural hazards.

- **Department of Public Works.** DPW representatives participated as active members of the Hazard Mitigation Committees. In addition, the Department provided a list of projects that require Federal funding to be constructed. Most of the projects listed were included in the Plan Update and address repetitive flooding problems. DPW representatives provided project descriptions for the Plan's mitigation actions.

- **Department of Planning and Natural Resources.** The Department contributed to the Plan development in many ways. They provided representatives to the numerous Committee meetings, in addition to facilitating numerous interviews between the VITEMA planning team and major DPNR divisions.

2.4 INTEGRATION WITH OTHER PLANNING EFFORTS

All relevant and completed plans and/or on-going planning efforts were reviewed for this Plan Update. The 2011 Plan provides a good departure point to identify new opportunities where hazard mitigation can be better integrated into US Virgin Islands long-range planning initiatives.

2.4.1 VIRGIN ISLANDS GOVERNMENT PROGRAMS

During the capability assessment for this Plan update, several DPNR planning initiatives are worth mentioning. They are USVI Zoning and Subdivision Code Update and several other NOAA watershed-based planning initiatives. The specific documents, highlighted below, were reviewed and specific comments about these plans related to hazard mitigation can be found in Section 4, Capability Assessment.

- *Coral Bay Watershed Management Plan: A Pilot Project for Watershed Planning in the USVI,* Center for Watershed Protection, (2008)
- *St. Croix East End Marine Park Management Plan*, VI Nature Conservancy and UVI for DPNR, Division of Coastal Zone Management (2002)
- *St. Croix East End Marine Watersheds Management Plan, USVI DPNR, NOAA, USDA NRCS (2011)*
- *USVI Zoning and Subdivision Code Revisions,* currently under development by Rutgers University and Duncan Associates, in conjunction with the Community Foundation of the Virgin Islands

The *USVI Zoning and Subdivision Code Update,* currently under development, should be ready for public and legislative review and comment in mid-2014, and is intended to create a more streamlined, enforceable zoning process. This revision will consider and identify areas where DPNR can expand its managerial, administrative, technical and human capacity and will have a positive impact on mitigating adverse impacts of residential and commercial development in hazard prone areas.

2.4.2 FEMA MITIGATION PROGRAMS

There are been significant changes to FEMA's national disaster management organizational structure and a consolidation of a number of hazard mitigation grant programs that have occurred since the last USVI Plan Update in April of 2011.

Soon after the last Plan Update was completed, FEMA rolled out the National Disaster Recovery Framework (NRDF) which realigned the roles of a number of Federal agencies regarding disaster recovery. Six groupings of core recovery capabilities, called Recovery Support Functions (RSFs) were delineated and primary and secondary Federal agencies associated with each RSF. The six RSFs are:

- *Community Planning and Capacity Building*
- *Infrastructure System*
- *Housing*
- *Economic Development*
- *Natural and Cultural Resources*

- Health and Social Services

Although FEMA retains the central planning and coordination role in post-disaster situations, several Federal agencies will have a more defined role in recovery, particularly for the housing and economic development RSFs. VITEMA will establish relationships in the steady-state (pre-disaster) timeframe with US Housing and Urban Development (HUD) and US Department of Commerce (DOC) representatives that could facilitate recovery in the future post-disaster conditions.

The most obvious programs and initiatives for VITEMA to integrate with are FEMA mitigation grant programs. VITEMA serves as the lead agency for the Territory in FEMA related grant administration and will be the "Applicant" in most, if not all, of FEMA hazard mitigation grant applications. VITEMA is responsible for soliciting sub-applications from eligible sub-applicants; assist them in preparing them and submitting eligible, complete applications to FEMA in a prioritized order. Upon award, VITEMA becomes the "Grantee", monitoring and managing grant administration on behalf of the "Sub-Grantees".

FEMA has consolidated its hazard mitigation grant programs under the Hazard Mitigation Assistance (HMA) Unified Guidance, first issued in July of 2013. The Territory should take advantage of HMA funding programs in both the pre- and post-disaster timelines. The three consolidated hazard mitigation programs include:

- Hazard Mitigation Grant program
- Pre-Disaster Mitigation Grant program
- Flood Mitigation Assistance Program

The National Mitigation Framework, finalized in May 2013, describes the following seven core capabilities:

- Threats and hazard identification;
- Risk and disaster resilience assessment;
- Planning;
- Community resilience
- Public information and warning;
- Long-term vulnerability reduction; and,
- Operational coordination.

HMA programs reduce community vulnerability to disasters, promoting individual and community resilience, and enabling a more efficient and more rapid recovery following natural disasters. For both the Territory and the Nation, taking advantage of HMA programs will reduce response and recovery resource requirements. From the perspective of the National Mitigation Framework, the HMA programs will lead to safer, more sustainable communities that are less reliant on external financial assistance.

A more detailed description of key changes to FEMA mitigation programs since the last Plan Update is provided in Section 3 – Capability Assessment, in addition to Appendix H which lists all hazard mitigation program changes that are reflected in the July 2013 HMA Unified Guidance.

The Biggert-Waters Flood Insurance Reform Act of 2012 eliminated the Repetitive Flood Claims and Severe Repetitive Loss grant programs. Cost share requirements have been changed to allow more Federal funds for properties with repetitive flood claims and severe loss properties.

This Plan Update includes a repetitive loss strategy that is consistent with the 2004 amendments to the National Flood Insurance Act (42 U.S.C 4001 et seq). The National Flood Insurance Act was amended to "introduce a mitigation plan requirement as a condition of receiving a reduced local cost share for the activities that mitigate severe repetitive loss properties under the Flood Mitigation Assistance and Severe Repetitive Loss grant programs". The October 31, 2007, interim final rule established this requirement under the 44 CFR § 201.4 (c)(3)(v) to allow a state to request the reduced costs share under the FMA and SRL programs if it has an approved State Mitigation Plan that also includes an approved Severe Repetitive Loss Strategy" (FEMA, Multi-Hazard Planning Guidance, 2008).

The most recent guidance (HMA Unified Guidance 2013) on crafting an effective repetitive loss strategy is that States and Territories need to describe specific actions that the Territory has taken to reduce the number of repetitive loss properties and clearly outline the steps planned to reduce the number of repetitive properties over time.

This Plan Update incorporates the goals and objectives of the repetitive loss strategy in Section 5 Mitigation Strategy and then provides additional detail on how the Territory plans to achieve those reductions is outlined in Appendix C. The Territory's approach is primarily focused on public education, data collection, and direct mitigation actions focused on minimizing repetitive losses. The actions are reflected in both the discussion on programmatic and island specific hazard mitigation actions.