

**APPLICATION NO. 15  
COASTAL MANAGEMENT**


**APPLICATION REQUESTING AMENDMENT TO THE  
COMPREHENSIVE DEVELOPMENT MASTER PLAN**

**1. APPLICANT**

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**2. APPLICANT'S REPRESENTATIVE**

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By:  August 25, 2007  
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**3. DESCRIPTION OF REQUESTED CHANGES<sup>1</sup>**

The Department of Planning and Zoning requests revisions and modifications to the CDMP, as further described below.

- A. Revise and replace the text in the Land Use Element, the Coastal Management Element and the Capital Improvements Element to include the new definition of coastal high-hazard areas and other required modifications, pursuant 163.3178, F.S.
- B. Revise and replace Figure 10 (Floodplains) and Figure 11 (Areas Subject to Coastal Flooding) in the map series of the Land Use Element to depict the coastal-high hazard areas, as defined by 163.3178, F.S.
- C. Revise the legend of Figure 1 (Hurricane Evacuation Zone map) in the Coastal Management Element.

The amendments must be adopted no later than July 1, 2008, as per 163.3178, F.S.

<sup>1</sup> Underlined words are proposed additions. ~~Strikethrough words~~ are proposed deletions. All other words exist in the Plan and will remain unchanged.

## **A. Revisions to the Land Use Element**

**Revise the second paragraph under the category entitled, Ultimate Development Area, on page I-75, as follows:**

**Ultimate Development Area.** The 2015 and 2025 Land Use Plan map identifies the areas that will be urbanized within those time frames. As indicated throughout this Plan, these are the areas of the County where resources should be directed for the construction and maintenance of urban infrastructure and provision of services. Growth of Miami-Dade County, however, is not projected to cease after the year 2025. Therefore, prudent long-term planning for infrastructure may need to anticipate locations for possible future extension. For example, it may be desirable to reserve rights-of-way in certain growth corridors as well as on section, half-section, and quarter-section lines, well in advance of need so that opportunities to eventually provide necessary roadways are not irrevocably lost.

It is difficult to specify where and how much of Miami-Dade County's total area may ultimately be converted to urban development. This is due to uncertainty regarding long-term rates of population and economic growth; housing and community preferences; availability and price of energy, water, agricultural and mineral resources; and State, federal and international influences. It is reasonably safe to assume, however, that the areas least suitable for urban development today will remain least suitable in the future. These areas include the remaining high-quality coastal and Everglades wetland areas in the County, the coastal high hazard areas, and the Northwest Wellfield protection area. The areas more appropriate for, and more likely to experience sustained urban pressure are the heavily impacted, partially drained wetlands in the Biscayne-Snake Creek and Bird-Trail Canal Basins, the agricultural areas of southwestern and southeast Miami-Dade, and the impacted wetlands south of Homestead and Florida City. When the need for additional urban expansion is demonstrated after the year 2025, such expansion should be carefully managed to minimize the loss of agricultural land and to maximize the economic life of that valuable industry. Accordingly, urban expansion after the year 2025 in the South Dade area should be managed to progress westerly from the Metrozoo area to Krome Avenue north of Eureka Drive, and on the west side of the US 1 corridor southerly to Homestead only when the clear need is demonstrated.

**Revise the section entitled, Floodplains, on Page I-78, as follows:**

**Floodplains.** As shown on Figure 10, a very large percentage of the land within Miami-Dade County is considered to be a floodplain, or Special Flood Hazard Area (SFHA). An SFHA is defined as an area that will flood to varying depths during the 100-year flood, which is defined as an event that has a 1% chance to occur in any one year. Within the urban area, all of the former sloughs and transverse glades and the barrier islands are floodplains or SFHA's under this definition. For purposes of clarification, an

additional map (Figure 11) is presented to show the areas that are subject to coastal flooding during hurricanes of varying intensity (~~Figure 11~~).<sup>2</sup>

Due to issues such as continued development and improvements to the water management system in the County and enhanced modeling efforts for storm surge, there have been changes to the floodplains and areas subject to coastal flooding. These changes ~~will be~~ are reflected in a flood insurance re-study and attendant revised Flood Insurance Rate Maps expected to be published by ~~in 2008~~<sup>5</sup>. Another factor is that, by the year 2015 the area subject to coastal flooding may increase if current predictions about the rate of sea level rise prove to be true. Additional information on floodplains and drainage issues is presented in the Conservation, Aquifer Recharge and Drainage Element and its Evaluation and Appraisal Report.

