TOWN OF JUPITER

June 22, 2015

Mr. Ray Eubanks
State Land Planning Agency
Florida Department of Economic Opportunity
Caldwell Building
107 East Madison – MSC 160
Tallahassee, Florida 32399

RE: Adopted Amendment to the Town of Jupiter's Comprehensive Plan - Round 2015-05

Dear Mr. Eubanks:

Attached please find:

- One (1) paper copy;
- Two (2) copies on a CD-ROM in a Portable Document Format (PDF) of one (1) Conservation Element and Coastal Management Element Text (CPTX) amendment

Pursuant to Section 163.3184(3)(a), Florida Statutes, the Town of Jupiter is transmitting copies of the adopted amendment to the Treasure Coast Regional Planning Council (TCRPC), the South Florida Water Management District (SFWMD), the Florida Department of Environmental Protection (FDEP), the Florida Department of Transportation (FDOT), Palm Beach County Division of Planning and the Florida Department of State (FDOS). The Town's 2015-05 round of Comprehensive Plan amendments is subject to the expedited state review process, pursuant to Section 163.3184(3), Florida Statutes.

The Jupiter Town Council held a public hearing on the Conservation Element and Coastal Management Element Comprehensive Plan text amendment on June 16, 2015, at which time the proposed text amendment was adopted without any changes.

A brief description of the amendment is as follows:

<u>Comprehensive Plan Amendment – Conservation Element and Coastal Management Element Text (Ordinance #3-15)</u> –

- To amend Conservation and Coastal Management Element policies pertaining to regulations for bulkheads and seawalls along shorelines;
- To create a new Coastal Management Element objective and implementing policies pertaining to the adoption and implementation of strategies to protect property and infrastructure from the impacts of climate change; and
- To amend Conservation Element policies pertaining to green design regulations.

The local contact person for information on the amendment is as follows:

David M. Kemp, AICP
Principal Planner
Department of Planning and Zoning

210 Military Trail • Jupiter, Florida 33458 • www.jupiter.fl.us
Phone (561) 741-2323 • Fax (561) 744-3116

Town of Jupiter
210 Military Trail
Jupiter, Florida 33458
(561) 741- 2452 (phone)
(561) 744-3116 (Fax)
davidk@jupiter.fl.us

If you have any further comments or questions, please feel free to contact David Kemp at your earliest convenience.

Sincerely,

John Sickler

John R. Sickler, AICP
Director of Planning and Zoning
Town of Jupiter

Cc: Stephanie A. Thoburn, Assistant Director of Planning and Zoning (via e-mail)
(w/o Attachments)

Attachments:

Transmittal Letter to Michael J. Busha, TCRPC
Transmittal Letter to Gerry O'Reilly, FDOT
Transmittal Letter to Terry Manning, SFWMD
Transmittal Letter to Lorenzo Aghemo, Palm Beach County
Transmittal Letter to Chris Stahl, FDEP
Transmittal Letter to Deena Woodward, FDOS
2015-05 Town Comprehensive Plan Amendment

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TOWN OF JUPITER

June 22, 2015

Mr. Michael J. Busha, AICP
Executive Director
Treasure Coast Regional Planning Council
421 S.W. Camden Avenue
Stuart, FL 34994

RE: Adopted Amendment to the Town of Jupiter's Comprehensive Plan - Round 2015-05

Dear Mr. Busha:

Attached please find:

- One (1) copy on a CD-ROM in a Portable Document Format (PDF) of one (1) Conservation Element and Coastal Management Element Text (CPTX) amendment

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Director of Planning and Zoning
Town of Jupiter

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(w/o Attachments)

Attachments:
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TOWN OF JUPITER

June 22, 2015

Mr. Gerry O'Reilly, Director of Production and Planning
Florida Department of Transportation, District Four
3400 West Commercial Boulevard
Fort Lauderdale, Florida 33309

RE: Adopted Amendment to the Town of Jupiter's Comprehensive Plan - Round 2015-05

Dear Mr. O'Reilly:

Attached please find:

- One (1) copy on a CD-ROM in a Portable Document Format (PDF) of one (1) Conservation Element and Coastal Management Element Text (CPTX) amendment

Pursuant to Section 163.3184(3)(a), Florida Statutes, the Town of Jupiter is transmitting copies of the adopted amendment to the Treasure Coast Regional Planning Council (TCRPC), the Florida Department of Environmental Protection (FDEP), the South Florida Water Management District (SFWMD), Palm Beach County Division of Planning and the Florida Department of State (FDOS). The Town's 2015-05 round of Comprehensive Plan amendments is subject to the expedited state review process, pursuant to Section 163.3184(3), Florida Statutes.

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Town of Jupiter
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Sincerely,

John Sickler

John R. Sickler, AICP
Director of Planning and Zoning
Town of Jupiter

Cc: Stephanie A. Thoburn, Assistant Director of Planning and Zoning (via e-mail)
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TOWN OF JUPITER

June 22, 2015

Terry Manning, AICP
Senior Planner
Intergovernmental Coordination Section
South Florida Water Management District
3301 Gun Club Road, MSG 2640
West Palm Beach, Florida 33406

RE: Adopted Amendment to the Town of Jupiter's Comprehensive Plan - Round 2015-05

Dear Ms. Manning:

Attached please find:

- One (1) copy on a CD-ROM in a Portable Document Format (PDF) of one (1) Conservation Element and Coastal Management Element Text (CPTX) amendment

Pursuant to Section 163.3184(3)(a), Florida Statutes, the Town of Jupiter is transmitting copies of the adopted amendment to the Treasure Coast Regional Planning Council (TCRPC), the Florida Department of Transportation (FDOT), the Florida Department of Environmental Protection (FDEP), Palm Beach County Division of Planning and the Florida Department of State (FDOS). The Town's 2015-05 round of Comprehensive Plan amendments is subject to the expedited state review process, pursuant to Section 163.3184(3), Florida Statutes.

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Principal Planner
Department of Planning and Zoning

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davidk@jupiter.fl.us

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Sincerely,

John Sickler

John R. Sickler, AICP
Director of Planning and Zoning
Town of Jupiter

Cc: Stephanie A. Thoburn, Assistant Director of Planning and Zoning (via e-mail)
(w/o Attachments)

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TOWN OF JUPITER

June 22, 2015

Mr. Lorenzo Aghemo
Division of Planning
Palm Beach County
2300 N. Jog Road
West Palm Beach, Florida 33411

RE: Adopted Amendment to the Town of Jupiter's Comprehensive Plan - Round 2015-05

Dear Mr. Aghemo:

Attached please find:

- One (1) copy on a CD-ROM in a Portable Document Format (PDF) of one (1) Conservation Element and Coastal Management Element Text (CPTX) amendment

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Department of Planning and Zoning
Town of Jupiter

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Sincerely,

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Director of Planning and Zoning
Town of Jupiter

Cc: Stephanie A. Thoburn, Assistant Director of Planning and Zoning (via e-mail)
(w/o Attachments)

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TOWN OF JUPITER

June 22, 2015

Florida Department of Environmental Protection
Office of Intergovernmental Programs
Att: Mr. Chris Stahl
3900 Commonwealth Boulevard, Mail Station 47
Tallahassee, Florida 32399-3000

RE: Adopted Amendment to the Town of Jupiter's Comprehensive Plan - Round 2015-05

Dear Mr. Stahl:

Attached please find:

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Director of Planning and Zoning
Town of Jupiter

Cc: Stephanie A. Thoburn, Assistant Director of Planning and Zoning (via e-mail)
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TOWN OF JUPITER

June 22, 2015

Ms. Deena Woodward
Historic Preservation Planner
Bureau of Historic Preservation
Department of State
500 South Bronough Street
Tallahassee, Florida 32399-0250

RE: Adopted Amendment to the Town of Jupiter's Comprehensive Plan - Round 2015-05

Dear Ms. Woodward:

Attached please find:

- One (1) copy on a CD-ROM in a Portable Document Format (PDF) of one (1) Conservation Element and Coastal Management Element Text (CPTX) amendment

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Sincerely,

John Sickler

John R. Sickler, AICP
Director of Planning and Zoning
Town of Jupiter

Cc: Stephanie A. Thoburn, Assistant Director of Planning and Zoning (via e-mail)
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ORDINANCE NO. 3-15

AN ORDINANCE OF THE TOWN COUNCIL OF THE TOWN OF JUPITER, FLORIDA, AMENDING ORDINANCE NO. 57-89, THE COMPREHENSIVE PLAN OF THE TOWN OF JUPITER; PROVIDING FOR THE AMENDMENT OF POLICIES 1.4.10-1.4.12 OF THE CONSERVATION ELEMENT AND POLICIES 1.5.3, 1.5.5 AND 1.5.13 OF THE COASTAL MANAGEMENT ELEMENT PERTAINING TO BULKHEADS AND SEAWALLS ALONG SHORELINES; PROVIDING FOR THE AMENDMENT OF THE COASTAL MANAGEMENT ELEMENT TO ADOPT NEW OBJECTIVE 2.6 AND POLICIES 2.6.1 THROUGH 2.6.7 PERTAINING TO THE EFFECTS OF CLIMATE CHANGE; PROVIDING FOR THE AMENDMENT OF POLICIES 1.10.1 AND 1.10.2 OF THE CONSERVATION ELEMENT PERTAINING TO GREEN LOCAL GOVERNMENT INITIATIVES; PROVIDING FOR THE REPEAL OF LAWS IN CONFLICT; AND PROVIDING FOR AN EFFECTIVE DATE.

WHEREAS, the Town Council of the Town of Jupiter, Florida (Town), has adopted a Comprehensive Plan pursuant to Chapter 163, Part II, Florida Statutes, previously entitled the "Local Government Comprehensive Planning and Land Development Regulation Act" and now known as the Growth Policy Act (the Act); and,

WHEREAS, the former Florida Department of Community Affairs, now known as the Department of Economic Opportunity, has previously determined that the Town's Comprehensive Plan was "in compliance" with the Act; and,

WHEREAS, pursuant to the Act, the Jupiter Planning and Zoning Commission, sitting as the Local Planning Agency (the LPA) has conducted a public hearing, as required by Section 163.3174(4)(a), Florida Statutes, and has recommended the amendments to the text of Policies 1.4.10-1.4.12 of the Conservation Element and 1.5.3, 1.5.5 and 1.5.13 of the Coastal Management Element pertaining to bulkheads and seawalls along shorelines, Policies 1.10.1 and 1.10.2 of the Conservation Element pertaining to green local government initiatives, and the addition of new Objective 2.6 and Policies 2.6.1 through 2.6.7 of the Coastal Management Element to address the effects of climate change (collectively known as "the Amendments"); and,

WHEREAS, the Council agrees with the LPA's recommendation to adopt the Amendments, as shown in the attached Exhibit "A"; and,

WHEREAS, The Town Council has determined that the adoption of the Amendments would be in compliance with the Act; and,

WHEREAS, pursuant to Section 163.3184(11), Florida Statutes, the Town Council has conducted a public hearing, and after considering public comments on the Amendments voted to transmit the Amendments to the Florida Department of Economic Opportunity, appropriate reviewing agencies, and any other local government or governmental agency that has made a written request of the Town pertaining to the Amendments;

WHEREAS, the Florida Department of Economic Opportunity and appropriate reviewing agencies have reviewed the proposed Amendments for consistency with the Act and sent any comments to the Town pursuant to Section 163.3184(3)(b)2. through 4., Florida Statues.

NOW THEREFORE, BE IT ORDAINED BY THE TOWN COUNCIL OF THE TOWN OF JUPITER, FLORIDA:

Section 1. The whereas clauses are incorporated herein as the legislative findings of the Town Council.

Section 2. Ordinance No. 57-89 of the Town of Jupiter**,** entitled "Comprehensive Plan of the Town of Jupiter," is hereby amended to reflect the amendment of the text of Policies 1.4.11, 1.10.1 and 1.10.2 of the Conservation Element and Policy 1.5.3 of the Coastal Management Element and the addition of new Objective 2.6 and implementing Policies 2.6.1 through 2.6.7 to the Coastal Management Element as shown in Exhibit “A”, which is attached hereto and incorporated herein.

Section 3. The Town Clerk is hereby directed to transmit the required copies of the Amendments to the Department of Economic Opportunity and all other local governments or governmental agencies as may be required pursuant to Section 163.3184(3)(c)2., Florida Statutes.

Section 4. Severability. If any section, paragraph, sentence, clause, phrase or word of this Ordinance is for any reason held by a court to be unconstitutional, inoperative or void, such holding shall not affect the remainder of this Ordinance.

Section 5. Repeal of Laws in Conflict. All ordinances or part of ordinances in conflict herewith are hereby repealed to the extent of such conflict.

Section 6. Effective Date. The provisions of this Ordinance shall become effective pursuant to Section 163.3184(3)(c)4., Florida Statutes

Attachment: Exhibit "A" - Text amendment to the Comprehensive Plan

EXHIBIT A of Ordinance #3-15

Town of Jupiter Comprehensive Plan

2015-05 Amendment (Text)

June 16, 2015

Location: Conservation Element

Goals, Objectives and Policies

Surface Water Resources

Objective 1.4: The quality of the Town's surface water shall be maintained at appropriate levels as determined by the Department of Environmental Protection using DEP established criteria for water quality classifications as reported in Chapter 17-3 F.A.C.

Policy 1.4.1 The Town‘s stormwater management practices shall be directed by the Stormwater Management Plan.

Policy 1.4.2 The Town shall require new development to preserve permanent open space buffer zones of natural vegetation along waterways and within the floodplain.

Policy 1.4.3 The Town shall maintain and periodically update its Stormwater Management Plan.

Policy 1.4.4 The Town will maintain active membership on the Loxahatchee River Management Committee, and the Treasure Coast Regional Planning Council.

Policy 1.4.5 The Town supports the Loxahatchee River Management Plan.

Policy 1.4.6 Runoff from streets and yards should be carefully controlled to prevent flooding in adjacent areas or pollution of water bodies. Catchment basins should be constructed at storm sewer outfalls to prevent silt and other pollutants from entering water areas. French drains, properly engineered, will be considered an acceptable stormwater runoff drainage practice. The Town will continue its program of upgrading the drainage systems of each basin, and will give priority to those areas with the most severe problem.

Policy 1.4.7 Commercial shoreline development should be restricted to those activities that require a waterfront location.

Policy 1.4.8 Parking facilities should be located away from the bodies of water and their runoff controlled.

Policy 1.4.9 The Town shall require unique environmental characteristics be incorporated into the overall site design.

~~Policy 1.4.10 Bulkheads and seawalls should be discouraged. They should be allowed only in situations where they are replacing an already existing structure that is need of repair. Alternative shoreline stabilization techniques are preferred and encouraged in all instances.~~

Policy 1.4.10 Coastal bulkheads should only be allowed when an environment for native vegetation is provided waterward of the bulkhead for at least 50 percent of the shoreline. Existing coastal bulkheads in need of repair may be replaced.

Policy 1.4.11 Coastal ~~B~~bulkheads should be located at, or landward of, coastal wetlands and their ecotones.

Policy 1.4.12 Sloping revetments, riprap, native vegetation including but not limited to mangroves, ~~and~~ or interlocking blocks or some combination of the foregoing~~,~~ ~~instead of vertical seawalls~~, ~~should~~ shall

be used in high energy areas to more effectively dissipate wave forces, boat waves and reduce the effects of bottom scouring.

Policy 1.4.13 Land development activities that are feasible only through dredging and filling of submerged and wetland areas shall be prohibited unless permitted by the appropriate federal or state agency or has been properly mitigated as determined by an appropriate federal or state agency.

Policy 1.4.14 Buffer zones of vegetation should be established between any area of urban development and adjacent waterways.

Policy 1.4.15 Waterway connections to open water should be located to minimize adverse environmental impact. Avoid connections that disrupt wetlands, marine grasses and shellfish beds.

Policy 1.4.16 Approved upland waterway construction should be done in the dry, if possible, so that shaping and stabilization of the banks can be completed before the "plug" is removed for connection to open waters.

Policy 1.4.17 New artificial waterways are discouraged.

Policy 1.4.18 Dredging for navigational access or flood control should be planned to prevent unnecessary channels. In areas having shallow water shorelines, peripheral canals on the upland, leading to a central navigational channel, should be considered rather than separate access channels for each waterfront landowner.

Policy 1.4.19 All dredging spoil material should only be placed on suitable upland areas. Where feasible, sandy spoil should be used for dune construction and restoration projects.

Policy 1.4.20 Effective turbidity control mechanisms and procedures should be used to protect water quality in areas adjacent to construction activities.

Policy 1.4.21 Docks and piers should not obstruct navigation or public use of waters, and they should be constructed in a manner that does not restrict water flow, nor block views to the water.

Green Design

Objective 1.10 To encourage and promote effective green design theories and techniques for new development, redevelopment and infill projects including sustainable site development, water efficiency, energy efficiency, sustainable material selections and improved indoor environmental quality.

Policy 1.10.1 ~~By July 2009, t~~The Town shall ~~adopt~~ maintain and amend as necessary land development regulations to promote and ~~provide incentives that~~ support green design theories and techniques, and which provide incentives for same.

Policy 1.10.2 By December 2019, t~~T~~he Town will strive to ~~become a registered~~ upgrade its current Florida Green Building Coalition "Florida Green Local Government Silver Certification" to a Gold Certification.

Location: Coastal Management Element

Goals, Objectives and Policies

Preservation of Marine Natural Systems Objective and Policies

Objective 1.5: The Town shall maintain the adopted strategies to protect and preserve the functions and values of marine natural systems. The land development regulations shall continue to provide for the protection of natural resources and include at a minimum:

Policy 1.5.1 The Town adopts the objectives and policies and supports the implementation of the Loxahatchee Wild and Scenic River Management Plan.

Policy 1.5.2 The Town adopts the objectives and policies and supports the implementation of the Loxahatchee River Aquatic Preserve Management Plan.

Policy 1.5.3 Sloping revetments and interlocking blocks shall be used in high energy areas to more effectively dissipate wave forces, boat wakes and reduce the effects of bottom scouring. New coastal bulkheads ~~and seawalls~~ shall only be used to protect existing development and shall be located at, or landward of, coastal wetlands and their ecotones.

Policy 1.5.4 Land development activities that are feasible only through dredging and filling of submerged and wetland areas should be discouraged.

Policy 1.5.5 Buffer zones of vegetation and/or riprap, to provide for an environment for native vegetation, should be established between any area of urban development and adjacent waterways. The~~is~~ native vegetation should consist of coastal plants such as mangroves, salt wart or sea ox-eye daisy and other coastal plants identified in Section 62-340.450, Florida Administrative Code ~~of native vegetation adapted to natural conditions~~.

Policy 1.5.6 A buffer zone of native upland edge (i.e., transitional) vegetation shall be provided and maintained around wetland and deepwater habitats which are constructed or preserved on new development sites. The buffer zone may consist of preserved or planted vegetation, but shall include canopy, understory and ground cover of native species only. The edge habitat shall begin at the upland limit of any wetland or deepwater habitat. As a minimum, ten square feet of such buffer shall be provided for each linear foot of wetland or deepwater habitat perimeter that lies adjacent to uplands. This upland edge habitat shall be located such that no less than 50 percent of the total shoreline is buffered by a minimum width of ten feet of upland habitat. In the U. S. Highway One/Intracoastal Waterway Corridor, where land dedication for the Riverwalk Corridor has occurred, this requirement may be waived by the Town Council. The upland buffer requirement does not apply to those created deepwater habitats (e.g., stormwater management ponds) less than one-half acre in size nor to drainage canals or stormwater conveyance requiring periodic maintenance.

Policy 1.5.7 Approved upland waterway construction should be done in the dry, if possible, so that shaping and stabilization of the banks can be completed before the "plug" is removed for connection to open waters.

Policy 1.5.8 Dredging for navigational access or flood control should be planned to prevent unnecessary channels. In areas having shallow water shorelines, peripheral canals on the upland, leading to a central navigational channel, should be considered rather than separate access channels for each waterfront landowner.

Policy 1.5.9 All dredging spoil material shall only be placed on suitable upland. Where feasible, sandy spoil should be used for dune construction and restoration projects.

Policy 1.5.10 Docks and piers should not obstruct navigation or public use of waters, and they should be constructed in a manner that does not restrict water flow, nor block views to the water.

Policy 1.5.11 The Town shall coordinate review of estuarine shoreline development with appropriate federal, state, regional and local agencies to prevent irreparable or irretrievable loss of natural coastal resources. Intergovernmental coordination shall also provide cost effective utilization of experts in marine biology, coastal engineering, and soil conservation. To this end, as appropriate, the Town shall coordinate with public agencies, including the U.S. Department of Interior, U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, National Oceanic and Atmospheric Administration, U.S. Soil Conservation Service, the Florida Department of Environmental Protection, the Florida Game and Freshwater Fish Commission, the South Florida Water Management District, the Treasure Coast Regional Planning Agency, and potentially impacted local governments.

Policy 1.5.12 The Town shall make environmental education and management an integral part of park and recreation policies and programs. In addition, the Department of Planning and Zoning shall provide general information assistance and referral services to citizens interested in the impacts of Jupiter's physical development on natural resources and resource conservation.

Policy 1.5.13 The Town shall continue to coordinate with the Florida Department of Environmental Protection ~~to seek assistance in the development and adoption of a~~ related to any anticipated changes to the Town's mangrove protection regulations contained in Chapter 26 of the Town Code ~~ordinance~~.

Policy 1.5.14 No development will be approved in flood hazard areas and floodways, that is, on land immediately adjacent to major drainage and receiving streams, rivers or low areas which are known to be subject to flooding or rushing water and which therefore, create a hazard to life and property. Rather, the Town will encourage that these lands be reserved for conservation, open space, and recreation.

Policy 1.5.15 The Town shall prevent and regulate the construction of flood barriers which will unnaturally divert flood hazards to other lands.

Climate Change Objective and Policies

Objective 2.6 The Town shall adopt and implement strategies which increase community resiliency and protect property, infrastructure, and cultural and natural resources from the impacts of climate change, including sea level rise, changes in rainfall patterns, and extreme weather events.

Policy 2.6.1 The Town shall continue its participation in the Southeast Florida Regional Climate Change Initiative.

Policy 2.6.2 The Town shall collaborate with Palm Beach County to increase regional resilience by sharing technical expertise, participating in annual summits, assessing local vulnerabilities, advancing agreed upon mitigation and adaptation strategies, and developing joint state and federal legislation policies and programs.

Policy 2.6.3 The Town shall coordinate with Palm Beach County, other local governments, and other federal, state and regional agencies and private property owners to develop initiatives and goals to address climate change.

Policy 2.6.4 By December 2018, the Town shall investigate the feasibility of integrating consideration of climate change impacts, and adaptation and mitigation strategies, into existing Comprehensive Plan goals, objectives and policies and land development regulations.

Policy 2.6.5 By December 2018, the Town shall investigate the feasibility of the use of Adaptation Action Areas as provided by Section 163.3177(6)(g)(10), Florida Statutes, to identify areas vulnerable to coastal storm surge and sea level rise impacts.

Policy 2.6.6 By December 2018, the Town shall investigate the need to develop Comprehensive Plan policies for any identified Adaption Action Areas to enhance the funding of infrastructure adaption projects.

Policy 2.6.7 The Town shall continue to promote the use of mitigation strategies to increase energy efficiency and conservation, and to reduce greenhouse gas emissions. The mitigation strategies may include, but are not limited to, the adoption of Comprehensive Plan policies or land development regulations pertaining to land use and transportation strategies such as requiring compact residential development, incentives for mixed use and redevelopment projects that maximize internal trip capture, clustering residential densities along transit routes, improving access to transit and non-motorized movement, requiring interconnectivity among adjoining parcels of land, and incentives for green building methods.

V:\PlanningZoning\Staff\WP51\COMPPLAN\Amendments\2015-05 Conservation Element - Seawalls\06-16-15 TC Adoption Hearing\EXHIBIT A of Ordinance 3-15.docx June 4, 2015

Upon First Reading this 7th day of April, 2015, the foregoing Ordinance was offered by Councilor Todd Wodraska, who moved its adoption. The motion was seconded by Councilor Wendy Harrison, and upon being put to a roll call vote, the vote was as follows:

	AYE	NAY
MAYOR KAREN J. GOLONKA	X	
VICE-MAYOR ILAN KAUFER	X	
COUNCILOR WENDY HARRISON	X	
COUNCILOR JIM KURETSKI	X	
COUNCILOR TODD R. WODRASKA	X	

Upon Second Reading this 16th day of June, 2015, the foregoing Ordinance was offered by Councilor Todd Wodraska, who moved its adoption. The motion was seconded by Councilor Ilan Kaufer, and upon being put to a roll call vote, the vote was as follows:

	AYE	NAY
MAYOR KAREN J. GOLONKA	X	
VICE-MAYOR JIM KURETSKI	X	
COUNCILOR ILAN KAUFER	X	
COUNCILOR TODD R. WODRASKA	X	

The Mayor thereupon declared Ordinance 3-15 duly passed and adopted this

16th day of June, 2015.

TOWN OF JUPITER, FLORIDA

BY: _____
KAREN J. GOLONKA
MAYOR

ATTEST:

_____
SALLY M. BOYLAN, MMC
TOWN CLERK

(TOWN SEAL)

_____
THOMAS J. BAIRD, ESQ.
Approved as to form and legal sufficiency

Data and Analysis for Town of Jupiter Comprehensive Plan Amendment (2015-5) to the Conservation and Coastal Management Elements

A. Supporting Data and Analysis

Conservation and Coastal Management Elements Coastal Bulkhead Policies – Amendments are proposed to Conservation Policy 1.4.11 and Coastal Management Element Policy 1.5.3 to provide internal consistency in the Comprehensive Plan pertaining to coastal bulkheads in the Town. Specifically, that coastal bulkheads should be located "at, or landward of," coastal wetlands and their ecotones.

The proposed amendment to Conservation Policy 1.4.10 clarifies that coastal bulkheads should only be allowed when an environment for native vegetation is provided waterward of the bulkhead, for at least 50 percent of the shoreline. Pertaining to the replacement of older existing coastal bulkhead in need of repair, the policy states these replacements are required to be consistent with the corresponding land development regulations. The concurrent proposed zoning text amendment details the recommended types of alternate shoreline stabilization techniques that require sloping revetment along 50 percent of the shoreline where feasible, while also allowing coastal bulkheads without sloping revetment in certain canals with bulkheads along almost all properties.

Finally, it is important to note that the revisions to Coastal Management Element Policy 1.5.5 pertaining to establishing vegetative buffer zones for coastal bulkheads and riprap are intended to provide for an environment to maintain and enhance areas to support mangroves, salt wart and sea ox-eye daisy, as well as other native coastal plants identified in Section 62-340.450, Florida Administrative Code.

Coastal Management Element Climate Change Objective and Implementing Policies – This proposed amendment to the Comprehensive Plan is intended to begin to guide the Town's future efforts, in coordination with the County, to address climate change and implement appropriate recommendations of the Compact's Regional Climate Action Plan (the Plan). It is anticipated that subsequent amendments to the Comprehensive Plan may be considered in the future, as individual Town departments become increasingly engaged in the analysis of climate change impacts and identification of potential strategies specific to their areas of responsibility. Palm Beach County adopted a similar sub-objective and implementing policies (Attachment B) into its Future Land Use Element in 2014. The Plan contains the vulnerability assessment of the Southeast Florida region to 1, 2 and 3 foot sea level rise scenarios. Based upon the vulnerability assessment, Palm Beach County, compared to Miami-Dade and Broward Counties, has a higher topography and fewer natural or man-made waterways west of the Intracoastal Waterway, thus limiting impacts largely to coastal properties adjacent to the Intracoastal Waterway.

The Plan recommendations include both mitigation measures, aimed at reducing greenhouse gas emissions, and adaptation measures, for adjusting to and dealing with the impacts of climate change. Proposed Coastal Management Element Policy 2.6.5 states that by December 2018, the Town will investigate the feasibility of the use of Adaption Action Areas, as provided for in Section 163.3177(6)(g)(10),_Florida Statutes (F.S.) Among the proposed actions in the Plan is the recommendation that local governments consider

designating "Adaptation Action Areas." In 2011, the Florida Legislature incorporated this concept into state statute (Section 163.3164(1), F.S.), as follows:

> *"**Adaptation action area**" or "**adaptation area**" means a designation in the coastal management element of a local government's comprehensive plan which identifies one or more **area**s that experience coastal flooding due to extreme high tides and storm surge, and that are vulnerable to the related impacts of rising sea levels for the purpose of prioritizing funding for infrastructure needs and **adaptation** planning.*

This optional designation for local comprehensive plans was intended as a new tool for local governments to identify vulnerable areas, focus technical resources and provide guidance for adaptation planning efforts, including prioritization of infrastructure improvements and funding for improved resilience. Targeted infrastructure improvements, new infrastructure, or modified land use and/or development practices could reduce vulnerability and/or improve community resilience in vulnerable areas, which may include:

- Areas below, at, or near mean higher high water;
- Areas which have a hydrological connection to coastal waters;
- Areas designated as evacuation zones for storm surge; and/or
- Other areas impacted by climate related drainage/flood control issues.

