

# **Miami-Dade Water and Sewer Department**

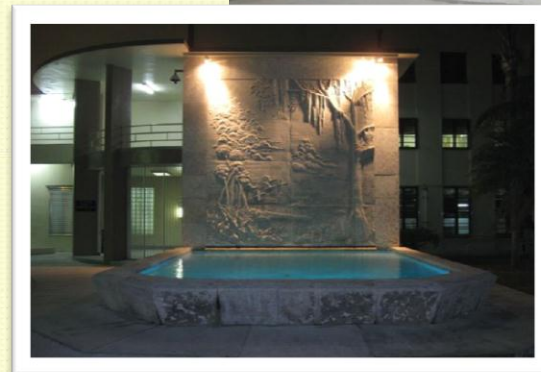
## **PWSU-CIWG Workshop**

**May 10, 2012**

**Bertha Goldenberg, P.E.  
Assistant Director**

# MDWASD Overview

- Largest water and sewer utility in Florida, serving more than 2.2 million residents
- Water System:
  - 3 large regional and 5 small water treatment plants
  - Supplying an average of 306 million gallons per day (MGD)
  - 90% of the County's public water supply
  - Per capita water use 134 gpcd
  - 15 wholesale customers
  - 422,016 retail customers
  - 100 water supply wells
  - 7,739 miles of pipes (from 2" to 96")
  - 38,331 fire hydrants
  - 124,000 valves (from 2" to 96")



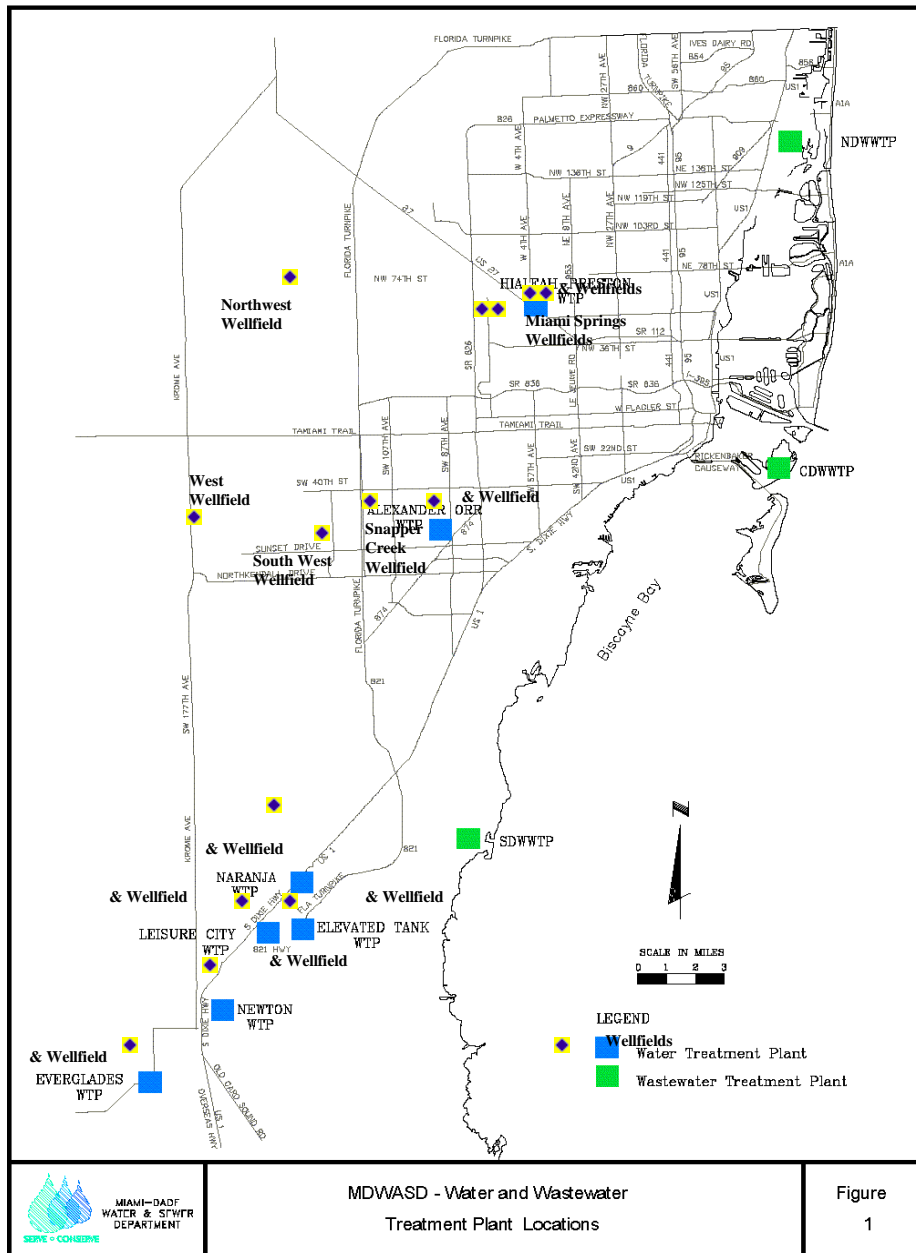
# MDWASD Overview (continued)

