MANGROVE LAGOON AND BENNER BAY AREA OF PARTICULAR CONCERN MANAGEMENT PLAN

TABLE OF CONTENTS

TABLE OF CONTENTS

APC Management Strategy (cont'd)

INTRODUCTION TO USVI AREA OF PARTICULAR CONCERN MANAGEMENT PLAN

The management plans for USVI areas of particular concern (APC) are developed to address environmental and social issues, and public policy that exists or ought to exist if these areas are to be successfully managed. Initial identification of issues was accomplished in 1998-99 through interviews, meetings with government representatives, review and comment by individuals with knowledge of relevant events and conditions, and by reference to the MLBB APC Analytic Study (Island Resources Foundation, 1993). This version of the plan is updated to June 2000 and presents a description of uses and use conflicts, interagency cooperation needed to successfully manage the area, and a proposed management structure. A process for the assessment of human, financial, and technical resources is described, and preliminary cost estimates and an extensive listing of funding sources other than the Government of the US Virgin Islands (USVI) are provided.

Although many opportunities for public/private partnerships are noted, it will be the Governor and the Department of Planning and Natural Resources (DPNR) who ascertain the nature and extent of partnerships with NGOs and/or the private sector. Such partnerships are already in operation for the DPNR and other government agencies and many jurisdictions are successfully managing their APCs with delegation of selected responsibilities to community- based groups that are able to demonstrate capability as credible partners. In the event that there is interest in such partnerships, the plan has listed sources of funding and technical assistance that will support capacity building within NGOs.

Using information contained in this management plan, 3 other documents can be developed to support the effort to institutionalize sound APC management:

The APC Action Plan
An APC Action Plan will reflect the best collective thinking on site-specific priorities/realities, and will develop as a detailed, operational document for management of the area. The existing management plan recommends a " now to 5 year" timeframe for implementation. Because it will not be possible – or desirable - to address all goals or objectives at once, the majority of implementation mechanisms are designed to be applicable in the absence of sweeping changes in policy, budget, or staffing. Once the initiatives and tasks are prioritized, the APC management plan can be the basis for the development of the site-specific Action Plans.

A C*ommunity-focused APC handbook*
A reader-friendly handbook or manual will help residents better understand what needs to be done, why, and how they can support or participate in efforts to successfully manage the area.

A Compendium of Guiding Principles and Basic Standards of APC Management
In the absence of established principles and standards for APCs, the management plan has proposed that basic standards for design, setbacks, treatment of steep slope development, etc. be established. Because some of these principles and standards are already contained in policy and program initiatives of various divisions within DPNR, there may be an excellent opportunity for compilation of the guiding principles and basic standards of sound APC management. This compendium would serve as a reference document for management of and development in all 18 APCs.

With the acceptance of the APC management plans by the Office of Ocean and Coastal Resource Management, the award of funds from any or all of the listed sources, and cooperation/collaboration between the Executive and Legislative branches and the larger community, the USVI can be successful in managing these most precious and severely threatened resources that we call Areas of Particular Concern.

PREFACE

The draft APC Management Plan for Mangrove Lagoon and Benner Bay recognizes that the effective planning process, i.e., one that can be reasonably expected to lead to the accomplishment of the stated objectives, is a process that is technical, social, and political in both process and content.

A most basic principle of good City/Urban/Community Planning is, " Plan *with* people not *for* people." A second basic principle is that the planning process - and thus the Plan - is technical, political and social.
A third basic principle is that successful planning is framed by a strategic plan.

The USVI has no shortage of planning documents that meet high technical standards, and that – far too often - simply gather dust. The difference between a plan that gathers dust and one that gathers milestones is often explained by the nature of the planning process. The development and implementation of an effective planning process and plan for management of the (APC) can serve as a model for good City/Urban/Community planning in the USVI. Building consensus and success on the small scale may pave the way to consensus and support for the much needed much maligned Comprehensive Land and Water Use Plan (CLWUP).

The rationale for the content and structure of the APC management plan stems directly from the basic principles cited above:

- First, to plan with people in a process that builds, synergistically, on the experience and effective models that these stakeholders bring to the table;
- Second, to address the gaps in skills, technology, information/understanding, that hinder the achievement of the goals; and,
- Third to institutionalize a blueprint for a planning process that is dynamic and purposefully maintained, i.e., strategic.

Strategic solutions do not arise in a vacuum. Attention to the technical, social, and political nature of planning is central to building an understanding of, and support for any plan. The success of APC management - based on a good planning process - could be a beacon for the CLWUP that may be technically correct yet is in social and political in limbo.

The USVI is fortunate to have: 1) An effective working model of interagency and public/private sector planning and coordination – it is called Virgin Islands Territorial Emergency Agency (VITEMA); 2) Public servants who are capable and eager to attain ever-higher levels of skills in their chosen discipline; 3) An environment that, while under siege from the ravages of nature and humans, is a precious resource to be protected, regenerated, and enjoyed (and is largely recognized to be such); and, 4) A plethora of federal and territorial public policy that can – with some revisions and full application – guide and manage development that is economically, environmentally, and socially sound and sustainable.

The USVI is also fortunate in having a private sector and NGOs that are interested in and capable of active participation in sound management of the environmental resource. Active involvement – and even leadership – by the private sector and non-governmental organizations in the important

endeavor of managing, protecting - and celebrating - the beautiful natural and built environment may even lessen the often overwhelming tasks that rest on the shoulders of government.

The APC planning process can and should accommodate a definition of community standards. The State of Florida has created a guide for management decisions and public processes that was designed to stimulate and measure their quest for economic, environmental, and social excellence in service of the long-term sustainability of Florida. Of the eight Sustainable Florida Standards developed by the Governor's Council for Sustainable Florida in 1998, it would serve the APC management process well to reference at least the following three:

- "…understand that efficiency, competitiveness, and profitability are intrinsic to sustainable development;
- Seek out innovative partnerships for new opportunities and collaboration, and;
- Make a commitment to citizen involvement and participation.

The planning process that is strategically formulated recognizes these realities and clearly integrates the actions and techniques, which maintain the critical linkages between issues, goals, objectives, and actions/techniques. Within this document, there are numerous instances wherein the task completed less than one goal or objective, also accomplishes work for a different goal or objective. The Reader is encouraged to read the apparent redundancy as a "footnote" that these actions are linked – if not by a critical path, then by their mutual service to overriding goals and the shared vision for the APC.

Should the APC Management Plan be ignored or prove to be ineffective in framing a shared vision that might gently guide market forces in the direction of sustainability, then, a statement contained in a paper presented by Young-Hinds in 1992 at the UVI- Eastern Caribbean Center (ECC) Conference "Striking the Balance between Tourism and the Environment" will have been a most telling admonition, to wit:

"Manhattan is an island too… but St. Thomas is not Manhattan… yet".

EXECUTIVE SUMMARY

In accordance with guidance provided by the Office of Ocean and Coastal Resource Management (OCRM), the USVI Department of Planning and Natural Resources undertook the development of a management plan for the Mangrove Lagoon and Benner Bay APC. The plan was developed to present comprehensive information on natural features and resources, threats to those features and resources, and opportunities to "take the best care of our grandchildren's inheritance" (a Kiswhahili adage).

The document is organized to:

1. Provide an overview and critical issues which prompt the need for APC management, the plan and the process described herein;
2. Present goals, objectives and the APC management strategy, and propose organizational structure and interagency roles that will support the achievement of those goals and objectives
3. Describe the resources, both human and financial, and the time it may take to implement all aspects of the APC management strategy;
4. Provide a blueprint for evaluation and maintenance of the implementation of the plan;
5. Give information on reference materials used in preparation of this document.

The major information resources for this draft of the APC management plan were:

1. The 1993 Analytic Study conducted by the Island Resources Foundation (IRF);
2. The 1998 and 1999 draft APC Management Plans for Mangrove Lagoon and Benner Bay;
3. Comments from staff of numerous government and quasi-governmental agencies;
4. EPA and State government documents obtained on-line.

At the time of public hearings, some information may be dated, however, the effort to update information through June 2000 included a formal request for information from government agencies with lead roles as described in the plan, informal discussion with knowledgeable individuals, and review of media reports on related topics. In February 2002, residents of Mangrove Lagoon and Benner Bay participated in a meeting to review the draft of this document.