The December 2018 timeframe to investigate the feasibility of implementing any adaption action areas and other climate change initiatives is established to correspond to any similar County initiatives that are proposed for 2017.

Proposed Policy 2.6.3 commits to coordinating with agencies at all levels of government, and private property owners, to develop initiatives and goals to address climate change. A current example of this type of coordination includes the Town's continued coordination with the United States Army Corps of Engineers and the South Florida Water Management District to resolve a seepage control issue. Specifically, the long awaited delivery of water from the Lower East Coast regional system to the Town's Surficial Aquifer Well Fields for seepage control and protection of the local Surficial Aquifer from sea level rise and resulting salt water intrusion.

Finally, staff notes that the Town has implemented many of the energy efficiency and conservation mitigation strategies contained in proposed Policy 2.6.7 including the following:

- Adoption of Comprehensive Plan policies and land development regulations to develop compact residential developments, mixed use developments and redevelopment (i.e. Redevelopment Overlay Areas);
- Improving access to transit;
- Requiring interconnectivity among adjoining properties (cross access policies);
- Green Building Program development incentives[1].

<u>*Conservation Green Local Government Designation Policies*</u> – Policy 1.10.1 has been amended to acknowledge that the Town adopted green building supplemental regulations in 2009 and to state these regulations will be maintained and updated as necessary. Policy 1.10.2 has been amended to acknowledge the Town is a Silver Certified Green Local Government and that the Town will strive to upgrade to a Gold Certification by December of2019. The proposed 2019 date coincides with the five-year timeframe to recertify the Town's Silver Certification with the Florida Green Building Coalition.

[1] Staff does note that the incentives section Green Building Program land development regulations did sunset on January 5, 2015 pursuant to Section 27-1675.32 of the Zoning Code.

B. Internal Consistency with the Comprehensive Plan - The proposed text amendments to Conservation and Coastal Management Element are internally consistent and supported by the following objectives of the Town's Comprehensive Plan:

CONSERVATION ELEMENT

For Amendments to Conservation and Coastal Management Elements Coastal Bulkhead Policies

Objective 1.4: The quality of the Town's surface water shall be maintained at appropriate levels as determined by the Department of Environmental Protection using DEP established criteria for water quality classifications as reported in Chapter 17-3 F.A.C.
Staff Comment: The proposed changes to policies pertaining to coastal bulkheads in the Town will help reduce salt water intrusion and maintain the quality of the surface water. The proposed amendments are consistent with the intent of Objective 1.4.

For the amendments to Conservation Green Local Government Designation Policies

Objective 1.10 To encourage and promote effective green design theories and techniques for new development, redevelopment and infill projects including sustainable site development, water efficiency, energy efficiency, sustainable material selections and improved indoor environmental quality.
Staff Comment: The proposed changes to Policies 1.10.1 and 1.10.2 will provide for the upgrade of green building techniques and encourage the Town to achieve a higher level of green design theories through a higher Green Local Government Designation certification. The proposed amendments are consistent with the intent of Objective 1.10.

C. Intergovernmental Coordination - Staff has submitted an executive summary of the proposed Transportation Element Text Amendments to the Palm Beach County Interlocal Plan Amendment Review Committee (IPARC) on February 27, 2015. As of the date of this report, staff has not received any comments related to the text amendment.

V:\PlanningZoning\Staff\WP51\COMPPLAN\Amendments\2015-05 Administrative\DEO 2015-05 Transmittal_Adopted\Data and Analysis (Adoption).docx June 17, 2015

TOWN OF JUPITER
TOWN MANAGER'S OFFICE

DATE: June 17, 2015

TO: Honorable Mayor and Members of Town Council

THRU: Andrew D. Lukasik, Town Manager

FROM: John Sickler, Planning and Zoning Director

SUBJECT: **CONSERVATION AND COASTAL MANAGEMENT COMPREHENSIVE PLAN TEXT AMENDMENTS** –

- To amend Conservation and Coastal Management Element policies pertaining to regulations for bulkheads and seawalls along shorelines.
- To create a new Coastal Management Element objective and implementing policies pertaining to the adoption and implementation of strategies to protect property and infrastructure from the impacts of climate change.
- To amend Conservation Element policies pertaining to green design regulations.

PZ #14-415 – Ord. #3-15	***Meeting***	***PZ***	***03/10/15***
DMK	***dates:***	***TC***	***04/07/15 1st Reading***
		TC	***06/16/15 2nd Reading***

Applicant: Town-initiated

Request: To modify the Comprehensive Plan as follows:

1. Amend Polices 1.4.10, 1.4.11 and 1.4.12 of the Conservation Element and Policy 1.5.3 of the Coastal Management Element to modify language associated with bulkheads and seawalls along shorelines.
2. Create new Coastal Management Element Objective 2.6 and implementing Policies 2.6.1-2.6.7 pertaining to the adoption and implementation of strategies to protect property and infrastructure from the impacts of climate change;
3. Amend Policies 1.10.1 and 1.10.2 of the Conservation Element pertaining to the Town's green local government initiatives;

Town Council Final Action.

At their June 16, 2015 meeting, the Town Council **adopted** (by a 4-0 vote) the text amendments to the Conservation and Coastal Management Elements, as recommended by staff.

Department of Economic Opportunity and Other Agency Reviews.

The Town received no objections, recommendations or comments ("No-ORC" letters) regarding the proposed text amendments from the Florida Department of Economic Opportunity, the Treasure Coast Regional Planning Council, the Florida Department of Transportation, the South Florida Water Management District and the Florida Department of Environmental Protection (Attachment E).

Town Council Action.

At their April 7, 2015 meeting, the Town Council **approved** (by a 5-0 vote) on first reading the text amendments to the Conservation and Coastal Management Elements, as recommended by staff.

Staff Update (04-01-15).

Staff has attached a presentation outlining draft changes to the land development regulations related to shoreline stabilization and marine facilities (Attachment C) and an excerpt of the draft Planning and Zoning Commission minutes (Attachment D) from their March 10, 2015 meeting.

Local Planning Agency Recommendation.

At their March 10, 2015 meeting, the Planning and Zoning Commission, acting as the Local Planning Agency, recommended unanimous approval (by a 7-0 vote) of the text amendment application, with one amendment to Conservation Element Policy 1.4.2. Specifically, to clarify that any of listed methods (i.e. types of materials and vegetation) could be used to dissipate wave forces.

Staff Recommendation.

Based upon the facts and findings contained herein, staff recommends that the Planning and Zoning Commission, acting as the Town's Local Planning Agency (LPA), recommend the Town Council **Adopt** the proposed Comprehensive Plan text amendments in Ordinance #3-15.

Background.

Conservation and Coastal Management Elements Coastal Bulkhead[1] Policies – Staff notes that many of the coastal bulkheads build on miles of waterfront properties in the Town starting in the 1970s are approaching the end of their life cycle and are in need of repair or replacement. The text amendments pertaining to coastal bulkheads are proposed to improve regulations to stabilize the shoreline to protect the built environment on uplands, while balancing the built environment with the natural environment. Staff is processing a concurrent zoning text amendment to modify Division 17 for marine facilities to implement the proposed Comprehensive Plan text amendments.

[1] The proposed amendments combine the terms bulkhead and seawall into one new term entitled "coastal bulkhead".

Coastal Management Element Climate Change Objective and Implementing Policies – The proposed amendment is an initial introduction of a climate-change related objective and implementing policies in the Comprehensive Plan. The proposed objective and policies are similar to those adopted by Palm Beach County in 2014, and are consistent with the findings of the Southeast Florida Regional Climate Change Compact (the Compact) 2012 Regional Climate Action Plan (Attachment A). In late 2009, as part of a collaborative effort to foster sustainability and climate resilience at a regional scale, Palm Beach County, Broward, Miami-Dade, and Monroe counties entered into the Compact, a voluntary and cooperative partnership among the governing bodies.

Conservation Green Local Government Designation Policies – These policies are proposed to be updated pertaining to the Town's adoption of green building regulations and the achievement of obtaining a Florida Green Local Government Silver Certification in 2014.

Analysis.

A. Supporting Data and Analysis

Conservation and Coastal Management Elements Coastal Bulkhead Policies – Amendments are proposed to Conservation Policy 1.4.11 and Coastal Management Element Policy 1.5.3 to provide internal consistency in the Comprehensive Plan pertaining to coastal bulkheads in the Town. Specifically, that coastal bulkheads should be located "at, or landward of," coastal wetlands and their ecotones.

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scenarios. Based upon the vulnerability assessment, Palm Beach County, compared to Miami-Dade and Broward Counties, has a higher topography and fewer natural or man-made waterways west of the Intracoastal Waterway, thus limiting impacts largely to coastal properties adjacent to the Intracoastal Waterway.

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- Areas which have a hydrological connection to coastal waters;
- Areas designated as evacuation zones for storm surge; and/or
- Other areas impacted by climate related drainage/flood control issues.

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For Amendments to Conservation and Coastal Management Elements Coastal Bulkhead Policies

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C. Intergovernmental Coordination - Staff has submitted an executive summary of the proposed Transportation Element Text Amendments to the Palm Beach County Interlocal Plan Amendment Review Committee (IPARC) on February 27, 2015. As of the date of this report, staff has not received any comments related to the text amendment.

The data and analysis supporting these text amendments will be included in the transmittal package sent to the Florida Department of Economic Opportunity (DEO).

[2] Staff does note that the incentives section Green Building Program land development regulations did sunset on January 5, 2015 pursuant to Section 27-1675.32 of the Zoning Code.

Conclusion.

Staff finds the proposed comprehensive plan text amendments necessary, consistent with the comprehensive plan, and supported by data and analysis; therefore, staff recommends **approval** of the amendments.

Attachments:

Attachment A – The Southeast Florida Regional Climate Change Compact's 2012 Regional Climate Action Plan has been placed on the Town's webpage for reference as part of the agenda item
Attachment B – Palm Beach County Climate Control Sub-objective and Policies
Attachment C – Shoreline Stabilization and Marine Facilities proposed Land Development Regulations Presentation
Attachment D - Draft March 10, 2015 Planning and Zoning Commission Meeting Minutes
Attachment E - State Agencies "No-comment" Letters

Attachment A

A Region Responds to a Changing Climate

Southeast Florida Regional Climate Change Compact Counties

Regional Climate Action Plan

October 2012

SOUTHEAST FLORIDA
REGIONAL COMPACT
CLIMATE CHANGE

A Region Responds to a Changing Climate

Southeast Florida Regional Climate Change Compact Counties

Regional Climate Action Plan

October 2012

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B. Compact Counties' Policy and Advocacy Implementation Report

C. Regional Greenhouse Gas Emissions Inventory Baseline Period: 2005 - 2009

D. A Unified Sea Level Rise Projection for Southeast Florida

E. Analysis of the Vulnerability of Southeast Florida to Sea Level Rise

F. Adaptation Action Areas (Florida Department of Economic Opportunity White Paper)

ACKNOWLEDGEMENTS

This Regional Climate Action Plan is the result of true collaboration – this document and its many supporting publications are the product of existing staff and resources from the various cooperating agencies. No additional public dollars were dedicated to this effort. The Southeast Florida Regional Climate Change Compact was forged during the most difficult national economy since the Great Depression. We came together with purpose and quickly realized the value of sharing resources, expertise and information. Competitors became collaborators. Challenges became successes. At a moment when local government is pressed to achieve maximum efficiency, the Compact enabled a level of intergovernmental cooperation unprecedented in Southeast Florida's history. Many have contributed to the Compact process, including more than 90 members of the public that took the time to submit comments to a previously published draft. While several individuals are recognized here, Appendix C contains a full list of the people and organizations that helped bring this Regional Climate Action Plan to fruition.

Staff Steering Committee

Mr. Jon Van Arnam, Palm Beach County
Ms. Carrise LeJeune, City of Boynton Beach (Palm Beach County)
Dr. Jennifer Jurado, Broward County
Ms. Patti Webster, Broward County
Ms. Susanne Torriente, City of Fort Lauderdale (Broward County)
Ms. Nichole Hefty, Miami-Dade County
Mr. Mark Woerner, Miami-Dade County
Mr. Roman Gastesi, Monroe County
Mr. Michael Roberts, Monroe County
Ms. Alison Higgins, City of Key West (Monroe County)
Mr. Rod Braun, South Florida Water Management District
Ms. Kim Shugar, South Florida Water Management District (former)
Mr. Jim Murley, South Florida Regional Planning Council (ex officio)
Mr. Steve Adams, Institute for Sustainable Communities (staff)

Support and Technical Staff

Ms. Bonnie Finneran, Palm Beach County
Mr. John Reiser, Palm Beach County
Dr. Nancy Gassman, Broward County
Mr. Donald Burgess, Broward County
Ms. Debbie Griner, Miami-Dade County
Ms. Rhonda Haag, Monroe County
Mr. Kevin Wilson, Monroe County
Mr. Doug Gregory, Monroe County
Ms. Diana Umpierre, South Florida Water Management District
Dr. Jayantha Obeysekera, South Florida Water Management District
Mr. Chris Bergh, The Nature Conservancy

Joint Policy Advisory Team

Mr. Jon Van Arnam, Palm Beach County
Mr. Todd Bonlarron, Palm Beach County
Mr. Robert Robbins, Palm Beach County
Ms. Bonnie Finneran, Palm Beach County
Mr. Rich Walesky, Palm Beach County (former)
Dr. Jennifer Jurado, Broward County
Ms. Patti Webster, Broward County
Ms. Susanne Torriente, City of Fort Lauderdale
Mr. Joe Rasco, Miami-Dade County
Mr. Paul Voight, Miami-Dade County
Mr. Roman Gastesi, Monroe County
Mr. Michael Roberts, Monroe County
Mr. Rod Braun, South Florida Water Management District
Ms. Kim Shugar, South Florida Water Management District (former)

I. Executive Summary

Welcome to the first Southeast Florida Regional Climate Action Plan. The Southeast Florida Regional Climate Change Compact (Compact), a unique and collaborative effort among Palm Beach, Broward, Miami-Dade, Monroe Counties, their municipalities and partners, has worked over the past two years to develop this plan with an initial five-year horizon. The plan is a critical milestone of the Compact, entered into by Palm Beach, Broward, Miami-Dade, and Monroe Counties in January 2010. Much of the Compact's work up to this point has served to unite, organize, and assess our region through the lens of climate change in setting the stage for action. Specific accomplishments include the development of regionally-consistent methodologies for mapping sea-level rise impacts, assessing vulnerability, and understanding the sources of regional greenhouse gas emissions. Collectively, these work products provide the foundation for this Regional Climate Action Plan, which calls for concerted action in reducing greenhouse gas emissions and adapting to regional and local impacts of a changing climate. The recommendations presented here aim to accomplish those goals while also serving to protect the assets of the region's unique quality of life and economy, guiding future investments, and fostering livable, sustainable and resilient communities.

The Compact was established with a strong recognition of the region's diversity and its commonalities. It accepted the varying degrees of progress in the areas of climate change adaptation and mitigation in order to inform, to improve, and to advance regional planning efforts together. This Regional Climate Action Plan too recognizes the diversity of Southeast Florida, yet provides the common framework for **Sustainable Communities and Transportation Planning** to be aligned across the region, as implemented. Inevitably this will occur at various stages and varying degrees, but with the benefit of working within a regional context. This is Southeast Florida, with all its uniqueness; the plan recognizes the need to protect and address our vulnerable **Water Supply, Management and Infrastructure** and preserve our fragile **Natural Systems and Agricultural** resources. The plan provides for steps to move toward resilience and reduce emissions through exploring alternatives and decreasing our use of **Energy and Fuel**. The plan builds upon our strength as effective emergency responders and integrates climate change hazards in **Risk Reduction and Emergency Management** planning. Finally, the Regional Climate Action Plan creates a common vocabulary for **Outreach and Public Policy** development to effectively communicate the steps from risk to resilience with the general public, voters, elected officials and decision makers in Southeast Florida, the state and the nation.

The specific recommendations put forth in this plan were developed through a collaborative process involving nearly 100 subject matter experts from a host of professions representing the

Southeast Florida is considered one of the most vulnerable areas to climate change and sea level rise.

public and private sectors, area universities, and not-for-profit organizations. These stakeholders brought to the table the knowledge of their "craft" as well as information on successful initiatives already underway locally or in other communities. Many of the recommendations build upon best practices sprinkled throughout our region, such as regional collaboration on transportation planning and land use criteria that foster walkable and healthy communities. Others delve into "new" frontiers in calling for the integration of climate change into planning and decision-making processes in ways that no local government has yet implemented.

The overall objective was and remains to integrate climate adaptation and mitigation into existing decision-making systems and to develop a plan that can be implemented through existing local and regional agencies, processes and organizations. It is in that spirit that this plan provides the common integrated framework for a stronger and more resilient Southeast Florida starting today and for tomorrow.

The 110 action items detailed in the plan's seven goal areas are to be accomplished over the next five years with annual reports to mark progress. The policy recommendations will be implemented through several approaches including:

- **existing legal structures**, planning and decision-making processes;
- the development of **new policy guiding documents** by local and regional governing bodies; the development of **operational guidance documents**;
- the development of **consistent goals and progress indicators** throughout the various governments in the region;
- a coordinated **multi-disciplinary outreach and education program;** and
- processes for **focused and prioritized investments**

Every organization in the region has a role to play in making Southeast Florida a resilient and sustainable community of communities.

II. Introduction and Background: Southeast Florida Climate Change Compact Guidance for Regional Policy and Planning

Southeast Florida is considered one of the most vulnerable areas to climate change and sea level rise. In the spring of 2009, several Southeast Florida counties and cities were making the rounds in the halls of Congress to advocate for climate policy. A great deal of work had been invested individually by each jurisdiction; however, each had slightly different baseline emissions figures at different points of time and different sea level rise planning scenarios. The need for regional coordination became quite evident. With 5.6 million residents within the geographic boundaries of the four counties as of the 2010 Census, exceeding the population of 30 states and representing 30 percent of Florida's population and Gross Domestic Product, there is an obvious and unique strength in the region's size and in numbers. That realization paved the way for a unique arrangement – the Compact – a voluntary and cooperative partnership among governing bodies to tackle one of, if not the most important issue facing our generation. This targeted and focused collaborative is the vision and framework for regional resilience. It respects the diversity of the region and the autonomy of the many governing bodies.

The Compact began with a commitment among elected officials representing each of the four counties to return to Southeast Florida and to coordinate in the hosting of a regional climate summit. The Summit would serve as a platform for broader discussion among county and municipal elected officials and the community as to the pressures and challenges that climate change poses for Southeast Florida with a call for unified action. Just four months later, their vision began to take shape when the four County Commissions jointly held the 2009 Regional Climate Leadership Summit. This first Regional Summit led to the ratification of the Southeast Florida Regional Climate Change Compact by January 2010, with unanimous votes within each County Commission (Appendix A). Since adoption, the Counties have assigned existing staff resources to support implementation of the Compact under the direction of a Compact Staff Steering Committee.

The Compact Staff Steering Committee is comprised of two staff members from each county, one municipal representative from each county and a non-voting member from the South Florida Water Management District who was invited to participate. Municipal members represent the cities of Fort Lauderdale, Key West and Boynton Beach. The Compact Staff Steering Committee is a small, core group of professional staff engaged in this process since 2009.

The Compact commitments include:

- Joint legislative policy development;
- Development of a regional greenhouse gas (GHG) baseline;
- Development of regionally consistent sea level rise projections for the coming decades;
- Development of Preliminary Inundation Mapping;
- Development of a Regional Climate Action Plan; and
- Coordination of Annual Leadership Summits.

The regional scale of the resilience strategies effectively integrate human and natural systems

The Compact paved the way for early work in 2010 to develop the unified regional baseline and sea level rise planning scenarios. Summaries of these work products are provided in Section IV. This early work served as the foundation for the development of this regional framework through three Work Groups: Built Environment, Transportation, and Land and Natural Systems. These Work Groups were chaired by Staff Steering Committee members and expanded to include local and regional experts from the public and private sectors and academia.

III. Compact Awards and Recognitions

Since adoption, the Compact has won recognition through awards from ICLEI and the National Association of Counties, a requested white paper from the White House Domestic Policy Council, a request to host a listening session for the White House Council on Environmental Quality's (CEQ) Interagency Adaptation Task Force, and specific references within the Task Force's Final Report to the president. Subsequent federal agency engagement in the Compact has been highlighted in CEQ reports to the president, including the most recent Task Force report submitted in October 2011.

IV. Compact Work Completed

The adoption of the Compact initiated an ambitious schedule requiring the completion of a robust body of work leading to this Regional Climate Action Plan. Since Compact adoption in January 2010, the four Compact Counties have completed the following:

a. Policy and Advocacy

Sections 1 – 4 of the Compact Resolution commit the Compact Counties to develop joint climate and energy-related policy positions and advocacy strategies to influence state and federal legislation. Specifically, provisions of the Compact call for urging Congress to pass legislation that: recognizes the unique vulnerabilities of Southeast Florida to climate change impacts, especially sea level rise; allocates federal climate change funding based on vulnerabilities; designates areas of Southeast Florida as uniquely vulnerable and of federal interest for the purpose of securing enhanced levels of federal participation in regional adaptation projects; and supports strengthening policies relating to global climate change.

Since the ratification of the Compact, the Compact partners have advanced policy and advocacy goals through joint positions, resolutions, letters and funding proposals and advocacy in Tallahassee and Washington, D.C. In addition, during the 111th and 112th sessions of the United States Congress, the Compact partners collaborated in the submittal of a *joint Climate Adaptation Pilot Project Proposal,* a funding request to support regional hydrologic modeling needed to guide adaptation planning in response to projected sea level rise. In May 2010, elected officials and other leaders representing the Compact Counties jointly advocated in Washington, D.C. to highlight the region's vulnerabilities and needs related to climate change impacts, to seek support for greater recognition of adaptation strategies in federal climate policies and for the appropriations of projects such as the regional Pilot Project.

On June 24, 2010, in response to the Deepwater Horizon Oil Spill that threatened the region's environment and economy, the Compact Counties conducted a well-attended conference calling for comprehensive federal energy policy and protection of Florida's state and federal waters from the impact of oil drilling. In concert with local municipalities and Leagues of Cities, the event produced the Southeast Florida Response to Deepwater Horizon Oil Spill Letter to President Obama and resolutions in support for comprehensive climate legislation, restoration of damages due to the oil spill and for a ban on oil drilling within Florida's Territorial Waters.

As a centerpiece of the Compact Counties' commitment to developing regional legislative policies and advocacy strategies, the Compact Counties adopted the 2011 and 2012 *Southeast Florida State and Federal Energy and Climate Legislative Programs* and utilized these programs as the basis of joint advocacy to Congress and the Florida Legislature. The 2011/12 State and Federal Legislative Programs include support for:

The plan is a critical milestone of the Compact ...

... a vision and framework for regional resilience.

- the Southeast Florida Climate Adaptation Pilot Project Proposal;
- providing a definition of "Adaptation Action Areas (AAA)" in state law;
- greater recognition of adaptation as a critical climate strategy;
- adopting a State Renewable Energy Portfolio Standard of 20 percent renewable energy by 2020;
- federal legislation to create and fund new infrastructure programs to assist local governments in adapting to the impacts of sea level rise;
- federal recognition of AAA's for the purpose of funding infrastructure vulnerable to sea level rise
- removing federal barriers to Property Assessed Clean Energy (PACE) and PACE-like programs, posed by the Federal Housing Finance Agency, to encourage energy efficiency and renewable energy improvements for residential homes and commercial buildings; and
- opposing oil drilling in federal waters on Florida's Outer Continental Shelf and the Everglades.

The four County Commissions jointly held the first Regional Climate Leadership Summit in 2009.

Utilizing the Compact Counties' Legislative Programs as guidance during the 2011 Florida Legislative Session, the Compact Counties were successful in helping to amend state law to reflect priority policy goals. The regional partners helped draft and led efforts to provide for a designation of "Adaptation Action Areas" in Florida's growth management laws, thus creating a new tool for local governments to identify areas vulnerable to coastal flooding resulting from the impacts of sea level rise and to prioritize infrastructure improvements and funding for improved resilience. Immediately following changes to

state law, a Members Letter was signed by several members of Florida's Congressional Delegation requesting support for defining AAA in federal law. Subsequent to the Members Letter, the Compact Counties' lobbyists and Delegation Members have requested the inclusion of language enabling at-risk, multi county regions impacted by sea level rise to qualify for 2012 Energy and Water Appropriations. During the 2012 Florida Legislative Session the Compact Counties were successful in helping to amend the Florida Energy Act to provide for commercial buildings to qualify for energy efficiency program funding through the Local Option Sales Tax.

The Regional Climate Action Plan contains actionable recommendations related to public policy and outreach in recognition of the fact that a continued commitment to collaborate with local, state and federal policy makers, as well as the non-profit and private sectors, is fundamental to long-term success of the Compact. Additionally, the continued and enhanced role of policy advocacy through regional collaboration, especially during tumultuous economic and political times, are important to ensure that current efforts are not undermined and the Compact Counties' future efforts related to sustainability are achieved.

b. A Baseline of Greenhouse Gas Emissions for Southeast Florida

Prior to the Compact, many jurisdictions within Southeast Florida had completed emission inventories using a variety of baseline years. The Compact called for the identification and quantification of Greenhouse Gas (GHG) emissions across Southeast Florida "with a particular focus on emissions from inter-county travel and commerce." Consistent with this charge, staff estimated GHG emissions resulting from an inventory of select sectors – transportation and the built environment divided into residential, commercial and industrial subsectors – using the ICLEI International Local Government Emissions Analysis Protocol (IEAP) within the ICLEI Clean Air and Climate Protection 2009 (CACP 2009) software. "Non-regional" emissions such as the waste sector (including landfill and wastewater treatment) and local government operations were not included as they were deemed to be primarily under the control of individual jurisdictions. Other sectors such as natural areas and agriculture (including their carbon sequestration or "sink" capacity) were not included here due to lack of local information.

As emissions track closely with economic output and as this analysis was initiated during the most significant economic downturn since the 1930s, staff decided to inventory annual emissions for each year from 2005 through 2009 (five full years) and average the results for each sector over those five years for use as a future baseline. By doing so, the inventory averages contain years of both high growth and contraction. The full Regional Inventory report is included as a supporting document to the Regional Climate Action Plan process.

The transportation sector is the largest single source of regional emissions.

Residential and commercial building are jointly responsible for 54 percent of regional emissions.

Southeast Florida peaked in total GHG emissions in 2006 and declined in the following three years, consistent with the performance of the national economy during this period (Table 1). The relative emissions contribution of each County to the aggregated regional emissions reflects population and size.

Table 1: Regional Emissions by County ($MMTCO_2e$)

County	2005	2006	2007	2008	2009
Broward	22,655,421	22,657,880	21,921,832	21,216,712	20,810,719
Miami-Dade	28,715,847	29,058,677	27,832,307	27,057,988	26,859,326
Monroe	1,504,047	1,532,500	1,465,634	1,408,288	1,417,206
Palm Beach	16,588,536	16,658,369	15,920,070	15,785,752	15,675,174
Regional Sources	254,537	250,984	237,691	222,113	155,359
Totals	69,718,390	70,158,412	67,377,537	65,690,854	64,917,785

Regional emissions, across all sectors examined, were approximately 64.9 million metric tonnes of carbon dioxide equivalent ($MMTCO_2e$) in 2009, down from 69.7 $MMTCO_2e$ in 2005. The five-year average of emissions (67.6 $MMTCO_2e$) shows that the transportation sector is the largest single source of regional emissions. The Residential and Commercial buildings sectors jointly contribute 54 percent to regional emission (Table 2).

