INDIAN RIVER COUNTY PDRP Planning Meeting 1

Environmental

Work Group Discussion Guidance

Lead Work Group Member:_____

Agency or Department: _____

Additional Departments/Organizations Identified

Please list any contact information for the departments or organizations previously identified for stakeholder input.

Department/Organization	Name	Contact Information
Conservation Lands Manager	Beth Powell	
Humane Society	Ilka Daniel (Director of Animal Protective Services)	
FDEP	John McDowell	
IRC Parks Division	David Fleetwood	
Treasure Coast Sustainability	Judy Orcutt	(772) 231-2037
Coastal and Aquatic Managed Areas(CAMA)	Brian Sharpe	
Sebastian Inlet State Park	Terry Coulliette, Park Manager	
Pelican Island National Wildlife Refuge		
Public Works	Keith McCully, Indian River County Stormwater Engineer	

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Section 1: Background

Environmental impacts from disasters can have some commonalities, but different hazards do result in some unique potential consequences. These issues are provided to assist you in identifying concerns that may be a priority and warrant consideration in the County's PDRP. Reference PDRP Guidebook pages 93 – 100.

Hurricanes

- Loss of vegetation cover and wildlife habitat
- Short-term heavy rains and flooding inland
- Soil erosion
- Soil contamination
- Waste (some of which may be hazardous) and debris accumulation
- Secondary impacts by temporarily displaced people
- Impacts associated with reconstruction and repair to damaged infrastructure (e.g. deforestation, quarrying, waste pollution)

Floods

- Groundwater pollution through sewage overflow
- Loss of crops, livestock and livelihood security
- Excessive siltation may affect fish stocks
- Riverbank damage from erosion
- Water and soil contamination from fertilizers used
- Beneficial sedimentation in floodplains or close to river banks

Drought

- Loss of surface vegetation
- Loss of biodiversity
- Loss of livestock and other productive systems
- Forest or wildfires
- Loss of forest and wildlife habitat
- Loss of biodiversity
- Loss of ecosystem services
- Loss of productive crops
- Soil erosion
- Secondary encroachment for settlement or agriculture

Section 2: Issue Discussion Questions

Issue	Discussion Questions	Comments	Additional Information & Data Needs
Beach & Dune Restoration	Indian River County has implemented several measures to reduce beach erosion and conserve coastal beach and dune systems, including the adoption of a Beach Preservation Plan in 2008. The intent of the Beach Preservation Plan is to ensure continued supervision and monitoring of areas of critical beach erosion and identify beach areas that are ideal for renourishment projects. The specific goal of this document is to prescribe the limits and extent of beach/dune nourishment required to maintain County beaches. However, beach erosion is an ongoing concern. Recommended strategies include: • Adopt the Sector boundaries and shoreline management strategies as presented in Section 6 • Adopt the prioritized means to obtain funding to implement the Plan as cited in Section 8.5 • Implement the plan of improvements to		

Issue	Discussion Questions	Comments	Additional Information & Data Needs
	existing public beach access sites or the acquisition of new sites as identified in Section 7.3. • Encourage the City of Vero Beach and the Town of Indian River Shores to participate in funding to implement this Plan • Direct County staff to re-examine this Plan at least once every 5 years – or after significant storm events - and revise the Plan as warranted Have the strategies within this Plan been implemented? If not, what are the factors preventing implementation? Should the Plan be implemented more regularly than 5 years? Have the City of Vero Beach and the Town of Indian River Shores agreed to participate in funding to implement the Plan?		
	Beach Preservation Plan: 5.2 Strategies Considered for Beach Preservation Alternative strategies considered by the County for general beach preservation		

Issue	Discussion Questions	Comments	Additional Information & Data Needs
	include: • No Action • Natural Beach Zone Policy - no planned routine sand placement activities • Sand Transfer Re-nourishment Zone - large scale sand placement via Sebastian Inlet Tax District (SITD) • Sand Transfer Dune Maintenance Zone - small scale truck haul placements – via SITD in cooperation with the County • Dune Maintenance Zone – sand placement from upland sources • Beach Restoration Zone - large-scale placement of sand – likely from offshore sources. In response to public input obtained at the August 21st Planning Charette, the potential use of a sand retention structure – an artificial reef with the potential to also enhance surfing – is considered a potential element to supplement the above		

Issue	Discussion Questions	Comments	Additional Information & Data Needs
	strategies. Have any other viable strategies been evaluated since the completion of the Plan in 2008? If so, what? Which of the above strategies have been implemented? Which have not? Which areas along the coast are in greatest need of improvement?		
	Section 9.2, Post-Storm Recovery of the Beach Preservation Plan states: "After the hurricanes of 2004 and 2005, Indian River County undertook remedial actions to address storm induced erosion in collaboration with FEMA and FDEP. As identified by County staff (James Gray, 2008): • All FEMA project costs are shared at 90% FEMA, 5% State, and 5% Local. • The County has two grants from FDEP in the amount of $13,783,000 with a cost-share ratio of 90.91% State and 9.09% Local. To date, all of the appropriated		

