PRMRWSA Source Water Feasibility Study

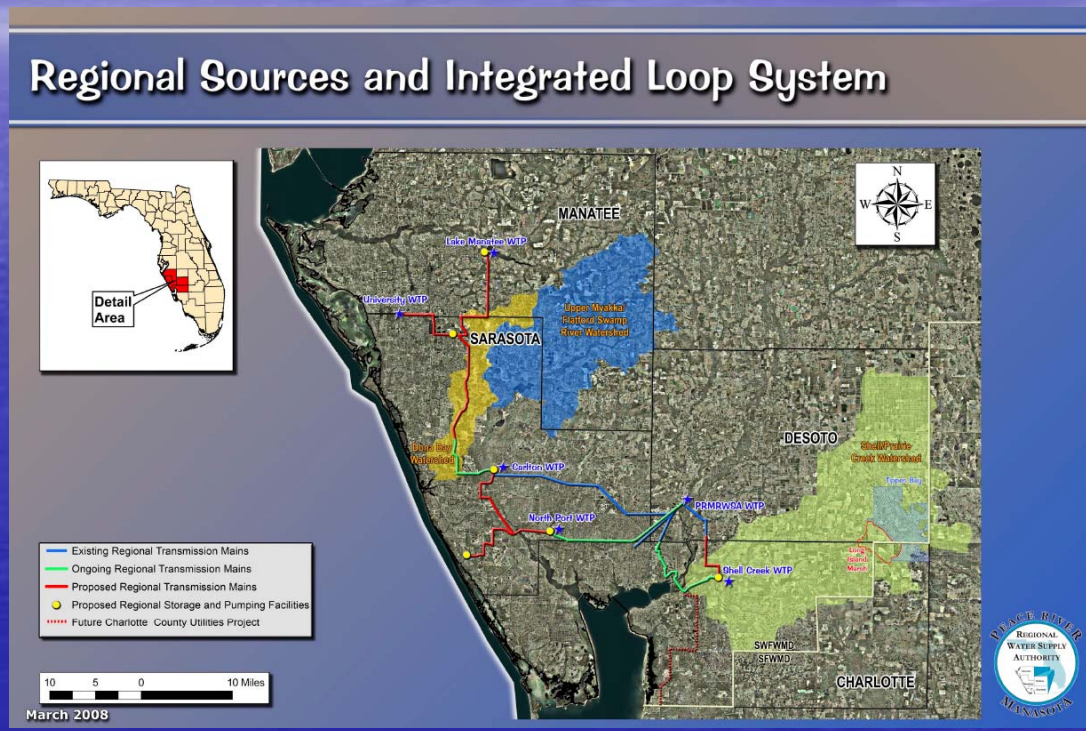
January 9, 2009

History

- 2005 Water Planning Alliance & PRMRWSA identified future supply opportunities
- 2006 Authority Regional Water Supply Master Plan evaluates 6 high potential supply opportunities
- 2007 Authority Board approves feasibility study on 3 source areas
- 2009 Completion of Source Water Feasibility Study