**Revise Figure 10 (Floodplains) on page I-82 of the Land Use Element to depict the definitions of the flood zone designations.** (See the following page.)

**Revise Figure 11 (Areas Subject to Coastal Flooding) on page I-82 of the Land Use Element to depict the Coastal High Hazard Area, as determined on the most current SLOSH model.** (See the following pages.)

**Revise the Objective LU-3 Monitoring Measure, on page I-89, as follows:**

Objective LU-3

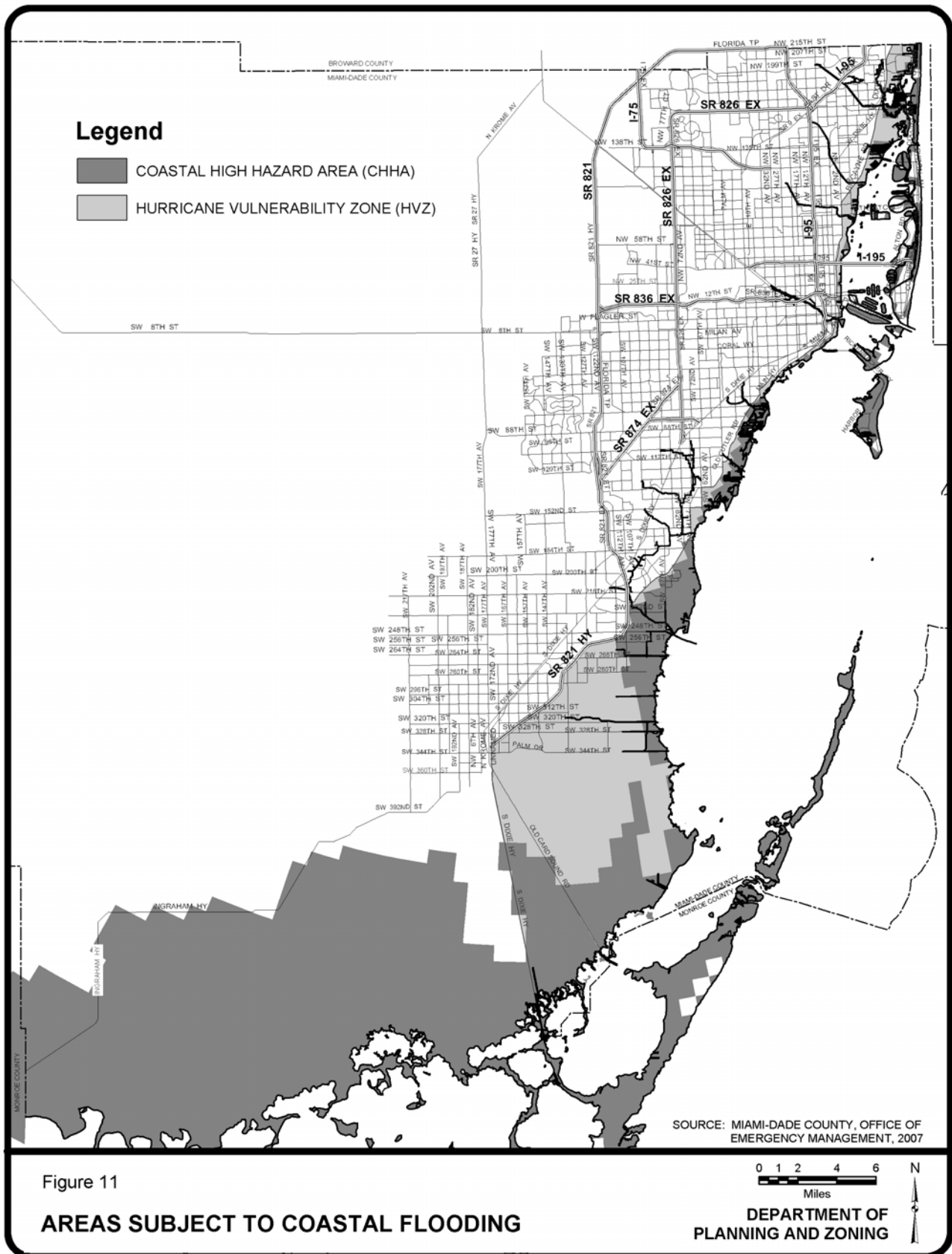
~~Number of dwelling units and other structures approved which are inconsistent with Miami-Dade County's East Everglades Zoning Overlay regulation (Chapter 33-B, Code of Miami-Dade County), and any CDMP amendments that would increase the allowable number of dwelling units or nonresidential floor area in the environmentally sensitive areas and the coastal barrier islands. Any such approvals shall be logged by the Department of Planning and Zoning and reported in the EAR. Approval of any of the following shall be logged by the Department of Planning and Zoning and reported in the EAR:~~