The six (6) sections of the plan are as follows:

Section 1 The first section presents an introduction, general description of the area; major uses and use conflicts. Minor changes were made to the1999 draft.

Section 2 Issues that are specific to MLBB are described in this section, as are the federal and territorial policies that impact APCs. Relevant territorial polices that have been proposed are included here. Issues have been revised; description of policies is unchanged from 1999 draft.

Section 3 Goals presented in this section include those that are specific to MLBB as well as those that could become standard for all 18 APCs. The goals, a management strategy, and detailed implementation mechanisms are presented in this section, as is a management approach that can facilitate and support both intra -governmental cooperation and linkages between government and non-governmental entities. A matrix linking each issue to a goal, objectives and implementation mechanisms appears at the end of Section3. Goal statements have been revised; lead/support agency information and some implementation mechanisms are included from the 1999 draft. Strategy, management approach, and the matrix are new additions to the plan.

Section 4 A preliminary assessment of human, financial, technical and other resource requirements is included in this section. Preliminary cost estimates are given, followed by a matrix that links each goal with its respective objective, implementation mechanisms, timeframe for implementation, and potential funding sources. Only the General Funding information appeared in the earlier draft

Section 5 A framework for evaluation and for maintenance of the planning process is described in the final narrative section. Section 5 did not appear in the 1999 draft.

Section 6 Reference materials including maps and figures, and information sources used in development of the Plan are included in the final section of the Plan. Revision to reference list is limited to the addition of one citation. Maps have been updated.

Section 3 Goals presented in this section include those that are specific to Mangrove Lagoon and Benner Bay as well as those that could become standard for all 18 APCs. The goals, a management strategy, and detailed implementation mechanisms are presented in this section, as is a management approach that can facilitate and support both intra -governmental cooperation and linkages between government and non-governmental entities. A matrix linking each Issue to a goal, objectives and implementation mechanisms appears at the end of Section 3. Goal statements have been revised; lead/support agency information and some implementation mechanisms are included from 1999 draft. Strategy, management approach and matrix are new additions to the plan;

Section 4 A preliminary assessment of human, financial, technical and other resource requirements is included in this section. Preliminary cost estimates are given, followed by a matrix that links each goal with objectives, implementation mechanisms, timeframes for implementation, and potential funding sources. Section 4 did not appear in 1999 draft;

Section 5 A framework for evaluation and for maintenance of the planning process is described in the final narrative section. Section 5 did not appear in 1999 draft;

Section 6 Reference materials including maps and figures, and information sources used in development of the Plan are included in the final section of the Plan. No revisions to reference materials; maps have been updated.

ACRONYMS AND ABBREVIATIONS

Area of Particular Concern	APC
Area of Particular Concern Management Council	APCMC
Area of Particular Concern Operational Council	APCOC
Ambient Monitoring Program	AMP
Americans with Disabilities Act	ADA
Antiquities and Cultural Properties Act	ACPA
Best Available Technology	BAT
Best Management Practices	BMP
Capital Improvement Program	CIP
Certificate of Occupancy	CO
Clean Water Act	CWA
Coastal Barrier Resource Act	CBRA
Coastal Barrier Resource System	CBRS
Coastal Zone Management	CZM
Coastal Zone Management Act	CZMA
Comprehensive Environmental Response, Compensation and Liability Act	CERCLA
Comprehensive Land and Water Use Plan	CLWUP
Conservation Data Center	CDC
Conservation Easements	CE
Decision Support Criteria	DSC
Department of Housing, Parks, and Recreation	DHPR
Department of Interior (U.S.)	DOI
Department of Licensing and Consumer Affairs	DLCA
Department of Planning and Natural Resources	DPNR
Department of Property and Procurement	P and P
Department of Public Works	DPW
Discharge Monitoring Reports	DMR
Division of Archaeology and Historic Preservation	DAHP
Division of Environmental Protection	DEP
Division of Fish and Wildlife	DFW
Eastern Caribbean Center	ECC
Environmental Assessment Report	EAR
Environmental Protection Agency (U.S.)	EPA
Erosion and Sediment Control	ESC
Federal Emergency Management Agency	FEMA
Federal Highway Administration	FHA
Fishery Management Plans	FMP
Geographic Information Systems	GIS
Ground Water Program	GWP
Group Dwelling Permit	GDP
Interagency Coordination Plan	ICP
Intermodal Surface Transportation Efficiency Act	ISTEA
Island Resources Foundation	IRF
Land and Water Use Conservation Act	LWCFA
Magnusson Fishery Conservation and Management Act	MFCMA

Mangrove Lagoon and Benner Bay MLBB

Memorandum of Agreement	MOA
Million Gallons Per Day	MGD
Mooring and Anchoring of Houseboat Vessels Act	MAVH
National Historic Preservation Act	NHPA
National Oceanic and Atmospheric Administration	NOAA
National Park Service	NPS
National Register of Historic Places	NRHP
National Storage System	NSS
Non Governmental Organization	NGO
Non Point Source	NPSP
Notice of Violation and Assessment	NOVA
Office of Ocean and Coastal Management	OCRM
On Site Disposal Systems	OSDS
Planned Area Development	PAD
Potentially Responsible Party (ies)	PRP
Revitalization Task Force	RTF
Rivers and Harbor Act	RHA
Sewage Treatment Plant	STP
Significant Natural Area	SNA
Surface Transportation Program	STP
Territorial Pollutant Discharge Elimination System	TPDES
Transfer of Development Rights	TDR
United States Army Corps of Engineers	USACOE
United States Fish and Wildlife Service	USFWS
United States Geological Survey	USGS
United States Virgin Islands	USVI
University of the Virgin Islands	UVI
Virgin Islands Code	VIC
Virgin Islands Development Law	VIDL
Virgin Islands Education Research Station	VIERS
Virgin Islands Energy Office	VIEO
Virgin Islands Fire Service	VIFS
Virgin Islands Historic Preservation Commission	VIHPC
Virgin Islands State Historic Preservation Officer	VISHPO
Virgin Islands Marine Reserve System	VIMRS
Virgin Islands Police Department	VIPD
Virgin Islands Port Authority	VIPA
Virgin Islands Territorial Emergency Agency	VITEMA
Virgin Islands Water and Power Authority	VIWAPA
Water Pollution Control Program	VIWPCP
Water Resources Development Act	WRDA

I. GENERAL DESCRIPTION OF THE APC

A. Background

The federal Coastal Zone Management Act (CZMA) of 1972, while noting the importance of the entire coastal zone, declares that certain areas are of yet greater significance according to criteria in 15 CFR part 923 and will be called *Areas of Particular Concern*. (APC) The Coastal Zone Management program is required to make provision for procedures whereby specific areas may be designated as APCs for the purpose of preserving or restoring them because of their conservation, recreational, ecological, or esthetic value (Section 306 c 9). After consideration of the criteria suggested for APC designation, the Planning Office incorporated those that were relevant to the U.S. Virgin Islands and developed the following seven categories of areas that could be nominated as being of particular concern:

Significant Natural Areas	Culturally Important Areas
Recreation Areas	Prime Industrial and Commercial Areas
Developed Areas	Hazard Areas
Mineral Resource Areas	

Mangrove Lagoon / Benner Bay (MLBB) is one of 18 Areas of Particular Concern (APC) designated by the Planning Office in 1979 after public nominations and comment had been received (Figure 1). The expansive Mangrove Lagoon and Benner Bay on the east end of St. Thomas is of exceptional natural value. Its water, mangrove, and sea grass bed systems provide a rich nursery area for fish and a productive habitat for benthic biota. The lagoon's mangrove-fringed shores are a natural buffer against shore erosion, floods, and hurricane waves. The configuration of the coast also provides a protective anchorage for boats. The area is filled with scenic contrasts, manglar islands, rocky cliffs, ponds and panoramic ridgelines. Its diverse complex of natural communities provides numerous recreational opportunities for Virgin Islanders. Benner Bay forms a protected harbor and is a commercially important area; charter yacht companies and charter fishing vessels use the numerous large and small marinas sited here. Man small docks are scattered throughout the bay and are used by local commercial fishermen.