- Wastewater System:
  - 3 wastewater treatment plants
  - 2 ocean outfalls and 21 deep injection wells
  - Collecting, treating, and disposing 288 MGD
  - 339,927 retail customers
  - 12 wholesale customers
  - 6,271 miles of mains and laterals
  - 1,039 sewer pumps stations (operated)
  - Reusing 10.2 MGD of wastewater
  - System Wide I/I Program





# MDWASD Water & Wastewater Treatment Facilities



MDWASD - Water and Wastewater  
Treatment Plant Locations

Figure  
1

# MIAMI-DADE COUNTY GREENPRINT

- Collaborative process of stakeholders, including : County staff, community groups, business, academia, and Miami-Dade residents
- Pursue the regional goal of reducing greenhouse gas (GHG) emissions by 80% from 2008 levels by 2050
- Supports the state's goal of achieving 20% of Florida's energy from renewable sources by 2020.
- 137 separate initiatives outlined in GreenPrint, for a reduction in GHG emissions of 1.5 million metric tons and avoidance of 3.1 million metric tons over the next five years
- Includes initiatives to address drinking water supplies (salt water intrusion), and sea level rise



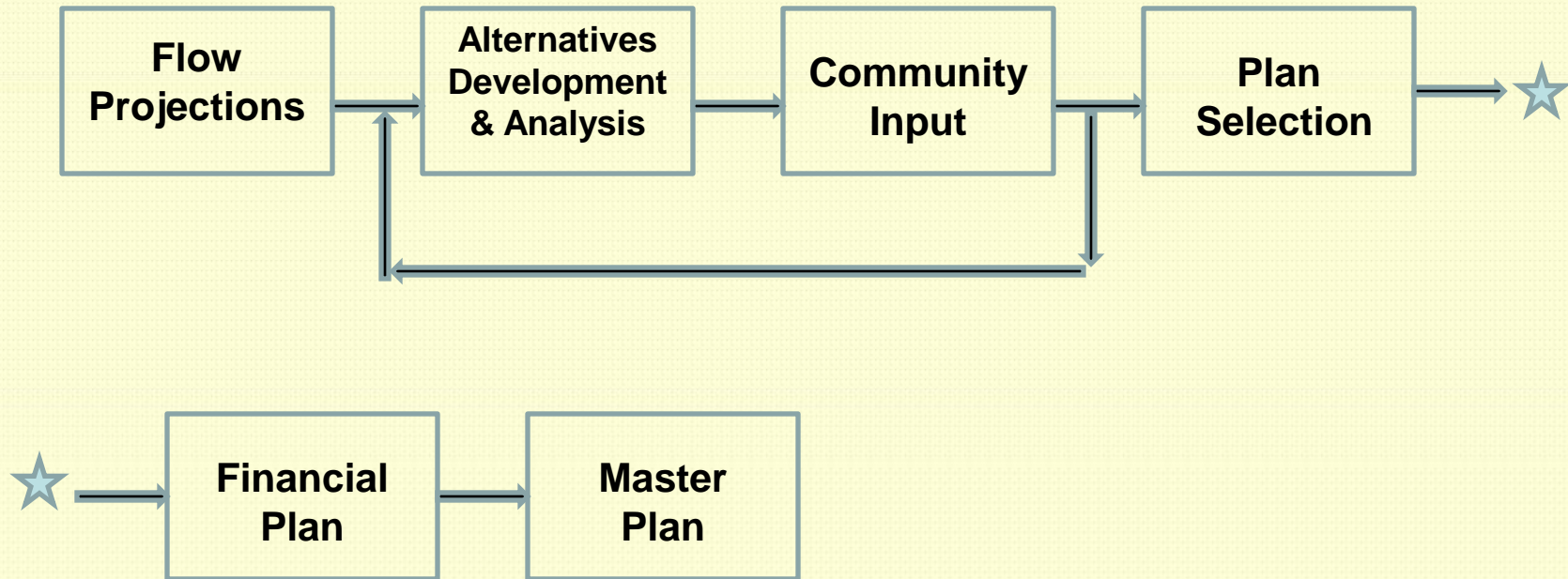
# REGIONAL CLIMATE CHANGE ACTION PLAN

- Executed by Broward, Miami-Dade, Palm Beach, and Monroe Counties in January 2010 to coordinate mitigation and adaptation activities across county lines
- Coordinated response to proposed state climate legislation and policies
- Dedicate staff time and resources to create a Southeast Florida Regional Climate Change Action Plan to include mitigation and adaptation strategies