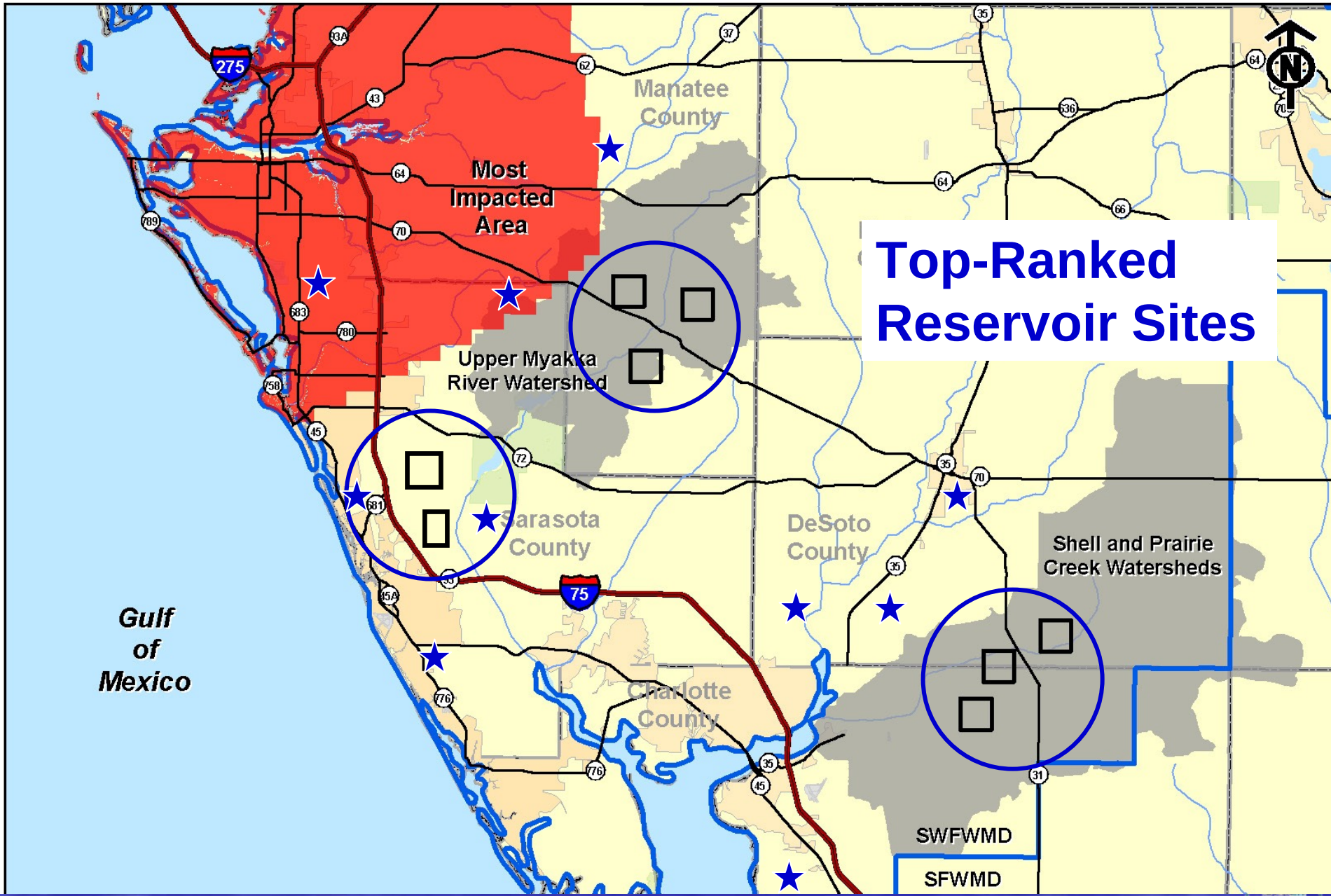
Feasibility Study

- Major Opportunities
  - Surface Water
  - Groundwater
- Resource Evaluation
  - Flow / Quality / Timing
  - Existing Users
  - Land Use
- Project Development
  - Reservoirs & Intakes
  - Treatment Requirements
  - Connections
  - Cost Screening
  - Environmental Benefits
- Program Development
  - Meet Future Needs
  - Project Combinations & Comparisons



