

Water Resources and Climate Adaptation Planning

Presented to the
**Public Water Supply Utilities Climate Impacts
Working Group**
May 10, 2012

Conceptual Phases

- Increasing the relevance and usability of climate change and variability data and tools
- Understanding the context/situation
- Assessing tools
- Evaluating practical applicability
- Using the quantitative climate information for planning and decision making processes

PWSU-CIWG Focus

- How does climate variability/change and sea level rise impact planning and operations of Florida's public water supply utilities
- What are the specific needs of the water supply managers and planners

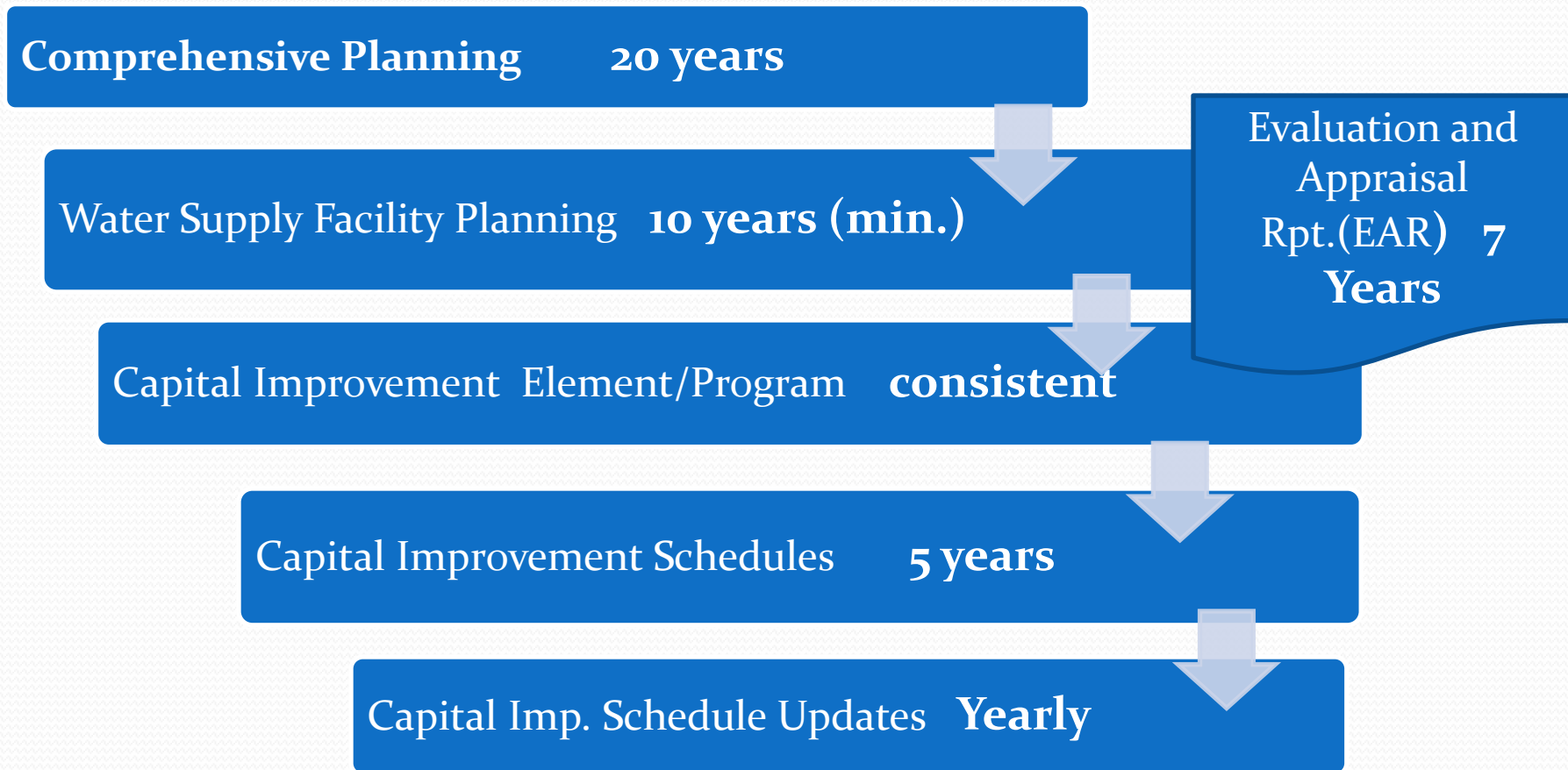
Climate Change Impacts

Water Supply

- More frequent & prolonged droughts
- Increased demand
- Saltwater intrusion



Comprehensive Planning Timeframes



Florida Water Resources Act

Chapter 373

- Regional water supply planning is for all existing and future reasonable-beneficial uses for 20 years
- Details all traditional and alternative water supply options for water suppliers
- Projects how much water is needed to meet 1-in-10 yr drought demand
- Estimated timeframe and costs for implementing Water Supply projects
- Analysis of funding needs and potential sources of funding

2009 FDEP Draft Guidelines for Regional Water Supply Plans

- ...include discussions of uncertainty of demands due to climate change and the need to address energy requirements for alternative treatment technologies
- Specifically addresses the potential for severe harmful effects on existing and further water supply infrastructure

2005 Legislation Modified