Located within the APC boundaries are the Mangrove Lagoon Delta, Benner Bay, Long Point Peninsula, Cas Cay, Rotto Cay, Patricia Cay, Bovoni Cay and Compass Point Salt Pond. The Clinton Phipps racetrack and the lower reaches of Turpentine Run are also within the APC.

1. Authority for Designation

Section 909 of The Virgin Islands Coastal Zone Management Act provides for the Commissioner of DPNR to recommend designation of areas of particular concern within the first tier of the coastal zone and to submit such recommendations to the legislature for adoption. In 1994 the V.I. Legislature adopted Act No. 5986, which designates 18 areas within the first tier of the coastal zone as Areas of Particular Concern.

2. Boundary

In September of 1991, the Coastal Zone Management (CZM) Commission met and held public hearings on all three islands on the boundaries for all 18 APCs. The Commission met again on October 1, 1991 and, based upon public input and staff recommendations, approved the boundaries of the APC's. The boundary for the Mangrove Lagoon / Benner Bay APC, established by the Coastal Zone Management Commission and approved by the Virgin Islands Legislature, is described as follows (Figures 2a and 2b.):

> Beginning at the intersection of Route 32 and Ridge Road (321) at the boundary between Estate Nazareth and Estate Frydenhoj heading south, passing east of Cas Cay, to the shelf edge or three mile limit (whichever is closer); then west along the shelf edge or three mile limit to a point directly south of a point two-hundred (200) feet east of Long Point; then north to the point two-hundred (200) feet east of Long Point; then northerly following the ridgeline to Route 30; then east along Route 30 to Turpentine Run at the intersection of Routes 30 and 32; then north along the gut to the freshwater pond on Estate Hoffman and back to the intersection of Routes 30 and 32, with the boundary extending fifty (50) feet outward from both edges of the gut; and then continuing east along Route 32 back to the intersection of Routes 32 and 322, the point of origin.

3. Land Ownership

The majority of the coastal area included within the APC is privately owned. The V.I. Government has holdings in the area south of Nadir at the terminus of Turpentine Run and some small shoreline parcels in Benner Bay. It also owns the majority of Long Point Peninsula, and maintains some lease holdings with the private sector at that location.

Cas Cay and Bovoni Cay in Mangrove Lagoon were donated to the V.I. Government. The V.I. Government owns Rotto Cay, while Patricia Cay and Bovoni Cay are privately owned. Ownership of Compass Point Salt Pond is unclear; however, it was designated as wildlife sanctuary by DPNR in 1992.

The land bordering the Turpentine Run is privately owned except the lower reaches, which are owned by the V.I. Government. Government owned land includes the Clinton Phipps racetrack and remaining portions of the mangrove delta. The racetrack was constructed on land created by filling and diverting the mangrove delta. As a result, there is a less effective re-routing of the Turpentine Run drainage into a single channel. This has reduced cleansing action of the tributaries and has caused a greater influx of sediment and pollutants into the lagoon.

4. The Management Plan

Under the authority of the CZM Commission, IRF prepared Comprehensive Analytic Studies for all 18 APCs in 1993. The MLBB APC management plan is based upon the MLBB Comprehensive Analytic Study, which is available in the Office of the Commissioner of DPNR.

The issues established to direct this management plan were developed by a multidisciplinary team including members from various government agencies and the University of the Virgin Islands (UVI). The goals, originally developed by two representatives from DPNR and UVI, respectively, were treated to some revision in the 2000 version of the plan. Residents of MLBB and representatives of community-based organizations in a meeting held in January 2001 identified additional issues.

The general goal of developing an APC management plan is to be able to make *a priori* decisions about the allowable extent of modification of an entire landscape unit. In other words, to raise the level of decision-making from the site-specific to that of natural landscape units and the maintenance of a wide array of interactive resource uses. Implementation of the plan will ensure the sustainable use of the APC by achieving a balance between comprehensive resource protection and multiple, compatible uses of those resources. APC resources are threatened by naturally occurring and man-made stresses. Harmful impacts are caused by several land-based sources of sediment, nutrients, and sewage from on-site septic system failures, marine-based vessel waste discharges, the built environment in areas contiguous to-but not included in the APC. These and other management issues are addressed by the APC management plan.

It is intended that future development activity will be consistent with the management plan and that this management plan will be incorporated into the policies and review criteria of entities whose authorization mandates some level of responsibility within the APC, including, but not limited to, the DPNR, the Department of Housing, Parks and Recreation (HPR), the VIPA, the Virgin Islands Water and Power Authority (WAPA), the Department of Public Works (DPW), the National Park Service (NPS), the U.S. Fish and Wildlife Service (USFWS), the U.S. Army Corps of Engineers (ACOE), the U.S. Environmental Protection Agency (EPA), Department of Property and Procurement (P and P), VITEMA, and the Department of Licensing and Consumer Affairs (DLCA).

B. MAJOR LAND AND WATER USES

Nearly one-third of the population of St. Thomas lives in the watershed of this APC. The combined watersheds support high and moderate density housing, with associated paved streets, sewage treatment plants, and a multitude of different businesses (Figure 3).

1. Habitat

MLBB, located on the east end of St. Thomas, is expansive and of exceptional natural value. Its water, mangrove, and sea grass bed systems provide a rich nursery area for fish and a productive habitat for benthic biota. There is a total restriction on take within the inner Mangrove Lagoon with line and bait fishing by Permit from the Division of Environmental Enforcement. Limited fishing is permitted in the outer Mangrove Lagoon and St. James Marine Reserves. Internal combustion engines (i.e., outboard and diesel engines) are not permitted within inner Mangrove Lagoon (per. comm., Kojis).

Cas Cay, which forms the southern reach of Jersey Bay, and Compass Point Salt Pond are designated Territorial Wildlife Refuges.

2. Storm Protection

The lagoon's mangrove-fringed shores are a natural buffer against shore erosion, floods, and hurricane waves; additionally, the configuration of the coast provides a protective anchorage for boats.

Benner Bay forms a protected harbor and is a commercially important area.

3. Marinas/Recreational
Much of the recreational activity within the APC centers on boating. The British Virgin Islands are within easy sailing distance from the APC, which is an important access point for boat diving, charter yacht operations, and fishing. Harvesting of fish and some lobster still occurs within the lagoon.

Other non-commercial recreational activities, such as swimming, diving, and picnicking, are limited to the tip of Long Point because of the relatively poor water quality. The inner shoreline has extensive wetlands, the predominant use of marinas, and a noticeable deterioration in the quality of water.

Charter yacht companies and charter fishing vessels use the numerous large and small marinas sited at Benner Bay. Marina associated businesses (repair yards, fueling stations, restaurants, dive shops, and supply stores) are numerous around Benner Bay. Small docks are scattered throughout the bay and local commercial fishermen use many.

St. Thomas' only horse race track is located within the APC.

4. Historic
The Mangrove Lagoon is rich in known prehistoric sites and potentially contains many undiscovered sites. The Lagoon is a rich natural resource area and one that was probably harvested by the occupants of the Tutu Village Archaeological site. Additionally, a large site was found on Ort Cay, which indicates that the cays were occupied, either permanently or seasonally, during the prehistoric period. Because of changes in sea level relative to the land during the past 5,000 years, there is also a possibility that submerged prehistoric sites are present in the Lagoon. Except for the area that has been totally altered by activities at the Bovoni landfill, there is a possibility that buried remains from the prehistoric period can be found in abundance in the APC.

The structural remains of the Bovoni Great House and associated archaeological deposits are within the APC boundaries. Just outside the APC boundary is an historic limekiln. Unidentified remains of an historic structure are present on Rotto Cay (IRF, 1993).

5. Water Systems
A 10" ID potable water distribution main runs within the APC along the Bovoni Road, serving customers on both sides of the roadway - on the north, Clinton Phillips Racetrack, Agriculture Station and several residents; on the south, businesses at the entrance to the municipal dump or landfill.

6. Wastewater Systems Most of the homes in the MLBB area are connected to septic tank/leach pit systems. Businesses in and bordering the Mangrove Lagoon also use septic tank/leach pit systems. Most of the residences built in Tutu and Bovoni are being connected to the sewage collection system. Others, especially higher in the watersheds, utilize individual septic tank systems.