Issue	Discussion Questions	Comments	Additional Information & Data Needs
	funds have been spent. • Total cost for the "04-05 Hurricane Recovery Projects" was $26,673,261.56. Under both FEMA and State FDEP contracts, the County's portion was only $1,897,387.78 Based upon the above, it appears reasonable that the County reserve about $1.5-$2M to provide for future post-storm recovery efforts in concert with FEMA and FDEP." Has the County made efforts to reserve the money for future post-storm recovery efforts, as described above? If not, why? If so, please indicate the amount currently in reserve.		
	According to the PDRP Guidebook, the Coastal Construction Control Line Program is an essential element of enforcing beach and Dune protection after a disaster. The FDEP has regulatory authority and permits development east of the Coastal Construction Control Line.		

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Issue	Discussion Questions	Comments	Additional Information & Data Needs
	The Coastal Construction Control Line Program is an essential element of enforcing beach and dune restoration after a disaster. The FDEP regulates and processes applications for development east of the 1988 Coastal Construction Control Line (CCCL). The PDRP Guidebook lists Brevard County as a best practice example of containing Coastal Management Element policies that use the CCCL to protect natural beaches and dunes. Those policies are attached. Do policies addressing the CCCL adequately enforce beach and dune restoration after a disaster? Are there measures that the County can take to strengthen the CCCL Program during redevelopment? If so, what are they?		

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Issue	Discussion Questions	Comments	Additional Information & Data Needs
	Policy 4.2 of the Coastal Management Element states: "Policy 4.2: In light of the potential for increased coastal erosion from climate change, sea level rise and other factors, the county shall, by 2012, evaluate the location of the DSSL and consider relocating that line further west." Has the location of the County's Dune Stabilization Setback Line (DSSL) been evaluated to determine if relocation westward is needed?		
	Within the CHHA, most of the land is designated for residential use, with permitted densities ranging from 3 to 10 units per acre. A substantial portion of this land is currently developed. Much of that development took place at a time when the CHHA was more narrowly defined as land on the barrier island, east of the Coastal Construction Control Line (CCCL). Policy 5.3 states: Following a storm event, the Public Works Department shall assess		

Issue	Discussion Questions	Comments	Additional Information & Data Needs
	all county facilities in the CHHA that were damaged, and shall make recommendations to reduce future expenditures and potential damage risks. In addition, the Public Works Department shall conduct a cost/benefit analysis to evaluate the relocation of storm damaged infrastructure or infrastructure which is repeatedly threatened by potential storm damage. Are there any vulnerable public facilities located in the CHHA that will require relocation after a disaster? If so, what are they? Have alternative sites been identified for those vulnerable facilities?		
	In the aftermath of a disaster, demand may be high for emergency armoring and depending on the methods used; this can have long-term negative impacts, such as undermining the integrity and natural functioning of the beach and dune system. It may also increase the vulnerability of		

Issue	Discussion Questions	Comments	Additional Information & Data Needs
	adjacent unarmored properties to storm damage. Which strategies can be employed to protect private structures and public infrastructure while minimizing adverse impacts to the beaches and dunes? Are there any efforts in place to educate the public on emergency armoring techniques and best practices? If not, which public outreach and education methods would be most effective for Indian River County		
	To receive funding for beach renourishment projects under FEMA's Public Assistance Program, a beach must be improved and routinely maintained – meaning that the beach is designed and constructed by placement of imported sand of a proper grain size and a maintenance program is established to preserve the original design. Unimproved or natural beaches are not eligible for funding renourishment, but may be eligible for emergency placement of sand if		

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Issue	Discussion Questions	Comments	Additional Information & Data Needs
	necessary to protect improved property. How active has the County been towards efforts to improve and routinely maintain its beaches? Have these efforts been approved by FEMA's Public Assistance Program? If not, why or what issues and/or concerns has the County encountered to renourish its beaches?		
	A potential issue for beach restoration projects is limitation of federal funding. The Coastal Barrier Resources Act (CBRA) was established to encourage conservation of barrier islands by restricting federal expenditures within designated unit. Is this restriction a hindrance when creating policy and with the implementation of beach restoration projects in CoBRA zones?		

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Issue	Discussion Questions	Comments	Additional Information & Data Needs
Environmental Contamination	In the event of contamination of groundwater supplies or saltwater intrusion are there systems to monitor private residential drinking wells during the long-term recovery process? If so, what are they?		
	Are there any areas in the County in which the water, groundwater, endangered species, or other natural and environmental resources are particularly vulnerable? If so, where?		
	Are there hazardous materials or chemical storage sites in close proximity to environmentally sensitive areas in general or due to non-conforming land use?		

