

# **Miami-Water and Sewer Department**

## **Ocean Outfall Legislation Draft Plan**

June 5, 2013

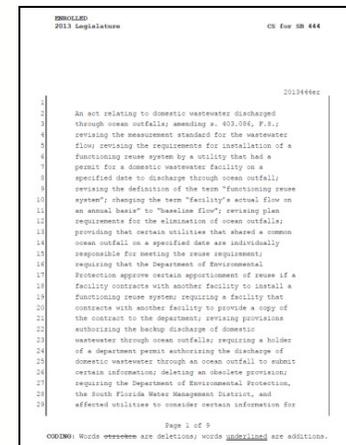
# 2008 Ocean Outfall Legislation

- By July 1, 2013, submit implementation plan to Florida Department of Environmental Protection (FDEP)
- Reduce nutrient loading to the ocean
  - Meet Advance Wastewater Treatment (AWT) by Dec 31, 2018, or
  - Reduce cumulative outfall loadings (from 2008-2025) equivalent to AWT from 2018-2025
- December 31, 2025, stop using outfall and implement 60% reuse

# 2013 Legislation Amendment

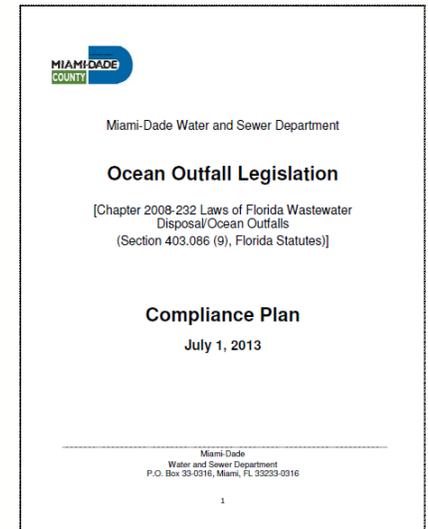
On April 24, 2013, the Governor signed amendment to the law including:

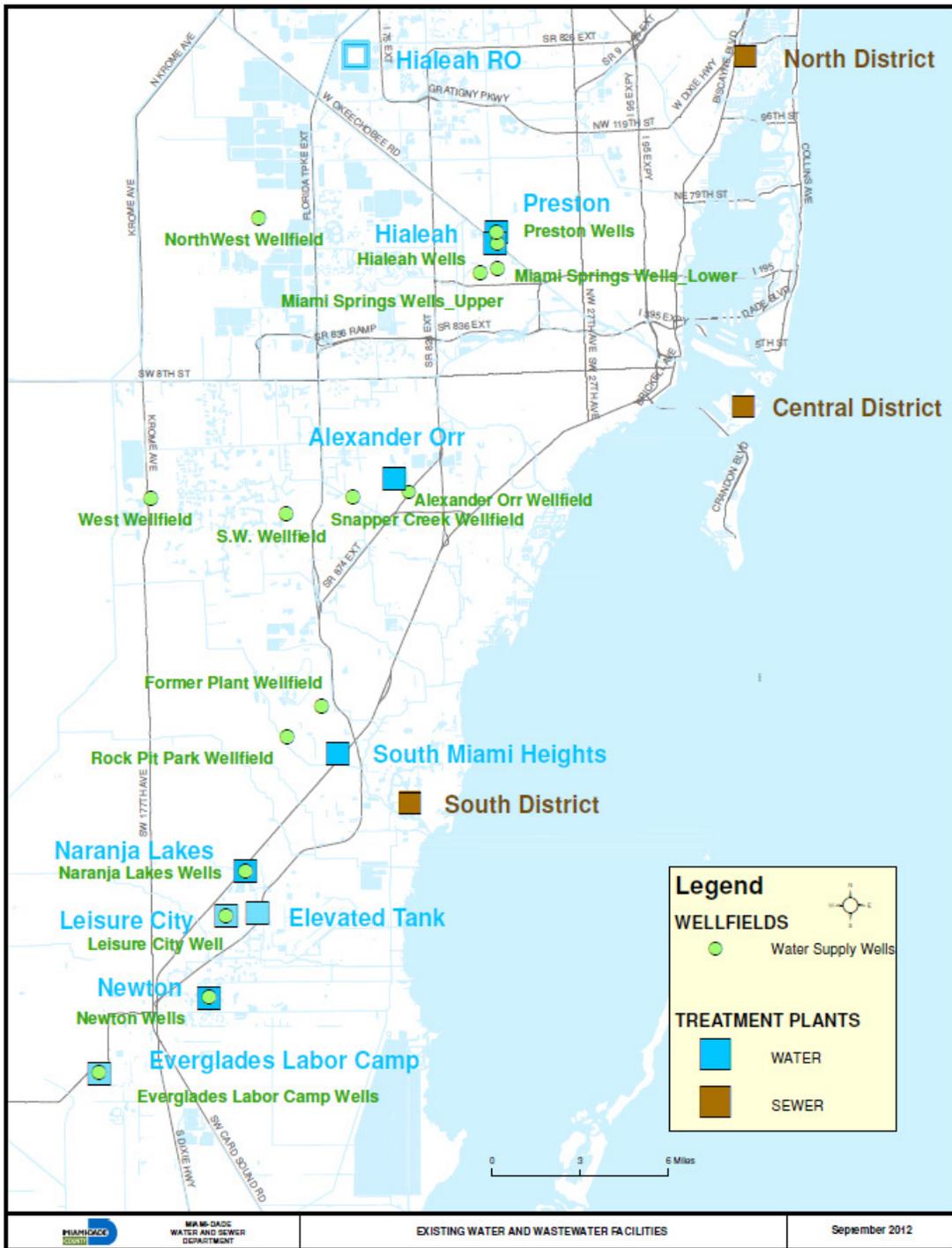
- Allowing use of outfall after 2025, as back-up for wet weather flows (up to 5% of baseline flow)
- Giving credit for reuse at other facilities
  - MDWASD/FPL 90 MGD reuse project
- By July 1, 2016 submit update of plan documenting any refinements in:
  - Costs
  - Actions
  - Financing