Table 2: Regional Emissions by Sector ($MMTCO_2e$)

Sector	2005	2006	2007	2008	2009	Five Yr Avg
Residential	19,963,638	19,989,441	18,685,833	18,186,886	18,237,990	19,012,757
Commercial	17,884,892	18,212,352	17,356,620	17,314,930	17,083,809	17,570,521
Industrial	1,075,979	1,103,572	961,883	888,111	811,016	968,112
Transportation	30,793,879	30,853,046	30,373,200	29,300,926	28,784,969	30,021,204
Totals	69,718,390	70,158,412	67,377,537	65,690,854	64,917,785	67,572,596

c. Unified Sea Level Rise Projection

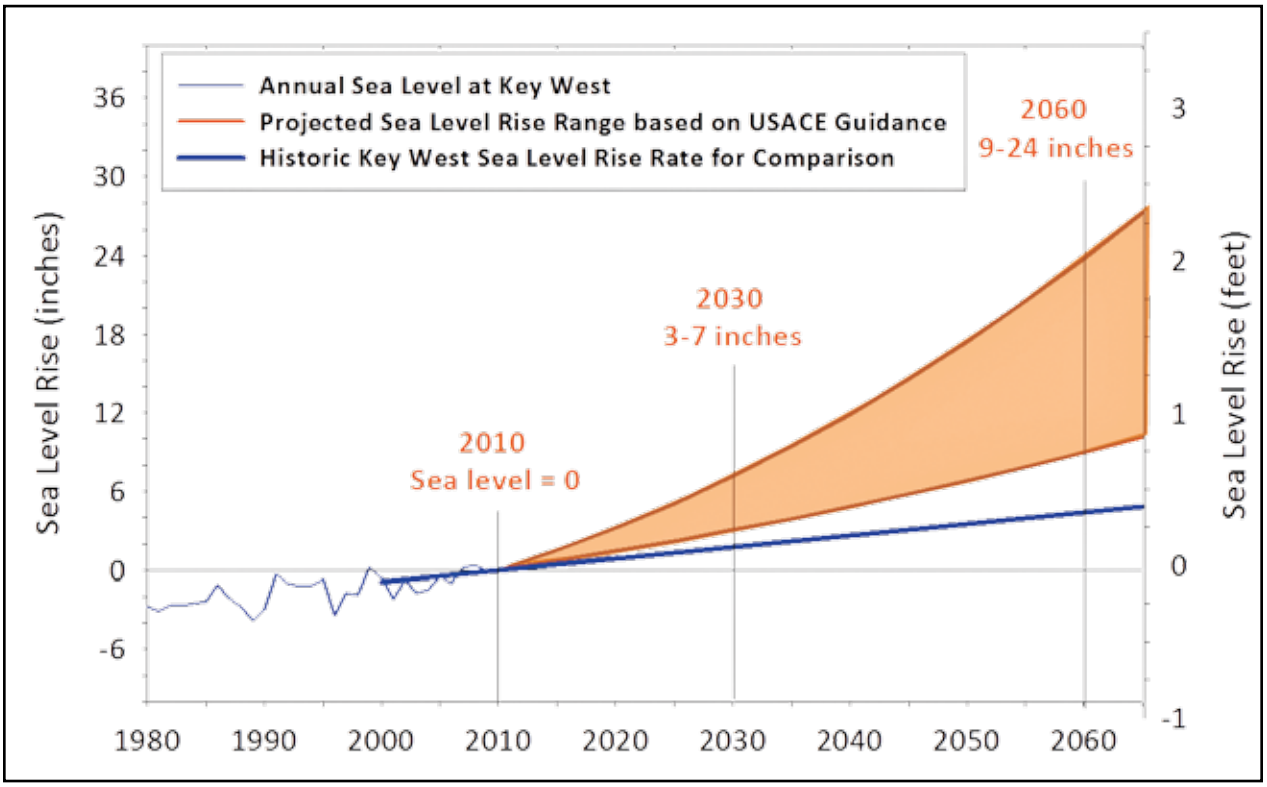

Figure 1: Unified Southeast Florida Sea Level Rise Projection for Regional Planning Purposes. This projection uses historic tidal information from Key West and was calculated by Kristopher Esterson from the United States Army Corps of Engineers using USACE Guidance (USACE 2009) intermediate and high curves to represent the lower and upper bound for projected sea level rise in Southeast Florida. Sea level measured in Key West over the past several decades is shown. The rate of sea level rise from Key West over the period of 1913 to 1999 is extrapolated to show how the historic rate compares to projected rates. Methods are described in a supporting document, "A Unified Sea Level Rise Projection for Southeast Florida" available online at: southeastfloridaclimatecompact.org.

At the first Regional Climate Leadership Summit, the local diversity in sea level rise (SLR) projections was highlighted as a concern, and a barrier, to achieving regionally consistent adaptation policies and demonstrating a coordinated local effort to higher decision-making levels. Following the summit, the Compact Staff Steering Committee recognized the critical need to unify the existing local SLR projections to create a single regional SLR projection. Key participants in developing the existing projections and other local scientists specializing in the areas of sea level rise and climate change were invited to participate as the Regional Climate Change Compact Technical Ad hoc Work Group (Work Group). Their objective was to work toward developing a unified SLR projection for the Southeast Florida region for use by the Compact Counties and partners for planning purposes to aid in understanding potential vulnerabilities and to provide a basis for outlining adaptation strategies for the region.

Through a series of facilitated discussions, the Work Group reviewed the existing projections and the current scientific literature related to SLR with particular emphasis on the impact of accelerating ice melt on projections. The Work Group recommended that the SLR projection be based on the United States Army Corp of Engineers (USACE) July 2009 Guidance Document until more definitive information on future SLR is available. The projection uses Key West tidal data from 1913-1999 as the foundation of the calculation and references the year 2010 as the starting date of the projection. Two key planning horizons are highlighted: 2030 when SLR is projected to be 3-7 inches and 2060 when SLR is projected to be 9-24 inches. Based on the projection, a SLR of one foot is projected to occur between 2040 and 2070 with sea level continuing to rise into the future. Due to the rapidly changing body of scientific literature on this topic, the Work Group recommended that the projection be reviewed and possibly revised four years from final approval by the Compact Staff Steering Committee and after the release of United Nations Intergovernmental Panel on Climate Change Fifth Assessment Report. "A Unified Sea Level Rise Projection for Southeast Florida" White Paper is available as a supporting document to this Regional Climate Action Plan.

Mapping different SLR inundation scenarios helps to identify areas at potential risk and aids in planning for adaptation strategies.

d. Inundation Mapping and Vulnerability Assessment of Areas at Risk by Sea Level Rise

Southeast Florida is highly vulnerable to SLR due to its peninsular geography and low topography. Mapping different SLR inundation scenarios helps to identify areas at potential risk and aids in planning for adaptation strategies. The Compact Inundation Mapping and Vulnerability Assessment Work Group was formed to perform a regional vulnerability assessment. Geographic Information System (GIS) practitioners, representing the Compact Counties as well as the South Florida Water Management District (SFWMD), local universities and federal agencies, worked with National Oceanographic and Atmospheric Administration (NOAA) Coastal Services Center (CSC) experts to understand inundation mapping methodologies, define the local challenges, review available topographic

source data and create a consensus set of methods and criteria for inundation mapping. Additional discussions, surveys and workshops were used to develop planning parameters that would be part of the regional SLR vulnerability assessment. Using these commonly agreed-to parameters and data sources, the SFWMD produced inundation layers to represent areas potentially vulnerable to one-, two- and three-foot SLR scenarios. These layers were used by each of the four Compact Counties to perform a vulnerability assessment for their jurisdiction. See the supporting publication for the County level assessments and detailed methods for inundation mapping and the vulnerability analyses.

This understanding of a likely future allows us to take action now to protect assets and invest wisely.

All of the Compact Counties are vulnerable to SLR. However, the degree and extent of potential impacts vary across the region due to differences in land elevation and geomorphology. The southernmost counties are expected to experience the greatest direct impacts, with lessening impacts as one travels northward. Nearly 80 percent of the lands potentially affected regionally in the one-foot scenario are conservation lands, especially coastal wetlands. Low lying natural systems made up of buttonwood, mangrove, scrub mangrove, and herbaceous coastal saline and freshwater wetlands are significantly impacted in all SLR scenarios. The upper estimate of current taxable property values in Monroe, Broward, and Palm Beach Counties vulnerable in the one-foot scenario is $4 billion with values rising to more than $31 billion at the three-foot scenario. The greater values reflected in the financial impacts are coastal residential properties with ocean access and high taxable value.

In terms of the critical infrastructure reviewed, projected inundation is often confined to marginal areas of the properties or impacting existing drainage infrastructure on site. This is generally true for the region's ports, airports, schools, landfills and hospitals. Monroe County is the exception with predicted building and infrastructure damage to these critical resources especially at the two

Taxable property value vulnerable in the one-foot SLR scenario is $4 billion ...

with values rising to more than $31 billion at the three-foot SLR scenario.

and three-foot SLR scenarios. Three of Monroe's four hospitals, 65 percent of schools and 71 percent of emergency shelters are located on property at elevations below sea level at the one-foot scenario. Power plant properties in Miami-Dade and Broward as well as energy transmission facilities in Monroe begin to become inundated at the one-foot scenario. While railroads are negligibly impacted, more than 81 miles of roadway from Miami-Dade through Palm Beach are impacted at the one-foot scenario, increasing to more than 893 miles at the three-foot scenario.

The intent of the GIS-based analysis conducted by the Compact Work Group was to provide a preliminary assessment of sea level rise vulnerabilities for regional planning and policymaking purposes. This analysis did not include other possible impacts associated with sea level rise that require more complex modeling efforts, or indirect impacts, such as delineating what properties may become less accessible due to inundated roadways. Despite these limitations, the GIS-based vulnerability assessment conducted by the Compact Work Group serves to identify areas of potential concern for regional planning of adaptation strategies. It also highlights the need for continued mitigation of greenhouse gas emissions as a means to reduce future sea level rise impacts.

To prepare Southeast Florida for the likely impacts of sea level rise estimated by the vulnerability assessment, cooperation is vital, not only among the Compact Counties, but also among the municipalities, local, regional, state and federal agencies serving the region. Strengthening this regional effort will be critical in order to coordinate public policies and adaptation measures that ensure the region's sustainability and economic growth

V. Southeast Florida Regional Climate Action Plan Planning Process

Members of the Compact Staff Steering Committee and representatives of numerous federal, state, and county agency partners met in February 2011 for a workshop to review the work completed to date and plan a course of action going forward. Workshop participants brainstormed issues including the scope of the Regional Climate Action Plan, criteria to select priority issues, defining regional versus local efforts, areas of expertise needed in issue specific work groups and how best to separate issue areas to be examined into logical, workable groupings. Also discussed were the timeline for the planning process and how to incorporate feedback from the Compact Staff Steering Committee and other stakeholders.

The Compact Staff Steering Committee organized three work groups to develop specific recommendations for reducing GHG emissions and building climate resilience across the region.

The three work groups, **Built Environment, Transportation, and Land and Natural Systems** were designed to bring local experts with differing work experiences and areas of responsibility together to share knowledge and expertise. Each work group consisted of more than 30 individuals from all parts of the four-county region, listed in Appendix C. Work group participants included representatives of academia, non-profits, the private sector and all levels of government. After several work sessions, surveys and much correspondence, draft recommendations were presented to the Compact Staff Steering Committee at a July 2011 workshop. After review and comment, the Compact Staff Steering Committee provided guidance to the three work groups in finalizing the strategies to be included in the Regional Climate Action Plan and convened a "Super Committee" to address three cross-cutting issues that emerged separately from the work groups. The full extent of recommendations from each work group is available as a supporting publication.

Every organization in the region has a role to play in making Southeast Florida a resilient and sustainable community of communities.

Structure of the Regional Climate Action Plan

To further review, consolidate, and categorize the numerous recommendations, the Super Committee was created consisting of key representatives from each Work Group, the Work Group chairs, and representative County staff. The Super Committee worked to consolidate the recommendations into seven categories, including:

- Sustainable Communities and Transportation Planning
- Water Supply, Management and Infrastructure
- Natural Systems
- Agriculture
- Energy and Fuel
- Risk Reduction and Emergency Management and
- Outreach and Public Policy

The definition of each category and the recommendations are detailed as the Regional Climate Action Plan.

The draft Regional Climate Action Plan was released at the third annual Regional Climate Leadership Summit held in Key Largo on December 8 and 9, 2011. The Compact Staff Steering Committee aggressively sought public input and feedback from December through March 2012.

During this time, many public presentations on the draft plan and the Regional Compact were delivered throughout the region. Officially, 105 distinct comments were received through the Compact website from 91 individuals. All comments were reviewed by the Compact Staff Steering Committee and the Work Group Chairs. Since many comments were focused on the details of implementation, those thoughts and ideas are captured in the Implementation Guide that is published as a companion resource to the Regional Climate Action Plan. This public comment period resulted in a more robust regional document.

RCAP ... Regional and Municipal Government Collaboration and Shared Implementation

The Southeast Florida Regional Climate Change Compact emerged in 2009 as a collaborative venture among Palm Beach, Broward, Miami-Dade and Monroe Counties and as such, served as the impetus for creating a common framework for climate change mitigation and adaptation strategies throughout the Southeast Florida region. This initial effort for the Compact Counties to collaborate on a regional scale, proved to be an important first step in gaining public and political support required for the advancement of this comprehensive planning initiative. Early on, municipal government engagement and commitment was also recognized as critically important to the success of the Compact.

There are more than 100 local city governments in the region, each at varying stages of climate mitigation and adaptation planning and implementation. To formally begin collaborative efforts among local governments, the Compact Counties met jointly with municipal government representatives at the Second Annual Climate Leadership Summit in 2010. More recently, the Compact Staff Steering Committee membership was expanded with municipal representation to ensure involvement of cities in the drafting of the Regional Climate Action Plan. Successful implementation of the Regional Climate Action Plan strategies requires this continued collaboration.

In the forthcoming years, the Compact Counties expect to build coalitions with more municipalities, the various Leagues of Cities, special districts and other governmental entities, including the Treasure Coast counties participating in the Seven50 Sustainable Communities Initiative.

The Compact Counties and municipal partners are committed to the implementation of the Regional Climate Action Plan. Of course, implementation strategies must be sensitive to the different governance structures of counties and municipalities. Because of the variances in government structures, management policies, land use authorities, charters (where present), and the political environments of member counties and municipalities, implementation is expected to take on different forms. This Plan should be viewed as a framework to help guide policies and projects and implementation must be flexible to address specific local conditions.

It is also important to emphasize that the Regional Climate Action Plan does not provide a mandate for any county or municipal actions, but rather serves as a living document with options that each regional or local government may adopt and utilize based on their interests and vision for the future. Over time, this document will be enhanced as more data becomes available, scientific projections are refined, and best management practices are developed and tested.

The success of the planning efforts thus far is a testament to the political leadership and staff dedication to Southeast Florida. We recognize that by combining our efforts and resources, we are in a better position moving forward. The Compact is at an important turning point. As each partner continues to implement different initiatives, at its own pace and within the context of each individual entity, these individual steps will lead to collective results for a more resilient region. Join us, no step is too big or too small.

VI. Regional Plan Recommendations

The following recommendations are the result of much labor by many individuals and organizations dedicated to a more sustainable and resilient Southeast Florida. The 110 actionable recommendations presented here form the core of Southeast Florida's first Regional Climate Action Plan. These measures draw from and build upon the experience of each partner gained prior to regional collaboration. Some, therefore, are familiar requiring only additional partners for differing scales of implementation. Others are new and designed specifically to address the challenges that become evident through a regional perspective. The Compact Staff Steering Committee has produced a companion document, titled the *Regional Climate Action Plan Implementation Guide*, to provide further insight and guidance on how each of these recommendations can be put to work for Southeast Florida. The Regional Climate Action Plan Implementation Guide is available online at: southeastfloridaclimatecompact.org/.

Sustainable Communities and Transportation Planning

With the establishment of a Unified SLR Projection and the Preliminary Vulnerability Analysis, the picture of the likely future of our region is coming into focus. While the specific conditions at a given point in the future are impossible to predict, the range of potential future conditions has been defined based upon the best available science which includes an agreed upon level of uncertainty. This understanding of a likely future allows us to take action now to protect assets and invest wisely. As the science, monitoring, and modeling of impacts continue to be refined, this area of the plan recommends actions to integrate climate change consideration into existing and future policy decision making processes and municipal and county Comprehensive Plans with the goal to achieve resilience, reduce risk and further greenhouse gas emissions reductions.

As one of many tools available in the comprehensive planning process, this section includes several recommendations addressing the designation and implementation of Adaptation Action Areas which are expected to aid in focusing technical assistance and funding opportunities to areas most vulnerable to the impacts of sea level rise and coastal flooding. In 2011, the Florida Legislature amended state law to provide for Adaptation Action Areas as an optional designation in local comprehensive plans for those identified areas experiencing coastal flooding due to extreme high tides and storm surge and the related impacts of sea level rise. The law also provides for the development of adaptation policies and will maximize funding opportunities for infrastructure needs associated with Adaptation Action Areas. Subsequent to recent changes to state law, members of Congress have since requested the definition of Adaptation Action Areas in federal law to provide for appropriations for adaptation planning and infrastructure needs in designated areas. It is realistic to believe that future funding opportunities will become available through federal and state appropriations and grants for Adaptation Action Areas or areas similarly designated for adaptation planning.

Sustainable Communities

GOAL: Reduce financial and physical losses in our building stock by reshaping where and how we build.

SP-1 Support implementation of the Regional Climate Action Plan by including

recommendations from the Plan into existing land use and policy decisions and related elements of the municipal and county Comprehensive Plans, as appropriate; and recognize the Plan as a basis for the development of new goals, objectives and policies through the appropriate local government Comprehensive Plans.

SP-2 Develop policies, strategies and standards that will serve as guidance for climate change related planning efforts. Municipal and county planning authorities are encouraged to develop policies to improve resilience to coastal and inland flooding, salt water intrusion, and other related impacts of climate change and sea level rise in their Comprehensive Plans, Sustainability Action Plans, Vision Plans, Stormwater Master Plans, Transit Development Plans, Long Range Transportation Plans, Adaptation Action Area Plans, Climate Change Plans and other green planning efforts.

SP-3 Incorporate "Adaption Action Area" definition (as provided for in Florida law) into municipal and/or county Comprehensive Plans, to provide a means to identify those areas deemed most vulnerable to sea level rise and other climate change impacts including but not limited to extreme high tides, heavy local rain events, and storm surge for the purpose of prioritized funding and adaptation planning.

SP-4 Develop criteria in collaboration with municipal and county planning authorities for the purpose of defining Adaptation Action Areas as well as other areas requiring adaptation improvements related to coastal flooding and sea level rise that may include, but not be limited to:

- Areas below, at, or near mean higher high water;
- Areas which have a hydrological connection to coastal waters;
- Areas designated as evacuation zones for storm surge; and/or
- Other areas impacted by climate related drainage/flood control issues.

SP-5 Conduct new or utilize existing vulnerability analysis and other technical tools as they are developed as a means for identifying Adaptation Action Areas as well as other areas requiring adaptation improvements related to coastal flooding and sea level rise, to provide guidance for adaptation planning efforts in areas especially at risk to sea level rise, tidal flooding and other related impacts of climate change.

SP-6 Develop policies, as provided for in Florida law and in collaboration with the appropriate municipal and county planning authorities, related to areas designated as Adaptation Action Areas or similarly vulnerable areas to improve resilience to coastal flooding, sea level rise and other climate related vulnerabilities and provide guidance for other adaptation planning efforts.

SP-7 Develop sea level rise scenario maps to be considered for inclusion in appropriate Comprehensive Plans and/or regional planning documents as determined by the appropriate local government to guide municipal and county government climate adaptation planning efforts and continue to update regional and local planning efforts as more data becomes available and scientific projections are refined.

SP-8 Identify locations within Adaptation Action Areas or similarly vulnerable areas where targeted infrastructure improvements, new infrastructure, or modified land use and/or development practices could reduce vulnerability and/or improve community resilience.

SP-9 Coordinate regionally across municipalities and county planning authorities on the development of projects and funding proposals to seek prioritized funding for identified infrastructure needs and specific adaptation improvements required within Adaptation Action Area or other related adaptation planning areas.

SP-10 Work with appropriate local, regional and state authorities to revise building codes and land development regulations to discourage new development or post-disaster redevelopment in vulnerable areas to reduce future risk and economic losses associated with sea level rise and flooding. In these areas, require vulnerability reduction measures for all new construction, redevelopment and infrastructure such as additional hardening, higher floor elevations or incorporation of natural infrastructure for increased resilience.

SP-11 Identify within Adaptation Action Areas and similarly impacted areas populations and communities most vulnerable or of special concern for the purpose of ensuring the

proper consideration of individual needs and resources as part of local and regional planning activities.

SP-12 Develop new community flood maps reflective of a 100-year storm event under future sea level rise scenarios and use this information, in conjunction with similarly updated storm surge models for revising required elevations for new and redevelopment, and in the permitting/licensing of transportation projects, water management systems, and public infrastructure.

SP-13 Designate or otherwise recognize "Restoration Areas" to identify undeveloped areas that are vulnerable to climate change impacts for the purpose of environmental restoration, dune restoration, agriculture, conservation of natural resources or recreational open space, or as stormwater retention areas. Local governments and appropriate regional planning authorities should prioritize land acquisition in these areas. These areas could also be established or acquired through mitigation or transfer-of-development rights initiatives.

SP-14 Designate or otherwise recognize "Growth Areas" as areas outside of Adaptation Action Areas, or other areas subject to adaptation planning efforts, where growth is encouraged due to higher topographic elevation and the presence of existing infrastructure, such as transportation and water and sewer infrastructure. Growth Areas should be developed with Urban Design guidelines that address character of urban place and provide a high quality pedestrian experience through landscaping and the creation of public space.

SP-15 Modify or develop new design standards for transportation infrastructure located in identified vulnerable areas to include environmentally supportive road materials, bridge design, elevation, and stormwater management. Include different pitches combined with stormwater design to effectively remove water from the roadway; explore roadway materials that may be utilized in road construction that are more tolerant of extended periods of extreme temperatures.

SP-16 Develop policies to address new transportation infrastructure development in light of anticipated future climate impacts, such as consideration of future floodplain conditions and vulnerable areas which could require the rerouting of roads because of potential flooding and related damage.

SP-17 Analyze potential blighted sites and develop an approach for converting underutilized or unused properties and structures, including properties in financial distress, into community gardens or farmers' markets. (i.e., Redfields to Greenfields)

Transportation Planning

More than 100 entities in the four-county region exercise governance over transportation planning, operation, and investment decisions.

The transportation sector contributes 45 percent of the region's greenhouse gas emissions, with the majority of trips taken for family and personal purposes in single occupancy vehicles. Reducing vehicle miles traveled (VMT), which reduces emissions, can be achieved by shifting trips taken in the personal vehicle to walking, biking, and public transportation, and shortening or avoiding trips altogether through community design and sustainable development strategies. Recent studies demonstrate the significant impact this approach can have on avoiding greenhouse gas emissions - estimating that the five "Ds" of compact development – density, diversity, design, destination and distance to transit – are expected to reduce VMT by 12 to 18 percent (Urban Land Institute). Clearly, the success of this reduction is dependent on the extent and timing of implementation. While recommendations in this area call for increased funding for mobility solutions that achieve a reduction in greenhouse gas emissions and also increase the livability and economic strength of the region by reducing our dependence on the personal vehicle, others focus on more immediate strategic service improvements as well as initiatives to attract individuals who could drive their cars but who choose to ride transit or share a ride because of the conveniences and other benefits represented by these choices.

More than 100 entities in the four-county region, including municipalities, county and state governments, metropolitan planning organizations, and regional planning bodies, exercise governance over transportation planning, operation, and investment decisions. A continued and expanded collaborative approach to these activities will be a cornerstone to implementing these recommendations that not only serve to reduce greenhouse gas emissions but will realize cross-cutting benefits of more livable and desirable communities within our region.

GOAL: Reduce greenhouse gas emissions by planning, designing, and prioritizing walkable, affordable communities supported by sustainable multimodal transportation options.

SP-18 Identify means to effectively engage the multiple public and private sector entities with roles and responsibilities involving the provision and maintenance of transportation infrastructure and the delivery of transportation services in the region, in climate adaptation and mitigation initiatives. Document current and evolving coordination efforts among these entities.

SP-19 Focus transportation investments and service expansions on projects and strategies contributing to greenhouse gas emissions reductions and enhancing resilience to climate change.

a. Continue to enhance and implement regionally coordinated transportation planning through the Regional Long Range Transportation Plan (RLRTP). Identify goals and objectives in the RLRTP which, as they are attained, reinforce the desired achievement of greenhouse gas emissions reductions and enhanced resilience to climate change. Articulate the supportive role of these goals and objectives for emissions reductions and climate resilience.

b. Give higher investment priority to and advocate for state and federal transportation infrastructure investments, programs and services that will reduce greenhouse gas emissions and enhance resilience and adaptability to climate change. Performance standards for climate and related metrics, such as reduced VMT and increased mode split, should be incorporated in transportation plans and programs. Transportation planning should include performance measures[1] in major decision-making phases such as land use visioning, long range transportation plans, corridor studies, programming, environmental review, and performance monitoring.

c. Incorporate evaluation criteria and processes to prioritize projects that meet RLRTP goals and objectives — into local and regional planning and programming processes — with an initial emphasis on evaluation criteria that reduce VMT and increase use of transportation modes other than the personal vehicle. Projects that enhance economic vitality should also be given priority, such as projects and service expansions along transit-oriented corridors and those that improve connections to major airports and seaports.

d. Prioritize studies funded through existing programs and other sources addressing effective climate adaptation and mitigation strategies, particularly those addressing barriers to adaptation and assisting in integrating land use and transportation planning.

e. Improve coordination among economic development, land-use/housing, transportation and water resource planning activities. Review local and regional planning and decision making processes to ensure a complementary approach toward developing and maintaining a transportation network, including for purposes of reducing VMT and providing more transportation choices.

SP-20 Require that new development and redevelopment in areas with existing and planned multimodal corridors that connect urban and other centers in the region be planned and designed to support walking, biking and transit use.

SP-21 Support effective planning and implementation of transit oriented developments (TODs)[2], from both a local and regional scale, in coordination with effective planning and delivery of transit services, particularly transit stations[3], to maximize ridership.

a. Recognize that planning for TOD requires consideration of transit and land use issues at the system, corridor and station levels, as well as evaluation of adequate infrastructure such as water and sewer mains.

b. Develop policies to streamline approval processes involving TODs.

c. Ensure equitable distribution of the benefits of TOD and premium type transit services.

SP-22 Introduce a new activity-based regional travel demand forecast model to directly simulate individual trip making and mode choice behaviors. Simulations done using the model will allow for robust tests of the effectiveness of policy alternatives.

SP-23 Consider regional implementation of rapid transit zones to maintain land use control around a station with multiple jurisdictions. Modify local land use plans and ordinances to support compact development patterns, creating more walkable and affordable communities.

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[1] *One example of incorporating sustainable transportation performance measures into existing planning processes is: Environmental Protection Agency's Guide to Sustainable Transportation Performance Measures (EPA 231-K-10-004, August 2011).*

[2] *Transit oriented developments (TODs) are compact moderate to high intensity and density mixed use areas, within one-half mile of transit stations, designed to maximize walking trips and access to transit.*

[3] *A transit station in this context means one serving a premium type of transit including commuter rail, light rail, express bus service such as the 95 Express Bus, bus rapid transit service (as defined by the Federal Transit Authority), or a station that functions as a local bus hub or transfer station, serving a minimum of three fixed routes operating with headways of 21-30 minutes or less.*

Recommendation: Work regionally to improve safety for pedestrians and bicyclists.

a. Identity potential future land use map and other comprehensive plan changes at the local level. Also address the subject in regional level plans.

b. Adopt form-based codes that have physical form, design of buildings and the public realm, and an emphasis on mixed and evolving land uses as organizing principles.

c. Consider regional implementation of rapid transit zones or other such designations to maintain land use control around transit stations, including ones with multiple jurisdictions.

SP-24 Consider the adoption of green neighborhood certification programs, such as LEED ND (Neighborhood Development) to guide decision making and development and to provide an incentive for better location, design, and construction of new residential, commercial, and mixed-use developments with the goal of increasing transportation choices while reducing household transportation costs. Incorporate sustainable building and neighborhood ratings or national model green building codes, including but not limited to those defined in Section 255.253(7), Florida Statutes, into municipal codes region-wide.