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Issue	Discussion Questions	Comments	Additional Information & Data Needs
	Are there any critical facilities currently at risk or vulnerable to hazardous materials or in close proximity to chemical storage sites? If so, has the option to relocate those facilities been considered?		
	Certain disaster circumstances may dictate the need to conduct sampling to test contamination levels prior to permitting occupancy by residents. Are there procedures and resources in place to allow for sampling to test contamination in residential and commercial areas?		

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Issue	Discussion Questions	Comments	Additional Information & Data Needs
	Site contamination often requires a lengthy and costly clean-up process and may impede long-term redevelopment efforts. Existing Brownfield, Superfund sites, and hazardous material programs may be able to be adapted to this potential post-disaster scenario. Are there any other programs that can be identified to aid in clean up and funding of contaminated sites? Have potential Brownfield and Superfund sites been located that have potential contamination *post-disaster*? If not, can you identify them?		
	Also, does Indian River County have the ability and resources to properly and efficiently clean up contaminated sites of any degree? If not, has the County identified and approved of contractors specialized in hazardous materials testing, clean up, and disposal?		

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Issue	Discussion Questions	Comments	Additional Information & Data Needs
	Are there any programs or procedures for intergovernmental collaboration or coordination for the recovery of a "toxic soup" resulting from a hazardous materials spill or storm surge?		
Environmental & Historical Review of Temporary Sites	Are there any procedures or guidelines currently in place to prevent environmental and historical degradation from recovery operations, such as temporary housing sites, points of distribution, staging sites, etc? If so, what are they?		
	Some of the issues that were identified by your Workgroup during the Kickoff Meeting included: (a) permitting issues and (b) threatened and endangered species. What goals, objectives, and/or actions can you identify that could be incorporated within the PDRP that would address such concerns?		

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Issue	Discussion Questions	Comments	Additional Information & Data Needs
	Debris Management Sites. For debris collection sites that have been identified to receive material other than vegetative, have steps been taken to mitigate against seepage of chemicals into the ground? If so, what are they?		
Natural Land & Habitat Restoration	Habitat areas at highest risk to disaster impacts include coastal high hazard areas, areas located near potential sources of debris or contamination, areas prone to flooding, and areas with a high risk for severe wildfires. Accelerated sea level rise further threatens coastal habitats through inundation, increased salinity levels, and increased exposure to storm surge. Does Indian River County have any programs to protect, re-establish, and restore critical habitats during long-term recovery? If not, what are some methods or what types of programs should be implemented in order to ensure proper restoration of		

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Issue	Discussion Questions	Comments	Additional Information & Data Needs
	natural land and habitats?		
Green Building	It was determined by the Workgroup during the Kickoff Meeting that Green Building should be integrated within the PDRP as a minimum issue. It was also stated that Smart Growth Principles and water reuse methods should be integrated within this issue, as well. What goals, objectives, and/or actions can you identify that could be incorporated within the PDRP that would address such concerns?		

Section 3: Plan and Vision Integration

The following documents were identified as providing guidance and vision for post-disaster environmental restoration activities. Consider how these plans, policies and procedures should be incorporated by your workgroup. **Describe what revisions, additions, or changes that would be required to implement these policies post-disaster.**

Plans/Policies/Procedures	Background	Action Items
Comprehensive Plan	**Coastal Management**. Beach erosion is an ongoing concern for IRC. While beach erosion control measures are in place to control 'normal' beach erosion, issues such as climate change and sea level rise may lead to more severe coastal erosion in the future. Also, increases in strong tropical storms and hurricane activity along Florida's coasts increase the likelihood of catastrophic erosion events. In light of anticipated increases in erosion due to sea level rise, climate change, and hurricanes, the county needs policies that address the protection of coastal properties. These policies should include: • A requirement that the County, by 2012, evaluate its current Dune Stabilization Setback Line (DSSL) and consider relocating the DSSL westward from its current location (i.e., the 1981 Coastal Construction Control Line). The DSSL is the County's "line of prohibition," serving as the easternmost building setback line from the ocean, with the exception of beach access dune crossovers that are allowed east of the line.	

Plans/Policies/Procedures	Background	Action Items
	• A requirement that substantially damaged oceanfront structures in nonconforming "footprints" be relocated westward, in compliance with current coastal regulations, even when such structures are substantially damaged during declared natural disasters. How can these policies and the ones listed under Objectives 4 and 7 (in Appendix B, attached) be strengthened to ensure better environmental protection and restoration of beaches and dunes pre-disaster and during post-disaster redevelopment?	
Land Development Regulations	**Resource Protection Standards.** The Land Development Regulations (LDR) include policies for: • Wetlands and Deepwater Habitat Protection • Tree Protection and Land Clearing • Upland Habitat Protection • Wellfield and Aquifer Protection • Historic and Archaeological Resource Protection Identify other environmental and/or natural resources that would require protection standards during redevelopment efforts. Which standards would you recommend?	