# Master Planning Process

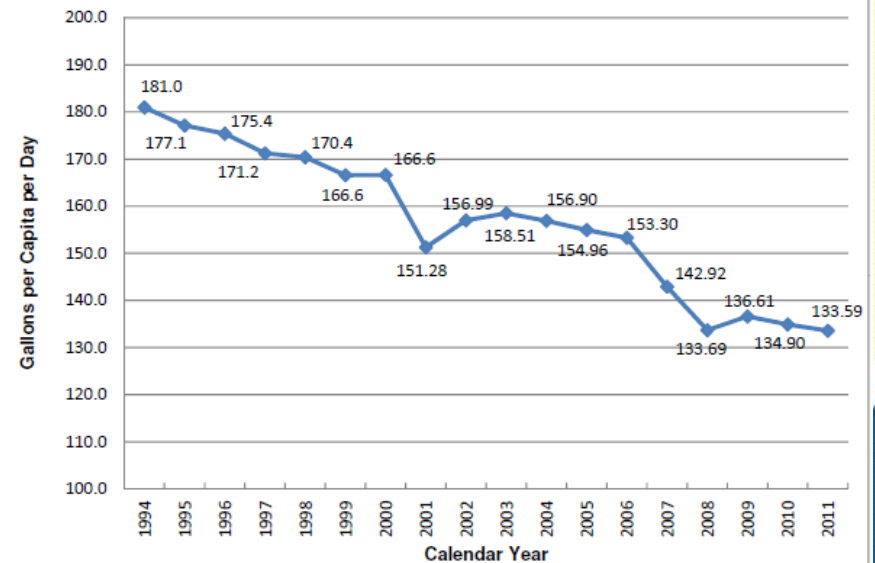


# FLOW PROJECTIONS

- Population projections
- Historical use per capita
- Water conservation