Reservoir Site Alternatives

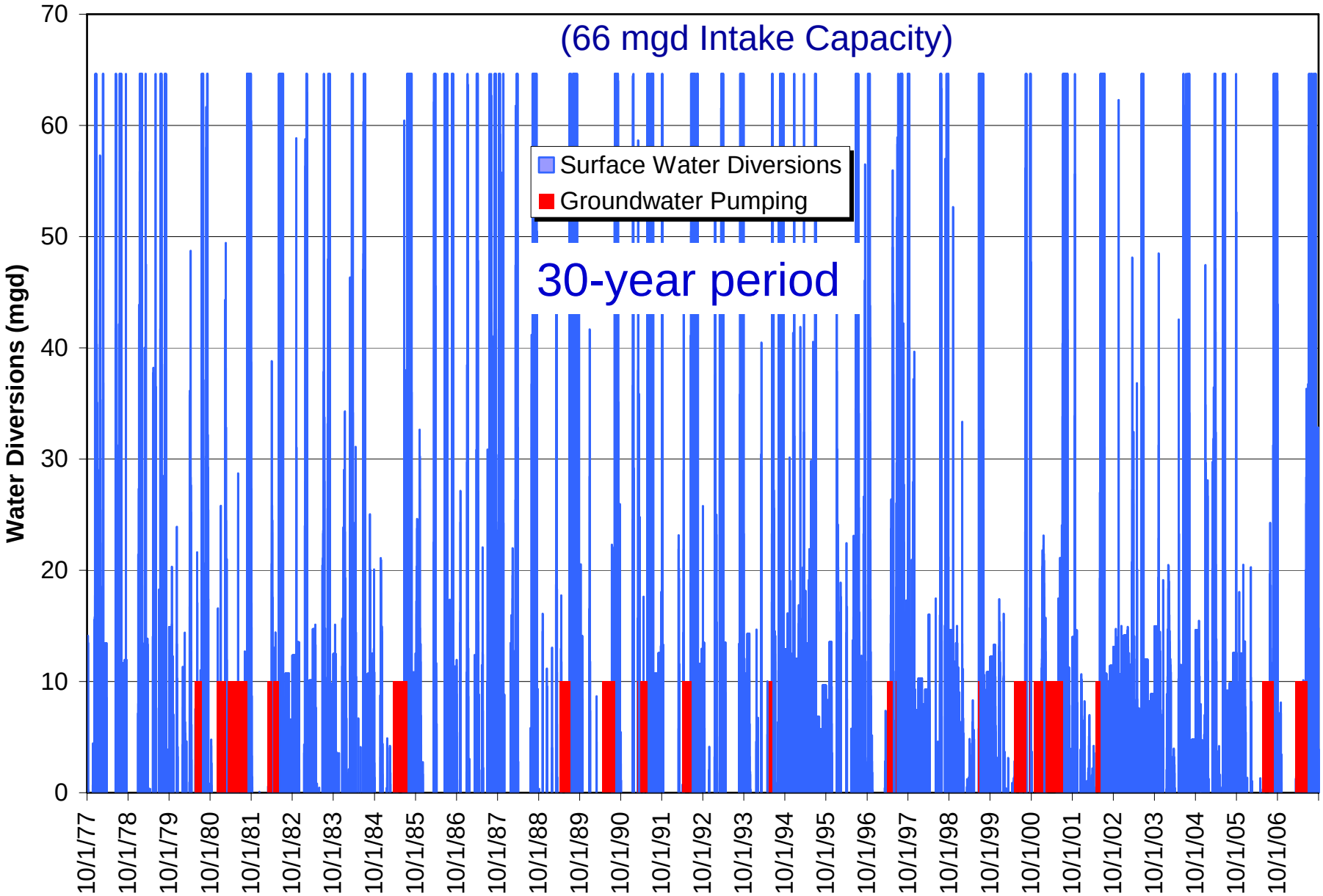
- Multi-step siting process
- Completed
  - GIS avoidance maps
  - ID potential sites
    - 11 sites in Shell/Prairie
    - 8 sites in Upper Myakka
  - Site evaluations
    - 3 sites Shell/Prairie
    - 3 sites in Upper Myakka
    - 2 existing sites in Dona Bay


Top-Ranked Reservoir Sites
Most Impacted Area
Manatee County
Upper Myakka River Watershed
Sarasota County
DeSoto County
Shell and Prairie Creek Watersheds
Charlotte County
Gulf of Mexico
SWFWMD
SFWMD
275
75
N

Conjunctive Use – Groundwater + Surface Water

- Right source – right time
- Increase reliability
- Reduce reservoir size and cost
- Optimization of resources
- Benefit of regional connectivity