Plans/Policies/Procedures	Background	Action Items
	Identify any resource protection standards or other regulations that that might not be necessary and perhaps a burden to disaster recovery efforts?	
Local Mitigation Strategy	The LMS identifies the following hazards to critical environmental resources: • hurricanes and tropical storms; • flooding; • hazardous materials radiation exposure and contamination; • armed violence; • mass immigration; • coastal oil spill; • freezes; • wildland fires; • tornadoes; • drought; • dam failure; • property loss/agricultural hazards; • sinkholes and subsidence; and • military ordinance from World War II. Are there post-disaster recovery actions which could	

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Plans/Policies/Procedures	Background	Action Items
	enhance the protection of critical environmental resources?	
	Consider the matrix in Appendix C and identify other options are not listed that need consideration to mitigate and minimize hazards to environmental and natural resources.	
CEMP	A table provided in Appendix D includes IRC hazard vulnerability by incorporated jurisdiction and population centers. For those areas that are most vulnerable to environmental contamination, environmental hazards (such as wellfield contamination, hazardous materials contamination, and agricultural pests and disease, etc.) indicate steps or measures needed to reduce the vulnerabilities during post-disaster redevelopment.	

ATTACHMENT A– BREVARD COUNTY COASTAL MANAGEMENT ELEMENT

Beaches and Dunes

The four key points of reference found within this section are:

- the 1981 Florida Department of Environmental Protection (FDEP) Coastal Construction Control Line (referred to as the 1981 FDEP CCCL in this document);
- The 1986 Florida Department of Environmental Protection (FDEP) Coastal Construction Control Line (referred to as the FDEP CCCL in this document);
- The Brevard County Coastal Construction Line (referred to as the CCL in this document); and,
- The Brevard County Coastal Setback Line (referred to as the CSL in this document).

For clarification, the 1981 FDEP CCCL coincides with the Brevard County CCL, as adopted by Brevard County in Ordinance 85-17. The Brevard County CSL is described as a line which is twenty five (25) feet west by perpendicular measurement from the Brevard County CCL. In 1986, the Florida Department of Environmental Protection established a new CCCL upland from the 1981 FDEP CCCL. Any construction or clearing activities seaward of this new CCCL requires FDEP approval. Figure 1 schematically depicts the spatial relationship of these four reference lines. Figure 1 is for illustrative purposes only; actual conditions may vary with regard to the location of SR A1A.

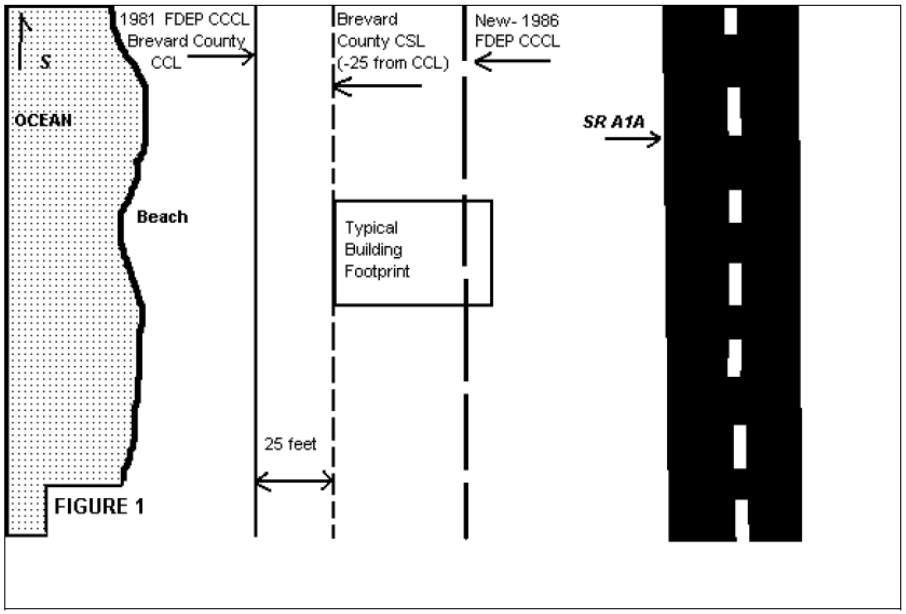

Figure 1

Note: Figure 1 is intended for illustrative purposes only. Actual conditions may vary with regard to the location of State Road A1A.