Five, aging, packaged type treatment plants that were constructed in the early 1970s to service VIHA low-income housing developments provide wastewater treatment in the Mangrove Lagoon-Turpentine Run drainage basin. These treatment facilities were turned over to DPW in the early 1980s and have been operated and managed by DPW since that time. Due to inadequate funding for operation and maintenance, the facilities have deteriorated; repeated Territorial Pollutant Discharge Elimination System (TPDES) violations have occurred for discharges that exceed permitted levels. The DPW has taken steps to improve facilities operations, increasing salaries to attract and retain qualified operators and providing training and certification for plant personnel. The existing facilities, however, are so deteriorated that violations still occur on a frequent basis, and will continue to do so until the facilities are substantially upgraded or

replaced.

Because of repeated TPDES permit violations and extensive delays in the construction of the new regional wastewater treatment facility, EPA had assessed the Virgin Islands Government a total of over $6 million in fines for illegal discharges and failure to meet compliance schedules. On December 30, 1994, the Governor of the Virgin Islands signed an amended consent decree with the EPA. In return for a substantial reduction in fines and penalties, the amended consent decree requires the Virgin Islands Government to construct a regional treatment facility at Mangrove Lagoon-Turpentine Run to replace the five packaged treatment plants. (Apogee Research/USACOE, Jacksonville District). DPW has obtained permits from DPNR to proceed with the construction of this facility.

7. Energy Systems
The WAPA Krum Bay Power Plant provides electric power to the area; many businesses and individuals within the APC have their own emergency standby generators. WAPA has installed substations at strategic locations en route to the East End to improve power quality in the APC.

8. Solid Waste Disposal Systems. The Bovoni Landfill currently covers approximately 330 acres of which approximately 40 acres abuts the mangrove eastern side. (per comm. Webber) It is the receiving site for all of the collected solid waste for St. Thomas, and, since the spring of 1992, for MLBB as well. The site is near capacity due to the heavy volume of trash being dealt with in excess of 200 tons/day. Horizontal growth has been maximized and the landfill is only growing vertically now. Studies have been undertaken to assess any health impacts associated with the outbreak of fires at the dump..

C. USE CONFLICTS

While Public access to the shoreline is guaranteed under the Open Shoreline Act, public accessibility to the shoreline at in the MLBB APC has been severely curtailed by commercial and private development in the area. Inadequate attention has been given to the establishment and preservation of public access points to ensure free and unrestrained access to the lagoon and its many attributes. Opportunities for walks to the shore with children have been curtailed by the increasing numbers of structures, walls, fencing, and guard dogs blocking traditional footpaths (pers. comm., Higgins, 1992). The issue of public access involves not only physical access to the water, but also that of visual access to the lagoon, whose many attributes are to be enjoyed by everyone.

Conflicts often arise in the commercial development of the bay and lagoon. Commercial marine - related industries generally argue that the numerous other commercial, public sector, and residential ventures in the watershed are the primary reason behind environmental degradation, while many residents and politicians blame declining water quality on the marine industry (Strickland and Quinn, 1992). One study offers strong evidence that the contribution of nutrient loading from moored vessels at Mangrove Lagoon and Benner Bay is substantially less than the contribution from combined other sources (Wernicke and Towle, 1983).

Despite an apparent end to unchecked development within the lagoon and throughout the island, the future of the ecosystem still remains at risk due to continued pollution loading from sources that have long been established in the watershed. Most of the sediment that has been deposited in Mangrove Lagoon and Benner Bay during the past twenty years is a direct result of earth - moving operations in the watershed during residential and commercial construction. Concern for protection of the watershed and bay arises because building sites are disturbed for long periods of time during periods of construction activity. Although silt fences are sometimes erected during start-up phase, maintenance of the silt-fence is often not

carried out, resulting in unsuccessful sediment control.

A total of four wastewater treatment plants in the Mangrove Lagoon/Turpentine Run drainage basin operational, and a fifth wastewater treatment plant has been converted to a pump station (per comm. Watson). All lack sludge handling facilities, and are known to regularly violate their discharge permits. In addition to their adverse effects on water quality within Turpentine Run and the coastal receiving waters, they produce odors and have been labeled potential health hazards. All four are scheduled to be replaced by the proposed Mangrove Lagoon Wastewater Treatment Facility.

A further water quality concern is waste from live-aboard vessels docked and moored in the APC/APR. A EPA funded study of vessel wastes in the Territory demonstrated that while the lagoon's boat population had risen in one year from 400 to 481 vessels, only 81 were live-aboards. Furthermore, the aggregate Biological Oxygen Demand (BOD) loading from all boats was only l8.l6 lb/day, while at the lagoon head the combined loading of the sewage treatment plant and Turpentine Run effluents was 455 lb/day, or 98% of the problem (Wernicke and Towle, 1983). An updated study of vessel waste, and one to obtain accurate information on the number of live-aboards in 2000 would likely reveal different numbers.

The MLBB APC, because it contains the St. Thomas/MLBB landfill site, is the repository for hazardous wastes (i.e., waste oils, household chemicals, hospital wastes, etc.) for most of the Territory. This waste leaches into the groundwater and eventually into the lagoon.

The watershed is the site of several vehicle repair facilities, some licensed and some not. These facilities are collection sites for waste lubricants, batteries, tires, etc. The marinas along Benner Bay are also collection sites for waste oil.

Derelict vessels – whether abandoned after hurricanes or simply unclaimed by owners, continue to be a major problem in the lagoon. They can be a source of visual pollution and are a danger due to potential oil and battery leakage.

II. IDENTIFICATION OF ISSUES

Initial issues identification was accomplished in 1998-99 through interviews, meetings with Government representatives review and comment by individuals with knowledge of relevant events and conditions and reference to the MLBB APC Analytic Study (IRF, 1993). The present draft is updated to June 2000.

1. Nearly one-third of the population of St. Thomas lives in the watershed of this APC. The combined watersheds support high and moderate density housing, paved roads/driveways, sewage treatment plants, and a multitude of businesses. There are present and emerging issues related to traffic, use conflicts, public safety, litter, sedimentation and erosion, flooding, visual pollution, noise pollution, and other quality of life issues for which there has been little planning and response.

2. There are numerous negative stresses on the quality of water in the lagoon. Tutu -Turpentine Run area is a major drainage basin that discharges into Mangrove Lagoon via Turpentine Run, a narrow, steep-walled valley. The filling of the natural mangrove vegetated delta has caused a less effective re-routing of Turpentine Run's drainage into a single channel. This has reduced the cleansing action of the tributaries, and has led to a greater influx of sediment and pollutants into the lagoon. There is visual and environmental pollution caused by derelict vessels, junk vehicles, debris and discarded items.

3 Municipal and private wastewater systems are inadequate. The four (4) operating sewage treatment plants in the APC rarely perform to design specifications. They have a fairly high rate of breakdown and require considerable skill and training to operate and maintain. The plant that is under construction will alleviate much of the water quality problem, but problems will continue until the new sewage treatment plant and sludge ponds are fully operational. Septic tanks and leach pits used by homes and businesses adjacent to and in the higher elevations are also a source of contamination and pose health risks.

4. The Bovoni Landfill receives all the collected solid waste for St. Thomas and, since 1992, for St. John. EPA fines and a Consent Decree remain unresolved, and the landfill is near to exceeding or has exceeded capacity. Residents are plagued by landfill related air pollution, wind blown smoke and fumes, and are threatened by the not infrequent landfill fires. The proposed Waste management Authority (WMA) could provide some remedy. The absence of source reduction and waste diversion strategies linked to recycling based business activity, represents missed opportunities for both reducing waste and creating small business. Waste reduction could be in conflict with the feedstock requirements of certain waste management technologies.

5. Flooding is a major problem caused by construction in the flood plain both before and after regulations were in place to guide and/or prohibit construction. Compliance with requirements for setbacks from the gut and prohibitions against cutting of trees are not well enforced. Flooding above the " bridge to nowhere" is also a problem. There is a need for more effective planning for prevention of and response to damage from flooding and natural disasters.