Conjunctive Use Diversion Hydrograph for SW/GW for Prairie Creek

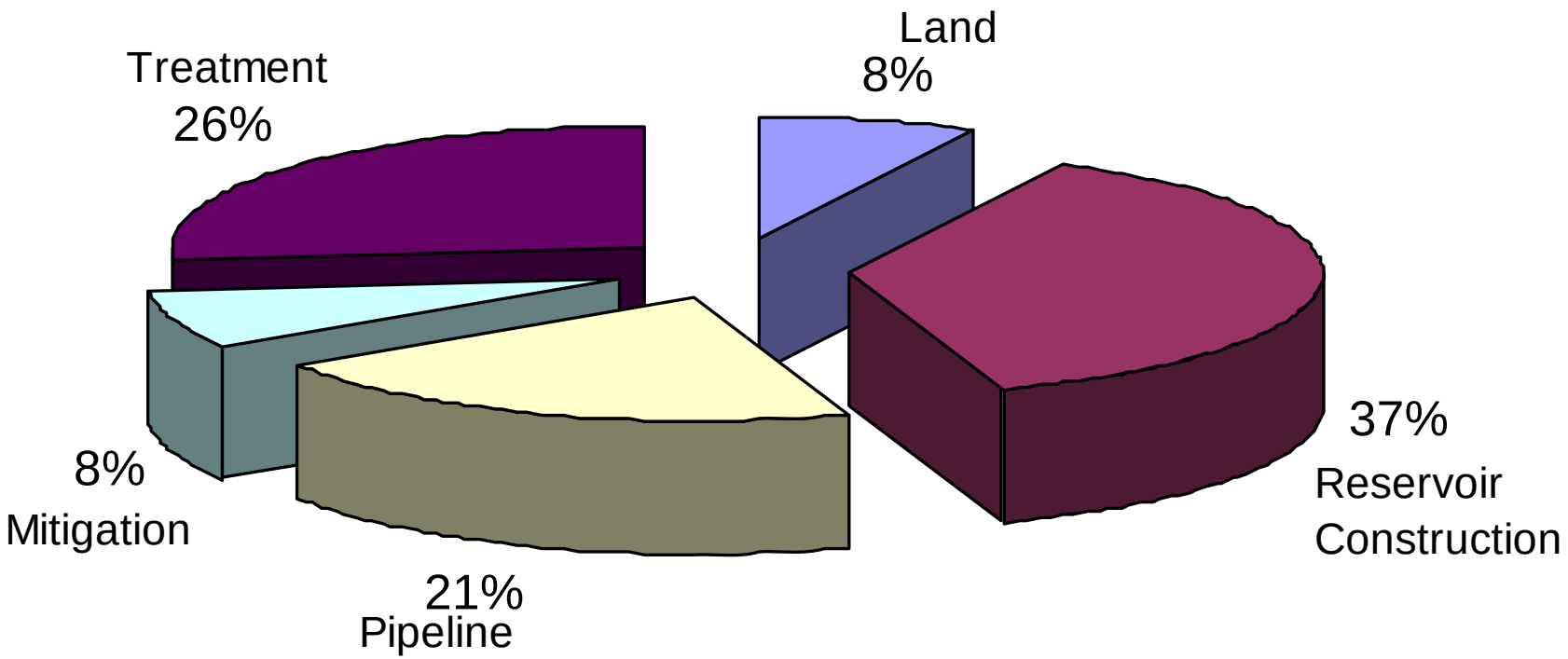


Value of Conjunctive Use

Assume a 12 mgd yield with full reliability:

- Surface water only **6.0 BG reservoir**
- With conjunctive use of GW
  - Average GW use 1.36 MGD
  - Peak GW use 10 MGD
  - **2.5 BG reservoir**