Objective 4

Brevard County shall implement and improve as necessary a comprehensive beach and dune management program which protects, enhances and restores a naturally functioning beach system as funding is available.

Policy 4.1

The Land Development Regulations shall maintain regulations governing the location, construction and maintenance of development adjacent to the Atlantic shoreline. Development seaward of the Florida Department of Environmental Protection (FDEP) 1981 Coastal

Construction Control Line (CCCL), which coincides with the Brevard County Coastal Construction Line (CCL), shall be governed by the following conditions, at a minimum:

Criteria:

A. Oceanfront development shall be required to maintain at least 50% of the native dune vegetation on site. Native dune vegetation seaward of the FDEP 1981 Coastal Construction Control Line (CCCL) shall not be removed unless necessary for approved emergency vehicle access or coastal protection needs.

B. In order to maintain the freshwater lens of the surficial aquifer and reduce saltwater intrusion, post-development groundwater recharge volume and rate shall equal pre-development recharge volume and rate.

C. No new shoreline hardening structures shall be permitted in unincorporated Brevard County south of Patrick Air Force Base (PAFB) property or within the Archie Carr National Wildlife Refuge, with exception of emergency provisions as provided for in Florida Statutes Chapter 163.3187(1)(a) “Amendment of Adopted Comprehensive Plan”.

D. North of the PAFB, no new shoreline hardening structures should be permitted.

E. Pursuant to Criteria C and D of this policy, if a shoreline hardening structure is deemed necessary, the following criteria shall apply:
1. Vertical wood or concrete structures and rock revetments shall only be approved when less structural alternatives, such as beach renourishment, dune restoration and sandbag systems have been determined not to be feasible.
2. All shoreline protection measures shall be designed to minimize adverse impacts to the naturally functioning beach and dune system and adjacent properties.
3. The County may require dune restoration and revegetation as a component of the shoreline hardening approval both landward and seaward of the proposed structure.
4. All shoreline protection shall be designed and constructed so as to not impede public access to or along the shore.

F. Setbacks or other non-structural methods of shoreline protection shall be given the highest priority. Reducing setbacks from A1A will be considered where it is necessary to maintain and maximize setback requirements from the ocean.

G. Reconstruction of existing hard erosion control structures which are more than fifty (50) percent destroyed should be considered new construction and should be regulated as such, except for the maintenance of existing public navigational projects, such as Port Canaveral and Sebastian Inlet.

H. Underground storage tanks or the storage of hazardous materials are not permitted.

I. Septic tank or septic tank drainfields shall not be permitted seaward of the Brevard County Coastal Setback Line (CSL). Septic tanks shall be located landward of the most seaward portion of the habitable structure.

J. All activities seaward of the 1986 FDEP Coastal Construction Control Line (CCCL) shall be subject to FDEP permitting requirements**.**

Policy 4.2
Brevard County shall enforce development restrictions associated with the Brevard Coastal Setback Line (CSL), and the Brevard County Coastal Construction Line (CCL) and re-evaluate the effectiveness of these lines from time to time as coastline changes dictate. The County shall provide FDEP with their findings and request a review of the FDEP Coastal Construction Control Line, if deemed appropriate.

Policy 4.3
Brevard County shall continue to adopt and enforce standards for maintenance or re-establishment of dune areas. These standards shall include, at a minimum, the following provisions:
Criteria:
A. Native dune vegetation shall be maintained on site unless removal or alteration is permitted by both Brevard County and the Florida Department of Environmental Protection, or other appropriate regulatory agency.

B. Public and private beach access shall be allowed only at designated cross-over structures or historical access sites.

C. Erosion control strategies will be utilized at unimproved public access sites until these can be improved or alternate access provided.

D. Dune cross-overs, boardwalks, walkways and other permissible structures seaward of the Brevard County Coastal Setback Line shall be elevated above dune vegetation and shall be designed to allow adequate light penetration.

E. Shore-parallel boardwalks shall be prohibited seaward of the Coastal Setback Line, except as required for handicap access.

F. Publicly owned dunes, especially those identified for beach access sites, which have been denuded or damaged by vehicular or pedestrian traffic shall be prioritized for dune renourishment and revegetation. Improvements or erosion controls shall be implemented at the time of renourishment to prevent further site degradation.

G. Private Property owners should be encouraged to re-establish dune vegetation which has been destroyed by non-designated access activities or storm damage.

H. Structures and impacts that are necessary for public safety or meet the best public interest shall be permitted if approved by the Board of County Commissioners.

Policy 4.4
Brevard County's beach and dune restoration program shall include an analysis of environmental, financial and social criteria.
Criteria:
A. The first priority for beach renourishment shall be given to the protection of life and property.

B. Priority shall also be given to environmental considerations.

C. Public areas which are heavily utilized for recreation, including surfing, fishing or swimming, shall be considered for beach or dune renourishment or restoration, as applicable. Long-term management of these areas shall be included with all site improvements.