SP-25 Adopt or create a green rating system for roads to reduce emissions from construction, maintenance, and agency operations through practices such as using recycled materials, purchasing materials found or manufactured sustainably in the region, and requiring construction contractors to implement emissions reductions practices such as using alternative fueled vehicles and clean diesel practices.

SP-26 Improve movement and safety for non-motorized modes through the adoption and implementation of best practice models including Complete Streets.

a. Develop policy, ordinances, guidelines, models and projects to accelerate implementation.

b. Identify partners and resources to support training and the research into new techniques for transportation design and other professionals.

SP-27 Complete, expand and connect networks of bicycle and pedestrian facilities, including supporting access to transit.

a. Prioritize implementation of planned bicycle and pedestrian networks. Improve overall coordination of local and regional agency planning and implementation efforts. Evaluate whether these facilities are connected regionally and on a local scale to major employment, education, and recreation centers.

b. Implement a roadway design project checklist that includes measures of pedestrian, bicycle, and transit (e.g. bus bay) accommodation.

c. Work regionally to improve safety for pedestrians and bicyclists.

d. Consider regional adoption of Transit, Pedestrian, and Biking programs that aim to improve access to transit.

e. Develop policies to increase designated bike parking facilities at office and retail developments.

Recommendation: Partner to implement a Virtual Freight Network as part of the region's comprehensive Intelligent Transportation System.

SP-28 Continue to implement strategies aimed at maximizing the efficiency of the existing transportation network by all agencies across the region. Many of these strategies also result in greenhouse gas emissions reductions. There is a need for a toolbox of successful strategies that can be duplicated across the region. Agencies should make an effort to collect information that will allow for evaluation of the effectiveness of a strategy in reducing greenhouse gas emissions. Information collected by implementing agencies should include emissions reductions, fuel reductions, VMT impacts, or other performance measures as appropriate. Information collected should also include steps for implementation, costs, and lessons learned. Among the strategies to consider are use of roundabouts, real time operation of the traffic signal system, traffic signal prioritization and queue jumps for transit, interstate ramp metering, and employment

of a virtual freight network (freight network managed in real time using intelligent transportation systems).

SP-29 Increase transit ridership by providing premium transit service[4] on targeted regional corridors. Examples of successful routes include the I-95 Express bus service and "The Flyer" route from Miami International Airport to Miami Beach. The goal of these routes is to bring people who might otherwise drive to work (known as "choice riders") from residential areas to regional centers of employment. Agencies should review levels of service policies and service standards and modify as necessary to prioritize increasing services along corridors with dense land use. Improve quality of service by continuing to monitor and address safety and performance.

SP-30 Increase the amenities and infrastructure available to transit riders, such as shade, shelters, kiosks utilizing solar power when feasible, and route and real time boarding information.

SP-31 Provide seamless transitions to increase the use of low carbon modes for the movement of people and freight in the region.

a. Improve connections among Tri-Rail and county transit service, municipal trolley and community shuttle bus services which may include realignment of routes. District circulators, such as the Metro Mover in downtown Miami, which connects to Metro Rail, provide the last leg of a commute for transit riders and should have high frequency and ease of transfer.

b. Implement seamless regional transit fare and transfer media (traditional or virtual) across transit services in the region while improving walking and biking access to transit.

c. Develop planning strategies to address planning for the "First and Last Mile" of transit trips, which act as barriers for commuters who could potentially take transit but whose starting point or final destination cannot be conveniently accessed from

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[4] *The term premium transit service in this context means rail, express bus service, or the Federal Transit Authority definition of Bus Rapid Transit service, which are routes predominantly on fixed guideways or high frequency bus service with the following elements: substantial transit stations, traffic signal priority or preemption, low-floor vehicles or level platform boarding, and separate branding of the service. High-frequency service is defined as 10-minute peak and 15-minute off-peak headways for at least 14 hours of service operations per day.*

the nearest transit stop/station due to distance, terrain (street patterns), or real or perceived safety issues (traffic, crime).

d. Partner to implement a Virtual Freight Network as part of the region's comprehensive Intelligent Transportation System/Transportation System Management and Operations Programs. Establish a software application to provide "load matching" for shippers and truckers to alleviate "deadheading" of empty trucks traveling back to destination.

e. Incorporate climate adaptation strategies and greenhouse gas emissions inventories into Seaport and Airport Master Plans and Regional Freight Plans. Plans should address the critical last mile to and from major seaports and airports in part by providing comprehensive plan land use designations, policies, and standards that protect that function of roadway segments connecting seaports and airports (hubs) to corridors, such as interstates.

Recommendation: Increase transit ridership by providing premium transit service on targeted regional corridors.

f. Establish performance measures including VMT reduction and emissions reductions monitoring for freight projects such as ship to rail projects which remove drayage truck operations[5].

g. Support clustering of distribution facilities to promote intermodal centers and economic development.

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[5] *"Drayage truck operations" refer to truck container pickup from or delivery to a seaport terminal with both the trip origin and destination in the same urban area.*

SP-32 Use and expand Transportation Demand Management (TDM) strategies, which reduce peak hour and single-occupant vehicle travel.

a. Vanpool and Carpool Programs - Work with MPOs, South Florida Commuter Services and South Florida Vanpool to identify and pursue opportunities to more fully utilize and expand these programs.

b. Car and Bike Sharing Programs - Work with companies providing these services and strategic partners (universities, municipalities, large employers, etc.) to establish zip car, bike sharing and personal vehicle sharing programs.

c. Employee Benefits – Encourage sharing of information on and use of employee benefits that support use of walking, biking and transit modes for work commutes (e.g., pre-tax benefits and Emergency Ride Home program).

d. Commute Trip Reduction Programs - Local governments should promote participation in programs such as the EPA Commuter Choice Program and explore the adoption of commute trip reduction ordinances.

SP-33 Coordinate initiatives with those of the seven-county Southeast Florida Prosperity Plan, known as Seven50, to maximize the opportunities presented as Seven50 is developed (e.g., sharing data and analyses; participating in alternative future scenario planning; engaging a myriad of public, private and civic partners) and actively engage in Seven50 implementation efforts, designed to address the following Livability Principles:

- Provide more transportation choices
- Promote equitable, affordable housing
- Enhance economic competitiveness
- Support existing communities
- Coordinate policies and leverage investment;
- Value communities and neighborhoods and
- Enhance community resilience to the impacts of Climate Change

Water Supply, Management and Infrastructure

Climate change presents serious challenges for water managers with impacts on the quality and abundance of water supplies, water and wastewater infrastructure, and drainage and flood control operations. An effective response will require the coordinated efforts of governmental agencies and service providers and a holistic approach that treats water supply, disposal and management as integrated systems.

Climate change presents serious challenges for water managers.

It is essential to identify practical solutions today.

In Southeast Florida, climate change is predicted to influence precipitation patterns with both water supply and water management implications. Fewer storm events, drier winter and spring months, and an increase in local evapotranspiration rates (water lost to the atmosphere through evaporation and plant transpiration) will increase the frequency and severity of droughts while less frequent but more intense storms will tax water management systems causing both inland and coastal flooding. Impacts will be compounded by sea level rise with the loss of coastal wellfields due to saltwater intrusion and constraints on water management operations due to increases in groundwater levels and reduced discharge potential at canal water control structures. Addressing the impacts of climate change will require: finding solutions to consistently maintain high quality and adequate water supplies for all local communities, strategies to reduce the cost and energy demands of alternative water supplies, consideration of future conditions with respect to the placement of infrastructure, and investments in new and upgraded infrastructure to maintain essential drainage and flood control operations. Additionally, SLR from climate change is threatening the Florida Everglades, the backbone of our natural resource system, highlighting the urgent need for restoration of the Everglades with improved delivery and distribution of water flow to provide both natural resources and water supply benefits.

Given these challenges, it is essential to identify practical solutions today to help mitigate the impact of climate change on our future water supply. The Regional Climate Action Plan proposes recommendations to provide regionally coordinated water management plans that address

stormwater use and disposal, traditional and alternative water supplies, wastewater disposal and reuse, water conservation measures, and continued support for Everglades restoration efforts.

A unified effort among government, businesses, and consumers is needed to implement near-term solutions and develop long-term strategies to mitigate adverse impacts of climate change on water supplies while developing new sources that add diversity to our water supplies. Efforts will require optimized use of all water resources, with conservation being paramount, along with development of new sources less vulnerable to changing climate conditions. The challenge will be to implement these necessary projects without marked increases in energy consumption, a difficulty that underscores the value of conservation as a priority strategy. Policy and regulatory changes, funding for infrastructure, development of alternative water supplies, and public education will all be necessary in order to make significant progress. The issues are vast and the investments to be great, with effective response requiring the collaboration of the public, financial participation of state and federal governments, and the exploration of new finance strategies.

GOAL: Advance water management strategies and infrastructure improvements needed to mitigate for adverse impacts of climate change and sea level rise on water supplies, water and wastewater infrastructure, and water management systems.

WS-1 Develop local and, where appropriate, regional inventories of existing potable water supply delivery and collection systems, vulnerable wellfields, wastewater collection and/or treatment infrastructure, septic tanks/drainfields, and stormwater drainage and treatment facilities; assess the potential impact from climate change of each component; and develop different climate change scenarios and adaptation strategies for high-risk utilities and/or infrastructure which may require replacement, reinforcement, or relocation to ensure the long-term viability of the system (e.g., modified site, depth, elevation, materials, or connection requirements).

WS-2 Develop a regional saltwater intrusion baseline and utilize saltwater intrusion models to identify wellfields and underground infrastructure at risk of contamination/ infiltration by saltwater with increases in sea level.

WS-3 Utilize existing and refined inundation maps and stormwater management models to identify areas and infrastructure at increased risk of flooding and tidal inundation with increases in sea level, to be used as a basis for identifying and prioritizing adaptation needs and strategies.

WS-4 Evaluate the impacts of rising sea and groundwater levels on soil storage, infiltration rates and inflow to stormwater and wastewater collection and conveyance systems; consider longer-term influences on water quality; and develop strategies for implementing reclaimed water and stormwater reuse projects that account for current and future conditions.

WS-5 Develop and apply appropriate hydrologic and hydraulic models to further evaluate the efficacy of existing water management systems and flood control/drainage infrastructure under variable climate conditions. Quantify the capacity and interconnectivity of the surface water control network and develop feasible adaptation strategies.

WS-6 Coordinate with the South Florida Water Management District, Drainage/Water Control Districts, and utilities/public works officials to identify flood control and stormwater management infrastructure already operating below the design capacity. Further examine water control structures to ensure that they can provide for inland or upstream migration of riparian species as freshwater habitats become more saline.

WS-7 Develop Integrated Water Management Plans that present a joint assessment and planning strategy involving local water utilities, wastewater service providers, water managers, and partners to the Southeast Florida Regional Climate Change Compact, for coordinated consideration of stormwater use and disposal, traditional and alternative water supplies, wastewater disposal and reuse, and water conservation measures for use by local leadership to guide planning decisions as well as amendments to applicable codes and regulations.

WS-8 Develop and test water management and drainage system adaptation improvements needed to maintain existing levels of service relating to drainage, flood control, and water supply, and use cost-benefit analyses to prioritize potential improvements.

WS-9 Incorporate and prioritize preferred climate adaptation improvement projects in capital improvement plans and pursue funding.

WS-10 Encourage, foster, and support investigative work and scientific research that improves the understanding of local and regional climate change impacts specific to Southeast Florida, including:

- Improved down-scaling of global climate models for representation of precipitation at the regional/local scales
- Identification and targeting of gaps in monitoring to improve quantification of the hydrologic system and its response to climate change, such as evapotranspiration, groundwater levels, and precipitation, and local sea level
- Development of risk-based decision support tools and processes for application in analysis of infrastructure design, water resource management, natural systems management, and hazard mitigation alternatives. Tools should provide for consideration of potential economic costs of comparative planning scenarios, management decisions, and infrastructure investments and the evaluation of potential tradeoffs.

WS-11 Undertake efforts to fill identified data gaps through local program efforts, agency collaborations, and advocacy for additional state/federal resources, as needed.

WS-12 Foster the development and exchange of new information, methods and technical capabilities to address key questions of concern related to climate variability and sea level rise to support management decisions:

- Assess impacts of observed and predicted climate variability and sea level rise on the frequency, duration, and intensity of flooding as a result of extreme tidal excursions, storm surge, and 100-year storm events, and where impacts are likely to be greatest.
- Examine the effects of climate change on water availability and groundwater vulnerability due to sea level rise, and predicted changes in precipitation and evapotranspiration patterns and rates.
- Establish a venue for a periodic exchange of ideas between resource managers, policy makers, and researchers.

WS-13 Develop agency capabilities to provide rapid deployment of resources in immediate response to intense precipitation and storm events through use of Next RAD technology.

Recommendation: Mitigate climate change on water supplies, water and wastewater infrastructure, and water management systems.

WS-14 Cultivate partnerships with federal and state agencies and professional associations with expertise in integrated water resource planning (such as the U.S. Army Corps of Engineers Institute for Water Resources, the United States Geological Survey, and Water Foundations) as sources of important research, reports, and information regarding climate change, and efforts being undertaken in other communities.

WS-15 Monitor changes in rainfall patterns, temperature means and extremes and sea level rise through coordination with NOAA and other key organizations/partners to better predict future wet-season and dry-season rainfall. Monitor emerging science in order to assess the adequacy of regional climate models. Choose an annual conference or other venue at which such trends can be reviewed at regular intervals.

WS-16 Manage water storage in the region's publicly-owned uplands and wetlands and in other land uses compatible with water storage, including wetland restoration, certain agricultural operations and certain renewable energy production facilities. This will further serve to protect high quality drinking water supply, increase aquifer recharge, and as a means for managing saltwater intrusion.

WS-17 Support complete implementation and funding for the Comprehensive Everglades Restoration Plan (CERP) and its updated versions as fundamental to Everglades restoration, to include increased freshwater flows to the Everglades system, thereby improving water quality, maximizing regional freshwater storage and aquifer recharge, and providing potential to abate saltwater intrusion, which will become increasingly important under variable climate conditions and in the face of sea level rise.

WS-18 Combine existing and develop new land acquisition priorities in a regional setting to protect high quality drinking water supply.

Natural Systems

Southeast Florida's natural communities exist within specific climate, water and salinity regimes; coral reefs and seagrasses grow in clear, shallow seawater with abundant sunlight and stable temperatures while mangroves thrive in the often brackish areas between the low and high tide lines. Freshwater-dependent hardwood hammocks and pine rockland forests support an abundance and diversity of rare plants and animals unrivaled in the United States. Similarly, Everglades tree islands depend upon wet and dry seasonal rainfall patterns that have existed for centuries. Climate change threatens many of the native plants and animals important to Southeast Florida's culture, economy and distinctive sense of place.

Changing weather patterns are not new to the native flora and fauna of Southeast Florida. Plants and animals are always living and competing on the edge of their limits. Wetland plants gain ground, moving up the slope in wet years and perhaps losing that same ground in dry years. But in many climate change scenarios, the speed and direction of such changes may be unprecedented. Climate change may exceed the capacity of native species to keep pace. By taking specific action now, we may be able to manage our native flora and fauna without losing species diversity and without introducing potentially harmful species.

Coral reefs are vital to local fisheries and the economy. Healthy oceans provide most of the oxygen in the air we breathe. Much research is already underway regarding the impact of climate change on the world's oceans. Locally, strategies are being developed to maintain our ocean in the face of climate change. In estuarine systems, mangroves and seagrasses are primary converters of sunlight energy to food energy. However, they are both limited

Climate change threatens many of the native plants and animals ...

... important to Southeast Florida's culture, economy and distinctive sense of place.

by water depth. As seas rise, they may not survive in their current locations. It will be incumbent on us to ensure that newly inundated areas are available for them to colonize. The fate of freshwater wetlands is currently harder to predict. Tide water may reach further inland and some freshwater sources may become more brackish. These 'lightly salty' estuaries can be biologically healthy habitats but we must ensure that other land uses, including drinking water supplies, are not threatened.

Most of the regions' freshwater wetlands and native uplands are supplied with rainwater. At this time, no one knows exactly what changes in rainfall patterns are in store for us. What we do know is that storage of freshwater is an important mitigation option whether rainfall is too much or too little – or both. Having freshwater storage options allows us to collect flood waters and hold them for later release during drought.

Given the opportunity, some species can adapt, migrate, or transition. Adaptation and migration or transition, necessary for sustaining natural plant and animal communities, will require careful and thoughtful planning. Land use planning and land acquisition programs will have to allow for such transitions. Hardened shorelines may be transformed to living shorelines. Open lands or vacant parcels may be suitable locations for habitat restoration.

The following strategies recommend ways in which all levels of government can share information necessary to plan for and implement the maintenance of natural areas, rare and endangered native species populations as well as the green industries necessary for our local economy.

GOAL: Implement monitoring, management, and conservation programs designed to protect natural systems and improve their capacity for climate adaptation.

NS-1 Develop a vital signs status and trends monitoring program for biological communities. Key parameters may include rate of sea level rise, saltwater intrusion boundary and monitoring wells, landscape-level vegetation patterns, percent coral cover and condition in offshore reef zones, water temperature and pH in areas, and occurrence and range of invasive exotic plants and animal species.

NS-2 Promote collaborative federal, state and local government conservation land acquisition programs. Explore fee simple and less-than-fee approaches which reflect regional acquisition priorities and result in conserving a diversity of natural areas including hot spots of biological diversity, protecting open space and buffer areas to create or maintain resilience and adaptive capacity of existing natural areas to transition inland/ upslope.

NS-3 Support regional fire management coordination efforts emphasizing frequent, low intensity fire regimes in wetland and pine forest systems to maximize habitat quality, resilience to change and carbon neutrality while preventing hazardous fuel load buildup that leads to major carbon releases.

Goal: Implement monitoring, management, and conservation programs designed to protect natural systems and improve their capacity for climate adaptation.

NS-4 Quantify monetary values of hazard mitigation and adaptation provided by natural systems using Ecosystem Services Valuation or comparable model. Create a sustainable funding mechanism for their protection and management.

NS-5 Maintain or restore multiple areas of habitat and large-scale connectivity to facilitate native species population stability and habitat shifts resulting from climate change.

NS-6 Coordinate and implement regional invasive exotic species prevention and control efforts to minimize the diversity and abundance of habitat-homogenizing exotic plants and animals by emphasizing prevention of new invasions and early detection/rapid response to nascent invasions.

NS-7 Coordinate "living shorelines" objectives at regional scale to foster use of natural infrastructure (e.g. coral reefs, native vegetation and mangrove wetlands) instead of or in addition to grey infrastructure (e.g. bulkheads).

NS-8 Leverage existing work of the Florida Reef Resilience Program's "Climate Change Action Plan for Florida's Coral Reef System 2010-2015" for protection of marine habitat.

NS-9 Engage and cooperate with marine resource agencies to maintain coral reef (e.g., selective breeding) and mangrove ecotones as estuarine habitat and natural barriers to storm surge that also maintain coastal biodiversity.

Sea level rise from climate change is threatening the Florida Everglades, the backbone of our natural resource system.

NS-10 Advocate for federal and state funding for applied monitoring and climate related science:

- identify economic and physical linkages between marine systems (e.g. reefs and mangroves) and hazard risk/damage claim reduction
- monitor coastal and freshwater marsh vegetation tolerance to changing salinity, depth and other climate variables
- improve data on estuarine bathymetry and use appropriate models to help identify habitats at risk
- develop refined climate projections, hydrologic and ecological models to aid in planning

NS-11 Support regulatory requirements that provide for ecologically beneficial uses of clean, dredged materials.

NS-12 Develop long-term turtle-nesting beach preservation and management strategies to reduce nest vulnerability and mortality.

NS-13 Compile information on rare plant species in threatened natural communities and develop adaptation plans that include, at a minimum, seed bank repository collection and assisted propagation.

NS-14 Maintain/restore urban tree canopy.

Agriculture

Agriculture is consistently one of the three economic drivers to Florida's economy. When the economic impact of tourism, development and agriculture are reviewed over many years, agriculture tends to be the stabilizing component of the economy.

Consideration of agricultural impacts is vital to any regional action plan.

Southeast Florida is unlike any other growing area in the nation due to a 12-month growing season and ample local market potential. More than 250 different and unique crops grow in Southeast Florida. These crops supply the entire east coast of the United States with winter vegetables, contributing to the food security of the nation. Many tropical and ethnic crops are also grown and marketed to the diverse population of the region.

Farmers are actively adapting Best Management Practices that efficiently utilize nutrient application (right time, right place) and conserve water resources. They are also evaluating alternative methods to utilize and retain water when it's not harmful to current or projected growing practices.

The agriculture community is committed to sustainability, and the economic viability of regional agriculture will allow farmers to remain on the land to grow food, fuel and fiber for area residents as well as the nation. Consideration of agricultural impacts is vital to any regional action plan which should include action plans to address flooding, salt-water intrusion, exotic pests and disease introduction and crop changes due to climate change.

GOAL: Ensure the continued viability of agriculture in Southeast Florida through policies which remove barriers to production, promote economic incentives, improve water reliability, and provide research on best management practices, thereby encouraging sustainable production in the face of a changing climate.

AG-1 Promote policies which preserve the economic viability of agriculture as the industry adapts in the face of climate change.

AG-2 Develop and seek regional, state, and county-based funding for willing buyer/willing seller Agriculture Purchase of Development Rights Program to maintain agricultural land for its

ability to lessen climate change impacts and provide tor national food security.

AG-3 Support academic research in the agriculture sector on best management practices for crops presently grown or new crops which may be grown as climate conditions change in Southeast Florida.

More than 250 crops grow in Southeast Florida, contributing to the food security of the nation.

AG-4 Provide incentives to growers/land owners to manage agricultural lands to lessen impacts of climate change regionally and provide environmental benefits (which may include, but not be limited to: open space, water aquifer recharge and storage, carbon sequestration, wind farms, biofuels, and wildlife habitat).

AG-5 Ensure availability of water supply, at reasonable cost, to meet the diversity of needs across Southeast Florida to include agricultural irrigation needs and crop freeze protection.

AG-6 Identify and reduce obstacles for permitting agricultural practices (including growing and selling produce) in urban areas, in order to encourage urban farming and reduce greenhouse gas emissions related to the transport of farm produce.

Energy and Fuel

The vast majority of the energy consumed in the region is to fuel our vehicles and to generate electricity for our buildings. It is widely understood that the most accessible and cost-effective way to reduce energy consumption is through efficiency and conservation. The recommendations in this area address these important strategies and also take the next step by encouraging the use of alternative and renewable energy. They call for public-private partnerships and addressing barriers, including regulatory processes, which currently prevent the broad application of these technologies. Recommendations are comprehensive, ranging from setting regional goals, increasing renewable energy capacity to establishing a regional framework to deliver finance options. Recommendations also aim to reduce idling and prepare our region for the shift to plug-in electric vehicles.

GOAL: Increase renewable energy capacity and reduce consumption of electricity and fuel.

EF-1 Undertake regional efforts to advance energy efficiencies, energy conservation and the deployment of alternative and/or renewable energy technologies in existing and proposed developments through local ordinance, incentives, education, and energy efficiency financing strategies.

Recommendations aim to reduce idling and prepare our region for the shift to plug-in electric vehicles...

EF-2 Work toward the establishment of a regional framework to deliver Energy Efficiency and Renewable Energy finance options, in addition to other local government initiatives and partnerships, to achieve regional greenhouse gas emissions reductions, the use of alternative and renewable energy technologies, in furtherance of green sector economic development.

EF-3 Set a recurring five–year regional goal to increase renewable energy capacity and conservation – which includes the co-benefits of economic development and job creation – through revising building and zoning codes and architectural design guidelines to allow for, encourage, and integrate renewable energy sources into the power supply.

EF-4 Seek amendments to existing land development regulations and development standards and revise or eliminate provisions that act as a barrier to the installation and use of renewable energy systems pursuant to Section 163.04, F.S.

EF-5 Develop policies to facilitate and streamline the deployment of energy efficient and renewable energy such as the installation of LEDs and use of solar power for public infrastructure such as street lighting, parks, and parking facilities. Survey counties, cities and regional agencies with lighting infrastructure to determine the

... and to advance energy efficiencies, energy conservation and the deployment of alternative and/or renewable energy technologies on a regional basis.

level of deployment and to gather best practice policies and implementation steps to facilitate the application of efficient, environmentally sensitive (sea turtles), and responsive lighting practices in additional infrastructure.

EF-6 Support or facilitate development and distribution of *local* sources of sustainable fuels and availability of fueling infrastructure. Adopt policies to facilitate the development of *locally sourced* sustainable alternative fuels, those achieving a reduction in lifecycle greenhouse gas emissions when compared to conventional fossil fuels (including, but not limited to, waste-based bio-diesel and methane gas from sources like landfills). Include these policies in regional plans and Local Comprehensive Plans. Identify incentives and modify local code to encourage the establishment of a local alternative energy industry.

EF-7 Establish a working group of public and private stakeholders to develop a strategy to promote the use of Plug-in Electric Vehicles in the region.

a. Establish locations where infrastructure and/or battery switching stations are needed. Solar charging and other renewable options should be designated a priority to maximize emission reduction benefits and to improve the community's emergency management preparedness in times of power outages.

b. Develop policies to provide incentives for the deployment of infrastructure to complement transit oriented corridors. Preferred and/or reduced parking fees should be a consideration for riders accessing transit facilities by electric or other alternative fuel vehicles. Transit facilities should develop plans to establish electric vehicle charging infrastructure.

c. Work with relevant stakeholders to streamline permitting processes associated with charging equipment to encourage the safe and expeditious installation on customer premises and elsewhere.

d. Coordinate monetary and non-monetary incentives available to the general public and organizations purchasing electric vehicles.

e. Support regional efforts to establish a framework for siting/locating public electric vehicle charging stations.

EF-8 Develop a strategy to promote the development of truck parking with electrification facilities and the use of auxiliary power units to reduce extended idling by trucks.

a. Survey state, local and regional transportation agencies for existing studies identifying trucking patterns and needs.

b. Identify strategic locations for truck parking facilities and seek competitive funding opportunities as a region.

Risk Reduction and Emergency Management

The recommendations presented in this section of the Southeast Florida Regional Climate Action Plan provide a foundation for establishing a more predictable physical environment in the face of climate change through regulations, adaptation strategies, and emergency operations, with the goal of reducing future economic losses and threats to public safety. Southeast Florida is no stranger to the devastating effects of hurricanes and other severe weather. Our experience has made us experts in planning, preparedness, response, mitigation, and recovery. Our emergency managers are trained in an all risk-based, all hazards approach. Disaster can strike anytime, anywhere. It takes many forms – a hurricane, a tornado, a flood, a fire or a hazardous spill, an act of nature or an act of terrorism. In fact, in the aftermath of September 11, homeland security preparedness was easily incorporated into Southeast Florida's all hazards approach to emergency management. An emergency can build over days or weeks, or hit suddenly, without warning. Southeast Floridians are resilient and accustomed to this and can mitigate, prepare, respond, recover, and return to better than normal.

Planning for more and possibly new weather-related threats needs to be incorporated into our emergency preparedness and hazard mitigation plans.

Climate change differs, however, with impacts that may not be immediately evident as the changing conditions are slower and occur over longer time scales. With climate change there is no overnight return to "normal." Sea level rise does not appear on the on 6 o'clock news weather map moving towards the coast of Florida. It is that difference that makes it more difficult for the general public to understand and to react to climate change. Yet, we are already experiencing more extreme weather conditions – from extreme rain to extreme droughts, from unseasonable heat waves to early cold fronts. Climate

is changing. Adapting and planning for more and possibly new weather-related threats need to be incorporated into preparedness procedures, and one step further is to include climate change in our emergency preparedness and hazard mitigation plans.

The collection of strategies and actions in this area is aimed at integrating climate change risk into all-hazards emergency management planning and response models. This approach provides support for the objectives of the Coastal Zone Management Act of 1972 which recognizes sea level rise as a threat to coastal communities and encourages strategies for improved protection of life and property, and builds upon requirements of Section 163.3178 and Chapter 252 F.S. relating to coastal and emergency management plans.

GOAL: Provide a more resilient natural and built physical environment in light of climate change.

RR-1 Perform vulnerability analysis to identify and quantify the economic value of regional infrastructure at risk under various sea level rise scenarios and other climate change scenarios utilizing inundation mapping, modeling, and other appropriate tools. While the initial regional vulnerability assessment completed by the Compact Counties for use in this Regional Climate Action Plan has yielded important new insights on regional risk, additional and ongoing analysis is required to further refine our current understanding and to monitor changes in Southeast Florida's risk profile over time.