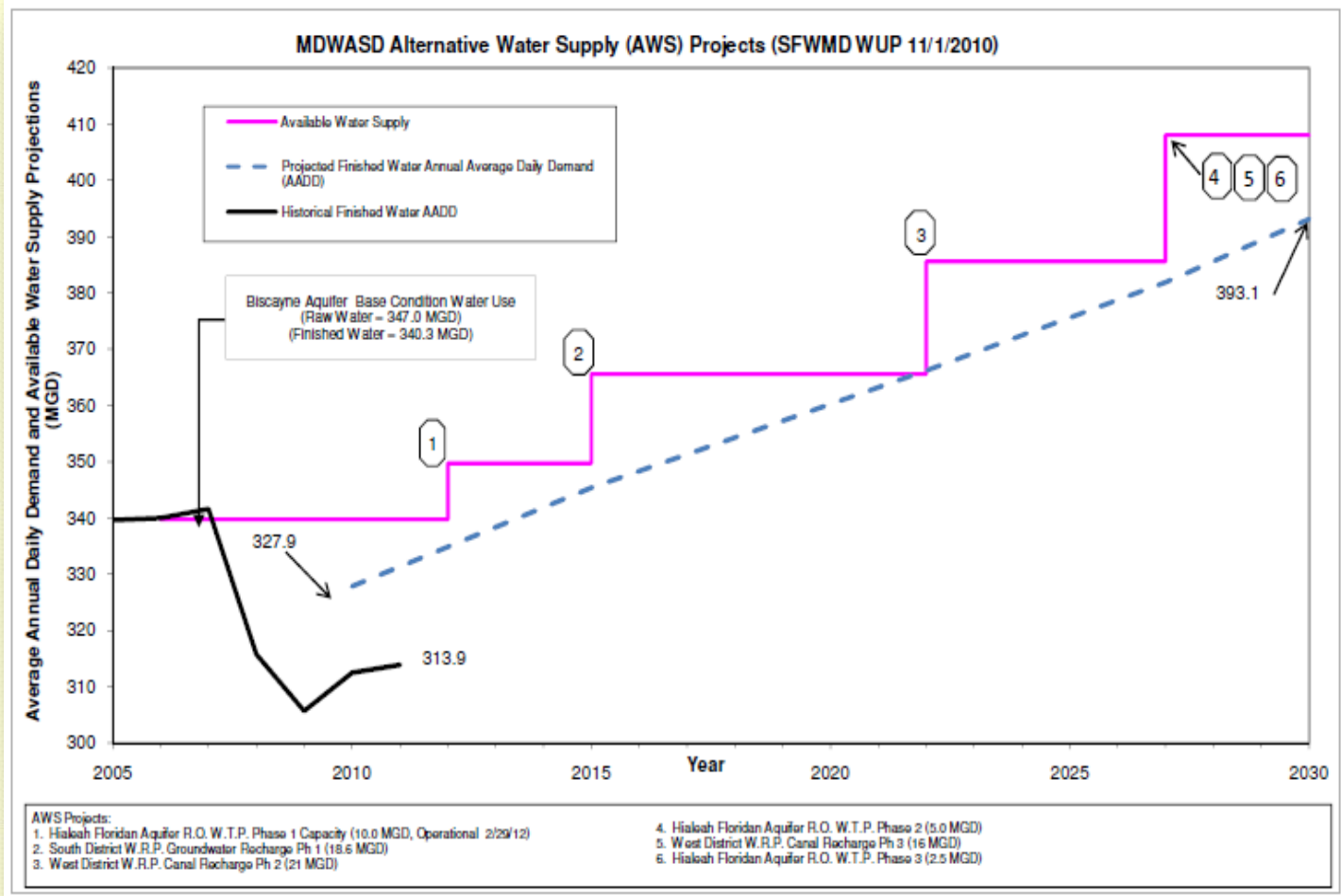


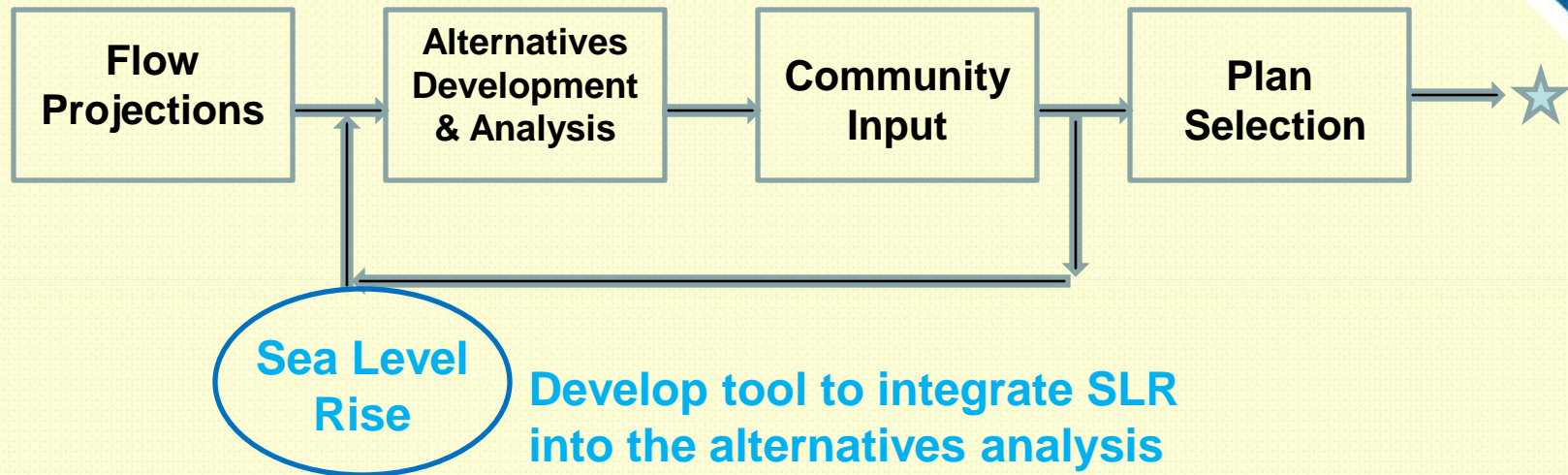
Historical Systemwide Average Finished Water per Capita