D. A feasibility or benefit/costs analysis should be performed for any renourishment project. Such analyses shall include, as appropriate, present and future benefits for property protection, recreation and tourism over the life of the project.

Policy 4.5

The County shall continue to utilize the information and materials available from the State regarding dune maintenance and revegetation and supplement these materials, as necessary.

Policy 4.6
Brevard County shall maintain an ongoing program to initiate and monitor data collection projects related to beach dynamics, sand transport and coastal processes. This program should include data generated by the Florida Department of Environmental Protection, the U.S. Army Corps of Engineers, the Florida Sea Grant College, universities and other appropriate agencies.

Policy 4.7
Brevard County shall develop an inter-local agreement with adjacent municipalities and the State of Florida for funding of beach maintenance and restoration programs.

Policy 4.8
Brevard County shall prohibit motorized vehicles on the dune and beach system except for governmental vehicles (police and sheriff), fire trucks, ambulances or vehicles necessary to repair utilities, or vehicles utilized during approved renourishment programs or approved scientific investigations. Pedestrian traffic within the vegetated dune areas shall be limited to emergency operations, scientific research, maintenance, cleaning or improvements as authorized by the Natural Resources Management Office and consistent with FDEP regulations.

Policy 4.9
Brevard County shall continue to collect and make available to the public information related to sea level changes.

Policy 4.10
Outer Continental Shelf (OCS) activities such as oil and gas exploration or mining adjacent to Brevard County are discouraged for several reasons. The county's beaches are the most heavily nested beaches by sea turtles in the western Atlantic. Impacts to water quality, beach quality and fisheries could negatively impact the threatened and endangered species that nest here. Brevard County should review and comment on all Outer Continental Shelf (OCS) and off shore drilling leases proposed for waters adjacent to the county. This policy does not discourage OCS sand and gravel mining conducted as part of Brevard County's shore protection and restoration strategy.

APPENDIX B. INDIAN RIVER COUTNY: COASTAL MANAGEMENT ELEMENT – OBJECTIVE 4 Beaches and Dunes

Through 2030, all natural functions I beach and dune system in Indian River County shall be protected and no unmitigated human-related disturbance of the primary dune system shall occur.

Policy 4.1: The County shall continue to recognize the 1981 Florida Department of Natural Resources (FDNR) Coastal Construction Control Line (CCCL), as established by Chapter 161.053, F.S., and recorded on June 10, 1981 in Plat Book 10, Pages 93-93H, as being the county's line of regulatory prohibition, or Dune Stabilization Setback Line (DSSL). Construction encroachment, except for the following, shall be prohibited oceanward of the DSSL:

- federal, state and locally permitted erosion control stabilization and beach renourishment projects;
- the construction of dune cross-over structures and other minor structures;
- public navigational projects, markers or other control structures;
- maintenance and/or restoration of legal nonconforming structures not requiring greater than 50 percent construction, per Federal Emergency Management Agency (FEMA) regulations;
- use of emergency equipment and/or activities, such as removal of ordnance and debris, to protect life and/or loss of upland property;
- structural and non-structural stabilization techniques to protect coastal buildings from a 15 year or less storm event.

Policy 4.2: In light of the potential for increased coastal erosion from climate change, sea level rise and other factors, the county shall, by 2012, evaluate the location of the DSSL and consider relocating that line further west.

Policy 4.3: To ensure appropriate protection of the beach and dune system, the county shall review all proposed beach and dune projects in the unincorporated area of the county and within the city limits of Vero Beach, and shall review and submit comments regarding permit t applications of all appropriate federal, state and local agencies governing beach and dune management.

Policy 4.4: The County shall solicit cost-share funding for beach renourishment and shoreline stabilization from the U.S. Army Corps of Engineers and the Florida Department of Environmental Protection.

Policy 4.5: The County shall require dune cross-over structures for all new public and private development desiring beach access. The county shall not approve plans which do not include FDEP approved dune cross-over structures at beach access points.
Policy 4.6: Indian River County shall protect and preserve natural beach and dune systems by adopting the specific criteria for shoreline stabilization within the unincorporated portion of Indian River County and within the municipal limits of the city of Vero Beach, as outlined in Policy 10.5 of the Conservation Element.

Policy 4.7: The County shall continue to prohibit motorized vehicles on the beach/dune area, except for vehicles engaged in emergency activities, permitted government vehicles and permitted vehicles associated with approved construction, restoration and/or scientific projects.

Policy 4.8: The County shall enforce its beach and dune protection land development regulations by requiring mitigation or restoration of dune disturbances, and imposing fines as warranted in association with code violations.

Policy 4.9: County staff will attend meetings held by the Sebastian Inlet Tax District, and will participate in evaluating technical studies prepared by the District.