RR-2 Evaluate and improve adaptation responses for communities at risk, to include:

- Development and implementation of methodologies for the assessment and evaluation of evacuation and relocation options
- Development of model evacuation policies and procedures for communities at increased risk of flooding
- Development of model relocation policies for affected communities.

RR-3 Incorporate climate change adaptation into the relevant Local Mitigation Strategy (LMS) to reduce or eliminate long-term risk to human life and property from disasters. Within the LMS, update local risk assessments to include climate change in the hazard analysis and vulnerability assessment section. Develop strategies for hazard mitigation and post-disaster redevelopment planning.

RR-4 Identify transportation infrastructure at risk from climate change in the region, and determine whether, when, where, and to whom projected impacts from climate change might be significant. Employ inundation mapping, modeling and other appropriate tools to assess the vulnerability of transportation infrastructure to the projected impacts of climate change under various sea level rise and other climate change scenarios. At a minimum, assess the vulnerability of the following transportation infrastructure:

- local transportation networks of the Compact Counties
- the Regional Transportation Network designated by the Southeast Florida Transportation Council composed of interconnected, strategic corridors (roadway, rail line, waterway), hubs (airports, seaports, intermodal terminals, freight terminals, passenger rail and intercity bus terminals) and connectors critical to the mobility of people and freight and the region's economic competitiveness and quality of life (map included in Appendix D); and evacuation routes adopted under the Statewide Regional Evacuation Corridor Program.

Recommendation: Communicate the risks related to climate change.

RR-5 Enforce Coastal Construction Control Line and build upon goals, objectives and policies related to Coastal High Hazard Area designations in Comprehensive Plans.

RR-6 Adopt consistent plans at all levels of regional government that adequately address and integrate mitigation, sea level rise and climate change adaptation. The following plans must all be consistent: disaster recovery and redevelopment plans, comprehensive plans, long-range transportation plans, comprehensive emergency management plans, capital improvement plans, economic development plans, Local Mitigation Strategy, Climate Change Action Plan, and Future Land Use Plan.

RR-7 Continue to implement and enforce strong building codes that require new construction and substantial improvements to existing structures to mitigate against the impacts of flooding, severe winds, and sea level rise, and which are consistent with Climate Change Adaptation policy.

Outreach and Public Policy

Outreach and Public Policy recommendations are combined in recognition of the fact that the best planning efforts in the world will not be implemented or reach their full potential without the support of the public, often through local government public outreach programs, and without the leadership of local, state and federal policy makers and private sector decision makers who are committed to a sustainable planet.

Public Outreach

Today's world is marked by instant communication, immediate information and multitasking behaviors. News and information related to climate change is difficult to communicate in a sound bite. It's relatively easy to communicate the threat of an imminent storm, tornado or other natural disaster, but much more difficult to mobilize the public to hazards that unfold over years and decades. The state of the current economy also makes a long-term discussion on climate change more difficult when many Americans are thinking about short-term housing, employment and other immediate needs. And, of course, the science of climate change is still contested by some.

The strategies and actions in this area aim to educate stakeholders in all sectors and at all levels – from the general public and voters to elected officials, professionals and other decision makers. These are initiatives to inform and create a common understanding of the benefits of energy independence, energy use reduction, water conservation, smart growth, and natural area protection that will create demand for a healthy, sustainable and resilient region.

GOAL: Communicate the risks related to climate change and the value of adapting policies and practices to achieve resilience throughout the region.

PO-1 Provide outreach to residents, stakeholders and elected officials on the importance of addressing climate change adaptation and preparedness and develop a program to educate specific interest groups about the Compact, Regional Climate Action Plan, and the benefits of Adaptation Action Area. Consider utilizing the Academy concept to educate elected leaders, academic interests and other decision makers.

PO-2 Collaborate among counties, municipalities and appropriate agencies to develop and carry out outreach/educational programs to increase public awareness about hazards

exacerbated by climate change, mitigation efforts, and adaptation strategies to minimize damage and risk associated with climate change.

Successful implementation of the Regional Action Plan strategies requires continued collaboration.

PO-3 Provide education and improve communications on energy conservation and available technologies with a focus on both short-term and life-cycle economic benefits, and incentives available within the region.

PO-4 Modify existing and encourage new public outreach, education and messaging programs associated with natural areas including upland, wetland, marine, coastal and nearshore environments and the Everglades to include climate change mitigation and adaptation messaging and volunteer opportunities to create awareness about the impacts of climate change on the environment.

PO-5 Initiate a regional public education campaign to educate residents, business owners, and policy makers on the merits of preserving open land as an "insurance policy" for adaptation to sea level rise in Southeast Florida.

PO-6 Develop early warning systems and social media applications to both inform residents and visitors of extreme high-tide events and to raise overall awareness on sea level rise and climate change issues. Also consider roadway signage for tidal flooding zones.

PO-7 Leverage resources for campaign and promotional advertisements by coordinating public transportation messaging in the region to attract non-transit-dependent (choice) riders. Messages should focus on making riding transit "cool."

PO-8 Deploy social media applications, to facilitate use of transit including access to real-time information such as arrival times.

PO-9 Develop strategies to promote fuel efficient driving habits, including anti-idling practices, and to raise awareness of rules and safety practices for sharing the road

with bicyclists and pedestrians. Conduct best practice research on existing campaigns and look for opportunities to integrate tools into existing high school, county and municipal driver education courses, traffic school curriculum, truck driver training, and fleet associations. Also include messaging on the benefits of purchasing fuel efficient vehicles.

PO-10 Coordinate outreach efforts with states, regions and counties that are subject to the impacts of climate change with special emphasis on coastal entities experiencing sea level rise and coastal flooding to create a national Climate Adaptation Coalition for the purpose of impacting public policy and influencing appropriations requests.

PO-11 Create a working group to expand marketing efforts such as Redland Raised to promote local organic and sustainable agriculture and economy by connecting farmers with local users such as restaurants, grocers, and farmers markets and encourage the establishment of farm-to-school initiatives and community supported agriculture programs.

Public Policy

Public policy development and advocacy are core components of the Compact and commitments that the Compact partners have fulfilled. Recent amendments to Florida law that provide for Adaptation Action Area designation for areas vulnerable to the impacts of climate change, and the subsequent request by members of Congress to amend federal law to mirror this action are just a few examples of the Compact's success to influence policies. The Regional Climate Action Plan provides the next step to gain support for ordinances, regulations and state and federal policies on behalf of the region. The Public Policy goal complements numerous other recommendations noted in the Sustainable Communities and Transportation Planning sections of this Plan.

On June 24, 2010, partners in the Southeast Florida Climate Compact convened a regional press event to respond to the Deepwater Horizon Oil Spill in an urgent call for comprehensive federal energy policy and a demand for a permanent ban on oil drilling and exploration in Florida's territorial waters and along Florida's outer continental shelf.

Additionally, the continuation of regional efforts to influence public policy is key to ensure that state and national policies considered during these uncertain times do not impede regional efforts already underway. Compact successes to date can easily be undermined without vigilance in monitoring policy developments on all levels of government.

GOAL: Guide and influence local, regional, state and federal climate change related policies and programs through collaboration and joint advocacy.

PP-1 Compact Partners will continue the support for the core Compact policies and the role of joint advocacy as provided for in Sections 1 – 4 of the Compact calling for changes to federal law that better recognize the unique vulnerabilities of Southeast Florida to climate change and for providing appropriations based on vulnerabilities, with special attention to funding infrastructure projects to adapt to sea level rise.

PP-2 Compact partners will continue to develop state and federal legislative programs on a yearly basis that will serve as guidance for advocacy in Tallahassee and Washington, D.C. Regional programs will be considered for inclusion into Compact partners' legislative packages and joint advocacy in Tallahassee and Washington, D.C., is encouraged when appropriate.

PP-3 Continue to seek the support of other municipal and county jurisdictions including the Leagues of Cities, Florida Association of Counties (FAC), etc. within Florida and the National Association of Counties (NACo) and other entities that influence national policy for the purpose of building coalitions, sharing resources, and influencing state and national policy on mutual climate related issues through joint advocacy.

PP-4 Counties, municipalities, regional agencies and other appropriate government and private sector partners should integrate consideration of climate change impacts and adaptation strategies into existing and future systemwide planning, operations, policies, and programs. The guiding principles developed by the Interagency Task Force on Climate Change Adaptation[6] for federal agencies should be incorporated by entities when designing and implementing adaptation strategies:

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[6] (http://www.fedcenter.gov/programs/climate/guidingprinciples/)

- Prioritize the most vulnerable
- Use best-available science
- Build strong partnerships
- Apply risk-management methods and tools
- Apply ecosystem-based approaches
- Maximize mutual benefits
- Continuously evaluate performance

We will continue to seek the support of entities that influence national policy for the purpose of building coalitions, ...

PP-5 Advocate for new authorization of the federal surface transportation programs with increased priority for funding public transit and non-motorized travel and integrated regional and local planning as means to reduce the greenhouse gas emissions from the transportation sector. Such a federal program should explicitly incorporate climate change and shift priorities toward programs that encourage reinvestment in existing infrastructure and communities ("fix-it-first" programs), support public transportation and transit-oriented development, and address congestion management through means other than new road building.

PP-6 Support federal actions to reform transportation models and enhance the National Environmental Policy Act (NEPA) processes to integrate climate change analysis. The essential purpose of NEPA is to ensure that environmental factors are weighted equally when compared to other factors in the decision making process. NEPA processes are central to highway and transit project investment analysis.

PP-7 Advocate for stronger Corporate Average Fuel Economy (CAFE) Standards and other initiatives to promote clean fuel alternatives and encourage more stringent vehicle emission standards in recognition of the value of these initiatives to mitigate the impacts of climate change by reducing greenhouse gas emissions.

PP-8 Support and advocate for continued implementation and funding on the state and federal levels for the Comprehensive Everglades Restoration Plan (CERP) in recognition of the important role of CERP in climate adaptation planning and local water resource management related to regional water storage and aquifer recharge, important under variable climate conditions and sea level rise.

PP-9 Advocate to interests in Tallahassee for the preservation of the authority and resource capacity of the Water Management Districts in support of their continued

participation in integrated water resource planning, particularly in Southeast Florida where climate change and sea level rise pose additional challenges to the complex issues of alternative water supply development, Everglades restoration, salt water abatement, and drainage and flood control operations.

... sharing resources, and influencing state and national policy on mutual climate related issues through joint advocacy.

PP-10 Encourage federal support for research and investigations of potential energy efficiencies in pumping and water treatment processes necessary for meeting energy reduction goals concurrent with a growing reliance on pumps and advanced treatment technologies for drainage and flood control, water production and wastewater operations.

PP-11 Urge Congress to provide recognition of an "Adaptation Action Area" designation in federal law for the purpose of prioritizing funding for infrastructure needs and adaptation planning, with special attention to modifications in law that enhance funding opportunities through USACE and EPA appropriations processes, as requested by members of Congress.

PP-12 Urge Congress to pass legislation that would create a permanent funding source to finance infrastructure projects to adapt to the impacts of climate change with emphasis on investments in areas such as water management, water supply, transportation and other projects that serve to reduce risks to urban infrastructure from extreme weather events and rising sea levels.

PP-13 Urge Congress to pass legislation that removes federal barriers posed by the Federal Housing Finance Agency to Property Assessed Clean Energy (PACE) residential initiatives that are intended to assist property owners to finance energy efficiency and renewable energy improvements.

VII. Conclusions

This Regional Climate Action Plan provides the initial framework for an ongoing regional commitment to building resilience and sustainability as cornerstones of Southeast Florida's regional economic, social and ecological system. The five-year scope of this document is indicative of the fact that this is the beginning rather than the end of the Regional Compact process. The Compact Counties recognize that a given document is less important than the ongoing collaborative process of assessing progress over time, developing new policies and collaborations among the public, private and nonprofit sectors to adjust accordingly and incorporating new knowledge provided by ongoing scientific endeavors. While much can be learned about sustainability and resilience from past experience, new technologies, changes in the regional economy and changes in the historical climatic conditions within Southeast Florida require active learning over the decades to come. The Southeast Florida Regional Climate Change Compact has developed the institutional capacity to enable the collaborative learning required to meet these challenges over time.

The Significance of the Southeast Florida Regional Climate Change Compact

While providing direct benefits to the region, the Compact has provided a national model for state and federal agency engagement with local government around the specific issues of place. As the Compact is led by local government and further, as the Compact represents a significant aggregation of effort by four counties containing over 100 municipalities, it has become a highly efficient mechanism for state and federal agency engagement in the local process. Since its adoption in early 2010, the Compact has received extensive technical support from NOAA, the United States Geological Survey, the U.S. Army Corps of Engineers, EPA Region IV as well as the Florida Department of Transportation, the Florida Department of Economic Opportunity and the South Florida Water Management District.

The regional scale of the Compact has enabled participants to develop resilience strategies that effectively integrate human and natural systems. The Regional Climate Action Plan has effectively connected resilience efforts within the urban core of Southeast Florida with broader ecosystem scale efforts including

comprehensive Everglades restoration, protection of the Southeast Florida coral reef tract, and regionally important threatened and endangered species and habitats. The ecosystem services provided to the human settlements of the region are evident in the nature of projected vulnerabilities such as salt water intrusion into local drinking water supplies and the increased exposure to storm surge impacts associated with the loss of natural barriers. And the strategies developed to enhance environmental and habitat quality fully recognize the benefits these strategies will have for the ongoing livability of the region.

The Compact has provided a national model for state and federal agency engagement with local government.

The Compact has enjoyed stable, bipartisan political support since its initiation in 2009 despite the swings in the political salience of global climate change observed over this time in state and federal political dynamics. This stability has remained despite the departure of early champions of the Regional Compact from County Commission seats and a change of administration within one of the four Compact Counties. The scope and extent of regional engagement made possible by the Regional Compact has served to foster on-going bipartisan support as the Compact continues to enjoy strong political leadership from each of the Compact Counties.

As an ongoing collaboration, the Compact provides a formal framework for policy development, implementation and evaluation that is so critical to enable learning over time. Implementation of this Regional Climate Action Plan will require the active participation of many actors, not least of which are the many municipalities within the four county region who have primacy in many cases for the decisions that will determine the shape of Southeast Florida in the years to come. The Regional Compact process has benefited greatly from the active participation of municipal representatives who have contributed much perspective and many insights thus far. As implementation progresses, this ongoing collaboration will be all the more critical for success.

Next Steps

The release of this Regional Climate Action Plan is the first of several subsequent steps to follow in the Regional Compact process. The following provides an overview of these subsequent next steps:

- Upon completion of the final Regional Climate Action Plan, the Compact Staff Steering Committee will transmit the final plan to the four Boards of County Commissioners for the acceptance and/or approval of the final recommendations.

- The Compact Counties will continue development of a set of progress indicators for use in monitoring and evaluating the impact of implemented recommendations in building resilience and sustainability in Southeast Florida.

- The Compact Counties will continue to collaborate with the Southeast Florida Regional Sustainable Communities Initiative funded by the U.S. Department of Housing and Urban Development in addressing a wide range of sustainability and livability considerations for Southeast Florida. The Compact Counties will continue to collaborate with the Southeast Florida Regional Partnership in addressing a wide range of sustainability and livability considerations for the region, including through development and implementation of the Seven50 Regional Vision and Blueprint for Economic Prosperity.

- Annually, the Compact Policy Coordination Team will continue the Compact energy and climate policy coordination process for state and federal legislation and will continue to monitor legislative developments in both levels of government.

- In early 2013, the Sea Level Rise Projection Technical Advisory Committee will reconvene following the December 31, 2012 publication deadline for peer-reviewed scientific literature to be used in the Fifth Assessment Report of the Intergovernmental Panel on Climate Change due in 2014. Members of the technical advisory committee have advised that they anticipate many new publications in 2012 that will have significant bearing on mid- to longer-terms rates of sea level rise as an issue of concern for Southeast Florida. At that time, the technical committee will provide regionally consistent sea level rise projections for use in the Compact process through 2100 while adjusting guidance provided for 2030 and 2060 as warranted by the science.

There are more than 100 local governments in the region, each at varying stages of climate mitigation and adaptation planning and implementation.

This first Regional Climate Action Plan recommends several first steps toward reducing emissions and building resilience to climatic impacts across Southeast Florida, but it isn't the final outcome of the Compact. Compact participants have the opportunity to learn from early implementation: what works and what doesn't, what are the implications of new science, and what are the

Our individual and collective steps will result in a more resilient region.

implications of changes in state and federal policy. Over the next few months, the Compact Counties will continue working with the Coastal Services Center at NOAA to develop a set of performance indicators for use in monitoring and evaluating progress made in implementing this first Regional Climate Action Plan. By implementing an ongoing set of performance metrics for this Regional Plan and by remaining engaged with leading practitioners of science and public policy, the Compact will be well positioned to capitalize on success, learn from challenges, and produce subsequent future iterations of this Regional Climate Action Plan as a means to securing a more prosperous Southeast Florida.

Join us on this journey and visit our website for more information, source documents and to view the Implementation Guide: southeastfloridaclimatecompact.org.

Appendix A - Southeast Florida Regional Climate Change Compact

Southeast Florida Regional Climate Change Compact

WHEREAS, there is consensus among the world's leading scientists that global climate change is among the most significant problems facing the world today; and

WHEREAS, Florida is considered one of the most vulnerable areas in the country to the consequences of climate change with Southeast Florida on the front line to experience the impacts of climate change, especially sea level rise; and

WHEREAS, Broward, Miami-Dade, Palm Beach and Monroe Counties, herein the four counties that constitute the Southeast Florida Region, share in common a strong quality of life rooted in the region's rich cultural heritage, vigorous economy, and environmental resources of global significance; and

WHEREAS, the aforementioned four counties of Southeast Florida, which represent approximately 30% of the population of the State of Florida, are physically linked one to the other by the Atlantic Ocean coastline and share some of the world's most renowned natural resources such as the Everglades, our unique coral reefs, beautiful beaches, and fragile Keys ecosystem; and

WHEREAS, the four counties of Southeast Florida and their respective populations, totaling more than five million residents, are expected to share in disproportionately high risks associated with climate change due to low land elevations, rising sea level projections, and anticipated increases in tropical storm events; and

WHEREAS, rising sea levels could limit the effectiveness of critical drainage infrastructure, endanger beaches, and coastal natural resources and increase incidents of saltwater intrusion on the Biscayne Aquifer – putting at risk the drinking water supply for the entire population of Southeast Florida; and

WHEREAS, local governments, and the region as a whole, must give significant consideration to adaptation strategies designed to protect public infrastructure, property, water resources, natural areas and native species, and basic quality of life; and

WHEREAS, the aforementioned four counties of Southeast Florida account for a combined Gross Domestic Product of more than $2.5 billion annually and more than 37% of statewide economic output; and

WHEREAS, while the four counties of Southeast Florida have independently taken steps to address global climate change, all parties recognize that coordinated and collective action on this, the defining issue for Southeast Florida in the 21st Century, will best serve the citizens of the region;

NOW THEREFORE, BE IT RESOLVED BY THE BOARDS OF COUNTY COMMISSIONERS OF THE FOUR COUNTIES OF SOUTHEAST FLORIDA:

SECTION 1: That each county shall work in close collaboration with the aforementioned counties of Southeast Florida party to this compact to develop a joint policy position urging the United States Congress to pass legislation that recognizes the unique vulnerabilities of Southeast Florida to the impacts of climate change and to further a joint policy position that includes specific recommendations regarding the allocation of federal climate change funding based on vulnerability to climate change impacts. Such recommendations might include designation of areas of Southeast Florida as uniquely vulnerable and of federal interest for the purpose of securing enhanced levels of federal participation in regional adaptation projects.

SECTION 2: That each county shall work in close collaboration with the other counties party to this compact to develop additional legislative policy statements relating to global climate change and future legislation to be considered by the Congress of the United States for transmittal to the Congressional Delegation representing, in part or in whole, districts within the area covered by this compact.

SECTION 3: That each county shall work in close collaboration with other counties party to this compact in developing joint position statements on proposed State legislation and energy/climate policies including but not limited to issues such as the region's energy and climate security and a renewable energy portfolio standard that defines renewable energy sources as wind, solar, geothermal, biomass, landfill gas, qualified hydropower, and marine and hydrokinetic energy, and also including nuclear energy, and to collaborate on other emerging energy/climate issues that may be considered by the 2010 Florida Legislature for transmittal to the Legislative Delegation representing, in part or in whole, districts within the area covered by this compact.

SECTION 4: That each county shall work with other counties party to this compact in developing joint position statements for future State legislation that may be considered by the Florida Legislature for transmittal to the Legislative Delegation representing, in part or in whole, districts within the area covered by this compact.

SECTION 5: That each county shall commit appropriate staff resources and expertise, within budget constraints, to participate in a Regional Climate Team with other counties party to this compact toward the development of a Southeast Florida Regional Climate Change Action Plan.

SECTION 6: That each county shall work with other counties party to this compact in developing a Southeast Florida Regional Climate Change Action Plan, understanding that no county will work at cross-purposes with the other counties. The Action Plan could, at a minimum, include the following components:

(a) A baseline of greenhouse gas emissions for Southeast Florida;

(b) Strategies for coordinated emission reductions throughout the built environment to include the use of energy efficiency, energy conservation, and the use of demand-side renewable energy resources;

(c) Strategies for coordinated emission reductions from the transportation sector to include increased reliance on public transit, emerging vehicle technologies, and advanced biofuels;

(d) Strategies for coordinated emission reductions resulting from changes in local and regional land use;

(e) Strategies for the coordinated regional preparation for and adaptation to a rapidly changing global environment based upon regional mapping of projected sea-level rise and any resulting amplification of localized impacts of tropical cyclone events. Such strategies shall incorporate climate preparation concerns for the regional economy, regional infrastructure and the built environment, social and cultural needs, and natural systems within the four counties party to this compact.

SECTION 7: That each county shall commit to participating with other counties party to this compact in hosting the Second Southeast Florida Regional Climate Change Summit in October, 2010.

Adopted December 8, 2009

Adopted December 1, 2009

Adopted January 20, 2010[1]*

Adopted December 15, 2009

*City of Key West: Resolution of support for the Compact – December 15, 2009

[1] Second adoption date following minor changes made by partnering Counties

Appendix B - Work Group Recommendations

The recommendations put forth in the Regional Climate Action Plan were developed through a collaborative process involving nearly 100 subject matter experts from a host of professions representing the public and private sectors, area universities, and not-for-profit organizations. These stakeholders brought to the table the knowledge of their "craft" as well as information on successful initiatives already underway locally or in other communities.

Many of the recommendations build upon best practices sprinkled throughout our region, such as regional collaboration on transportation planning and land use criteria that foster walkable and healthy communities. Others delve into "new" frontiers in calling for the integration of climate change into planning and decision-making processes in ways that no local government has yet implemented.

Below are the full set of recommendations, organized as focal areas and strategies, offered by each of the three working groups: Built Environment Working Group, Land and Natural Systems Working Group, and the Transportation Working Group, as they were submitted.

Built Environment Work Group

Focal Areas and Strategies

Final Draft August 15, 2011

Focal Area 1

Create Land Development Strategies for Climate Resilience, Sustainable Growth, Risk Reduction, and Emergency Preparedness

There is a demonstrated synergy between sustainable development practices and efforts to improve community resilience to climate change impacts. By promoting a "no regrets" approach, it is possible to affect positive outcomes that further regional climate change mitigation and adaptation goals while improving community livability, economic opportunities and resource sustainability. These adaptation strategies address: building design, elevation and hardening; transportation networks; other critical public infrastructure (potable water, wastewater, stormwater and energy/power); and green infrastructure.

Strategies

1) Regional Planning: Incorporate "Adaptation Action Area" designation, and other applicable provisions, into local Comprehensive Plans and regional planning documents to identify those areas deemed most vulnerable to sea level rise and other climate change impacts including extreme high tides, heavy local rain events, storm surge, or inadequate drainage systems.

Action 1: Perform vulnerability analysis to identify and quantify the economic value of regions and infrastructure at risk under various sea level and other climate change scenarios utilizing inundation mapping, modeling, and other appropriate tools.

Action 2: Identify and designate "Adaptation Action Areas" (AAA) based on the results of vulnerability analyses. Inside AAA, local governments should identify "Adaptation Areas," "Restoration Areas," and "Growth Areas."

Adaptation Areas – designate areas within the AAA that include developed vulnerable land targeted for infrastructure improvements or modified land use and/or development practices in order to reduce risks and improve hazard mitigation. In these areas, the high cost of retrofitting, building and maintaining infrastructure is outweighed by the return in investment.

Restoration Areas - designate areas within the AAA that include vulnerable lands that may or may not be already developed and could include Coastal High Hazard area and high storm surge areas. Local governments should place priority on the acquisition of land in these areas for restoration, agriculture, or recreational open space.

Growth Areas – to consist of areas outside of the AAA where growth is encouraged due to higher topographic elevations and the presence of existing transportation infrastructure. These designated areas should be developed with Urban Design guidelines that address character of urban place and provide a high quality pedestrian experience through landscaping, and the creation of public space.

Action 3: Provide public outreach and education to better inform the community about the need for climate change planning, the provision in state law that provides for the designation of "Adaptation Action Areas," and the purpose and implications of such a designation.

2) Local Planning and Zoning: Develop policies, strategies, and standards that will serve to reduce future risk and economic losses associated with sea level rise and flooding in these designated areas through infrastructure improvements and by directing future development and redevelopment to areas outside AAA. This will also foster sustainable growth patterns, multi-modal transportation options, transit, mixed use development, and the use of sustainable building techniques.

3) Building Code: Revise building codes and require increased resiliency of buildings and infrastructure for new and redevelopment, particularly for those areas within Adaptation Action Areas.

4) Emergency Preparedness: Evaluate adaptation responses for communities at risk and enhance preparedness measures to address climate-related risks and hazards.

Action 1: Improve adaptation responses for communities at risk with the development and implementation of:

- Methodologies for the assessment and evaluation of evacuation and relocation options
- Model evacuation policies and procedures for communities at increased risk of flooding
- Model relocation policies for affected communities

Action 2: Incorporate climate change adaptation in the relevant Local Mitigation Strategy (LMS) to reduce or eliminate long-term risk to human life and property from disasters. Within the LMS, update local risk assessments to include climate change in the hazard analysis and vulnerability assessment section.

5) Education: Develop outreach programs to increase public awareness about hazards exacerbated by climate change and mitigation and adaptation strategies by the local government to minimize damage and risk.

Focal Area 2

Ensure the Long-term Adequacy of Surface Water Management Systems, Water Supplies and Wastewater Infrastructure

Climate change presents an array of challenges to future water supply planning and water management efforts. The combined influences of altered precipitation patterns, increased groundwater elevations, and sea level rises present complex hurdles to regional and local efforts in providing critical drainage and flood control; high quality, sustainable, and abundant water supplies; and effective management of stormwater and wastewater. By assuming an integrated approach to water resource management and climate adaptation planning, the influence of a changing climate on the quality and quantity of water resources and related infrastructure can be effectively addressed. Interrelationships between stormwater management, water supply, wastewater disposal and water reuse must be reviewed and actions implemented to ensure the beneficial supply and use of all available water resources in a manner that benefits the public, protects resources, accounts for future conditions, and provides for necessary levels-of- service.

Strategies

1) Risk Assessments**:** Inventory existing potable water, wastewater, and stormwater treatment, delivery and collection systems; assess the status of each component; determine the potential impact from climate change; and develop different climate change scenarios and adaptation strategies for high-risk utilities and/or infrastructure which may require replacement, reinforcement, or relocation to ensure the long term viability of the system.

Action 1: Identify and/or develop baseline hydrologic conditions to provide a measure for comparison in assessing the potential impacts of climate change on regional and local water resources and infrastructure, including the short-term the development of a saltwater intrusion baseline.

Action 2: Utilize inundation mapping, variable density models, and water management models to identify areas and infrastructure at risk.

Action 3: Identify and quantify vulnerable wellfields, water supply infrastructure, wastewater collection and/or treatment infrastructure, and drainage facilities, and devise strategies to protect or relocate, as needed.

2) Reuse and Aquifer Recharge**:** Identify opportunities to advance beneficial use of stormwater and reclaimed water to reduce potable water demands and provide aquifer recharge and implement as appropriate, as an alternative to disposal.

Action 1: Evaluate the impacts of rising sea and groundwater levels on soil storage, infiltration rates and inflow to stormwater and wastewater collection and conveyance systems; consider longer-term influences on water quality; and develop strategies for implementing reclaimed water and stormwater reuse projects that account for current and future conditions.