Comprehensive Plans to be consistent with Water Supply Plans

- Within 18 months after the water management district approves an updated regional water supply plan
- Ensure that its future land use plan is based upon the availability of adequate water supplies and public facilities and services. [s. 163.3177(6)(a), F.S.,
- Data and analysis demonstrating that adequate water supplies and associated public facilities will be available to meet projected growth demands

2005 Legislation Modified, cont.

- Must also include an amendment to the CIE demonstrating that adequate public facilities will be available to serve the proposed Future Land Use Map modification
- “Water supply concurrency”
adequate water supplies by the anticipated issuance date of the certificate of occupancy
- Water Supply Facilities Work Plan for at **least** a 10-year planning period for constructing the public, private, and regional water supply facilities identified in the element as necessary to serve existing and new development



Local Government Water Supply Facilities Work Plan

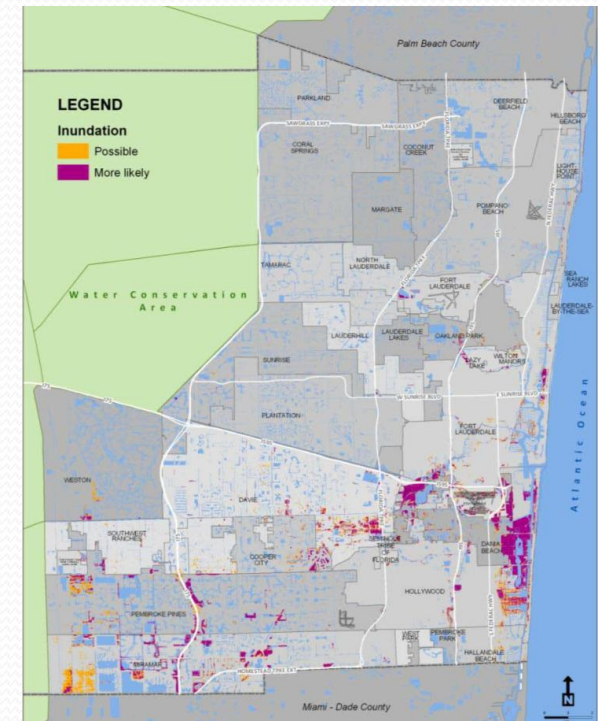
Work Plan must identify:

- Projections of water demands
- Existing sources and facilities
- Alternative water sources, conservation, reuse and the need for expansion of facilities
- Cost analysis and funding for capital improvement projects

Other Amendment Updates

Consistency of all Elements with respect to Water Supply Projects

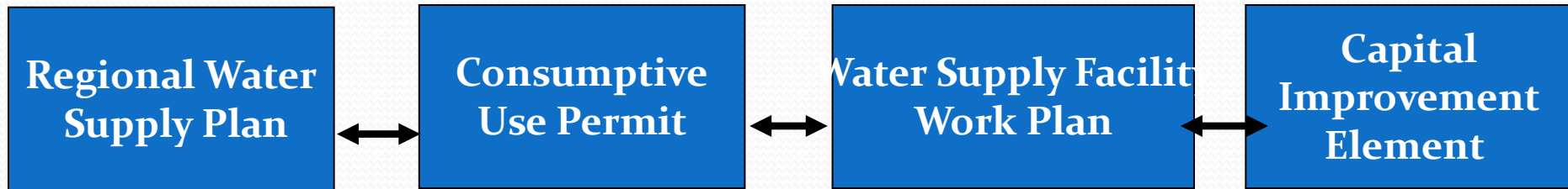
- Intergovernmental Coordination
- Conservation
- Sanitary sewer, solid waste, storm water management, potable
- Capital improvements element
- Objectives and policies in the other elements