Policy 4.10: The County shall continue to monitor the PEP reef to evaluate the effects of the reef on shoreline stabilization.

Policy 4.11: The County shall continue to study alternatives to fund shoreline stabilization for the areas of critical erosion identified in the 2008 Florida Department of Environmental Protection's Critically Eroded Beaches in Florida report.

Policy 4.12: The county shall assist the Florida Fish and Wildlife Conservation Commission (FWC) and the Florida Department of Environmental Protection (DEP) in the development of a Florida-wide Habitat Conservation Plan for coastal beaches by providing local data on sea turtle nesting, erosion events, potential coastal mitigation sites, and other coastal data as may be requested by the FWC and DEP.

OBJECTIVE 7 Post-Disaster Recovery and Redevelopment

Consistent with the requirements of Chapter 163, F.S. and DCA Rule 9J-S, F.A.C., the county shall have a Local Mitigation Strategy (LMS) as an annex to the Indian River County Comprehensive Emergency Management Plan (CEMP). The LMS shall list and prioritize disaster mitigation projects.

Policy 7.1: Consistent with the CEMP, the county will perform an initial damage assessment, immediately following a natural disaster' event, in order to determine the extent of damage and prioritize allocation of recovery resources. If the scope of damage exceeds the county's ability to recover, the county shall declare a local state of emergency, pursuant to Chapter 252, F.S.
and County Ordinance# 91-18. Once a local state of emergency has been declared, the county will request assistance from the Florida Division of Emergency Management (FDEM).

Policy 7.2: The County shall continue to maintain its LMS and to implement the short-term and long-term recommendations contained in the LMS.

Policy 7.3: Following a natural disaster, principal structures and uses located east of the County's Dune Stabilization Setback Line (DSSL) which sustain greater than 50 percent of Mal (Member of Appraisal Institute) assessed current market value damage from a naturally occurring storm shall be required to relocate upland of their location and, when possible, west of the DSSL. Prior to reconstruction, principal structures east of the 1987 State Coastal Construction Control Line (CCCL) exhibiting damage from a naturally occurring storm event, greater than 50 percent of Mal assessed market value, shall be required to obtain all applicable permits and comply with all applicable building codes concerning coastal construction.

Policy 7.4: Consistent with National Flood Insurance Program (NFIP) requirements, any structure predating 1989 FEMA Flood Insurance Rate Maps (FIRMs) and located within a flood hazard area that sustains "substantial damage" due to a natural disaster (i.e. repair costs that exceed 50% or more of the building's value) shall be required to be elevated a minimum of six (6) inches above the base flood elevation (BFE), as depicted on current FIRMs.

Policy 7.5: Consistent with NFlP requirements, any proposed "substantial improvement" (i.e. additions, renovations, or modifications that exceed 50% or more of the building's value) to a pre-FIRM structure located within a within a flood hazard area shall be required to

be elevated a minimum of six (6) inches above the BFE, as depicted on current FIRMs. The list contained in Annex IV of the CEMP will be used to determine the total value of "substantial improvement."

Policy 7.6: The County shall continue to regulate development and manage natural resources within the Coastal Zone by:

- Continuing to enforce LDR Chapter 932 – Coastal Management, and LDR Chapter 402 – Coastal Construction Code;
- Preserving flood storage capacity in the 100 year floodplain, in accordance with the policies listed under Objective 5 of the Stormwater Management Sub-Element;
- Maintaining or reducing land use density allowances in the Coastal High Hazard Area (CHHA) in accordance with the policies under Objective 17 of the Future Land Use Element and Objective 11 of this element;
- Minimizing beach and dune disturbance in accordance with Coastal Management Element Policy 4.8 and County Code Chapter 932; and
- Reviewing, in coordination with the FDEP Bureau of Beaches and Coastal Systems, all emergency seawall permit applications within the unincorporated area of Indian River County and within the City Limits of Vero Beach.

I.

Policy 7.7: Indian River County shall assist the Federal Emergency Management Agency (FEMA) in its Flood Insurance Rate Map (FIRM) modernization project by making local drainage studies available to FEMA and by conducting public information workshops to advise development professionals, as well as the general public, of the floodplain map modernization project.

Policy 7.8: By 2012, The County shall establish formal procedures in its Local Mitigation Strategy (LMS) to address the removal of marine debris, including boats abandoned in the Indian River Lagoon.

APPENDIX C – INDIAN RIVER COUNTY LOCAL MITIGATION STRATEGY

Table 4.1. Identification and projected impact potential for Indian River County hazards.