6. Much of the recreational activity in the APC centers on boating, and there is little infrastructure to support present or expanded use, and no plan to address competing demands or environmental degradation. The provisions for handling and disposal of marine waste oil and hazardous materials, debris, and toxic chemicals used in boat repair and for pump-out facilities are grossly inadequate to support the allowable boat repair activity in Benner Bay. Facilities and spaces for small crafts are inadequate.

7. The wetlands, mangroves, salt ponds, and estuaries are deteriorated and in need of regeneration and protection.

8. The job of APC management cannot be the responsibility of a single agency and cannot be accomplished unilaterally by the government. The management of the APC needs the involvement of residents, community - based organizations, the private sector, and government in the role of planners, problem solvers, and co-managers.

III. PUBLIC POLICY

EXISTING POLICY

There are a number of existing federal and territorial laws that either partially or wholly addresses some of the regulatory components of the various management strategies. The CZMA program coordinates with federal and other territorial agencies to ensure enforcement of all relative laws. Where necessary the CZMA program moves towards the amendment or creation of territorial laws to fill any voids that become apparent in the management of the APC. While federal policies cannot be changed at the territorial level, the CZMA program will ensure, where appropriate, that federal policies will be enforced and also ensure that there will be adequate representation at the territorial level to facilitate compliance with applicable federal policies.

A. FEDERAL

1. Coastal Barrier Resources Act of 1982, as amended (CBRA), 16 U.S.C. §3501 et seq.

The purpose of the CBRA is to promote more appropriate use and conservation of coastal barriers along the Atlantic, Gulf, and Great Lakes coastlines. The CBRA seeks to minimize the loss of human life, wasteful federal expenditures on shoreline development, and damage to wildlife, marine life, and other natural resources by restricting future federal financial assistance and establishing the Coastal Barrier Resources System (CBRS). The Secretary of the Interior is responsible for maintaining and reviewing the CBRS.

2. Coastal Zone Management Act of 1972, as amended (CZMA), 16 U.S.C. §§1451 et seq.

The CZMA provides incentives for coastal states to effectively manage, protect and develop their coastal zones consistent with federal standards and goals. For federal approval, a coastal zone management plan must:

a. Identify the coastal zone boundaries;
b. Define the permissible land and water uses within the coastal zone that have a direct and significant impact and identify the state's legal authority to regulate these uses;
c. Inventory and designate areas of particular concern;
d. Provide a planning process for energy facilities;
e. Provide a planning process to control and decrease shoreline erosion; and
f. Provide for an effective coordination and consultation mechanism between regional, state and local agencies.

The Secretary of Commerce can override a State's determination of inconsistency if the Secretary finds that the activity is consistent with CZMA or in the interest of national security.

In the Coastal Zone Reauthorization Amendments of 1990, Congress added a federal requirement that coastal states with federally approved coastal zone management plans prepare, and submit for federal approval, coastal nonpoint source pollution control programs (CZMA §6217, 16 U.S.C. § 1455b).

3. Magnusson Fishery Conservation and Management Act of 1976 (MFCMA) 16 U.S.C.§1801 et seq.

The MFCMA provides for the conservation and management of all fishery resources between three and two hundred nautical miles (5.6 and 370 km) offshore. Fishery Management Plans (FMPs) developed under this authority determine the levels of commercial and sport fishing consistent with achieving and maintaining the optimum yield of each fishery. Within federal waters, the USCG enforces the MFCMA.

4. National Historic Preservation Act of 1966 (NHPA), 16 U.S.C. § 470 et seq.

The NHPA authorizes the Secretary of the Interior to maintain a National Register of "districts, sites, buildings, structures, and objects significant in American history, architecture, archaeology, and culture." Federal agencies conducting, licensing, or assisting an undertaking that may affect a listed site or a site that is eligible for listing must provide the Advisory Council on Historic Preservation a reasonable opportunity to comment on proposed action before any action is taken.

5. Water Pollution Control Act of 1972 (known as Clean Water Act (CWA), 33 U.S.C. § 1251.

The CWA establishes the basic scheme for restoring and maintaining the chemical, physical, and biological integrity of the nation's waters. The CWA regulates discharges from known sources and discharges of harmful quantities of oil and hazardous substance discharges. The Act also regulates the disposal of vessel sewage and dredged material. The EPA administers the National Pollutant Discharge Elimination System (NPDES). Under the NPDES program, a permit is required for the discharge of any pollutant from a point source into U.S. navigable waters. The EPA can establish specific conditions for permits.

The CWA was amended in 1987 to include the Non Point Source (NPS) program. States must develop management programs to address NPS runoff.

The United States Army Corps of Engineers (USACOE) has responsibility for wetlands, and implements a permitting program for the discharge of dredged or fill materials into the navigable waters of the United States that lie inside of the baseline for the territorial seas and fill materials into the territorial seas within three miles of shore. Although the USACOE has primary responsibility for this program, the EPA is authorized to review and comment on the impact of proposed dredge and fill activities on municipal water supplies, shellfish beds and fishery areas, wildlife, and recreational areas (USACOE, 1991).

6. Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (known as the Superfund Act (CERCLA), 42 U.S.C. §§ 9601 et seq.

Under CERCLA, federal and state agencies categorize hazardous waste sites and prioritize responses. CERCLA provides the federal government with the authority to respond to releases of hazardous substances, remediate sites, and seek reimbursement from the potentially responsible parties (PRPs).

7. River and Harbors Act (RHA), 33 U.S.C. §401 et seq.

Section 10 of the RHA prohibits the unauthorized obstruction of the navigable waters of the United States. The construction of any structure or the excavation or fill in the navigable waters of the United States is prohibited without a permit from the USACOE. Section 13 prohibits the discharge of refuse or other substances into navigable waters, but has been superseded by CWA.

8. Water Resources Development Act (WRDA) of 1974, §22

Section 22 of the WRDA authorizes the USACOE to cooperate with the Commonwealth of Puerto Rico and the USVI in the preparation of plans for the development, utilization, and conservation of water and related land resources of drainage basins and coastal area of the islands. The Section 22 program is intended to provide USACOE planning expertise to assist comprehensive water resource planning efforts being done by the States. Work is initiated on the basis of state requests, not through Congressional authorization procedures.

9. Flood Control Act of 1960 (Public Law (PL) 84-99)

The Chief of Engineers is authorized to undertake activities including disaster preparedness, advance measures, emergency operations, rehabilitation of flood control works threatened or destroyed by flood, protection or repair of federally authorized shore protection works threatened or damaged by coastal storms; and providing emergency supplies of clean water in cases of drought or contaminated water supply. In post-flood response activities, the Corps provides temporary construction and repair to essential public utilities and facilities and emergency access for a 10-day period, at the request of a Governor.

10. Public Law (PL) 93-288 (known as the Stafford Act) as amended.

Under the Stafford Act and the Federal Disaster Response Plan, the USACOE has a standing mission assignment to provide public works and engineering support in response to a major disaster or catastrophic earthquake. Under this plan, the USACOE will work directly with the State in providing temporary repair and construction of roads, bridges and utilities, temporary shelter, debris removal and demolition, water supply, etc.

11. Land and Water Use Conservation Act (LWCF) of 1964 as amended

Under the State Grant Program, the LWCF provides matching funds to states and local governments for community recreation facility improvements and land acquisition.

B. TERRITORIAL

The effectiveness of Territorial policy has, at times, been monitored and evaluated inconsistently due to fiscal and human resource constraints. Availability of enforcement mechanisms was used as the reference point for evaluating effectiveness for purpose of the APC Management Plan, however, the staff and tasks proposed herein should improve the evaluation of effectiveness and strengthen the weak areas.

1. ***The Coastal Zone Management Act Of 1978, Title 12 VIC Section 910, et seq.***

In 1978, the CZMA was enacted. The intent of the CZMA program is to treat coastlines as unique places where conservation and special types of development should have priority. It seeks to achieve balance where there is competition among goals, in areas where increasing coastal access competes with resource protection, economic development conflicts with conservation, urban expansion competes with the retention of natural areas, or where short-run economic gains result in the loss of long-run economic benefits.

A CZM permit is required for any development activity in the first tier of the coastal zone. DPNR staff internally reviews minor permit applications and the permit is approved or denied by the commissioner of DPNR. Major permit applications are reviewed by DPNR staff, circulated for comments, and presented at public hearings. The CZM commission for the appropriate district denies, approves or approves the permit with conditions.

a. Availability of Enforcement Mechanisms

Violation of permits result in the issuance of a Notice of Violation and Assessment (NOVA), which can ultimately result in revocation of the permit or a fine.