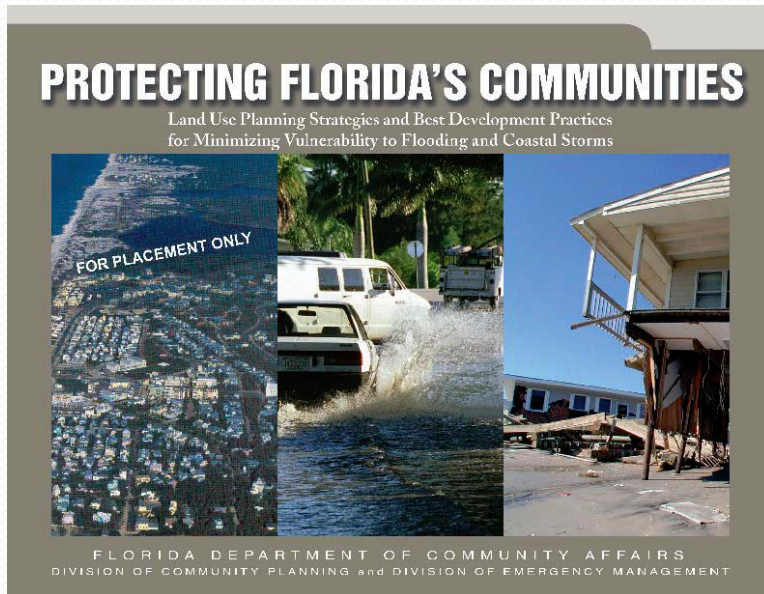
Evaluation and Appraisal Report (EAR)

Address in the EAR, the extent to which the local government has implemented the 10-year water supply facilities work plan, including the development of alternative water supplies, and determine whether projects are meeting local water use demands. [s. 163.3191(2)(1), F.S.]

Facility Work Plan Challenges



Consistency of Water Supply Projects



Comprehensive Planning Linkage to Climate Change

What are the specific needs of the water supply managers and planners ?

Future Land Use Element -Inventory and Data Analysis:

- Complete inventories of public facilities and infrastructure within 100-year special flood hazard areas and **coastal high-hazard areas**
 - private structures and public facilities with a history of repeated damage from natural disasters;
 - land use maps or map series, wetlands
 - 100-year floodplains
 - **areas subject to coastal flooding**
 - **coastal high-hazard areas**
 - major natural drainage features (e.g., drainage features inundated by a 25-year storm event)
- Locations of public and private structures that have experienced repetitive flood damage
- Areas in need of redevelopment

Comprehensive Planning Linkage to Climate Change, cont.

What are the specific needs of the water supply managers and planners ?

Coastal Management Element Inventory and analysis

- Complete inventories of public facilities and infrastructure within 100-year Identify coastal high-hazard areas and inventory public facilities and infrastructure within
- Analyze the potential for replacing, mitigating, or relocating vulnerable public facilities and infrastructure within the *coastal high-hazard areas*
- Analyze the effects of development proposed in the *future land use element* on population densities within the *hurricane vulnerability zone* and on populations with special hurricane evacuation needs
- Inventory existing and potential beach renourishment areas and identify measures to protect

Comprehensive Planning Linkage to Climate Change, cont.

What are the specific needs of the water supply managers and planners ?

Specific Goal statement and Action Item in the Climate Change Action Plan

Goal WR-1: Ensure that the existing water resources and water infrastructure are protected and adequate supplies of water remain available for drinking, agriculture, and natural resources, while protecting water quality and minimizing the potential for flood damage and water shortages.

Action WR-1.4 Re-evaluate reuse due to sea level rise

Broward County should work in coordination with all utilities and municipalities to re-evaluate current plans for utilization of wastewater for reclamation and reuse to address changes in water tables due to sea level rise.