Hazard Category	Projected Impact Potential																		
	Excessive wind	Excessive water	Damaging hail	Soil/beach erosion	Electric power outage	Surface and air transportation disruption	Navigable waterway impairment	Potable water system loss or disruption	Sewer system outage	Telecommunications system outage	Human health and safety	Psychological hardship	Economic disruption	Disruption of community services	Agricultural/fisheries damages	Damage to critical environmental resources	Damage to identified historical resources	Fire	Toxic releases	Stormwater drainage impairment
Natural Hazards																			
Floods		X		X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X
Hurricane/tropical storm	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Tornado	X				X	X				X	X	X	X							
Severe thunderstorm/lightning	X	X	X		X	X				X	X	X	X					X		X
Drought													X		X	X		X		
Temperature extremes					X						X	X	X		X	X				
Agricultural pests and disease											X	X	X		X	X				
Wildland/Urban Interface Zone					X	X				X	X	X	X	X	X	X		X	X	
Muck fires						X					X		X		X	X		X	X	
Soil/beach erosion				X			X						X			X				X
Epidemic											X	X	X	X						
Seismic hazards (sink holes/soils failure)						X													X	

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APPENDIX D – INDIAN RIVER COUNT COMPREHENSIVE EMERGENCY MANAGEMENT PLAN (CEMP)

Hazard Category	Jurisdictions					Population Centers						County
	Town of Fellsmere	Town of Indian River Shores	Town of Orchid	City of Sebastian	City of Vero Beach	Unincorporated Orchid Island	South County Area	Route 60 Area	Wabasso Area	Vero Lake Estates	Western County	Overall Vulnerability
Natural Hazards												
Flood	●	●	●	●	◗	●	●	●	●	●	◗	●
Hurricane/Tropical storm	●	●	●	●	●	●	●	●	●	●	◗	●
Tornado	◗	⊖	⊖	◗	◗	⊖	◗	◗	◗	◗	◗	◗
Severe thunderstorm/Lightning	◗	◗	◗	◗	●	◗	◗	◗	◗	◗	◗	◗
Drought	◗	⊖	⊖	◗	◗	⊖	◗	⊖	◗	⊖	⊖	◗
Temperature extremes	⊖	◗	◗	⊖	⊖	⊖	◗	⊖	◗	⊖	◗	◗
Agricultural pest and disease	⊖	◗	◗	⊖	◗	⊖	◗	◗	●	⊖	●	◗
Wildfire/urban interface zone	◗	⊖	⊖	⊖	⊖	⊖	◗	◗	●	◗	●	◗
Muck fires	○	○	○	○	○	○	⊖	○	○	○	⊖	○
Soil/beach Erosion	○	◗	◗	⊖	●	◗	⊖	⊖	⊖	⊖	○	◗
Epidemic	◗	⊖	⊖	◗	◗	⊖	◗	◗	◗	◗	⊖	◗
Seismic hazards (sink holes/soils failure)	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖
Technological Hazards												
Hazardous materials accident	◗	○	○	◗	◗	○	◗	◗	⊖	⊖	◗	◗

Unincorporated Hutchinson Island = Areas of the barrier not within city jurisdictions
South County Area = The area south of the City of Vero Beach and west of the Indian River (Both sides of U.S. 1)
Route 60 Area = Area west of the City of Vero Beach along Route 60 between the City and I-95
Wabasso Area = The area to the south of the City of Sebastian
Vero Lake Estates = The large development area west and south of the City of Sebastian
Western County = Area west of I-95

● = High, ◗ = Moderate, ⊖ = Low, and ○ = Very Low

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Hazard Category	Jurisdictions					Population Centers						County
	Town of Fellsmere	Town of Indian River Shores	Town of Orchid	City of Sebastian	City of Vero Beach	Uninc. Orchid Island	South County Area	Route 60 Area	Wabasso Area	Vero Lake Estates	Western County	Overall Vulnerability
Radiological accidents including nuclear power plant accidents	◗	◗	◗	◗	●	●	●	●	◗	◗	◗	◗
Communications failure	⊖	⊖	⊖	⊖	◗	⊖	⊖	◗	⊖	⊖	○	⊖
Transportation system accidents	⊖	○	○	◗	●	⊖	◗	◗	◗	⊖	⊖	⊖
Wellfield contamination	◗	⊖	⊖	◗	◗	⊖	◗	◗	◗	⊖	⊖	◗
Power failure (outages)	◗	◗	◗	●	●	◗	◗	●	◗	◗	⊖	◗
Unexploded military ordnance	○	⊖	⊖	○	⊖	⊖	○	○	○	○	○	○
Societal Hazards												
Civil disturbance	⊖	○	○	⊖	⊖	○	⊖	⊖	⊖	○	○	⊖
Terrorism and sabotage	○	⊖	⊖	○	⊖	○	○	○	○	○	○	○
Immigration crisis	⊖	○	○	⊖	⊖	○	⊖	⊖	⊖	○	○	⊖

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