A Certificate of Occupancy (CO) is issued after a final inspection is conducted and the development is not in any violation of the permit.

b. Evaluation of Effectiveness

Residents express concern that it is the monitoring and enforcement of permits, not the policy that is weak. Whether directly related to gaps in a shortage and/or deployment (to St. John) of staff and/or lack of equipment.

While the first tier designation does provide for review and permit (or denial) of development may provide some protection, there are no mechanisms to mitigate the potentially serious consequence for reefs, sea grass beds, and water quality created by development that is upland or contiguous to the APC boundaries. Consequently some residents express concern that the first tier designation should be revisited and applied to the entire land mass.

Inadequate staffing, equipment, and funding compromise the effectiveness of the policy relative to the intended protection and restoration.

2. ***Protection of Indigenous Endangered and Threatened Fish, Wildlife and Plants Title 12 VIC, Chapter 2***

This legislation is intended to protect, conserve, and manage indigenous fish, wildlife and plants, and endangered or threatened species for the ultimate benefit of all residents now and in the future.

a. Availability of Enforcement Mechanism
A permit or license is required from the Commissioner of DPNR before any cutting, hunting or taking of specimens may occur. Failure to obtain a permit or license can result in a fine or imprisonment.

b. Evaluation of Effectiveness
The policy is adequate to achieve the intended purpose. The effectiveness of this policy varies and is dependent upon availability of an adequate number of trained enforcement officers to monitor and witness violations, and ensure enforcement and punishment.

3**.** ***The Oil Spill Prevention and Pollution Control Act- of 1974, VIC Title 12 Chapter 17***

This legislation prohibits the discharge of oil, petroleum products or their by-products, and other pollutants into or upon any coastal waters, estuaries, tidal flats, beaches and land adjoining the seacoast of the territory. As a condition precedent to the issuance or renewal of a license, DPNR requires satisfactory evidence that the applicant has implemented, or is in the process of implementing, territorial and federal plans and regulations for control of pollution related to oil, petroleum products, or their by-products and other pollutants and the abatement thereof when a discharge occurs. The Act also requires all terminal facilities or vessels to demonstrate financial responsibility either through insurance, surety bonds or other similar means to pay all costs and expenses of the cleanup of any discharge as well as damages caused to the territory and any person.

a. Availability of Enforcement Mechanisms
Licenses are issued on an annual basis. Operation of a terminal facility without a terminal facility license is prohibited. Any violation of this legislation is punishable by a civil penalty of up $50,000 to be assessed by DPNR.

b. Evaluation of Effectiveness
Effectiveness is dependent upon monitoring to ensure compliance with conditions as set forth in the license. The policy is adequate to achieve the intended purpose. The effectiveness of this policy varies and dependent upon availability of an adequate number of properly equipped, trained enforcement officers to monitor and witness violations, and ensure enforcement and punishment.

4. ***Navigation, Motorboats. To regulate the operation of Motorboats, Personal Watercraft and other Thrill craft Operations, VIRR Title 25, Chapter 15***

The purpose of these rules and regulations is to reduce conflicts among ocean users, promote safe boating and protect submerged aquatic vegetation through the establishment of operations areas, restricted areas and prohibited areas.

a. Availability of Enforcement Mechanisms

An operator permit is required from DPNR before a person can rent any motorized vessel, watercraft or water sports equipment. A NOVA may be issued and may lead to arrest, a monetary penalty or jail time as determined by the Court.

b. Evaluation of Effectiveness

The policy is adequate to achieve the intended purpose. The effectiveness of this policy varies and is dependent upon the availability of an adequate number of properly equipped, trained enforcement officers to monitor and witness violations, and ensure enforcement and punishment.

5. ***Navigation, Mooring and Anchoring of Vessels and Houseboats Act, VIRR, Title 25, Chap. 16***

The purpose of this policy is to provide for the orderly, efficient, equitable, safe and ecologically sound allocation and regulation of mooring, anchorages, and unobstructed navigational channels in the territorial waters through the designation of mooring and anchoring areas, identification of prohibited activities and other conditions as set forth in the legislation.

a. Availability of Enforcement Mechanisms

Mooring permits are issued by DPNR and must be renewed annually. A mooring permit must be kept on the vessel and be available for inspection at all times, a mooring decal, issued as part of the permit must be displayed on the vessel. Enforcement officers to ensure compliance with permit conditions monitor mooring areas. Noncompliance with conditions of the permit may result in the issuance of a NOVA, or revocation of the permit.

b. Evaluation of Effectiveness

The policy is adequate to achieve the intended purpose. The effectiveness of this policy varies and is dependent upon availability of an adequate number of properly equipped, trained enforcement officers to monitor and witness violations, and ensure enforcement and punishment.

6. Solid, Hazardous Waste Management Act, VIC, Title 19, Chapter 56

Amended in 1990 by the Anti-Litter and Beautification Act of 1990, the purpose of this legislation is to provide for the proper storage, transportation, and disposal of solid and hazardous wastes, to promote and facilitate, wherever possible, the recycling of solid waste products, and resource conservation and recovery, to educate the public on the need for, and to impose upon all persons the duty of contributing to public cleanliness and appearance in order to promote the public health, safety and welfare and to protect the common economic and aesthetic interests.

a. Availability of Enforcement Mechanisms

Any person violating any provision of the chapter can incur a minimum fine of $200.00 and a maximum fine of $1,000.00. Penalties are not significant enough to deter violations. Additionally, a citation can only be issued if the violation occurs in the presence of the peace officer. However, willful violation or noncompliance of permits by waste collectors or a facility is subject to fines

not to exceed $5,000 for the first offense, $10,000 for the second offense plus $5,000 for each day of noncompliance.

Any person engaged in the generation, storage, transportation, treatment, disposal or recovery of hazardous wastes should obtain a permit from the DPNR. Whenever any person is apprehended for any violation of this policy, a citation known as a litter ticket may be issued and a fine levied on the violator. If the violation was committed from a motor vehicle, boat or aircraft, a lien may be placed against it until the fine is paid.

b. Evaluation of Effectiveness

Effectiveness of this legislation is dependent upon the availability of enforcement officers to witness a violation. In many instances violations are committed and the officers' hands are tied simply because they were not present to witness the violation themselves.

7. *The Water Pollution Control Act, VIC Title 12, Chapter 7*

DPNR's Division of Environmental Protection (DEP) manages the Virgin Islands Water Pollution Control Program (WPCP), which is comprised of the Ambient Monitoring Program (AMP), Territorial Pollutant Discharge Elimination Systems (TPDES) Program and Ground Water Program (GWP).

The AMP was established to evaluate coastal water quality by performing regular scheduled sampling of monitoring stations located in coastal waters around the three main islands - St.Croix, St. Thomas and St. John. The AMP also performs/oversee detailed, high frequency sampling programs for specific projects occurring in the coastal waters.

The TPDES Program issues permits for point-source discharges into waters of the USVI. These regulated discharges include sewage treatment plant outfalls (both public and private facilities), brine discharges from reverse osmosis (and other technology) fresh water production plants, industrial facility process water discharges, industrial facility drainage discharge, etc.

a. Availability of Enforcement Mechanisms

Any violations of set values in coastal water quality results identified by the AMP, results in the issuance of a stop-work order until the project methodology is evaluated and altered.
A TPDES permittee is required to submit to inspection and may be required to submit monthly or quarterly discharge monitoring reports (DMR). Excess levels reported in the DMRs may trigger the issuance of a Letter of Warning or a NOVA.

A TPDES permit is required for all point-source discharges into waters of the USVI. Enforcement options include injunctive, civil and criminal proceedings against the perpetrator(s). Civil penalties of up to $10,000 per day for documented discharge may be levied. Criminal proceedings, upon conviction present a fine of not less than $2,500 to not more than $25,000 per day of violation. If the conviction constitutes a repeat offense, the maximum fine may be up to $50,000 per day of violation.

b. Evaluation of Effectiveness

An effective water-monitoring program requires a well-equipped laboratory, marine vessels, and sufficient qualified staff. The water quality program does not operate a laboratory, is often without a boat, and has a significant shortage of staff.