# Water Supply Planning

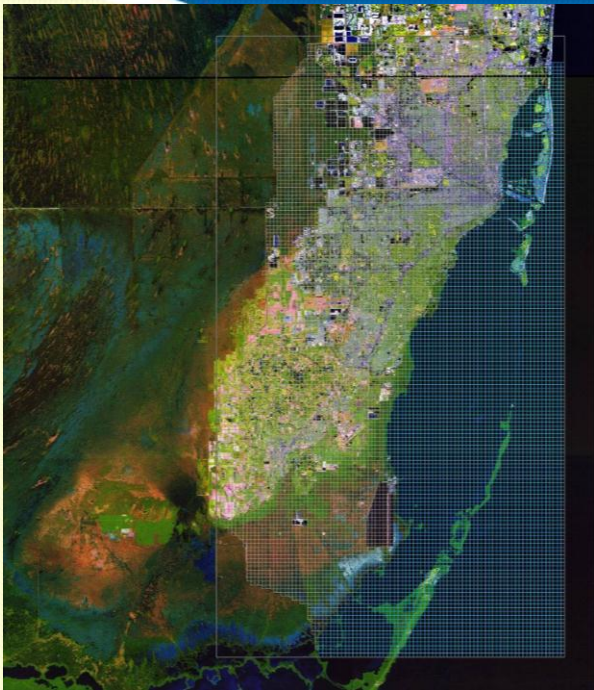




# Sea Level Rise

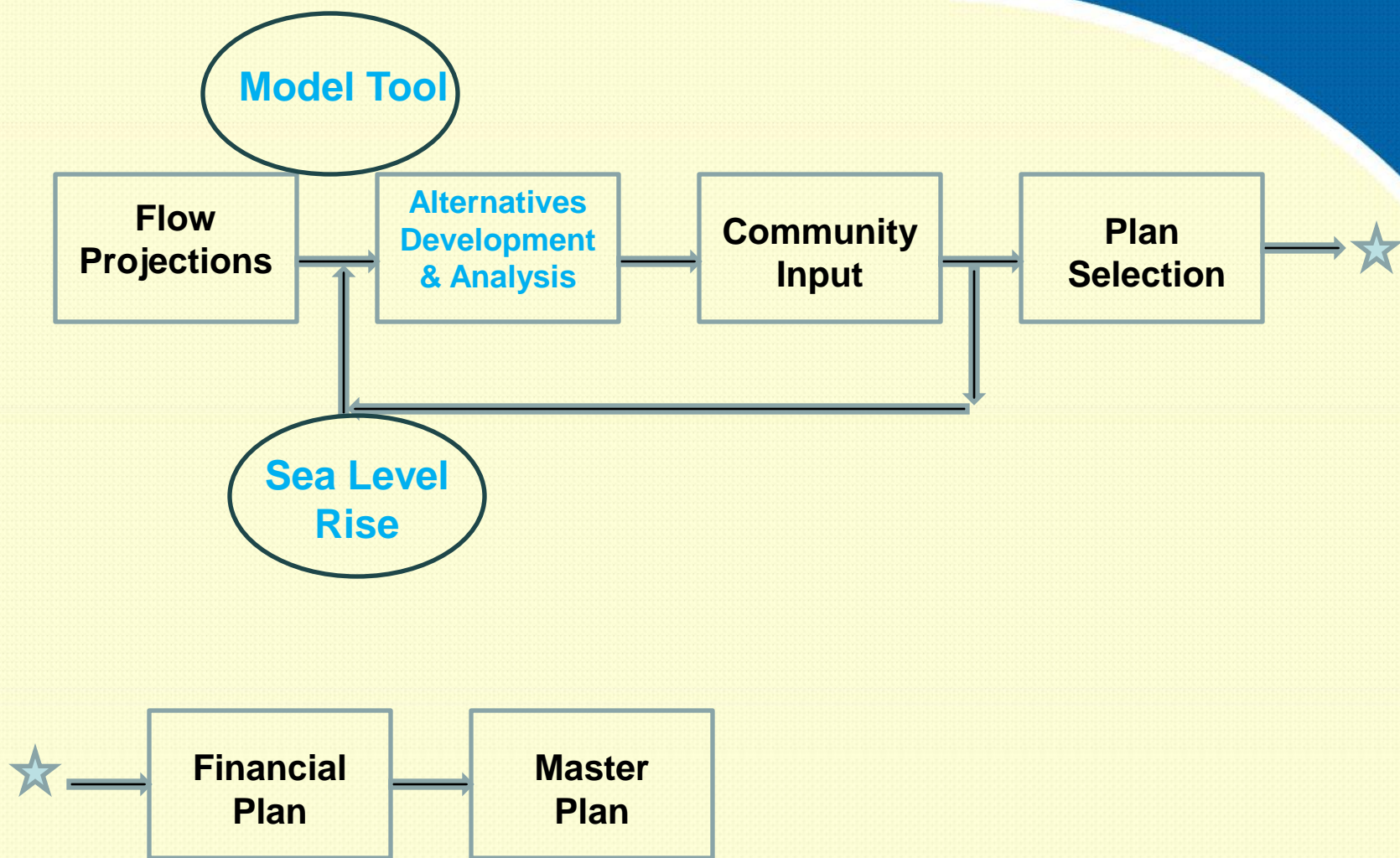
## USGS Surface/Groundwater Flow model capable of:

- Variable density and heat flow – salt water intrusion
- Canal-aquifer interactions
- 50 year forecasting
- Biscayne Bay salinity changes