1. Number of dwelling units and other structures approved which are inconsistent with Miami-Dade County's East Everglades Zoning Overlay regulation (Chapter 33-B, Code of Miami-Dade County).
2. ~~a~~Any CDMP amendments that would increase the allowable number of dwelling units or nonresidential floor area in the environmentally sensitive areas, and
3. Any permitted development or infrastructure improvement on the unincorporated portion of the barrier islands, the Velocity Zone or the Coastal High Hazard Area in Miami-Dade County.

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<sup>2</sup> Note: Figure numbers may change should Application No. 12 of the April 2007 CDMP Amendment Cycle is approved.





## B. Revisions to the Coastal Management Element

Revise page VII-2 in the Introduction of the Coastal Management Element, as follows:

In 2003 new evacuation zones were approved to better communicate with the public the need for evacuation. These zones, labeled A, B, and C, are not storm category dependent. Each storm's dynamics are modeled to predict potential impacts based on the Sea, Lake and Overland Surge from Hurricanes (SLOSH) II computer model. The SLOSH II model was developed by the storm surge group at the National Hurricane Center working with the U.S. Army Corps of Engineers, the U.S. Geological Survey and the Federal Emergency Management Agency, in cooperation with state and local offices of emergency management. The data from this model supersedes the previously used SLOSH model. Orders for evacuations are based on the storm's track, projected storm surge, potential impacts and consultation with knowledgeable agencies. These three evacuation zones - Zone A ~~(the CHHA)~~, Zone B ~~(the HVZ)~~, and Zone C ~~(related to the most severe storms)~~ - as delineated by the Miami-Dade County Office of Emergency Management (OEM) are presented for information purposes on Figure 1. Storm risk data and ~~these~~ the evacuation boundaries are continually reevaluated by OEM and may be changed by OEM whenever deemed appropriate for emergency management purposes.

Following the devastating hurricane seasons of 2004 and 2005, the Florida Legislature amended the Coastal Management section of Chapter 163, Florida Statutes. The new legislation re-defined coastal high hazard areas (CHHA) as areas that are below the elevation of a category one storm surge line and mandated local governments to depict the CHHA in their future land use maps. In compliance, Miami-Dade County has modified the CDMP to reflect the CHHA as determined by the most current SLOSH model available to the County.

The Coastal Management Element *Adopted Components* include the overall Element goal, objectives and policies, and concludes with a monitoring program for the Element. The objectives and policies have been organized to distinguish between pre-storm planning and activities and post-storm implementation of plans and activities.

~~The 1988 Support Components report has been replaced in large measure by State mandated Evaluation and Appraisal Reports (EAR) prepared in 1995 and 2003. The 1988 Support Components and the updated materials contained in the 1995 and 2003 Coastal Management Element EARs address natural coastal systems, the built environment, and natural disaster planning. Information pertaining to the Port of Miami subelement has been relocated to the Transportation Element.~~

**On page VII-15-16, revise Policy CM-9A to discourage development in the CHHA and add Hurricane Evacuation Zone A and B as areas where development and redevelopment activities need to be limited, as follows:**

CM-9A Development and redevelopment activities in the Coastal High Hazard Area (CHHA), Hurricane Evacuation Zone A, and the Hurricane Vulnerability Zone<sup>3</sup> (HVZ Hurricane Zone B) shall be limited to those land uses that have acceptable risks to life and property. The basis for determining permitted activities shall include federal, State, and local laws, the pre-disaster study and analysis of the acceptability of various land uses reported in the County's Comprehensive Emergency Management Plan required by Policy CM-10A, when approved, and the following guidelines:

- i) Discourage development on the CHHA, including the barrier islands and shoreline areas susceptible to destructive storm surge;
- ii) Direct new development and redevelopment to high ground along the Atlantic Coastal Ridge and inland environmentally suitable lands;
- iii) Maintain, or reduce where possible, densities and intensities of new urban development and redevelopment within the CHHA Hurricane Evacuation Zone A to that of surrounding existing development and zoning. All new residential units in the CHHA Hurricane Evacuation Zone A, whether year round or seasonal, shall be counted in density and intensity unless certified by recorded covenant that the units will not be occupied during hurricane season;
- iv) Prohibit construction of new mobile home parks and critical facilities in the CHHA Hurricane Evacuation Zone A;
- v) Prohibit Land Use Plan map amendments or rezoning actions that would increase allowable residential density in the FEMA "V" Zone, the CHHA or on land seaward of the Coastal Construction Control Line (CCCL) established pursuant to Chapter 161, F.S; and,
- vi) Continue to closely monitor new development and redevelopment in areas subject to coastal flooding to implement requirements of the federal flood insurance program

**Revise Policy CM-10D on page VI-18, as follows:**

CM-10D Applications for comprehensive plan amendments, rezoning, zoning variances or subdivision approvals for all new development in areas subject to coastal flooding shall be reviewed for emergency evacuation, sheltering, hazard mitigation, and post-disaster recovery and redevelopment.

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<sup>3</sup> According to 9-J5.003, F.A.C., Hurricane Vulnerability Zones are defined as areas delineated in the regional or local evacuation plan as requiring evacuation. In Miami-Dade County, the Hurricane Vulnerability Zones are considered Hurricane Evacuation Zones A and B.

**Revise policy CM-10F on page VII-18, as follows:**

CM-10F. The Coastal High Hazard Area (CHHA) and Hurricane Vulnerability Zone (HVZ) boundaries shall be delineated on-maps for the unincorporated areas as public information maintained by Miami-Dade County. The CHHA shall be identified using the Sea, Lake, Overland Surges from Hurricanes (SLOSH) model and shall be depicted as one of the maps in the Future Land Use Map series. The CHHA and HVZ shall also be delineated on Geographic Information Systems (GIS) and other forms of mapping will be used for the purpose of public information and government planning, administration, emergency management, zoning, and location of public facilities and services in the unincorporated areas of Miami-Dade County. This mapping shall be maintained by the Department of Planning and Zoning, the Office of Emergency Management, and other appropriate departments and updated as needed. The SLOSH model shall be used to identify the Coastal High Hazard Areas. The Office of Emergency Management shall manage and update the SLOSH model and hurricane evacuation studies for Miami-Dade County and shall work with the South Florida Regional Planning Council to ensure that such maps and studies are done in a consistent manner, and that the methodology used for modeling storm surge is that used by the National Hurricane Center.

**Revise the 2003 Hurricane Evacuation Zone map (Figure 1) on page VII-3 of the Coastal Management Element to depict areas vulnerable to flooding and storm surge events and change the date on the map to 2007. (See the following page.)**



## C. Revisions to the Capital Improvements Element

Revise Policy CIE-2C on page IX-3, as follows:

CIE-2C. ~~The definition of the coastal high hazard areas is as follows: The Coastal High Hazard Area (CHHA) is that area designated as the Hurricane Evacuation Category 1 boundary. Miami-Dade County defines Hurricane Evacuation Category 1 as the Barrier Islands. The Coastal High Hazard Area (CHHA) is defined as areas below the elevation of the category 1 storm surge line, as established by a Sea, Lake and Overland Surges from Hurricanes (SLOSH) computerized storm surge model.~~

### 4. REASON FOR CHANGE

In 2006, the Florida Legislature amended 163.3178, F.S. relating to Coastal Management. The Bill requires coastal governments to adopt a new definition of coastal high hazard areas and depict the coastal high-hazard area on the future land use map by July 1, 2008. As explained previously, the new definition considers the areas below a category 1 storm surge line as the CHHA and requires the use of the Sea, Lake and Overland Surges from Hurricanes (SLOSH) model to identify areas likely to be affected by the storm surge.