Action 2: Identify potential sites for use in providing stormwater storage and mechanisms to increase aquifer recharge as a means for managing saltwater intrusion and enhancing water supplies.

Action 3: Consider regional projects and opportunities to gain efficiencies through collaborative approaches and projects.

3) Integrated Water Resource Planning: Develop Integrated Water Management Plans that present a joint assessment and planning strategy involving local water utilities, wastewater service providers, water managers, and partners to the Southeast Florida Regional Climate Change Compact, for coordinated consideration of stormwater use and disposal, traditional and alternative water supplies, wastewater disposal and reuse, and water conservation measures for use by local leadership to guide planning decisions as well as amendments to applicable codes and regulations.

4) Drainage and Flood Control: Identify and pursue adaptation strategies to improve drainage and flood control in areas designated as "Adaptation Action Areas" and where changing hydrologic conditions are anticipated to impact surface water management.

Action 1: Coordinate with the South Florida Water Management District, Drainage/ Water Control Districts, and public works officials to identify flood control and stormwater management infrastructure already operating below the design capacity.

Action 2: Develop and apply appropriate hydrologic and hydraulic models to further evaluate the efficacy of existing water management systems and flood control/drainage infrastructure under variable climate conditions.

Action 3: Develop and test adaptation improvements needed to maintain existing levels of service and conduct a cost-benefit analysis to prioritize potential improvements, trade-off decisions, and any proposed land acquisitions.

Action 4: Incorporate and prioritize preferred improvement projects in capital improvement plans and pursue funding.

5) Everglades Restoration**:** Support and advocate for complete implementation and funding for the Comprehensive Everglades Restoration Plan as fundamental to Everglades restoration, but also the viability of local water resource management efforts given the overall contributions of the Everglades to regional water storage and aquifer recharge, which will become increasingly important under variable climate conditions and in the face of sea level rise.

Focal Area 3

Reduce Greenhouse Gas Emissions through Improved Regional Strategies for Energy Efficiency, Conservation & Renewable Energy

Climate change mitigation can be addressed through plans, incentives, and regulations which promote the efficient use of energy in buildings, transportation and industry; through the use of less carbon-intensive energy sources; and through the production and use of renewable energy. Regulatory barriers to alternative energy generation must be removed in order to allow these sources of energy to be tapped. Federal and state policies that promote alternative energy use, such as renewable energy portfolio standards for utilities and tax credits for home owners installing small-scale renewable systems must be developed.

Strategies

1) Regional Coordination: Undertake regional efforts to advance energy-efficiencies, energy conservation and the deployment of renewable and alternative energy technologies in existing and proposed developments through local ordinance, incentives, education, and energy efficiency financing.

2) Green Building Code: Incorporate sustainable building and neighborhood ratings or national model green building codes, including but not limited to those defined in Section 255.253(7), F.S., into municipal codes region-wide.

3) Local Codes: Develop and implement amendments to local and state building codes, land use regulations and laws to facilitate and encourage the installation of renewable energy systems. Examine existing zoning codes and development standards and revise and update provisions that act as a barrier to the installation and use of renewable energy systems.

4) Finance: Work collaboratively toward the establishment of regional framework to deliver Energy Efficiency and Renewable Energy finance options, in addition to other local government initiatives and partnerships, to advance regional greenhouse gas emissions goals, the use of alternative and renewable energy technologies, and in furtherance of green sector economic development.

5) Goals: Set recurring 5–year regional goals to increase renewable energy capacity – which include the co-benefits of economic development and job creation -- through revision of building and zoning codes and architectural design guidelines to allow for, and encourage, integration of renewable energy sources and technologies.

6) Measures: Build upon established methodologies and mechanisms for Greenhouse Gas measurement, verification and validation to create quantifiable recordkeeping and reporting which conforms with accepted global standards.

7) Education: Provide education and improve communications on energy efficiency and available technologies with a focus on both short-term and life-cycle economic and energy gains, incentives available within the region (federal, state, local and commercial).

Land and Natural Systems Working Group

Priority Recommendations

Monitor Climate Change

a. Establish coordination with NOAA regarding trends in rainfall patterns. Choose an annual conference or other venue at which such trends can be reviewed at regular intervals.

b. Monitor changes in rainfall patterns to better predict future wet-season and dry- season rainfall as well as the salt content in the wells of agricultural lands.

c. Develop a vital signs status and trends monitoring program for biological communities. Key parameters may include rate of sea-level rise; saltwater intrusion boundary and monitoring wells; landscape-level vegetation patterns; percent cover in offshore reef zones; water temperature and pH in areas; and occurrence and range of invasive exotic plants and animal species. Ensure Department of Health beach water quality monitoring continues and expand methods of notifying the public and tourism industry when exceedances are detected.

Water Storage

It is probable that climate change will also bring about changes in rainfall patterns, either by quantity, intensity in any given rain event or seasonality and perhaps all of these. Although the extent of such changes cannot be known, it is known that fresh water storage can ameliorate such changes.

a. Identify lands to be used for water storage to ameliorate changes in rainfall patterns. Storage areas and methods should be planned and located to accommodate drinking water supply, agricultural consumption, accepting flood waters and to maintain hydroperiods on natural lands.

b. Identify and promote other land uses compatible with water storage including wetland restoration, certain agricultural operations and certain renewable energy production facilities. Develop joint acquisition and management strategies with these other entities.

c. Manage water storage in the region's publicly-owned uplands and wetlands.

d. Encourage continued funding for the Comprehensive Everglades Restoration Plan (CERP).

e. Support CERP Everglades Agricultural Area (EAA) flow-way plans that increase freshwater flows to the Everglades, maximize freshwater storage and provide opportunities to improve water quality by establishing marsh communities.

Resource Acquisition

Acquisition efforts should emphasize preserving existing species diversity as well as considering changing rainfall patterns and elevated saline waters, increasing the region's resiliency against he impacts of natural hazards.

a. Develop acquisition priorities in a regional setting to:

1. Ensure preservation of many habitat types and that those types will be represented in a changing climate.

2. Protect high quality drinking water supply

3. Identify hot spots of biological diversity and ensure those locations are either protected or are identified for future land acquisition.

4. Identify and protect higher level lands to which mangrove and salt-marsh species might 'retreat'.

b. Assess acquisition priorities in light of changing rainfall patterns, i.e., if rainfall is more, is the parcel still valuable for identified vulnerable species, if rainfall is less, is the parcel still valuable to other vulnerable species. Consider linkages and migration opportunities for vulnerable species.

c. Incorporate "Adaptation Action Area" designation into local comprehensive plans and regional planning documents to identify those natural areas deemed most vulnerable to climate change impacts including changes in sea level and rainfall patterns.

d. Share acquisition priorities among planning and regulatory agencies

e. Promote federal, state and local government conservation land acquisition programs that including fee simple and less-than-fee approaches to conserve natural areas, protect open space and create or maintain resilience and adaptive capacity by maintaining or creating connectivity among natural areas from the coast to inland/upslope.

f. Following the model set by Monroe County, link rate of new construction permit issuance to conservation land acquisition rate.

g. Monetize ecological services provided by natural systems and create a sustainable funding mechanism for their protection and management.

Resource Management

Climate change will likely bring about more rapid introduction of exotics species. Some tools, such as prescribed fire, may become more difficult to implement. Management efforts may become more intense as lands are managed for certain vulnerable species. Regional cooperation among land management entities will become more essential.

a. Coordinate regional invasive exotic species prevention and control efforts emphasizing prevention of new invasions and early detection/rapid response to nascent invasions.

b. Coordinate regional fire management efforts emphasizing frequent, low intensity fire regimes in wetland and pine forest systems to maximize habitat quality, resilience to change and carbon neutrality while preventing fuel load build up that leads to major carbon releases.

c. Coordinate "living shorelines" objectives at regional scale to foster use of green infrastructure (e.g. coral reefs and mangrove wetlands) instead of or in addition to grey infrastructure (e.g. bulkheads).

d. Leverage existing work of the Florida Reef Resilience Program's "Climate Change Action Plan for Florida's Coral Reef System 2010-2015 for protection of marine habitat.

e. Maintain natural resources critical to support the Region's Largest Economic

Sectors

Migration & Species Diversity

a. Identify potential species and habitat vulnerabilities to extremes in precipitation, including extended drought and intense storms, combined with higher temperatures.

b. Examine water control structures to ensure that they can provide for inland or upstream migration of riparian species as freshwater habitats become more saline.

c. With the assistance of climate models, maintain or restore multiple areas of habitat and large-scale connectivity to facilitate population stability and habitat shifts resulting from climate change.

d. Minimize diversity and abundance of habitat-homogenizing exotic plant and animal species by monitoring for introductions, colonization, establishment, and connections with other populations.

e. Engage and cooperate with marine resource agencies to maintain coral reef (e.g., selective breeding) and mangrove ecotones as estuarine habitat and natural barriers to storm surge for maintaining coastal biodiversity.

Public Outreach

a. Modify existing public outreach, education and engagement programs at natural areas (including upland, wetland, marine, coastal and nearshore environments) to include climate change mitigation and adaptation messaging and volunteer opportunities to enhance green infrastructure that will facilitate climate change resilience and adaptation.

b. Initiate a regional public education campaign to educate residents, business owners, policy makers on the merits of preserving open land as an 'insurance policy' for adaptation to sea level rise in South Florida.

Agricultural Lands

Research

a. Identify & secure research funding to include but not limited to:

i) Review and document freshwater marsh peat potential responses to saltwater intrusion.

ii) Monitor root-zone salinities and changes to vegetation communities. Adapt planning and management in response to surprises.

iii) Identify seagrass, mangrove, and coastal freshwater marsh environmental tolerances to changing factors such as salinity, water depth, substrate, and nutrients. Use this information with climate and hydrological modeling to aid management.

iv) Improve Florida Bay shallows bathymetry and use SLR and storm surge modeling to aid identification of habitats at risk.

v) Better identify linkages between marine system (e.g. coral reefs and mangrove wetlands) area/condition and hazard risk reduction.

Policy

a. Develop regulatory requirements that compatible dredge material may be utilized in the restoration of previously existing or establishment of new seagrass beds.

b. Ensure that zoning regulations allow for the ability of plant and animal species to migrate inland as sea levels rise (e.g., limit armoring.) Ensure that land acquisition priorities consider landscape features which may limit species ability to migrate in response to sea level rise and other impacts related to climate change.

c. Enforce Coastal Construction Line and Coastal High Hazard Area designations.

d. Develop policies and regulations that will serve to reduce future risk and economic losses associated with sea-level rise and flooding in these designated areas through infrastructure improvements, insurance subsidization of high- hazard development and by directing development and growth to non-vulnerable areas.

Protected and Vulnerable Species

In the coastal Everglades, higher elevation plant species may be at more of a risk from sea-level rise than the surrounding freshwater marsh because the marsh can migrate inland, but the upland berms are isolated and their dependent species have no path for migration. Twenty-one of the 43 critically imperiled species extant in Everglades National Park occur in the buttonwood forests coastal hammocks of the Everglades and Florida Keys. In all initiatives aimed at protecting the natural environment, first emphasize a broad ecosystem approach, then evaluate potential conflicts with specific protected resources. Where conflicts are recognized, attempt to resolve them with the least compromise to broad ecosystem values.

a. Identify those narrow beaches lacking natural dunes which might possess high turtle-nesting density but which might also be prone to high nest mortality due to nest wash-out during more frequently expected storms and Identify more stable ‘receiving’ beaches to which nest may be relocated.

b. Develop long-term turtle-nesting beach preservation strategies and methods in advance of anticipated coastal armoring which might result in loss of beach nesting habitat.

c. Identify zoos, aquariums, herbariums and gardens that might be the repository for seed stock and captive breeding programs for those listed plants and animals under imminent threat of local extirpation due to sea-level rise.

d. Compile species information for rare plant species in coastal hardwood hammocks and buttonwood forests and develop adaptation plans that include, at a minimum, seed bank repository collection and assisted propagation.

Additional Language for Consideration:

During the five years of this initial Regional Action Plan, those areas within the Southeast Florida region that have been deemed most vulnerable to impacts associated with sea-level rise based upon LiDAR mapping and vulnerability assessments, will be monitored for impacts. These impacts may be from extreme high tides, heavy local rain events, storm surge, or inadequate drainage systems. Those areas most impacted by these events will be considered for inclusion into one or more of the "Adaptation Action Areas".

Climate change imposes long-term, continuous change on systems. Continuous changes make management goals a moving target and an observable systems response to actions under current conditions only a partial indicator of success. An adaptive management strategy must include preparation for long-term, often gradual changes with potential for large abrupt changes. Successful use of this strategy will require ecological and physical modeling to develop hypotheses and goals. Integration of directed research, management, and research-focused monitoring, risk assessment, and database management will be critical.

Transportation Working Group

Focal Areas and Strategies

The first focal area addresses adapting transportation infrastructure to the impacts of climate change as well as planning policies to guide prioritization and investment that take into account climate change impacts and emissions reductions. Incorporating climate change considerations into planning and project programming processes would provide the opportunity for transportation professionals and decision makers to develop the most cost effective strategies to best address the impacts of climate change on transportation infrastructure.

The next focal areas are strategies to reduce emissions and are organized by the following categories: alternative fuels and vehicle efficiency, system operation efficiencies, and vehicle miles traveled. Each area is often referred to as a leg of a stool, recognizing the importance of addressing all areas to achieve a balance, a strong foundation to build upon. Clearly, there is no silver bullet approach to reducing emissions; it will take a variety of approaches to achieve emissions reductions. Strategies to reduce vehicle miles traveled and provide for multiple modes of travel should be emphasized because of their long-term emissions reductions benefits and health and social benefits. This approach addresses the three pillars of sustainability and aligns with the Federal Livability Principles developed in 2009 to help guide transportation and other planning conducted at the local and regional levels and federal investment decisions.

A final focal area is dedicated to funding issues and federal policies and programs critical to the success of local and regional efforts.

Focal Area 1

Develop strategies to evaluate risk, adapt the existing transportation infrastructure, and prioritize future investments that maximize resiliency and greenhouse gas (GHG) emissions reductions.

Strategies

1) Identify means to effectively engage the multiple public and private sector entities with roles and responsibilities involving the provision and maintenance of transportation infrastructure and the delivery of transportation services in the region. Document current and evolving coordination efforts among these entities.

2) Work together to identify transportation infrastructure at risk from climate change in the region; determine whether, when, where, and to whom projected impacts from climate change might be significant. Employ inundation mapping, modeling and other appropriate tools to assess the vulnerability of transportation infrastructure to the projected impacts of climate change under various sea level rise and other climate change scenarios. At a minimum, assess the vulnerability of the following transportation infrastructure:

a) Local transportation networks of the Compact Counties

b) The tri-county Regional Transportation Network[1] designated by the Southeast Florida Transportation Council (SEFTC), which includes facilities that provide the highest level of mobility, strategic transportation facilities that are critical to region's economy and quality of life, including corridors (roadway, rail, waterway), airports, seaports, freight rail terminals, passenger rail and intercity bus terminals, and evacuation routes.

3) Develop adaptation actions that prioritize the people, places, and infrastructure most vulnerable to the projected impacts on the transportation network. Use a risk-management approach to adapt the existing network including criteria such as timing, likelihood, intensity of anticipated risks as well as costs relative to action versus inaction (description in the Circular on *Adapting Transportation to the Impacts of Climate Change State of the Practice 2011* http://onlinepubs.trb.org/onlinepubs/circulars/ec152.pdf. Best practices also available from NY, CA, and London.)

a) Develop regional priorities for short and long term maintenance and retention of the transportation network for a 50 year and a 100 year timeframe; evaluate the costs and benefits for maintenance and retention of existing transportation infrastructure, or construction, maintenance and retention of new infrastructure.

b) Address issues of inequality and environmental justice associated with climate change impacts and adaptation. Involve all parts of society in the development design and implementation of adaptation actions addressing the transportation network.

c) Identify those strategies that provide co-benefits, such as improving disaster preparedness, promoting sustainable resource management, and reducing GHG emissions including the development of cost-effective technologies.

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[1] *SEFTC, Technical Memorandum #8: Regional Transportation Network, April 2010. This network for Miami-Dade, Broward and Palm Beach counties is composed of regional interstate and expressway facilities; major regional facilities (urban or rural principal arterial roadways and other roadways that cross county lines); regional connection facilities, regional facility designation extensions, Strategic Intermodal System hubs, corridors and connectors designated by the Florida Department of Transportation; adopted physical extensions of current regional facilities; and the statewide regional evacuation network with termini determined by the South Florida and Treasure Coast Regional Planning Councils and the state legislature.*

4) Integrate consideration of climate change impacts and adaptation into the planning, operations, policies, and programs of local and regional transportation agencies.

a) Develop policy statements to incorporate the consideration of climate adaptation into planning processes and investment decisions and adopt the U.S. Department of Transportation's Guiding Principles for Climate Change Adaptation

- Adopt integrated approaches.
- Prioritize the most vulnerable.
- Use best-available science.
- Build strong partnerships.
- Apply risk-management methods and tools.
- Apply ecosystem-based approaches.
- Maximize mutual benefits.
- Continuously evaluate performance.

(http://www.dot.gov/docs/climatepolicystatement.pdf)

b) Develop policies to incorporate climate change adaptation strategies into hazard mitigation and post-disaster redevelopment planning.

c) Develop policies to address new transportation infrastructure development - to consider future floodplain conditions and vulnerable areas – e.g. rerouting of roads because of potential flood damage.

d) Modify or develop new design standards for transportation infrastructure located in identified vulnerable areas, e.g. asphalt concrete composition, bridge design, elevation, stormwater management. i.e. Include different pitches combined with stormwater design and/or use of more permeable surfaces to effectively remove water from the roadway; Explore roadway materials that may be utilized in road construction that are more tolerant to quick changes in hot or cold weather, or more tolerant of extended periods of extreme temperatures, in order to decrease repair costs, enhance safety, and increase longevity of road surfaces.

e) Develop and require a training program to educate professionals in relevant fields (e.g., architecture, engineering, and construction management) to incorporate adaptation to climate change as a basis for establishing design criteria for new transportation infrastructure. Completion of such training to be a condition for relicensing. (FL Energy & Climate Action Plan – Adaptation Strategies, pg. 8-7).

f) Consider the adoption of a "Green" road design and construction sustainability rating system.*(Best practice research: NYDOT, University of Washington)*

5) Focus investments and service expansions on strategies contributing to greenhouse gas emissions reductions and enhancing resilience to climate change.

a) Continue and enhance regionally coordinated transportation planning through the Regional Long Range Transportation Plan (RLRTP). Identify goals and objectives in the

RLRTP whose ultimate attainment reinforces the desired achievement of GHG emission reductions and enhancing resilience to climate change. Articulate the supportive role each objective has with respect to emissions reductions.

b) Transportation Investment Priorities. Give higher investment priority to transportation infrastructure, programs and services that will reduce greenhouse gas emissions. Performance standards for climate and related metrics, such as reduced VMT and increased mode split, should be incorporated in transportation and infrastructure programs.

i) Develop policies in local and regional planning processes to incorporate evaluation criteria and a process to rank and prioritize projects that meet plan goals and objectives, with an emphasis on those that reduce VMT and use of transportation modes other than the personal vehicle. Projects that enhance economic vitality should also be given priority, such as projects and service expansions along transit oriented corridors and those that improve connections to major airports and seaports. Develop performance measures related to climate change (i.e. VMT reduction) as a means to prioritize projects for funding.

c) Prioritize the funding of studies addressing effective adaptation and mitigation strategies, particularly those addressing barriers and assisting in integrating land use and transportation planning approach towards developing a transportation network that reduces vehicle miles traveled by ensuring transportation choices other than the use of personal vehicles.

e) Implement the recommendations in the RLRTP to incorporate/use modal prioritization tools.

6) Other

a) Develop early warning systems and social media applications (apps) to both inform residents and visitors of high-tide events and to raise overall awareness.

b) Identify incentives to encourage migration to less vulnerable areas.

Additional language for consideration:

Incorporate “Adaptation Action Area” designation into local comprehensive plans and the Regional Climate Change Action Plan for those areas within the Southeast Florida region that have been deemed most vulnerable to impacts associated with sea level rise. Within the “Adaptation Action Areas”, special regulations will be established to reduce or eliminate the potential for damage from flooding. During the five years of this initial Regional Action Plan, those areas within the Southeast Florida region that have been deemed most vulnerable to impacts associated with sea level rise based upon LiDAR mapping and vulnerability assessments, will be monitored for impacts. These impacts may be from extreme high tides, heavy local rain events, storm surge, or inadequate drainage systems. Those areas most impacted by these events will be considered for inclusion into one or more of the “Adaptation Action Areas”.

Focal Area 2

Develop strategies to reduce GHG emissions through use of alternative fuels, vehicle and system operation efficiencies, vehicle miles traveled (VMT) reduction, and provision of multiple transportation choices.

Strategies

Alternative Fuels & Vehicle Efficiency

1) Develop policies to create conditions for the development of alternative fuel (bio-diesel/ waste- based bio-diesel) and include these policies in regional plans and Local Comprehensive Plans. Incentivize and remove legislative, local code that may act as obstacle to stimulate the alternative energy industry.

(Example: Plan and program infrastructure improvements for Electric Vehicle Infrastructure (EVI) in collaboration with local utilities. Policies should be developed to incentivize private deployment of infrastructure. Solar charging for electric vehicles should be prioritized to improve the community's emergency management preparedness in times of power outages.)

2) Establish a working group of public and private stakeholders to develop a strategy to promote the use of Plug-in Electric Vehicles in the region.

a) Establish locations where infrastructure is needed. Solar charging options should be prioritized to maximize mitigation benefits and to improve the community's emergency management preparedness in times of power outages.

b) Develop policies to incentivize the deployment of infrastructure to complement transit oriented corridors. Reduced transit fares should be a consideration for riders accessing transit facilities by electric vehicles.

c) Work with relevant stakeholders to streamline permitting processes associated with charging equipment to encourage the safe and expeditious installation on customer premises and elsewhere.

d) Coordinate monetary and non-monetary incentives available to the general public and organizations purchasing electric vehicles.

3) Develop strategies to promote fuel efficient driving habits.

a) Conduct best practice research on existing campaigns and look for opportunities to Integrate tools into existing high school, county and municipal driver education courses, traffic school curriculum, truck driver training, and fleet associations. http://climatechange.transportation.org/ghg_itigation/operations.aspx)

System Operation Efficiencies

1) Develop a toolbox of successful strategies to maximize the efficiency of the existing transportation network that have been used by partners in the region. When feasible information should include implementing steps, costs, and effectiveness of GHG emissions reductions. Some strategies to consider include the use of roundabouts, traffic signal prioritization for transit, queue jumps, etc.

2) Develop policies to facilitate and streamline the deployment of energy efficient and renewable energy such as the installation of LEDs and/or solar for public infrastructure such as street lighting, parks, parking facilities.

a) Survey counties and regional agencies with lighting infrastructure to determine the level of deployment and to gather best practice policies and implementation steps to facilitate the application of efficient lighting practices in additional infrastructure.

3) Develop a strategy for incentivizing the development of truck parking with electrification facilities and the use of auxiliary power units to reduce extended idling by trucks.

a) Survey transportation agencies (MPOs, FDOT, etc.) for existing studies identifying trucking patterns and needs.

b) Identify strategic locations for truck parking facilities and seek competitive funding opportunities as a region.

4) Develop policies to reduce the impact of transportation construction, maintenance, and agency operations - such as substituting fly ash for cement, using warm-mix instead of hot-mix asphalt- on GHG emission reduction, and require construction contractors to implement emissions reductions practices. Incorporate actions that reduce GHG emissions during project development and implementation, such as using recycled materials, incorporating low carbon cement mixtures, utilizing alternatively fueled vehicles, and purchasing locally or regionally manufactured materials.

5) Provide seamless transitions between transportation modes to increase the use of low carbon modes for the movement of people and freight in the region.

a) Improve connections between Tri-Rail and county transit service, municipal trolley and community shuttle bus services (may include re-alignment of routes). District circulators (Metro Mover in downtown Miami connects to Metro Rail) provide the last leg of a commute for transit riders and should have high frequency and ease of transfer.

b) (Placeholder for regional freight strategies to integrate the many regional activities underway, e.g. periodic convening of regional freight summits providing opportunities to address that audience, development of a virtual freight network, studies exploring the potential for freight rail on a western corridor, etc.)

c) Improve the transfers between transportation modes and move towards the delivery of a seamless fare media across the region.

d) Develop planning strategies to address planning for the “First and Last Mile” of transit trips.

<u>Reduce Vehicle Miles Traveled and Promote Multiple Modes</u>

Local communities with mixed-use developments and streets designed to encourage non-motorized modes of transportation are expected to reduce personal automobile trips. There is a need to connect those communities to corridors that link to regional employment centers and other destinations through low-carbon transportation options. The policies in this area will be developed to support the Federal Livability Principles which among other things emphasize the reduction of household transportation costs for people of all ages, incomes, races and ethnicities through reliable access to employment centers, educational opportunities, services and other basic needs.

1) Land Use Approaches.

a) Require new development and redevelopment projects in existing and planned multimodal corridors and urban centers to be planned and designed to promote transit oriented development and transit use, which mixes residential, retail, office, open space and public uses in a pedestrian-friendly environment that promotes the use of rapid transit services.

b) Develop policies to plan Transit Oriented Developments (TOD) along Transit Oriented Corridors (TOC). Consider the Regional Transportation Network in the development of potential TOCs. Develop policies to streamline the approval process for TODs.

c) Explore expansion of activity based transportation modeling to more accurately predict, inform, and utilize transit trip data.

d) Develop policies to improve the movement of non-motorized modes through the adoption of best practice models including Complete Streets.

i) Develop guidelines, models, and implementation projects to accelerate implementation.

ii) Identify partners and resources to support training and the research into new techniques for transportation design professionals.

e) Modify local land use ordinances to encourage compact development patterns.

i) Adopt form-based codes or hybrid codes that use physical form, rather than separation of land uses, as their organizing principle and that take into consideration the urban transect or context zones.

ii) Consider regional implementation of rapid transit zones to maintain land use control around a station with multiple jurisdictions.

f) Consider the adoption of green neighborhood certification programs to guide decision making and development and to provide an incentive for better location, design, and construction of new residential, commercial, and mixed-use developments.

2) Transit Options – Transit

a) Study increasing service frequency on key routes and developing targeted transit routes, in the model of I-95 express to bring people directly from residential areas to regional centers of employment. Another example is “The Flyer” route from MIA to Miami Beach. Utilize existing studies of direct routes to inform this process.

b) Leverage limited resources for campaign and promotional advertisements by coordinating regional public transportation messaging to attract “choice” riders. Messages should focus on making riding transit cool.

c) Deploy social media applications, (apps) to facilitate use of transit including access to real-time information such as arrival times.

d) Increase the amenities available to transit passengers, such as shade, shelters, kiosks, and real time boarding information.

3) Transportation Demand Management

a) Vanpool/Carpool programs - Work with MPOs and South Florida Commuter Services to identify opportunities to expand these programs.

b) Car & Bike Sharing Programs - Work with companies providing these services and strategic partners (universities, municipalities, large employers, etc.) to establish zip car, bike sharing and personal vehicle sharing programs.

4) Bicycle Facilities

a) Prioritize implementation of planned bicycle and pedestrian networks. Evaluate whether these facilities are connected regionally and on a local scale to major employment, education, and recreation centers.

b) Implement roadway project checklist that includes measures of pedestrian and bicycle accommodation.

c) Consider regional adoption of Transit and Biking programs that aim to improve access to transit.

d) Develop policies to increase designated bike parking facilities at commercial and retail developments.

Focal Area 3

<u>Federal Policies needed to support local and regional efforts</u>

1) Federal Surface Transportation Authorization. Support new authorization of the federal surface transportation programs with increased priority for funding public transit and non-motorized travel and integrated regional and metropolitan planning as means to reduce the greenhouse gas emissions from the transportation sector. The federal program needs to explicitly incorporate climate change and shift priorities toward programs that encourage reinvestment in existing infrastructure and communities ("fix-it-first" programs), support public transportation and transit- oriented development, and address congestion management through means other than road building.