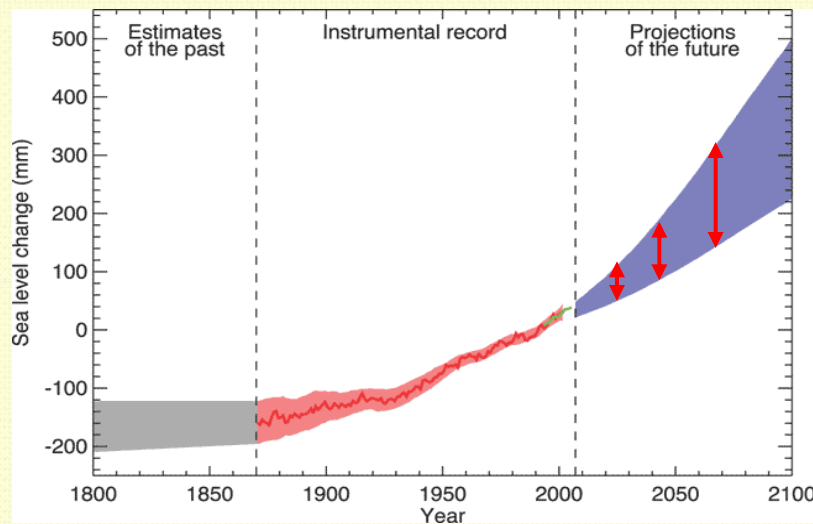
Climate Change Action Plan							
Initiative	Lead & Partners	Funded and Unfunded Costs Capital      Operating		Funding Sources	New Legislative Action	Milestones	Performance Indicators and Targets
132. Develop planning maps and tools for Miami-Dade County based on consensus of SE FL Climate Change compact planning scenarios	<p>Lead: Atmospheric Administration (NOAA), South Florida Water Management District (SFWMD), US Geological Survey (USGS)</p> <p>Partners: Dept. of Planning and Zoning (DPZ), Enterprise Technology Services Dept. (ETSD), Office of Emergency Management (OEM), South Florida Water Management District (SFWMD), National Oceanic Atmospheric Administration (NOAA), US Geological Survey (USGS), Compact partners</p>	TBD during the planning process		TBD through implementation	No	<p>Year 1-2: Use local and regional climate change data and models to develop planning scenarios</p> <p>Year 3-5: Develop planning maps and tools for local decision makers</p>	Achievement of milestones
133. Continue existing local surface water, ground water and salt water intrusion modeling projects, incorporating expected climate change impacts (i.e. changes in temperature, precipitation, sea level rise, etc.) and integrating with regional water	<p>Lead: Water and Sewer Department (WASD)</p> <p>Partners: US Geological Survey (USGS)</p>	<p>\$49,158,501/year (O&amp;M)</p> <p>Total \$2,769,513 (6 years)</p>		WASD departmental revenues	No	<p>Year 1-2: Complete (3) modeling scenarios with completed integrated model</p> <p>Year 3: Publish peer reviewed report and publically release model code</p>	Achievement of milestones