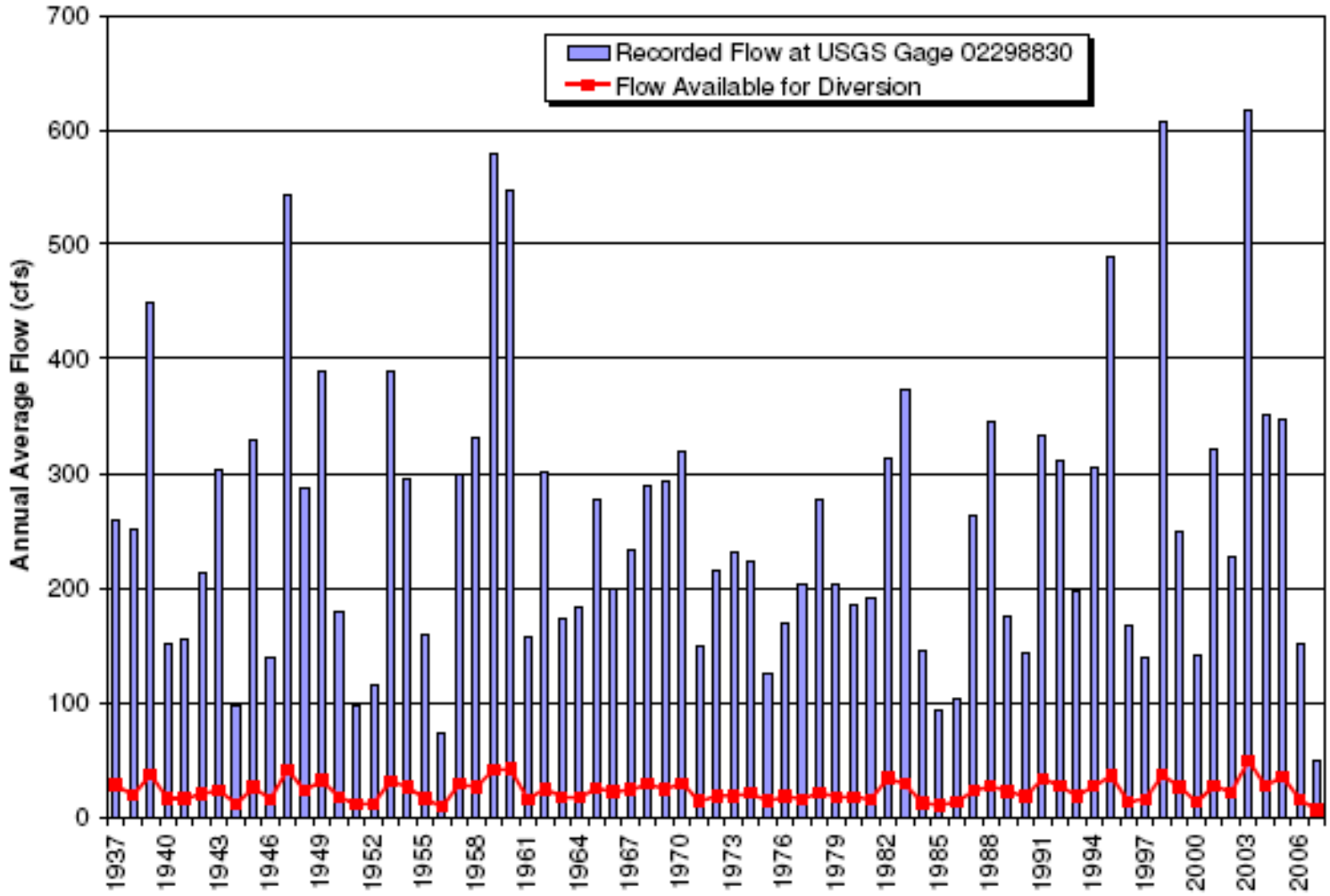
Surface Water Sources
Relative Cost Factors