2) Reform Transportation Models and Enhance NEPA Processes. To recognize when shifts are taking place in the true costs of road and transit, the surface transportation authorization legislation should encourage the development of up-to-date models and tools that measure the relative shifts in auto and transit costs, both up-front and on an operating basis as well as costs related to climate impacts and performance. Further, the U.S. Department of Transportation should be directed to develop ways and means to enhance the NEPA process in this regard as NEPA is central to all highways and transit project investment analysis.

3) Increase CAFE Standards. Establish stronger Corporate Average Fuel Economy (CAFE) Standards and enforce their adoption.

Appendix C - Contributing Technical and Staff Experts

BUILT ENVIRONMENT WORK GROUP PARTICIPANTS

Steve Adams	The Resource Innovation Group
Jerry Allen	Palm Beach County
Olga Alvarez	LEED Consulting & Green Practice Design
Ricardo Alvarez	Florida Atlantic University
Valerie Amor	Drawing Conclusions LLC
Glenn Amoruso	Broward County
Miguel Ascarrunz	Broward County
Steve Bassett	Florida Energy and Climate Commission
Maria Batista	Miami-Dade County Transit
Barbara Blake Boy	Broward County
Gilberto Blanco	Miami Dade Planning & Zoning
Marina Blanco-Pape	Miami-Dade County Department of Environmental Resource Management
Richard Blattner	City of Hollywood
Fred Bloetscher	Florida Atlantic University
Marc Bruner	Palm Beach County
Donald Burgess	Broward County Natural Resources Planning and Management Division
Wayne Burns	Broward County Office of Economic and Small Business Development
Ken Caban	Tetratech Consulting, South Florida Region
David Cabrera	Broward County Facilities Maintenance Division
Bob Cambric	South Florida Regional Planning Council
Al Carbon	City of Fort Lauderdale
Tyler Chappell	Chappell Group
David Chin	University of Miami
Ronald L. Crone	Lake Worth Drainage District
John Crouse	Broward County
Bryan Davis	Palm Beach County
Erin Deady	Deady Law
Ann Margaret Esnard	Florida Atlantic University
Bonnie Finneran	Palm Beach County
Benjamin Franco	Environmental Protection Agency
Bob Freeman	Environmental Protection Agency
Tim Garling	Broward County Transit
Nancy Gassman	Broward County Natural Resources Planning and Management Division
Luciana Gonzalez	City of Miami
Debbie Griner	Miami-Dade County Department of Environmental Resource Management
Richard Grosso	Nova Southeastern University
Kevin Hart	South Broward Drainage District

Nichole Hefty	Miami-Dade County Department of Environmental Resource Management
Carlos Hernandez	Miami-Dade County Department of Environmental Resource Management
Jill Horwitz	Broward County Natural Resources Planning and Management Division
Jennifer Jurado	Broward County Natural Resources Planning and Management Division
Anne Keller	U.S. Environmental Protection Agency
Glenn Landers	U.S. Army Corps of Engineering
Sandra Lee	U.S. Green Building Council
Gianni Lodi	Miami-Dade County
Barney McCoy	Broward County Transit
Jason McDonald	U.S. Environmental Protection Agency
Steve McGrew	Palm Beach County
Peter Merritt	Treasure Coast Regional Planning Council
Gaspar Miranda	Miami-Dade County Public Works
Ray Misomali	Miami-Dade County Office of Emergency Management
Ken Mitchell	U.S. Environmental Protection Agency
Carole Morris	South Florida Water Management District
Jim Murley	Florida Atlantic University
Jayantha Obeysekera	South Florida Water Management District
Danny Orlando	U.S. Environmental Protection Agency
Albert Perez	City of Hollywood
Elizabeth Plater-Zyberk	University of Miami
Alan Powell	U.S. Environmental Protection Agency
Catherine Prince	Miami Dade Planning & Zoning
John Ramos	Broward County Transit
Bob Renken	U.S. Geological Survey
Jonathan Roberson	Broward County Transportation
Hector Samario	U.S. Green Building Council
Kim Shugar	South Florida Water Management District
Henry Sniezek	Broward County
Norm Taylor	Broward County
Maurice Tobon	Palm Beach County
Richard Tornese	Broward County
Eduardo Vega	Miami-Dade County Water and Sewer Department
Leonard Vialpando	Broward County
Tom Walker	Florida Keys Aqueduct Authority
Patti Webster	Broward County Natural Resources Planning and Management Division
Kevin Wilson	Monroe County
Lisa Wilson Davis	City of Boca Raton
Mike Zygnerski	Broward County Natural Resources Planning and Management Division

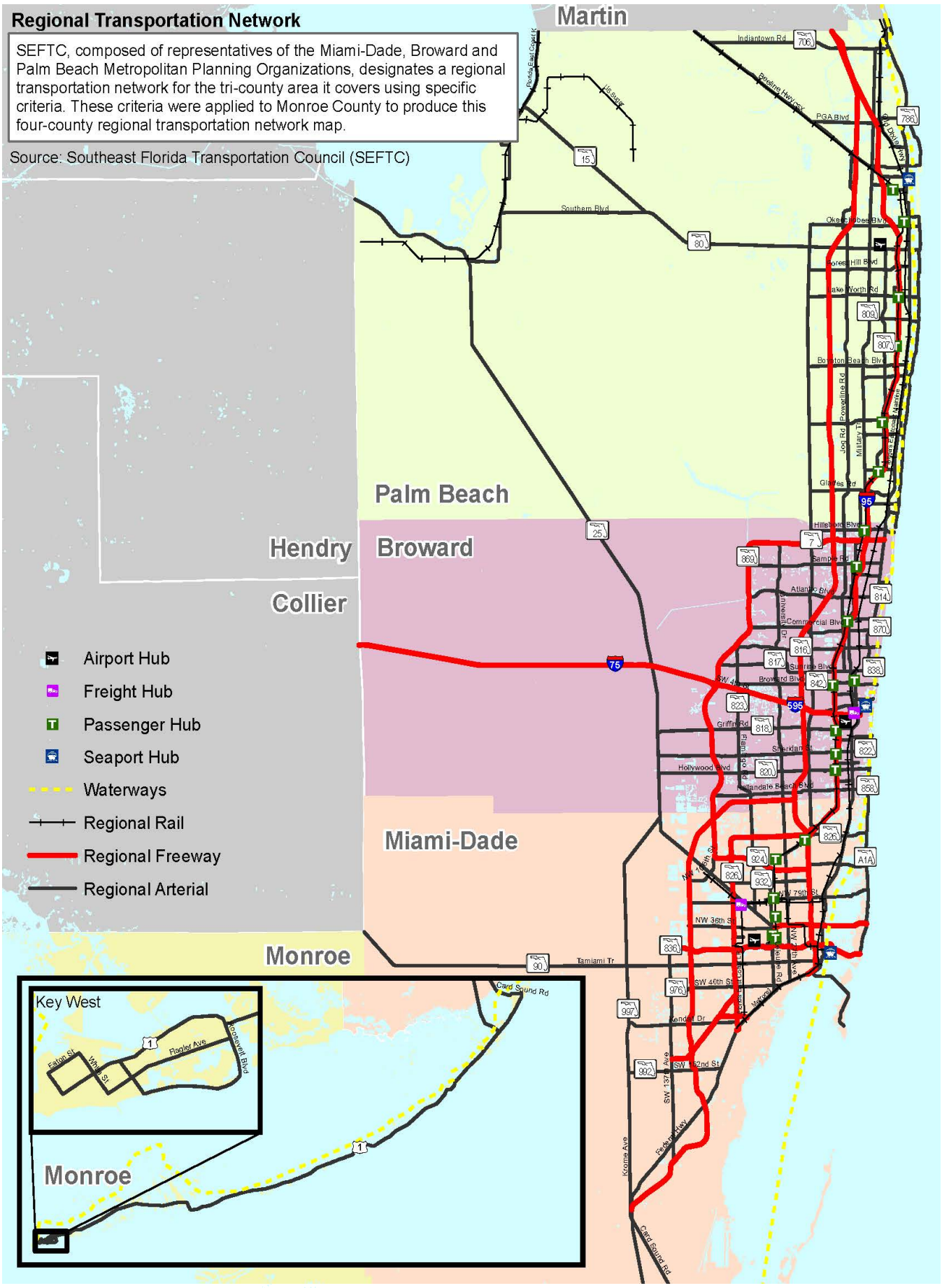
LAND AND NATURAL SYSTEMS WORK GROUP PARTICIPANTS

Lorenzo Aghemo	Palm Beach County Planning, Zoning & Building
Albrey Arrington	Loxahatchee River District
Ken Banks	Broward County Natural Resources Planning and Management Division
Chris Bergh	The Nature Conservancy
Ronnie Best	U.S. Geological Survey
Julie Bishop	Palm Beach County Environmental Resources Management
Donald Burgess	Broward County Natural Resources Planning and Management Division
Billy Causey	Natural Marine Sanctuaries
Nancy Craig	Broward County Environmental Monitoring Laboratory
Chantal Collier	Southeast Florida Coral Reef Initiative
Janice Duquesnel	Florida Department of Environmental Protection
Sara Edge	Florida Atlantic University
Bonnie Finneran	Palm Beach County Environmental Resources Management
Bob Glazer	Florida Fish and Wildlife Conservation Commission
Cynthia Guerra	Miami-Dade County Department of Environmental Resources Management
Katie Halloran	Miami-Dade County Planning and Zoning
Isaac Hoyos	Palm Beach County Department of Planning, Zoning and Building
Elizabeth Humple	Broward County Environmental Monitoring Lab
Dan Kimball	Everglades National Park
Thomas E. Lodge	Ecological Advisors, Inc.
Peter Merritt	Treasure Coast Regional Planning Council
Anne Morkill	Florida Keys National Wildlife Refuge
Sean Morton	Florida Keys National Marine Sanctuary
Jim Murley	Florida Atlantic University
Eric Myers	Broward County Natural Resources Planning and Management Division
Mark Nelson	Jonathan Dickenson State Park
Sylvia Pelizza	Loxahatchee National Wildlife Refuge
Leonard Perlstine	Everglades National Park
Ronald Rice	Cooperative Extension Service
Robert Robbins	Palm Beach County Environmental Resources Management
Michael Roberts	Monroe County
Traci Romine	Audubon of Florida
Barry Rosen	U.S. Geological Survey
Winnie Said	South Florida Water Management District Hydrologic & Environmental Systems Modeling
Jim Schuette	DuPuis Management Area South Florida Water Management District
Fred Sklar	South Florida Water Management District
Steve Traxler	U.S. Fish & Wildlife Service
Katherine Tzadik	Florida Department of Environmental Protection
Tom Van Lent	Everglades Foundation
Richard Walesky	Palm Beach County
Patti Webster	Broward County Natural Resources Planning and Management Division

TRANSPORTATION WORK GROUP PARTICIPANTS

Lorenzo Aghemo	Palm Beach County Planning
Frederick Bloetscher	Florida Atlantic University
Donald Burgess	Broward County Natural Resources Planning and Management Division
Lois Bush	Florida Department of Transportation – District 4
Rita Carbonell	Miami-Dade Expressway Authority
Steve Carrier	Engineering and Public Works
Monica Cejas	Miami-Dade County Transit
Carla Coleman	Urban Land Institute
Antonio Cotarelo	Miami-Dade County Public Works
James Cromar	Broward Metropolitan Planning Organization
William Cross	South Florida Regional Transportation Authority - Tri Rail
Tim Garling	Broward County Transit
Andrew Georgiadis	Dover Kohl & Partners
Debbie Griner	Miami-Dade County Department of Environmental Resources Management Air Quality Management
Nichole Hefty	Miami-Dade County Department of Environmental Resources Management
Christine Heshmati	South Florida Regional Planning Council
Becky Hope	Miami-Dade County Seaport
John Morgan	South Florida Water Management District
Catherine Prince	Miami-Dade County Department of Planning and Zoning
Jarice Rodriguez	Florida Atlantic University
Napolean Somoza	Miami-Dade County Department of Planning and Zoning
Gregory Stuart	Broward Metropolitan Planning Organization
Susanne Torriente	Miami-Dade County Office of Sustainability
Paul Vitro	Miami-Dade Emergency Management
Jeff Weidner	Florida Department of Transportation – District 4
Lynda Westin	Southeast Florida Regional Transportation
Enrique Zelaya	Broward County Transportation Planning

Appendix D - Regional Transportation Network



IX. Supporting Documents

The following support documents from the Southeast Florida Regional Climate Change Compact are available on the Compact website at:
southeastfloridaclimatecompact.org

A. Regional Climate Action Plan Implementation Guide

B. Compact Counties' Policy and Advocacy Implementation Report

C. Regional Greenhouse Gas Emissions Inventory Baseline Period: 2005 – 2009

D. A Unified Sea Level Rise Projection for Southeast Florida

E. Analysis of the Vulnerability of Southeast Florida to Sea Level Rise

The White Paper on Adaptation Action Areas by the Florida Department of Economic Opportunity (Support Document F) is also available on the Compact website.

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	Scooter on flooded street, provided by Miami-Dade County
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Page iv:	City with mangroves, provided by Miami-Dade County
Page 2:	Living shoreline, provided by Palm Beach County
Page 4:	Compact signing, provided by Broward County
Page 6:	Air quality monitoring, provided by Broward County
Page 8:	Connect the Dots 350 event, provided by Jeff Keating
Page 9:	Beach erosion, provided by Broward County
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Page 28:	Inundation at Keys Airport, provided by Monroe County
Page 30:	Storm sewer cleaning, provided by Miami-Dade County
Page 31:	Biscayne, provided by the South Florida Water Management District
Page 33:	Coral monitoring, provided by Broward County
Page 34:	Roseate Spoonbills, provided by the South Florida Water Management District
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Page 39:	Hurricane aerial, provided by the South Florida Water Management District
Page 41:	News reporter, provided by Miami-Dade County
Page 43:	Children planting trees, provided by Broward County
Page 44:	Compact press conference after BP spill, provided by Broward County From left to right: Monroe County Commissioner George Neugent, Miami-Dade County Commissioner Katy Sorenson, Palm Beach County Commissioner Shelley Vana, and Broward County Commissioner Kristin Jacobs.
Page 51:	People exiting South Beach bus, provided by Miami-Dade County
Back Cover:	Mom and son at beach, provided by Miami-Dade County

SOUTHEAST FLORIDA REGIONAL COMPACT CLIMATE CHANGE

This document was produced by the Southeast Florida Regional Climate Change Compact, a regional collaborative including Broward, Miami-Dade, Monroe and Palm Beach Counties, and promulgated at a cost of $4,634 or $6.62 per copy, for the purpose of providing information on climate change planning strategies relevant to Southeast Florida.

NR201249411 09/12

Attachment B

Palm Beach County FLUE Climate Change Sub-Objective and Policies

SUB-OBJECTIVE 1.1.1 Climate Change

Palm Beach County shall adopt, implement, and encourage strategies which increase community resiliency and protect property, infrastructure, and cultural and natural resources from the impacts of climate change, including sea level rise, changes in rainfall patterns, and extreme weather events.

Policy 1.1.1-a: Palm Beach County shall continue to participate in the Southeast Florida Regional Climate Change Initiative through a four county Compact. The County shall collaborate to increase regional resilience by sharing technical expertise, participating in annual summits, assessing regional vulnerabilities, advancing agreed upon mitigation and adaptation strategies, and developing joint state and federal legislation policies and programs.

Policy 1.1.1-b: Palm Beach County shall coordinate with other agencies, local governments, and the private sector to develop initiatives and goals to address climate change.

Policy 1.1.1-c: Palm Beach County shall encourage local governments to consider climate change adaptation and mitigation measures and shall provide technical support to the extent practical.

Policy 1.1.1-d: Palm Beach County Departments shall integrate consideration of climate change impacts, and adaptation and mitigation strategies, into existing and future system-wide planning, operations, policies, and programs.

Policy 1.1.1-e: Palm Beach County shall, by 2017, consider the use of Adaptation Action Areas as provided by section 163.3177(6)(g)(10), Florida Statutes, as a tool to identify areas vulnerable to coastal storm surge and sea level rise impacts, for the purpose of developing policies for adaptation and enhancing funding potential of infrastructure adaptation projects.

Policy 1.1.1-f: Palm Beach County shall consider the use of mitigation strategies to increase energy efficiency and conservation, and to reduce greenhouse gas emissions. These could include, but are not limited to, land use and transportation strategies such as encouraging compact residential development, providing incentives for mixed use and redevelopment that maximize internal trip capture, clustering residential densities along transit routes, improving access to transit, improving non-motorized movement, requiring interconnectivity among adjoining parcels, and providing incentives for green building methods.

ATTACHMENT C

SHORELINE STABILIZATION AND MARINE FACILITIES

Town Council Meeting 4/7/15

Coastal Bulkheads

Replacing Coastal Bulkheads (permitted)	
Existing code	Proposed Code
• Replace with a new bulkhead 12 inches waterward of the existing wall • Can be replaced as many times as requested.	• Replace with a new bulkhead with an **18 inch** waterward extension; and, • **Can only replace the bulkhead one time waterward.**

Replacing Coastal Bulkhead (unpermitted)	
Existing Code	Proposed Code
• Remove the existing seawall and build an upland retaining wall (bulkhead) five foot upland of the mean-high water line, with a transitional buffer, equal to 50 percent of the shoreline, between the wall and mean-high water line; or, • Place riprap (coastal revetment) five foot upland of the mean high water line, with a transitional buffer, equal to 50 percent of the shoreline, between the riprap and mean-high water line	• **Replace with a new bulkhead with an 18 inch waterward extension**; and, • Can only replace the bulkhead one time waterward; and, • Augment the shoreline with riprap, mangroves, or some combination.; or, • Build a coastal revetment (riprap) extending into the **midpoint of the littoral zone, between the mean high and mean low water line**

Coastal Revetments

Replacing Coastal Revetments (permitted and unpermitted)	
Existing code	**Proposed code**
• Build an upland retaining wall (bulkhead) 5 foot upland of the mean-high water line, with a transitional buffer, equal to 50 percent of the shoreline, between the wall and mean-high water line; or, • Place riprap (coastal revetment) five foot upland of the mean high water line, with a transitional buffer, equal to 50 percent of the shoreline, between the riprap and mean-high water line	• New bulkhead setback from the jurisdictional line of the state. **Setback proposed to be based on a minimum or a percentage of the distance between the closest house or building and the jurisdictional line of the state, or mean high water line**; and, • Augment the shoreline with riprap, mangroves, or some combination; or, • Replace a coastal revetment in the **same location as the existing revetment**.

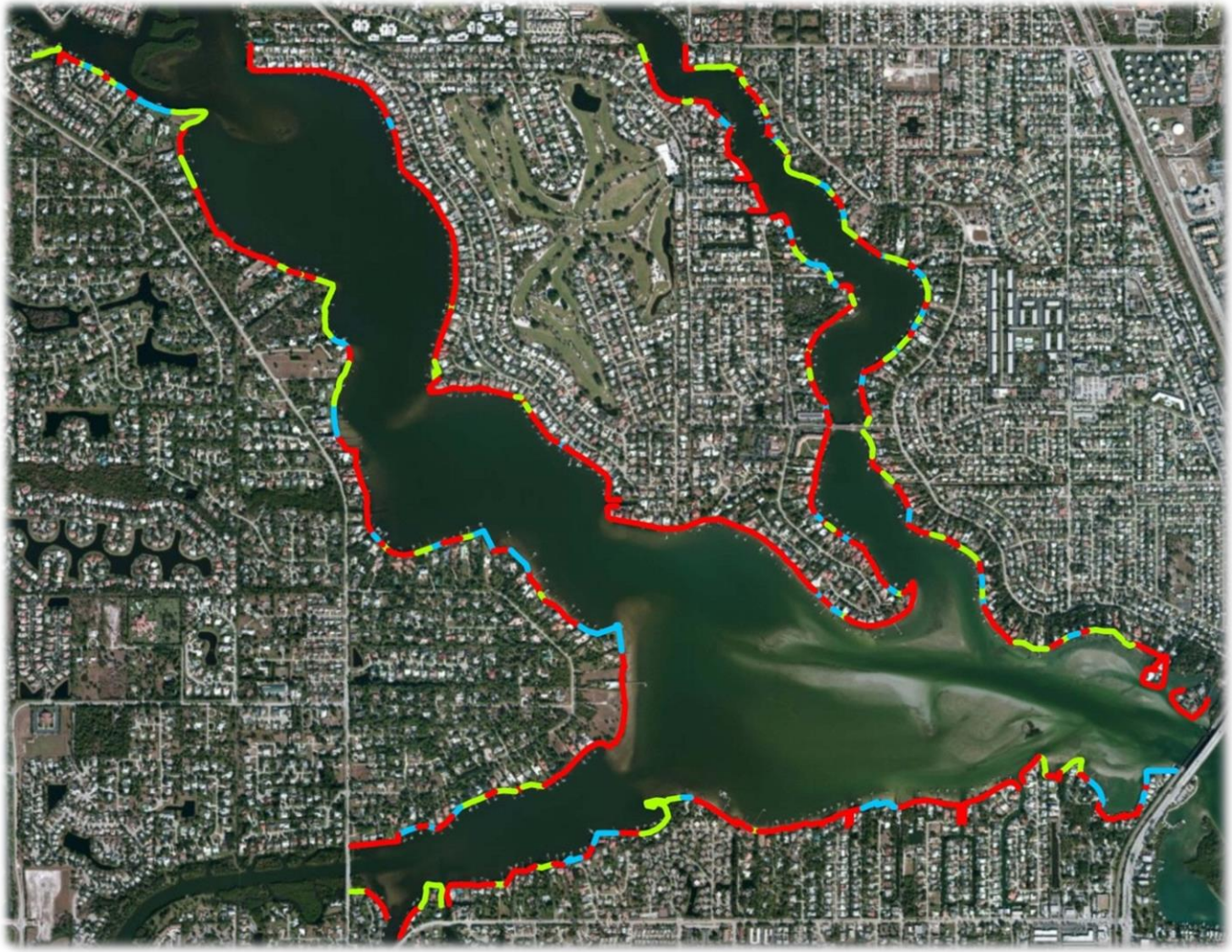
Unarmored Shorelines

Armoring an Unarmored Shoreline	
Existing code	**Proposed code**
• Build an upland retaining wall (bulkhead) 5 foot upland of the mean-high water line, with a transitional buffer, equal to 50 percent of the shoreline, between the wall and mean-high water line • Place riprap five foot upland of the mean high water line, with a transitional buffer, equal to 50 percent of the shoreline, between the riprap and mean-high water line	• New bulkhead setback from the jurisdictional line of the state. **Setback may be based on a minimum or a percentage of the distance between the closest house or building and the jurisdictional line of the state, or mean high water line**; and, • Augment the shoreline with riprap, mangroves, or some combination; or, • Build a coastal revetment constructed with riprap extending into the **midpoint of the littoral zone, between the mean high and mean low water line.**

Other additional items

- Properties on canals which are almost entirely armored are proposed to be exempt from providing riprap/mangroves
- Maximum height to the top of a seawall is related to the base flood elevation
  - Properties east of the CCCL exempt
  - Properties on Riverwalk with zero setback exempt based on ADA requirements
- Side setback waivers for docks and boatlifts
  - Property owners may apply for a reduction in the Town's required setback, if a unique situation exists
- Small boat with no rigid canopy on a second boat lift

Questions?



Legend
Bulkhead
Riprap
Natural

Regular Agenda – cont'd:

3. Conservation and Coastal Management Comprehensive Plan Text Amendments –

- To amend Conservation and Coastal Management Element policies pertaining to regulations for bulkheads and seawalls along shorelines;
- To create a new Coastal Management Element objective and implementing policies pertaining to the adoption and implementation of strategies to protect property and infrastructure from the impacts of climate change; and
- To amend Conservation Element policies pertaining to green design regulations.

(PZ# 14-415)

Acting as the Local Planning Agency

Town Council consideration: April 7, 2015 – *1st rdg*
June 16, 2015 – *2nd rdg*

Chair Walker read the title.

Mr. Kemp discussed the proposed Comprehensive Plan policy amendments. He noted that bulkheads and seawalls would now collectively be referred to as "coastal bulkheads". He concluded by saying that the Town has Florida Green Local Government Silver certification and will be pursuing Gold certification.

Comm. Acton noted that the proposed language for Policy 1.4.12 indicates that sloping revetments, riprap, native vegetation inclusive of mangrove and interlocking blocks all be used in high energy areas to dissipate wave forces. He suggested changing the language to indicate that only one or more of those measures be used. Staff concurred that was the intent.

Comm. Fleischmann suggested that the term "climate change" be changed to something more generally accepted. Chair Walker said "sea level rise" is a good term because it is measurable.

Comm. Zacarias asked why the Town was making these changes to the Comprehensive Plan. Mr. Sickler replied that a number of issues have arisen over the years, including the variances on Elsa Road. People want to build seawalls and the current policy discourages seawalls. The land development regulations only allow permitted seawalls to be rebuilt. Staff's goal is to provide for the needs of residents regarding shoreline stabilization while meeting the Town's goals to have a more natural environment.

Comm. Posner asked if old-fashioned seawalls would be permitted. Mr. Sickler said these amendments are for the Comprehensive Plan which covers the broader policies. The land development regulations with the details will be brought to the Commission next month. Staff is considering allowing coastal bulkheads upland of mangroves. Deep water seawalls are not currently allowed and would not be allowed under the new regulations.

DRAFT

CONSERVATION – cont'd

Mr. Sickler paraphrased the current and proposed language for Policy 1.4.10. He noted that the Town would be relaxing standards to allow coastal bulkheads where there is an environment for native vegetation on at least 50% of the shoreline waterward of the bulkhead. There is still a lot of natural shoreline in Jupiter so this would allow coastal bulkheads upland of the mean high waterline.

Comm. Posner asked if people would not have access to the water for recreation. Mr. Sickler said no; access will not be prohibited as long as the required environment for native vegetation is provided.

Chair Walker observed that one of the strengths of these changes is that man-made canals will be treated differently than natural shoreline. Mr. Sickler added that canals with a natural character will be treated differently canals that have predominately deep seawalls.

Chair Walker added that the Jupiter Inlet District was part of the public workshop in February and is developing a program of incentives for people who want to restore natural shoreline on their property.
Chair Walker opened the floor to public comment.

Andrew Russo of 316 Riverside Drive said he has a 1960s era asbestos seawall that needs to be replaced. His lot used to be part of the lot to the north, which got a new seawall about 10 years ago. He said he has been unable to obtain a permit for a new seawall on his property.

Chuck Collins said he is the executive director of Marine Industries Association of Palm Beach County and he was formerly the regional director for the Florida Fish and Wildlife Conservation Commission. He said "sea level rise" is the current term and he agreed that an incentive program is the best approach to restoration.

Comm. Acton moved to recommend approval with Staff recommendations and the following modifications to Policy 1.4.12:

- change the word "and" to "or" after the word "mangroves";
- leave the comma after "blocks"; and
- add the words "or some combination of the foregoing alternatives" after "blocks,"

so that the policy states "Sloping revetments, riprap, native vegetation to be inclusive of mangroves or interlocking blocks, or some combination of the foregoing alternatives….".

Vice Chair Rutter seconded the motion. The Commission was polled and the motion carried unanimously (7-0 vote).

Zacarias – Y	Acton – Y	Fleischmann – Y	Posner – Y
Rutter – Y	Walker – Y	Cipolla - Y	

DRAFT

Attachment E

Rick Scott
GOVERNOR

FLORIDA DEPARTMENT of ECONOMIC OPPORTUNITY

Jesse Panuccio
EXECUTIVE DIRECTOR

May 20, 2015

The Honorable Karen Golonka
Mayor, Town of Jupiter
201 Military Trail
Jupiter, Florida 33548

RECEIVED
MAY 26 2015
LANNING & ZONING

Dear Mayor Golonka:

The Department of Economic Opportunity has completed its review of the proposed comprehensive plan amendment for the Town of Jupiter (Amendment No. 15-5ESR), which was received on April 20, 2015. We have reviewed the proposed amendment pursuant to Sections 163.3184(2) and (3), Florida Statutes (F.S.), and identified no comment related to important state resources and facilities within the Department of Economic Opportunity's authorized scope of review that will be adversely impacted by the amendment if adopted.

The Town is reminded that pursuant to Section 163.3184(3)(b), F.S., other reviewing agencies have the authority to provide comments directly to the Town. If other reviewing agencies provide comments, we recommend the Town consider appropriate changes to the amendment based on those comments. If unresolved, such comments could form the basis for a challenge to the amendment after adoption.