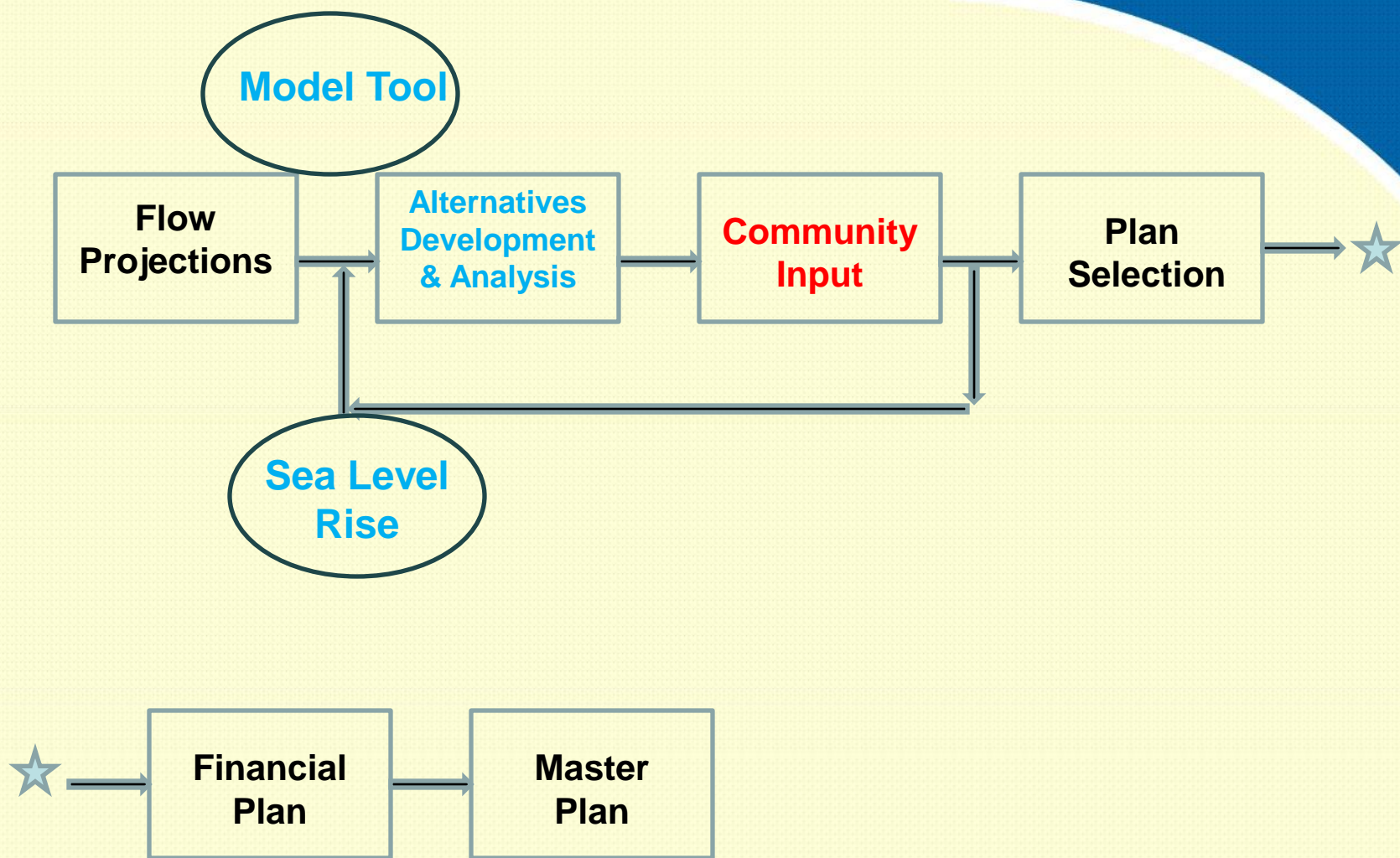


# Alternatives Development & Analysis

- Develop model future scenarios for range of expected climate change impacts:
  - Sea level
  - Changes in recharge including precipitation, land use changes
  - Future canal operations in response to SLR
- Integrate with regional water modeling projects from SFWMD and other SE FL Climate Change Compact Partners