# July 1, 2013 Plan

- Technical, environmental, and economic feasibility of reuse
- Land acquisition
- Facilities necessary to provide for reuse of the domestic wastewater & costs to meet the requirements (treatment levels...)
- Cost comparison
- Financing plan
- Detailed schedule





# MDWASD Treatment Facilities

# Existing Outfall Facilities

Wastewater Treatment Plant (WWTP)	Current Rated Capacity (mgd)	Baseline Flow <sup>(1)</sup> (mgd)
North District	120	81.0
Central District	143	114.8
Total	263	195.8

(1) Baseline flow is the average from 2003 to 2007

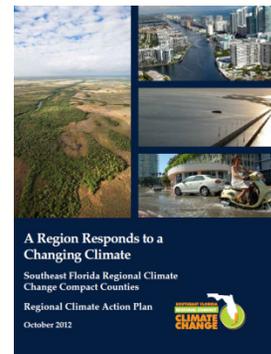
mgd = million gallons per day

# Planning Criteria

- Projected demands to year 2035
  - Including conservation
- Peak flows meeting EPA criteria
- 60% reuse
- Remaining flows disposed to the Boulder Zone thru deep injections wells or outfall backup
- All new flow diversion from outfall will meet High Level Disinfection (HLD) level of treatment

# Planning Criteria (Cont.)

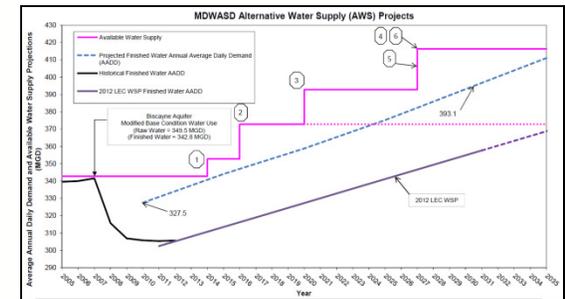
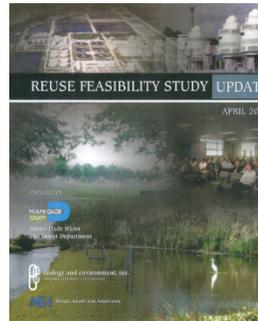
- Reduction of flows at existing North and Central WWTPs require new infrastructure to reverse flows in collection system (east to west)
- Land acquisition for proposed West District WWTP and transmission system included in costs
- 50-yr life for new treatment facilities
- Climate change impacts
  - Sea Level Rise (3 ft by 2075)
  - Storm Surge



# Reuse Feasibility Evaluations

- 60% of baseline flow = 117.5 mgd
  - Already committed to 90 mgd for FPL cooling
  - Need to address feasibility of 27.5 mgd
- Considered options in 2007 Reuse Feasibility Study

- Public access reuse
- Aquifer recharge
- Wetlands rehydration
- Industrial



- Based on cost and feasibility of implementation Floridan aquifer (FA) recharge proposed
- Reuse not needed to meet water supply prior to 2035

# Nutrient Reduction Implementation

- December 2008, started using injections wells at NDWWTP to remove flow from outfall (reducing loadings)
- Total cumulative loading reduction as of 2012:

Nutrient	Cumulative Target (lbs)	Actual (lbs)
TN	59,874,077	6,954,437
TP	1,661,217	548,777