The Town should act by choosing to adopt, adopt with changes, or not adopt the proposed amendment. Also, please note that Section 163.3184(3)(c)1, F.S., provides that if the second public hearing is not held within 180 days of your receipt of agency comments, the amendment shall be deemed withdrawn unless extended by agreement with notice to the Department of Economic Opportunity and any affected party that provided comment on the amendment. For your assistance, we have enclosed the procedures for adoption and transmittal of the comprehensive plan amendment.

If you have any questions concerning this review, please contact Roger Wilburn, at (850) 8463, or by email at roger.wilburn@deo.myflorida.com.

Sincerely,

Ana Richmond, Chief
Bureau of Community Planning

AR/rw

Enclosure: Procedures for Adoption

cc: Mr. John R. Sickler, AICP, Director of Planning and Zoning, Town of Jupiter
Mr. Michael J. Busha, AICP, Executive Director, Treasure Coast Regional Planning Council

RECEIVED
MAY 26 2015
PLANNING & ZONING

SUBMITTAL OF

ADOPTED COMPREHENSIVE PLAN AMENDMENTS

FOR STATE COORDINATED REVIEW

Section 163.3184(4), Florida Statutes

May 2011

NUMBER OF COPIES TO BE SUBMITTED: Please submit three complete copies of all comprehensive plan materials, of which one complete paper copy and two complete electronic copies on CD ROM in Portable Document Format (PDF) to the State Land Planning Agency and one copy to each entity below that provided timely comments to the local government: the appropriate Regional Planning Council; Water Management District; Department of Transportation; Department of Environmental Protection; Department of State; the appropriate county (municipal amendments only); the Florida Fish and Wildlife Conservation Commission and the Department of Agriculture and Consumer Services (county plan amendments only); and the Department of Education (amendments relating to public schools); and for certain local governments, the appropriate military installation and any other local government or governmental agency that has filed a written request.

SUBMITTAL LETTER: Please include the following information in the cover letter transmitting the adopted amendment:

_____ State Land Planning Agency identification number for adopted amendment package;

_____ Summary description of the adoption package, including any amendments proposed but not adopted;

_____ Ordinance number and adoption date;

_____ Certification that the adopted amendment(s) has been submitted to all parties that provided timely comments to the local government;

_____ Name, title, address, telephone, FAX number and e-mail address of local government contact;

_____ Letter signed by the chief elected official or the person designated by the local government.

ADOPTION AMENDMENT PACKAGE: Please include the following information in the amendment package:

_____ In the case of text amendments, changes should be shown in strike-through/underline format;

_____ In the case of future land use map amendment, an adopted future land use map, **in color format,** clearly depicting the parcel, its existing future land use designation, and its adopted designation;

_____ A copy of any data and analyses the local government deems appropriate.

Note: If the local government is relying on previously submitted data and analysis, no additional data and analysis is required;

_____ Copy of executed ordinance adopting the comprehensive plan amendment(s);

Suggested effective date language for the adoption ordinance for state coordinated review:

> The effective date of this plan amendment, if the amendment is not timely challenged, shall be the date the state land planning agency posts a notice of intent determing that this amendment is in compliance. If timely challenged, or if the state land planning agency issues a notice of intent determining that this amendment is not in compliance, this amendment shall become effective on the date the state land planning agency or the Administration Commission enters a final order determining this adopted amendment to be in compliance. No development orders, development permits, or land uses dependent on this amendment may be issued or commence before it has become effective. If a final order of noncompliance is issued by the Administration Commission, this amendment may nevertheless be made effective by adoption of a resolution affirming its effective status, a copy of which resolution shall be sent to the state land planning agency.

_____ List of additional changes made in the adopted amendment that the State Land Planning Agency did not previously review;

_____ List of findings of the local governing body, if any, that were not included in the ordinance and which provided the basis of the adoption or determination not to adopt the proposed amendment;

_____ Statement indicating the relationship of the additional changes not previously reviewed by the State Land Planning Agency to the ORC report from the State Land Planning Agency.

RECEIVED
MAY 26 2015
PLANNING & ZONING

TREASURE COAST REGIONAL PLANNING COUNCIL

M E M O R A N D U M

To: Council Members AGENDA ITEM 9C

From: Staff

Date: May 15, 2015 Council Meeting

Subject: Local Government Comprehensive Plan Review
Draft Amendment to the Town of Jupiter Comprehensive Plan
Amendment No. 15-5ESR

Introduction

The Community Planning Act, Chapter 163, *Florida Statutes*, requires that the regional planning council review local government comprehensive plan amendments prior to their adoption. The regional planning council review and comments are limited to adverse effects on regional resources or facilities identified in the strategic regional policy plan (SRPP) and extrajurisdictional impacts that would be inconsistent with the comprehensive plan of any affected local government within the region. Council must provide any comments to the local government within 30 days of the receipt of the proposed amendments and must also send a copy of any comments to the state land planning agency.

The amendment package from the Town of Jupiter includes text changes to the Conservation and Coastal Management elements of the comprehensive plan. This report includes a summary of the proposed amendment and Council comments.

Summary of Proposed Amendment

The proposed amendment is to: 1) revise policies in the Conservation and Coastal Management elements related to regulations for bulkheads and seawalls along shorelines; 2) revise policies in the Conservation Element related to green design regulations; and 3) add a new objective and policies in the Coastal Management Element related to climate change issues. Major changes include the following:

Conservation Element

1. **Replace Policy 1.4.10** – The original text in the policy discouraging bulkheads and seawalls is deleted and replaced with new text that states: *Coastal bulkheads should only be allowed when an environment for native vegetation is provided waterward of the*

bulkhead for at least 50 percent of the shoreline. Existing coastal bulkheads in need of repair may be replaced.

2. **Revise Policy 1.4.12** – This policy is revised to state: *Sloping revetments, riprap, native vegetation including but not limited to mangroves or interlocking blocks or some combination of the foregoing shall be used in high energy areas to more effectively dissipate wave forces, boat waves and reduce the effects of bottom scouring.*

3. **Revise Policy 1.10.1** – This policy is revised to state: *The Town shall maintain and amend as necessary land development regulations to promote and support green design theories and techniques, and which provide incentives for same.*

4. **Revise Policy 1.10.2** – This policy is revised to state: *By December 2019, the Town will strive to upgrade its current Florida Green Building Coalition "Florida Green Local Government Silver Certification" to a Gold Certification.*

Coastal Management Element

5. **Revise Policy 1.5.5** – This policy is revised to state: *Buffer zones of vegetation and/or riprap, to provide for an environment for native vegetation, should be established between any area of urban development and adjacent waterways. The native vegetation should consist of coastal plants such as mangroves, salt wart or sea ox-eye daisy and other coastal plants identified in Section 62-340.450, Florida Administrative Code.*

6. **Revise Policy 1.5.13** – This policy is revised to state: *The Town shall continue to coordinate with the Florida Department of Environmental Protection related to any anticipated changes to the Town's mangrove protection regulations contained in Chapter 26 of the Town Code.*

7. **New Objective 2.6 and Policies 2.6.1 through 2.6.7** – This new objective and seven policies address the town's commitment to adopt and implement strategies that increase community resiliency and protect property, infrastructure, and cultural and natural resources from the impacts of climate change, including sea level rise, changes in rainfall patterns, and extreme weather events. The full text is included in Exhibit 2.

<u>Regional Impacts</u>

No adverse effects on regional resources or facilities have been identified.

<u>Extrajurisdictional Impacts</u>

The proposed amendment was circulated by the Palm Beach County Intergovernmental Plan Amendment Review Committee Clearinghouse Coordinator on March 2, 2015. No extrajurisdictional impacts have been identified.

Conclusion

No adverse effects on regional resources or facilities and no extrajurisdictional impacts have been identified.

Recommendation

Council should approve this report and authorize its transmittal to the Town of Jupiter and the Florida Department of Economic Opportunity.

Attachments

List of Exhibits

Exhibit

1 General Location Map
2 Proposed Text Changes in Underline and Strikethrough Format

Exhibit 1
General Location Map

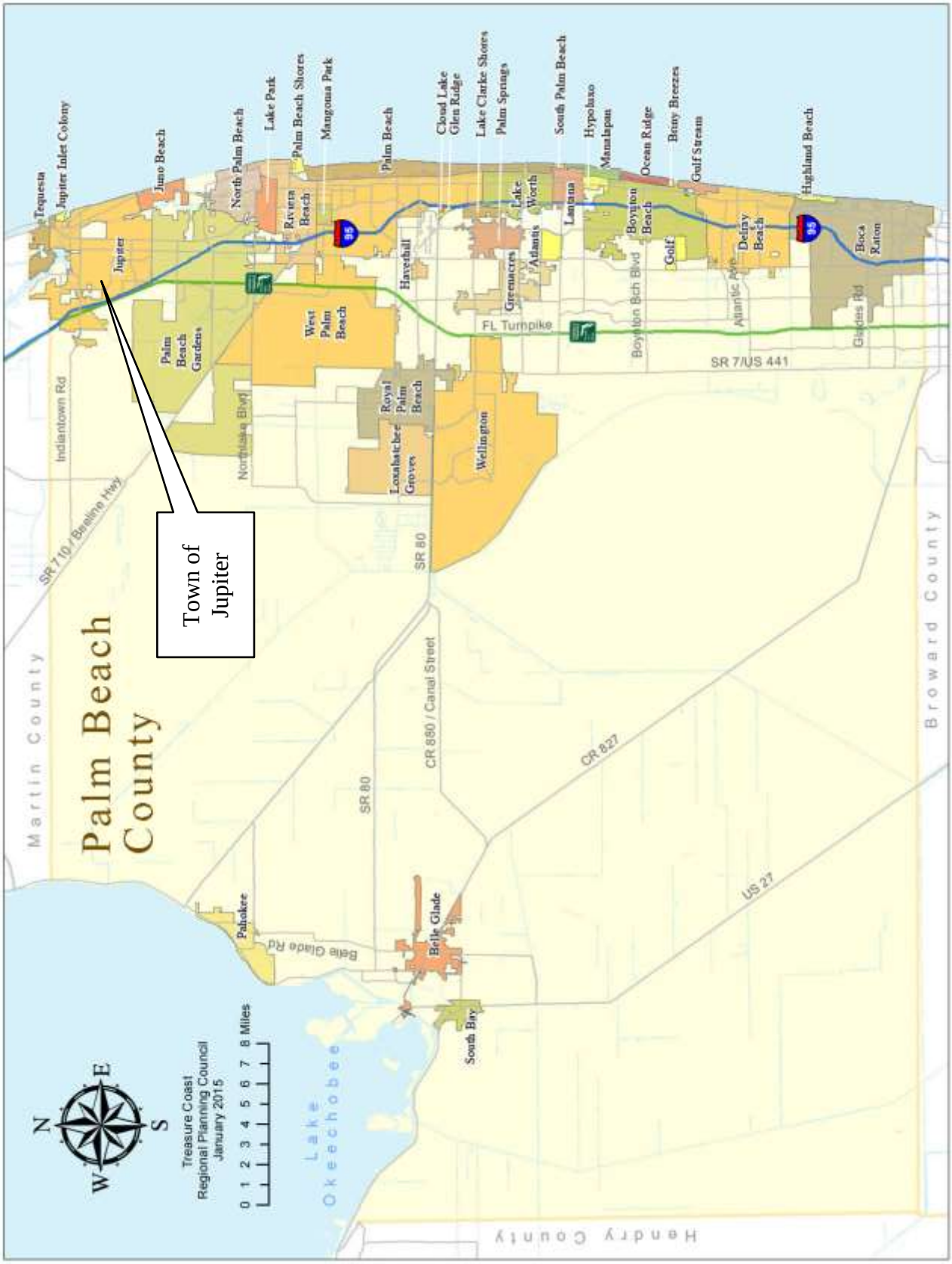


Exhibit 2
Proposed Text Changes in Underline and Strikethrough Format

Location: Conservation Element

Goals, Objectives and Policies

Surface Water Resources

Objective 1.4: The quality of the Town's surface water shall be maintained at appropriate levels as determined by the Department of Environmental Protection using DEP established criteria for water quality classifications as reported in Chapter 17-3 F.A.C.

Policy 1.4.1 The Town's stormwater management practices shall be directed by the Stormwater Management Plan.

Policy 1.4.2 The Town shall require new development to preserve permanent open space buffer zones of natural vegetation along waterways and within the floodplain.

Policy 1.4.3 The Town shall maintain and periodically update its Stormwater Management Plan.

Policy 1.4.4 The Town will maintain active membership on the Loxahatchee River Management Committee, and the Treasure Coast Regional Planning Council.

Policy 1.4.5 The Town supports the Loxahatchee River Management Plan.

Policy 1.4.6 Runoff from streets and yards should be carefully controlled to prevent flooding in adjacent areas or pollution of water bodies. Catchment basins should be constructed at storm sewer outfalls to prevent silt and other pollutants from entering water areas. French drains, properly engineered, will be considered an acceptable stormwater runoff drainage practice. The Town will continue its program of upgrading the drainage systems of each basin, and will give priority to those areas with the most severe problem.

Policy 1.4.7 Commercial shoreline development should be restricted to those activities that require a waterfront location.

Policy 1.4.8 Parking facilities should be located away from the bodies of water and their runoff controlled.

Policy 1.4.9 The Town shall require unique environmental characteristics be incorporated into the overall site design.

~~Policy 1.4.10 Bulkheads and seawalls should be discouraged. They should be allowed only in situations where they are replacing an already existing structure that is need of repair. Alternative shoreline stabilization techniques are preferred and encouraged in all instances.~~

Policy 1.4.10 Coastal bulkheads should only be allowed when an environment for native vegetation is provided waterward of the bulkhead for at least 50 percent of the shoreline. Existing coastal bulkheads in need of repair may be replaced.

Policy 1.4.11 Coastal ~~B~~bulkheads should be located at, or landward of, coastal wetlands and their ecotones.

Policy 1.4.12 Sloping revetments, riprap, native vegetation including but not limited to mangroves, ~~and~~ or interlocking blocks or some combination of the foregoing~~, instead of vertical seawalls~~, ~~should~~ shall

be used in high energy areas to more effectively dissipate wave forces, boat waves and reduce the effects of bottom scouring.

Policy 1.4.13 Land development activities that are feasible only through dredging and filling of submerged and wetland areas shall be prohibited unless permitted by the appropriate federal or state agency or has been properly mitigated as determined by an appropriate federal or state agency.

Policy 1.4.14 Buffer zones of vegetation should be established between any area of urban development and adjacent waterways.

Policy 1.4.15 Waterway connections to open water should be located to minimize adverse environmental impact. Avoid connections that disrupt wetlands, marine grasses and shellfish beds.

Policy 1.4.16 Approved upland waterway construction should be done in the dry, if possible, so that shaping and stabilization of the banks can be completed before the "plug" is removed for connection to open waters.

Policy 1.4.17 New artificial waterways are discouraged.

Policy 1.4.18 Dredging for navigational access or flood control should be planned to prevent unnecessary channels. In areas having shallow water shorelines, peripheral canals on the upland, leading to a central navigational channel, should be considered rather than separate access channels for each waterfront landowner.

Policy 1.4.19 All dredging spoil material should only be placed on suitable upland areas. Where feasible, sandy spoil should be used for dune construction and restoration projects.

Policy 1.4.20 Effective turbidity control mechanisms and procedures should be used to protect water quality in areas adjacent to construction activities.

Policy 1.4.21 Docks and piers should not obstruct navigation or public use of waters, and they should be constructed in a manner that does not restrict water flow, nor block views to the water.

Green Design

Objective 1.10 To encourage and promote effective green design theories and techniques for new development, redevelopment and infill projects including sustainable site development, water efficiency, energy efficiency, sustainable material selections and improved indoor environmental quality.

Policy 1.10.1 ~~By July 2009, t~~The Town shall ~~adopt~~ maintain and amend as necessary land development regulations to promote and ~~provide incentives that~~ support green design theories and techniques, and which provide incentives for same.

Policy 1.10.2 By December 2019, t~~T~~he Town will strive to ~~become a registered~~ upgrade its current Florida Green Building Coalition "Florida Green Local Government Silver Certification" to a Gold Certification.

Location: Coastal Management Element

Goals, Objectives and Policies

Preservation of Marine Natural Systems Objective and Policies

Objective 1.5: The Town shall maintain the adopted strategies to protect and preserve the functions and values of marine natural systems. The land development regulations shall continue to provide for the protection of natural resources and include at a minimum:

Policy 1.5.1 The Town adopts the objectives and policies and supports the implementation of the Loxahatchee Wild and Scenic River Management Plan.

Policy 1.5.2 The Town adopts the objectives and policies and supports the implementation of the Loxahatchee River Aquatic Preserve Management Plan.

Policy 1.5.3 Sloping revetments and interlocking blocks shall be used in high energy areas to more effectively dissipate wave forces, boat wakes and reduce the effects of bottom scouring. New coastal bulkheads ~~and seawalls~~ shall only be used to protect existing development and shall be located at, or landward of, coastal wetlands and their ecotones.

Policy 1.5.4 Land development activities that are feasible only through dredging and filling of submerged and wetland areas should be discouraged.

Policy 1.5.5 Buffer zones of vegetation and/or riprap, to provide for an environment for native vegetation, should be established between any area of urban development and adjacent waterways. The~~is~~ native vegetation should consist of coastal plants such as mangroves, salt wart or sea ox-eye daisy and other coastal plants identified in Section 62-340.450, Florida Administrative Code ~~of native vegetation adapted to natural conditions~~.

Policy 1.5.6 A buffer zone of native upland edge (i.e., transitional) vegetation shall be provided and maintained around wetland and deepwater habitats which are constructed or preserved on new development sites. The buffer zone may consist of preserved or planted vegetation, but shall include canopy, understory and ground cover of native species only. The edge habitat shall begin at the upland limit of any wetland or deepwater habitat. As a minimum, ten square feet of such buffer shall be provided for each linear foot of wetland or deepwater habitat perimeter that lies adjacent to uplands. This upland edge habitat shall be located such that no less than 50 percent of the total shoreline is buffered by a minimum width of ten feet of upland habitat. In the U. S. Highway One/Intracoastal Waterway Corridor, where land dedication for the Riverwalk Corridor has occurred, this requirement may be waived by the Town Council. The upland buffer requirement does not apply to those created deepwater habitats (e.g., stormwater management ponds) less than one-half acre in size nor to drainage canals or stormwater conveyance requiring periodic maintenance.

Policy 1.5.7 Approved upland waterway construction should be done in the dry, if possible, so that shaping and stabilization of the banks can be completed before the "plug" is removed for connection to open waters.

Policy 1.5.8 Dredging for navigational access or flood control should be planned to prevent unnecessary channels. In areas having shallow water shorelines, peripheral canals on the upland, leading to a central navigational channel, should be considered rather than separate access channels for each waterfront landowner.

Policy 1.5.9 All dredging spoil material shall only be placed on suitable upland. Where feasible, sandy spoil should be used for dune construction and restoration projects.

Policy 1.5.10 Docks and piers should not obstruct navigation or public use of waters, and they should be constructed in a manner that does not restrict water flow, nor block views to the water.

Policy 1.5.11 The Town shall coordinate review of estuarine shoreline development with appropriate federal, state, regional and local agencies to prevent irreparable or irretrievable loss of natural coastal resources. Intergovernmental coordination shall also provide cost effective utilization of experts in marine biology, coastal engineering, and soil conservation. To this end, as appropriate, the Town shall coordinate with public agencies, including the U.S. Department of Interior, U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, National Oceanic and Atmospheric Administration, U.S. Soil Conservation Service, the Florida Department of Environmental Protection, the Florida Game and Freshwater Fish Commission, the South Florida Water Management District, the Treasure Coast Regional Planning Agency, and potentially impacted local governments.

Policy 1.5.12 The Town shall make environmental education and management an integral part of park and recreation policies and programs. In addition, the Department of Planning and Zoning shall provide general information assistance and referral services to citizens interested in the impacts of Jupiter's physical development on natural resources and resource conservation.

Policy 1.5.13 The Town shall continue to coordinate with the Florida Department of Environmental Protection ~~to seek assistance in the development and adoption of a~~ related to any anticipated changes to the Town's mangrove protection regulations contained in Chapter 26 of the Town Code ~~ordinance~~.

Policy 1.5.14 No development will be approved in flood hazard areas and floodways, that is, on land immediately adjacent to major drainage and receiving streams, rivers or low areas which are known to be subject to flooding or rushing water and which therefore, create a hazard to life and property. Rather, the Town will encourage that these lands be reserved for conservation, open space, and recreation.

Policy 1.5.15 The Town shall prevent and regulate the construction of flood barriers which will unnaturally divert flood hazards to other lands.

Climate Change Objective and Policies

Objective 2.6 The Town shall adopt and implement strategies which increase community resiliency and protect property, infrastructure, and cultural and natural resources from the impacts of climate change, including sea level rise, changes in rainfall patterns, and extreme weather events.

Policy 2.6.1 The Town shall continue its participation in the Southeast Florida Regional Climate Change Initiative.

Policy 2.6.2 The Town shall collaborate with Palm Beach County to increase regional resilience by sharing technical expertise, participating in annual summits, assessing local vulnerabilities, advancing agreed upon mitigation and adaptation strategies, and developing joint state and federal legislation policies and programs.

Policy 2.6.3 The Town shall coordinate with Palm Beach County, other local governments, and other federal, state and regional agencies and private property owners to develop initiatives and goals to address climate change.

Policy 2.6.4 By December 2018, the Town shall investigate the feasibility of integrating consideration of climate change impacts, and adaptation and mitigation strategies, into existing Comprehensive Plan goals, objectives and policies and land development regulations.

Policy 2.6.5 By December 2018, the Town shall investigate the feasibility of the use of Adaptation Action Areas as provided by Section 163.3177(6)(g)(10), Florida Statutes, to identify areas vulnerable to coastal storm surge and sea level rise impacts.

Policy 2.6.6 By December 2018, the Town shall investigate the need to develop Comprehensive Plan policies for any identified Adaption Action Areas to enhance the funding of infrastructure adaption projects.

Policy 2.6.7 The Town shall continue to promote the use of mitigation strategies to increase energy efficiency and conservation, and to reduce greenhouse gas emissions. The mitigation strategies may include, but are not limited to, the adoption of Comprehensive Plan policies or land development regulations pertaining to land use and transportation strategies such as requiring compact residential development, incentives for mixed use and redevelopment projects that maximize internal trip capture, clustering residential densities along transit routes, improving access to transit and non-motorized movement, requiring interconnectivity among adjoining parcels of land, and incentives for green building methods.

V:\Staff\WP51\COMPPLAN\Amendments\2015-05 Conservation Element - Seawalls\04-07-15 TC Transmittal Hearing\EXHIBIT A of Ordinance 3-15.docx March 30, 2015

David Kemp

From: Hymowitz, Larry <Larry.Hymowitz@dot.state.fl.us>
Sent: Thursday, May 14, 2015 2:22 PM
To: DCPexternalagencycomments; David Kemp
Cc: Schaefer, Erin; Bush, Lois; John Sickler; Cahill, Maria
Subject: Town of Jupiter 15-5ESR - FDOT District Four Review

I am writing to advise you that the Department will not be issuing formal comments for the proposed Town of Jupiter comprehensive plan amendment with DEO reference number 15-5ESR.

The Department requests one copy, which may be on CD ROM in Portable Document Format (PDF), of all adopted comprehensive plan amendment materials, including graphic and textual materials and support documents.

While conducting our review, we noticed the extent to which the Town incorporates climate change policies within its Coastal Management Element. As such, the following information may be useful to the Town to further its efforts to protect property and infrastructure from the impacts of climate change.

- FDOT initiated research studies on sea level rise which have resulted in data and a decision support tool which allow users to better understand the vulnerability of transportation infrastructure to sea level trends.

  Florida Atlantic University conducted a research study that recommended an approach to assessing the vulnerability of transportation infrastructure to the effects of sea level rise. The University of Florida's GeoPlan Center conducted a follow up research study that resulted in development of a sketch planning tool which aids users in assessing the effects of sea level rise on transportation infrastructure using U.S. Army Corps of Engineers low, intermediate, and high scenarios. The tool can be accessed at http://sls.geoplan.ufl.edu. It is being used in several pilot areas in the state.

  Maria Cahill in FDOT's Central Office can provide more information on the tool, tool enhancements (to add surge and flooding data), and technical assistance available to local governments and others interested in using the tool. Maria's contact information is 850-414-4820, maria.cahill@dot.state.fl.us.

  Here are links to the two research studies:
  http://www.dot.state.fl.us/research-center/Completed_Proj/Summary_PL/FDOT_BDK79_977-01_rpt.pdf
  http://www.dot.state.fl.us/research-center/Completed_Proj/Summary_PL/FDOT-BDK75-977-63-rpt.pdf

- The Broward MPO led the *Southeast Florida Transportation and Climate Change Integration Pilot Project* funded by the Federal Highway Administration (FHWA) under its Climate Change and Extreme Weather Vulnerability Assessment Framework. The pilot project generated vulnerability rankings for roadways and rail (CSX only) on the regional transportation network in Monroe, Miami-Dade, Broward, and Palm Beach counties through complex GIS-based analyses. The variables used for scoring address:

  - exposure - % of road and rail segments permanently inundated by sea level rise, current and future flood exposure indices (storm surge and precipitation)
  - sensitivity - bridge condition index
  - adaptive capacity - AADT, detour length, ridership.

  The vulnerability rankings have a number of potential uses for transportation and other partners in the region.

  For more information contact Buffy Sanders at the Broward MPO (954-876-0046, sandersb@browardmpo.org). The final report is posted at http://www.browardmpo.org/planning/adapting-to-climate-change.

Please don't hesitate to contact me if you have any questions. Thank you.

Larry Hymowitz
Planning Specialist – Policy Planning & Growth Management
Planning & Environmental Management - FDOT District Four
3400 West Commercial Boulevard
Fort Lauderdale, Florida 33309-3421
Phone: (954) 777-4663; Fax: (954) 677-7892
larry.hymowitz@dot.state.fl.us

David Kemp

From: Oblaczynski, Deborah <doblaczy@sfwmd.gov>
Sent: Thursday, May 14, 2015 3:37 PM
To: John Sickler
Cc: David Kemp; Ray Eubanks (DCPexternalagencycomments@deo.myflorida.com); Michael J Busha (mbusha@tcrpc.org); James Stansbury (James.stansbury@deo.myflorida.com)
Subject: Town of Jupiter, DEO # 15-5ESR Comments on Proposed Comprehensive Plan Amendment Package

Dear Mr. Sickler:

The South Florida Water Management District (District) has completed its review of the proposed amendment package from the Town of Jupiter (Town). The proposed amendment updates the Conservation and Coastal Management elements of the Town's Comprehensive Plan. There appear to be no regionally significant water resource issues; therefore, the District has no comments on the proposed amendment package.

The District offers its technical assistance to the Town and the Department of Economic Opportunity in developing sound, sustainable solutions to meet the Town's future water supply needs and to protect the region's water resources. Please forward a copy of the adopted amendments to the District. Please contact me if you need assistance or additional information.

Sincerely,

Deb Oblaczynski
Policy & Planning Analyst
Water Supply Implementation Unit
South Florida Water Management District
3301 Gun Club Road
West Palm Beach, FL 33406
(561) 682-2544 or doblaczy@sfwmd.gov

We value your opinion. Please take a few minutes to share your comments on the service you received from the District by clicking on this link.

David Kemp

From: Stahl, Chris <Chris.Stahl@dep.state.fl.us>
Sent: Wednesday, April 29, 2015 2:53 PM
To: David Kemp
Cc: Craig, Kae; DEO Agency Comments
Subject: Jupiter 15-5ESR – Proposed

To: David Kemp, Principal Planner

Re: Jupiter 15-5ESR – Review of Proposed Comprehensive Plan Amendment

The Office of Intergovernmental Programs of the Florida Department of Environmental Protection (Department) has reviewed the above-referenced amendment package under the provisions of Chapter 163, Florida Statutes. The Department conducted a detailed review that focused on potential adverse impacts to important state resources and facilities, specifically: air and water pollution; wetlands and other surface waters of the state; federal and state-owned lands and interest in lands, including state parks, greenways and trails, conservation easements; solid waste; and water and wastewater treatment.

Based on our review of the submitted amendment package, the Department has found no provision that, if adopted, would result in adverse impacts to important state resources subject to the Department's jurisdiction.

Please feel free to contact me with any questions.

Chris Stahl
Office of Intergovernmental Programs
Florida Department of Environmental Protection
3900 Commonwealth Blvd., MS 47
Tallahassee, FL 32399-3000
(850) 245-2169