Scenarios  
to include  
a low to  
high  
projection  
of SLR



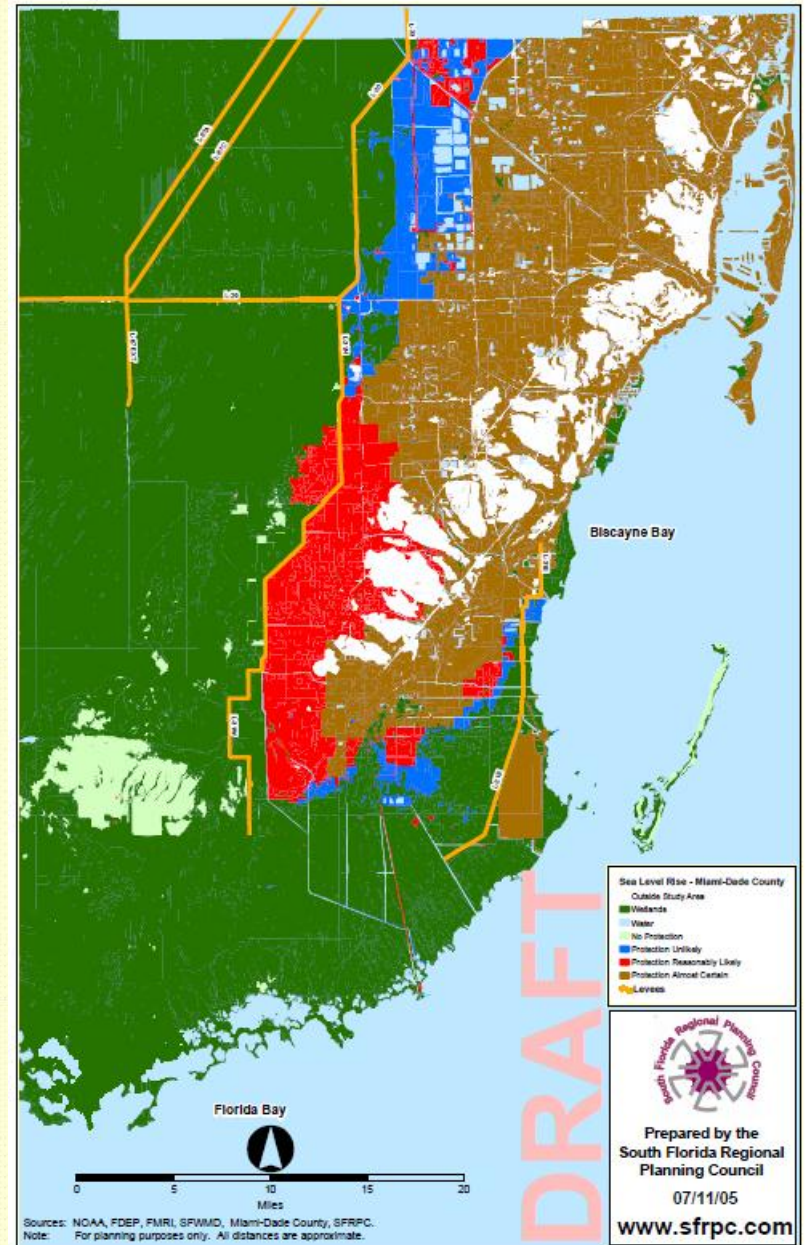


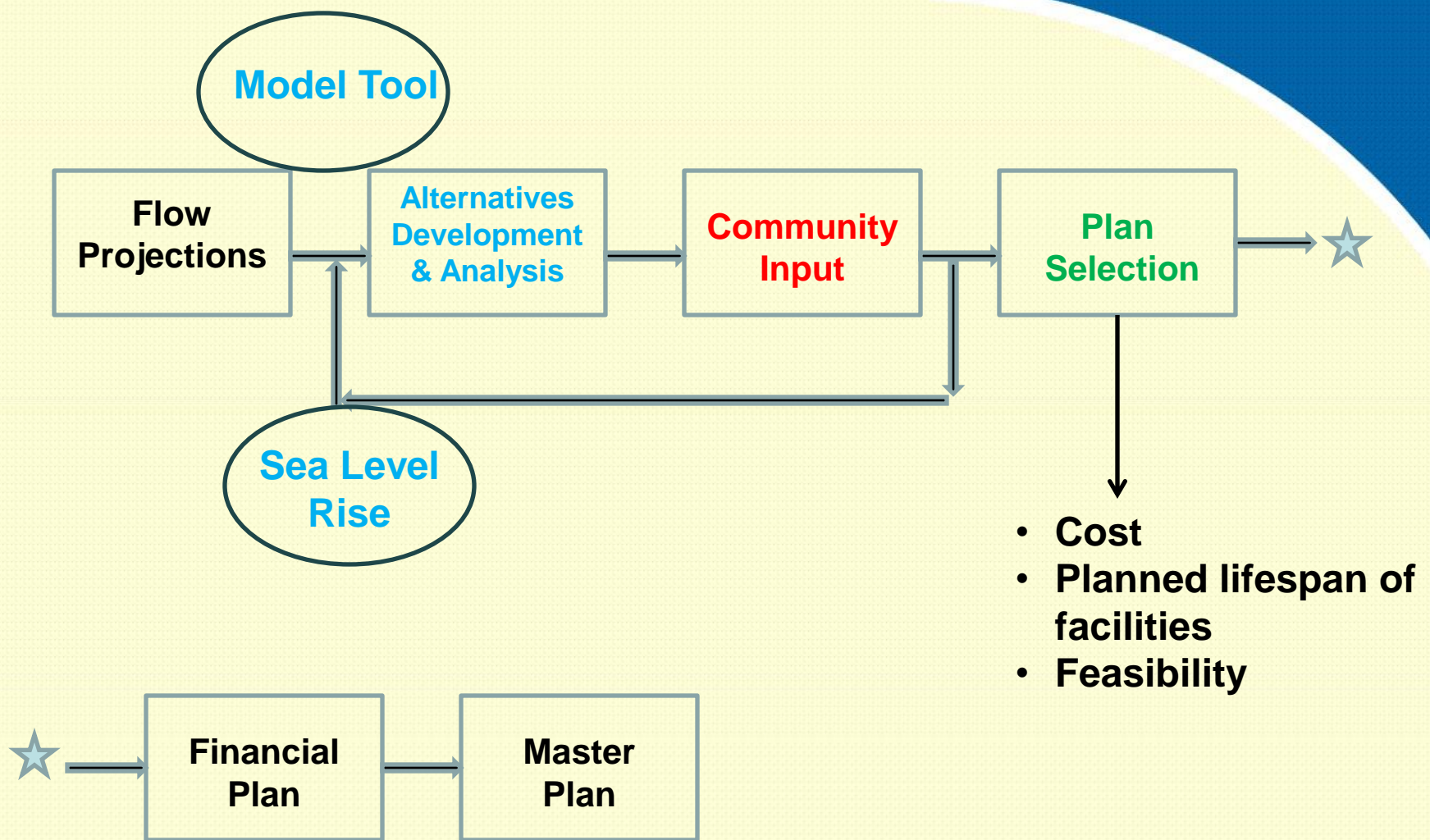
# Community Input

- Awareness
- \$\$ infrastructure adaptation



Source: EPA Climate Change





# SLR and Salt Water Intrusion

- Wellfields near the coast
- Consider facilities lifespan based on various modeled SLR and climate change scenarios
- Develop timeframes for Engineering Solutions