Water quality data is often not transferred to the National Storage System (NSS) on a regular basis because DEP has not established a reliable computer link to the mainframe computer located at EPA Region office. DEP rents a boat from DFW to carry out water sampling on St. Thomas and St John, and purchased a boat for water sampling on St. Croix. In light of the above, the policy cannot be said to be effective.

8. ***Zoning and Subdivision Law of 1992, VIC Title 29, Chapter 3***

This policy defines allowable categories of development for all sites. The zoning maps that were enacted as part of the 1972 Zoning Code for the territory were based upon continental United States models and are largely inadequate for finite landmass with elevated terrain.

The Subdivision Laws of the Virgin Islands have played a major role in the development of the territory and are now a mainstay of the development process.

a. Availability of Enforcement Mechanisms

As part of the permitting process for development, applicants must provide detailed description of proposed land use for the project, and site maps to verify the location. If a site is not properly zoned for the proposed use, the development permit will be denied. The Commissioner must also approve requests for subdivisions of four or more parcels of land.

b. Evaluation of Effectiveness

The profusion of requests for rezoning in recent years is testimony to the inadequacy of the current allocation of land-use rights under the present zoning law (D. Barry, 1998)

Subdivision of land into three or four parcels is done by Cadastral, a mechanism that is often used by landowners to avoid the process. Because the zoning scheme, which was adopted without the benefit of a plan in 1972, and has never, been updated (D. Barry, 1998), they cannot be considered to be effective.

The Subdivision Law lacks regulations and cannot be said to be effective.

9**.** ***Zoning and Subdivision Law, of 1968 Title 29, Chapter 3, Section 281, Subchapter III Conservation and Preservation of Historic and Cultural Assets***

The policy was created for the conservation and preservation of historic and cultural assets. No building or structure, including stone walls, fences, paving and steps, may be erected, reconstructed, altered, restored, moved or demolished within any Historic and Architectural Control District without first being approved by the Virgin Islands Historic Preservation Commission (VIHPC).

a. Availability of Enforcement Mechanisms

If the VIHPC is not satisfied with the measures outlined then the application is denied and once again DPNR and the applicant are notified. The applicant must take the necessary steps to modify the application in accordance with recommendations from the VIHPC to receive approval before any additional permits can be obtained from DPNR. For the duration of the project, inspections are made on behalf of VIHPC to ensure compliance with the issued permit. Violations are reported to the VIHPC who would then take actions to ensure compliance.

A determination letter from the VIHPC must be submitted to the Commissioner of DPNR before any DPNR permits will be granted for activities in the Historic District. Failure to comply with the permit conditions results in a notice of violation, which may lead to a fine.

b. Evaluation of Effectiveness

The coordinated effort among DPNR, VIHPC and the Virgin Islands State Historic Preservation Officer (VISHPO) is very successful in conserving and preserving the historic and cultural assets of the USVI.

10. Antiquities and Cultural Properties Act (ACPA) of 1998.

The ACPA of 1998 complements the NHPA in protecting and managing the territory's terrestrial and marine historical, cultural and archaeological resources for the benefit of the people of the USVI. Before any land clearing or excavation activities can occur, a permit must be obtained from the VISHPO, which would ensure that development will be in accordance with the ACPA of 1998 and the NHPA.

a. Availability of Enforcement Mechanisms
The VISHPO issues or denies permits for use, access to, and development of property containing historic, cultural or archaeological resources, and for the excavation or removal of any archaeological specimen for cultural exchange, scientific identification or any other purpose.
b. Evaluation of Effectiveness
This law is effectively enforced at least through the review of applications for development.

11. Sewage Disposal, VIC Title 19, Chapter 55

This policy provides for the proper design installation, connection and inspections of any structure to the Public Sewer System. This chapter of the code also contains information on the loan requirements for installation of sanitary facilities, sewage maintenance appropriations, etc.

a. Availability of Enforcement Mechanisms
Permits are required from the DPW before any connection can be made to the public sewer.

b. Evaluation of Effectiveness
The policy is effective with regard to sewage connections, but illegal dumping of cooking grease and other debris place an undue burden on an already stressed and aged system. The connection fees are too low to cover the cost of proper staffing, monitoring and enforcement.

12. Mooring and Anchoring of Vessels and Houseboats Act of 1990 Subchapters 401 to 410 Title 25, Chapter 16 VIRR.

The purpose of this policy is to provide for the orderly, efficient, equitable, safe and ecologically sound allocation and regulation of mooring, anchorages, and unobstructed navigational channels in the territorial waters of the USVI through the designation of mooring and anchoring areas, identification of prohibited activities and other conditions as set forth in the legislation.

a. Availability of Enforcement Mechanisms
Mooring permits are issued by DPNR and must be renewed annually. A mooring permit must be kept on the vessel and be available for inspection at all times; a mooring decal, issued as part of the permit must be displayed on the vessel. Noncompliance with conditions of the permit may result in the issuance of a NOVA, or revocation of the permit. Enforcement officers monitor mooring areas to ensure compliance with permit conditions.

b. Evaluation of Effectiveness
This policy has met with some success but can be significantly improved by an increase of enforcement officers to patrol and make the necessary inspections.

13. Flood Damage Prevention Rules and regulations, Title 3, Chapter 22, Subchapter 401 b)(15)

The Flood Damage Prevention Rules and regulations were established to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions in specific areas. A Flood Plain Determination and permit application is a required submittal for all development activities.

a. Availability of Enforcement Mechanisms
A Flood Zone Permit is issued by DPNR to demonstrate compliance with the Flood Damage and Prevention Regulations. Without approval from the Flood Plain Manager, a permit for development cannot be issued.

b. Evaluation of Effectiveness
The program is effectively administered through the DPNR permitting program.

14. Air Pollution Control Act, VIC, Title 12, Chapter 9, Subchapters 204 and 206

This policy provides for the regulation of discharges into the atmosphere from any facility issued a permit under the provisions of said chapter.

a. Availability of Enforcement Mechanisms
A permit to operate and/or an authority to construct are required before any air contaminants may be released into the atmosphere. Once a permit is issued, the DPNR is able to monitor and ensure compliance with the permits.

b. Evaluation of Effectiveness
The effectiveness of this policy is linked to permits being issued, and an adequate number of well equipped, properly trained staff. The equipment operators who do not voluntarily seek a permit for equipment further hinder monitoring and enforcement.

15. *Trees and Vegetation Adjacent to Watercourses, VIC, Title 12, Chapter 3*

This policy prohibits the cutting or injuring of any tree or vegetation within 30 feet of the center of any natural watercourse, or within 25 feet of the edge of such watercourse, whichever is greater.

a. Availability of Enforcement Mechanisms
Anyone wishing to cut or injure a tree must obtain written permission from the Commissioner of DPNR. A violation results in a fine of $100, imprisonment for not more than 180 days, or both.

b. Evaluation of Effectiveness
This policy lacks adequate enforcement.

16. Environmental Protection, 1971 Title 12, Chapter 13

The Environmental Protection Law is applicable to all land clearing activities in the second tier of the coastal zone with the exception of agricultural activities. The policy requires that before any real property is cleared, graded, filled or otherwise disturbed for any purpose or use including, but not limited to, the erection of any building or structure, the quarrying of stone or the construction of roads and streets, an earth change plan will be approved by DPNR. Upon approval of the Earth Change Plan an Earth Change Permit is issued. Land clearing for agricultural uses in the A-1 (Agricultural) and A-2 (Agricultural) zones in the second tier do not require a permit; however, such owners should write to the Director of Permits to inform DPNR of the intended activity. Earth change activities for agricultural activities in all other zoning districts require earth change permits. (pers. comm., C.Allen)

a. Availability of Enforcement Mechanisms

An Earth Change Permit must be obtained and a sign will be posted at the construction site in clear view of the general public to display the Earth Change Permit number. Inspectors and others can easily identify a project based on the number and report violations to be acted upon by the designated inspector. When there is a violation of the permit, a Stop Work Order is issued specifying the problem and the actions that should be taken to correct it.