- At CDWWTP, planning installation of injection well to remove nutrients from dewatering, instead of sending back to head of plant

(operational by Dec 2015)

# Alternative A-1

- All flows to existing WWTPs
- Reuse to FPL from SDWWTP
- FA recharge at CDWWTP & SDWWTP
- Total cost \$4.00 Billion

WWTP	Design Flow (mgd)	
	Avg	Peak
ND	120	372
CD	150	496
SD	131	312
WD	-	-
Total	401	1180

# Alternative 2A-1 (Subs 1-2)

- New West District WWTP
- Average flow reduction at ND & CD WWTPs, *less peaks at ND*
- Reuse to FPL from SDWWTP & FA recharge at CD, SD, & WD WWTPs
- 2-subalternatives/options for peak flow treatment (high rate clarification)
- Total cost \$4.40 – \$4.46 Billion

WWTP	Design Flow (mgd)	
	Avg	Peak
ND	85	317
CD	83	333
SD	131	305
WD	102	225
Total	401	1180

# Alternative 2A-2 (Subs 1-2)

- New West District WWTP
- Average flow reduction at ND & CD WWTPs, *more peaks at ND*
- Reuse to FPL from SDWWTP & FA recharge at CD, SD, & WD WWTPs
- 2-subalternatives/options for peak flow treatment (high rate clarification)
- Total cost \$4.42 - \$4.58 Billion

WWTP	Design Flow (mgd)	
	Avg	Peak
ND	85	327
CD	83	333
SD	131	305
WD	102	215
Total	401	1180

# Alternative 2B-1

- New West District WWTP/*higher peak flows*
- *Average & peak flow reduction at ND & CD WWTPs*
- Reuse to FPL from SDWWTP & FA recharge at CD, SD, & WD WWTPs
- 2-subalternatives/options for peak flow treatment
- Total cost \$5.83 Billion

WWTP	Design Flow (mgd)	
	Avg	Peak
ND	85	206
CD	83	203
SD	131	384
WD	102	387
Total	401	1180

# Alternative 2B-2

- New West District WWTP/*higher peak flows*
- *Average & peak flow reduction at ND & CD WWTPs*
- Reuse to FPL from SDWWTP & FA recharge at CD, SD, & WD WWTPs
- 2-subalternatives/options for peak flow treatment
- Total cost \$5.16 Billion

WWTP	Design Flow (mgd)	
	Avg	Peak
ND	85	262
CD	83	234
SD	131	300
WD	102	384
Total	401	1180

# Recommending Alternative 2A-2-2

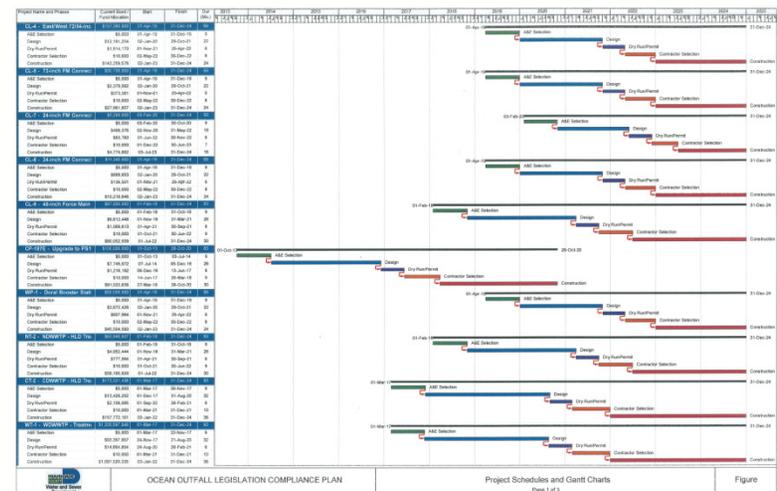
- Average flow reduction near the coast (ND & CD)
- Optimum peak flow diversion to minimize cost
- More climate change resilient alternative
- Cost comparable to other 2A alternatives, but less than 2Bs

WWTP	Design Flow (mgd)	
	Avg	Peak
ND	85	327
CD	83	333
SD	131	305
WD	102	215
Total	401	1180

Total cost \$4.42 Billion

# Schedule

- All proposed facilities to be in service by 2025
- Land acquisition for West District WWTP to be completed in FY2014
- Finalizing detail schedule



# Financial Plan

- Financing Options:
  - Building Better Communities General Obligation Bonds (GOB)
  - Rate supported Revenue Bonds
  - State and Federal loans and grants, as available
  - Explore public/private partnership opportunities
- On June 4, 2013, Board of County Commissioners approved the issuance of not to exceed \$4.245 Billion Water and Sewer Revenue Bonds
- Rate increases over time to support required financing