The legislation also calls for local governments to work with Florida's Regional Planning Councils in the development of a Statewide Regional Evacuation Study Program. The intent is to develop consistent regional evacuation studies that will inform statewide programs and planning. This includes an updated SLOSH model utilizing the most current demographic, land use, evacuation and LIDAR (Light Detection and Ranging) data available. Coastal governments are to use the new SLOSH in identifying their coastal high hazard area. Completion of the South Florida SLOSH model is due in the summer of 2008.

Since the SLOSH model from the Statewide Regional Evacuation Study Program will not be available prior to the July 1, 2008 mandated deadline regarding CHHA policies, Miami-Dade County has revised the maps in Land Use Element map series and the Coastal Management Element to reflect the CHHA as determined by the most current SLOSH model provided by the National Hurricane Center. The maps and the corresponding policies will be amended accordingly upon completion of the Statewide Regional Evacuation Study Program.

### 5. ADDITIONAL MATERIAL SUBMITTED

None

## RECOMMENDATIONS AND ANALYSIS

### RECOMMENDATIONS

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|--|--|
| Staff:   | <b>ADOPT AND TRANSMIT</b> (August 25, 2007)  |
| Community Councils:  | <b>NOT APPLICABLE</b>                        |
| Planning Advisory Board (PAB) acting as Local Planning Agency: | <b>ADOPT AND TRANSMIT</b> (October 15, 2007) |
| Board of County Commissioners:                                 | <b>TO BE DETERMINED</b> (November, 2007)     |
| Final Recommendation of PAB acting as Local Planning Agency:   | <b>TO BE DETERMINED</b>                      |
| Final Action of Board of County Commissioners:                 | <b>TO BE DETERMINED</b>                      |

### STAFF ANALYSIS

Staff recommends: **ADOPT AND TRANSMIT** the proposed amendments based on the Staff Analysis summarized below:

1. Chapter 163.3178, F.S. relating to Coastal Management, as amended in 2006, requires all coastal governments to adopt a new definition for coastal high hazard areas (CHHA) and to depict the CHHA on the future land use map by July 1, 2008. The CHAA is defined as the area below a category 1 storm surge line, as established by a Sea, Lake and Overland Surges from Hurricanes (SLOSH) computerized storm surge model.
2. The intent of the legislative changes was for coastal governments to utilize the SLOSH model developed from the Statewide Regional Evacuation Study Program. The new model will use updated data and technology which will provide greater accuracy in forecasting. However, the SLOSH model for the South Florida region will not be available until the summer of 2008. To comply with the legislative mandated deadline of July 1, 2008, Miami-Dade County has utilized the most current SLOSH model provided by the National Hurricane Center to develop the maps in the proposed amendments. Upon completion of the Statewide Regional Evacuation Study Program and the new SLOSH model, Miami-Dade County will update the maps and corresponding policies in its Comprehensive Development Master Plan (CDMP) and submit a new amendment with new data and analysis.