A violation is deemed a misdemeanor, subject to a fine not exceeding $5,000 or one year's imprisonment for each and every violation.

b. Evaluation of Effectiveness

The effective implementation of the policy is hindered by lack of sufficient number of Inspectors to inspect all construction sites in a timely manner and follow up to ensure that problems or violations are corrected.

The procedure, which currently exists for prosecution is labor intensive and slow. Violators are often able to complete the development before the attorney General can address the matter.

The policy is effective as structured: the weakness is in monitoring and enforcement.

C. PROPOSED POLICY

1. USVI Development Law (known as the Comprehensive Land and Water Use Plan-CLWUP)

A Performance-Based Intensity District system has been proposed for regulating land use in the Territory. Intensity districts, as opposed to Euclidean zoning, focus on impacts on the surrounding environment, both underground and above it. Conceivably, many uses could exist within any given district. Furthermore, there are density standards within the different intensity districts. These define the quantity of development so that it is consistent with the availability of infrastructure and environmental constraints and goals. The policy proposes six intensity districts, and the uses allowed within them. Further, within any intensity district there are 15 performance standards that must be considered before any permitting may take place. In many instances, only a limited number of these standards may apply. The standards intended to protect the natural as well as the built environment are:

Floodplain Protection	Recreation and Open Space
Vegetation Protection	Impervious Surfaces
Landscaping Requirements	Environmental Protection
Storm water Management	Well field and Groundwater Protection
Hillside Protection	Historic and Cultural Conservation
Residential Uses	Non-Residential Uses
Agricultural Preservation	Off-Street Parking and Loading
Sign Standards	

The weaknesses of traditional zoning indicate a need to explore alternative methods of dealing with land development control mechanisms.

The Intensity District maps that will accompany the proposed Virgin Islands Development Law (VIDL) will correspond with the Land and Water Use Plan maps for each island. The VIDL will govern all land and water uses with provisions for consideration of the impacts of each specific use. The zoning maps that will accompany the VIDL (as the Zoning Code for the Territory will be known in the future) will largely coincide with the Land and Water Use Plan maps for each island. The VIDL itself will regulate all permitted uses and structures as a function of the particular impacts that are inherent in each use.

The proposed VIDL seeks to protect the integrity of the Territory's groundwater resources through implementation of well-field protection regulations in the VIDL and through designation of potential groundwater resource areas. Such areas should be protected from development activities that could adversely impact the Territory's aquifers and well fields.

a. Feasibility for Implementation

The standard “performance-based” approach has been selected as the alternative to the present largely subjective system. It is thought that this technique will enable the Territory to more effectively plan for a future that safeguards the natural, social, and economic qualities that are valued. This system employs minimum levels of performance by setting standards that must be adhered to by each land use. The VIDL is based on accepted practice that has a strong track record in large and small jurisdictions. Education and involvement of the public and policy-makers can build a consensus and support for the effective implementation of the VIDL.

2. Revised Coastal Zone Management Act (2)

The proposed revisions to existing policy will eliminate the two-tier system of permitting that currently exists and establish a single tier system. Regulations under Coastal Zone Management Act (CZMA) will allow for more effective management of the natural resources since all developments, in the near shore coastal zone or upland do impact the coastal waters will be regulated under the CZMA. Technical analysis will be conducted to objectively approach the issues of land capability and/or suitability, and GIS modeling will be employed to assess the impact of a single tier system.

a. Feasibility of Implementation

With an effort to inform residents to build consensus, completion of the technical assessment of capability/suitability, and increased staffing and training, the tasks associated with the policy revision can be implemented through the existing CZM program.

3. Rules and regulations for On Site Disposal Systems or Sewer Connections

The regulations will need to be crafted in light of the cost and with respect to the magnitude of residential development that already exists within an APC. Rules and regulations should be tied to the availability of appropriate systems, and pro-active education of the general public and policy makers. They should set the stage for the eventual elimination of septic systems.

a. Feasibility of Implementation

If affordable alternatives that are appropriate (given the topography and geologic conditions) are identified, and the revisions are coupled with proactive public education and a reasonable timeframe for conversion, on site disposal could be implemented.

The sewer connection requirement would have to be predicated on major improvement to the sewer system and a well-planned expansion to support greater volume.

4. Proposed Urban Storm Water Regulations

This proposed policy would require DPNR to establish reasonable discharge limits, monitoring requirements, and CWA compliance conditions for a facility seeking a storm water discharge permit compliance with the CWA and other applicable water quality standards. This policy is intended to support the goal of water quality improvement.

a. Feasibility of Implementation

This legislation could be implemented alongside the existing TPDES permitting program.

5. Revised Subdivision Law

New subdivision regulations have provided greater control on developments, which shape the character of environmentally sensitive areas and require a greater amount of on-site facilities. Additionally, new subdivision regulations require that land be dedicated for public facilities, parks and schools. If the Subdivision Laws of the Virgin Islands are continued, draft regulations will need to be enacted and there will probably be three areas that will be considered for amendments in order to address growing community needs and concerns:

1. Defining the level of subdivisions that will be considered as a major permit.
2. Defining the ratio of land to be dedicated for public facilities or open space.
3. Developing and assigning an impact assessment to permitted subdivision.

6. Proposed Waste Management Authority

This proposed quasi-independent government agency would manage all aspects of solid waste and wastewater in the territory – garbage collection, recycling, landfills, sewage lines and treatment plants. With its focus entirely on meeting environmental needs, the authority could better obtain federal grants for capital projects and be directly accountable to the people served. Benefits would include management stability and fiscal responsibility. The WMA could ensure that the capital programs are maintained throughout a twenty-year plan, and be able to manage its money with strict accountability and reporting. The WMA's operating money would come primarily from sewage fees and garbage tipping fees. (Daily News, June 20,2000, pg. 3 "DPW Proposes Legislation to Create New Waste Management Authority")

a. Feasibility of Implementation

Creation of the authority with a concentrated effort in seeking federal funding from the EPA, the US Department of Interior and the US Department of Housing and Urban Development, for construction, shoreline improvement and training grants. Some of the existing DPW employees could be transferred to the new authority with no loss of benefits or time accrued toward their retirement plans. This would provide continuity of staff that know the system and have the institutional knowledge. The authority would have enforcement powers, to fine illegal dumpsters at landfills, for example, in addition to a board of directors, the authority will have oversight from an advisory board made up of community members, one of whom would sit on the executive board. (ibid.)

IV. ESTABLISHMENT OF GOALS

The following goals are established in response to the issues (page 7), and have been established as the basis of this management plan.

1. Use effective planning and enforcement to improve APC-related quality of life issues in a manner that is economically and environmentally sustainable, that achieves compatibility between traditional and appropriate waterfront/water dependent uses, ensures visual and physical access, and provides adequate services and facilities for residents and visitors.

2. Improve the water quality in MLBB through the use of best management practices for nonpoint source pollution control in the contributory watersheds, and through preservation and protection of the remaining aquatic and wildlife habitats.

3. Improve municipal, commercial, and private wastewater management through sound planning, education, assistance, and enforcement.

4. Bring Bovoni landfill into compliance with EPA Consent Decree and manage in accordance with an approved landfill management plan.

5. Reduce potential loss of life and property caused by natural hazards through a combination of growth management policy, maintenance of existing shoreline protection structures, and interagency cooperation.

6. Improve efficiencies in waterfront operations and services to the boating community, including the transportation, storage, and handling of hazardous/toxic cargo and materials, and by development and implementation of an oil spill management plan that is supported by an adequate number of well trained and properly equipped staff.

7. Implement sound practices to preserve and protect the natural features of the APC including the undeveloped and underdeveloped waterfront, mangroves, saltponds, and all aquatic and wildlife habitats.

8. Achieve successful implementation of the APC management plan through an organizational structure and processes that incorporate meaningful public involvement, public education, and public information.

V. APC MANAGEMENT STRATEGY

The goals and objectives are proposed in response to the issues (page 7). The proposed management structure and strong interagency coordination will ensure that each Agency can, in fact, commit to the work necessary for realization of the Goals and Objectives, and resolution of the Issues.

A. ISSUES, GOALS, AND OBJECTIVES

The issues, goals, and objectives are presented in a matrix that begins on the next page. The goal and objectives statements are not structured or written in the same manner as they would appear in a program workplan or grant document.