3. The computerized model known as the Sea, Lake and Overland Surges from Hurricanes (SLOSH) is utilized to estimate storm surge heights and winds resulting from historical, hypothetical, or predicted hurricanes. The model takes into account pressure, size, forward speed, track and winds. The map of the model generally displays color-coded storm surge heights in feet above the National Geodetic Vertical Datum (NGVD), which in this case refers to the mean sea level. However, the current SLOSH model has its limitations. The model does not account for flooding caused by rainfall, wind-driven waves, land elevation or geographic contours or barriers. This is important in Miami-Dade County since the Atlantic Coastal Ridge, the barrier islands and the Continental Shelf serve as natural barriers that protect much of the County from a potential storm surge. The new SLOSH model, which will not be available until sometime in 2008, would address some of these issues, but this technology is not yet available.
4. The new CHHA for Miami-Dade County was identified utilizing the SLOSH model for a Maximum of Maximum (MOM) Category 1 storm, assuming a storm tide at high tide. The MOM is defined as the maximum surge expected to occur at any given location, regardless of the storm track or direction of hurricane. This hypothetical storm has a zero probability of ever occurring; however, the value of utilizing the MOM is that it identifies all the areas in Miami-Dade County that are likely to experience a storm surge. According to the Miami-Dade County Office of Emergency Management, the most probable storm that can strike Miami-Dade County is a Category 1 storm with a northwest track at a speed of 15 miles per hour. The historical return intervals for hurricanes within 75 miles of Miami-Dade County are as follows:
  - Category 1: 4 to 6 years
  - Category 2: 6 to 12 years
  - Category 3: 9 to 22 years
  - Category 4: 16 to 33 years
  - Category 5: 33 to 100 years
5. As shown on the map amendments, the portion of the CHHA that falls within unincorporated Miami-Dade County includes Haulover Beach, a section of Fisher Island, and the unincorporated sections of Key Biscayne and Virginia Key, as well as the coastal lands to the east and south of the Town of Cutler Bay, including Biscayne National Park. These areas are primarily designated on the Land Use Plan map as “environmentally protected parks,” “parks and recreation,” and “environmental protection.” Miami-Dade County has adopted strict policies prohibiting development in these areas and has acquired over 2,574 acres of coastal property since 1995 to discourage development and conserve these environmentally sensitive lands. The remaining areas of the CHHA are located within municipalities. As per Chapter 163.3178, F.S., each municipality will be required to adopt the new legislation regarding coastal high hazard areas. Miami-Dade County will collaborate with these coastal municipalities to assure consistency in policies.

6. Currently the CDMP identifies policies relating to areas of the County where development should not be promoted due to flooding from storm surge and frequent evacuations. These areas were identified under the former definition of the CHHA, as areas being impacted by a Category 1 hurricane. Since the new CHHA only depicts the areas that are most likely to be affected by a storm surge, the proposed amendments call for the former CHHA reference to be removed from some policies in the CDMP. This reference has been replaced with Hurricane Evacuation Zones A. This measure assures that policies limiting development and redevelopment activity apply to all areas vulnerable to hurricanes and not just those that have a potential of being affected by storm surge from a Category 1 storm.
7. The CHHA definition does not coincide with the Federal Emergency Management Agency (FEMA) "V" or "VE" Zones that are identified on the flood insurance maps, nor with the "Hurricane Vulnerability Zones". The FEMA V and VE Zones are based on insurance ratings, which were created for flood protection from high velocity water. The VE zone differs from the V zone by the availability of a base building elevation. These zones are located along the County's coastline and are not limited to the barrier islands. The Hurricane Vulnerability Zone, as defined by 9J-5.003, F.A.C., refers to the areas delineated by the local hurricane evacuation plan as requiring evacuation, including areas requiring evacuation for a 100-year storm or a Category 3 storm event. Given the terrain in Miami-Dade County, it appears that the CHHA, the Hurricane Vulnerability Zone, and the FEMA flood insurance maps are necessary to identify the areas that are likely to be affected during hurricane conditions by storm surge, wind-driven waves, or 100-year rain storm.
8. Miami-Dade County has one of the most advanced evacuation and shelter programs in the nation. Unlike other areas, the County's evacuation zones are not dependent on storm categories. Evacuation orders are based on a storm's track, projected storm surge, potential impacts and consultation with knowledgeable agencies. The evacuation areas were identified by taking into account the various types of storms that can occur, hurricane vulnerability, ease of evacuation, and the ability to provide essential services after a storm. These areas were divided into Zones A, B, and C accordingly. This system has given the County flexibility in being able to react to the specific evacuation needs created by different storms. In addition to the evacuation zones, Miami-Dade County has an extensive shelter program. According to the Miami-Dade Office of Emergency Management, Miami-Dade is the only county in the State of Florida with a shelter surplus. This is due to policies that require all public schools to serve as shelters and rigorous preparedness and mitigation measures. The new legislative requirements of 2006 will only serve to strengthen the existing County regulations and policies in the CDMP.
9. The figure numbers, as identified in this Application, could undergo further revision. If Application No. 12 is adopted, the two figures proposed for updating in this Application will be renumbered since that application adds a new Figure 4 (Environmentally Protected Parks) and renumbers Figures 3A to 15 as Figures 5 to 17. As such, the current Figure 10 (Floodplains) and Figure 11 (Areas Subject to

Coastal Flooding) of this Application will be renumbered to Figure 12 and Figure 13, respectively.