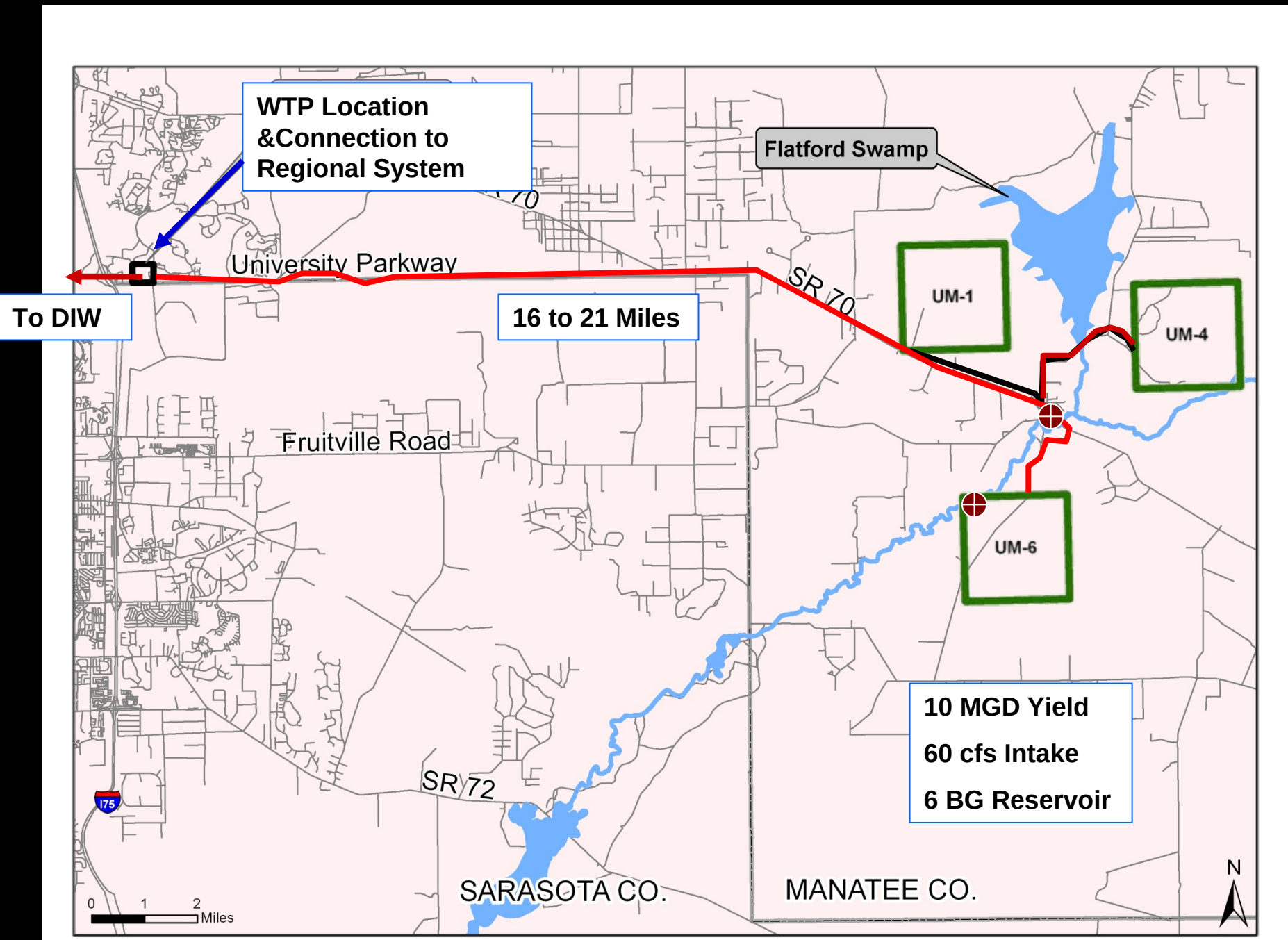
Upper Myakka Excess/Available Water

- Available water set by MFL
  - Existing MFL for the Upper Myakka @ S.R 72
  - MFL under study for lower Myakka
- Excess water set by the Myakka River Initiative model

Figure 1 - Myakka River Historic Recorded Flow and Flow Available for Diversion



70-Year Record

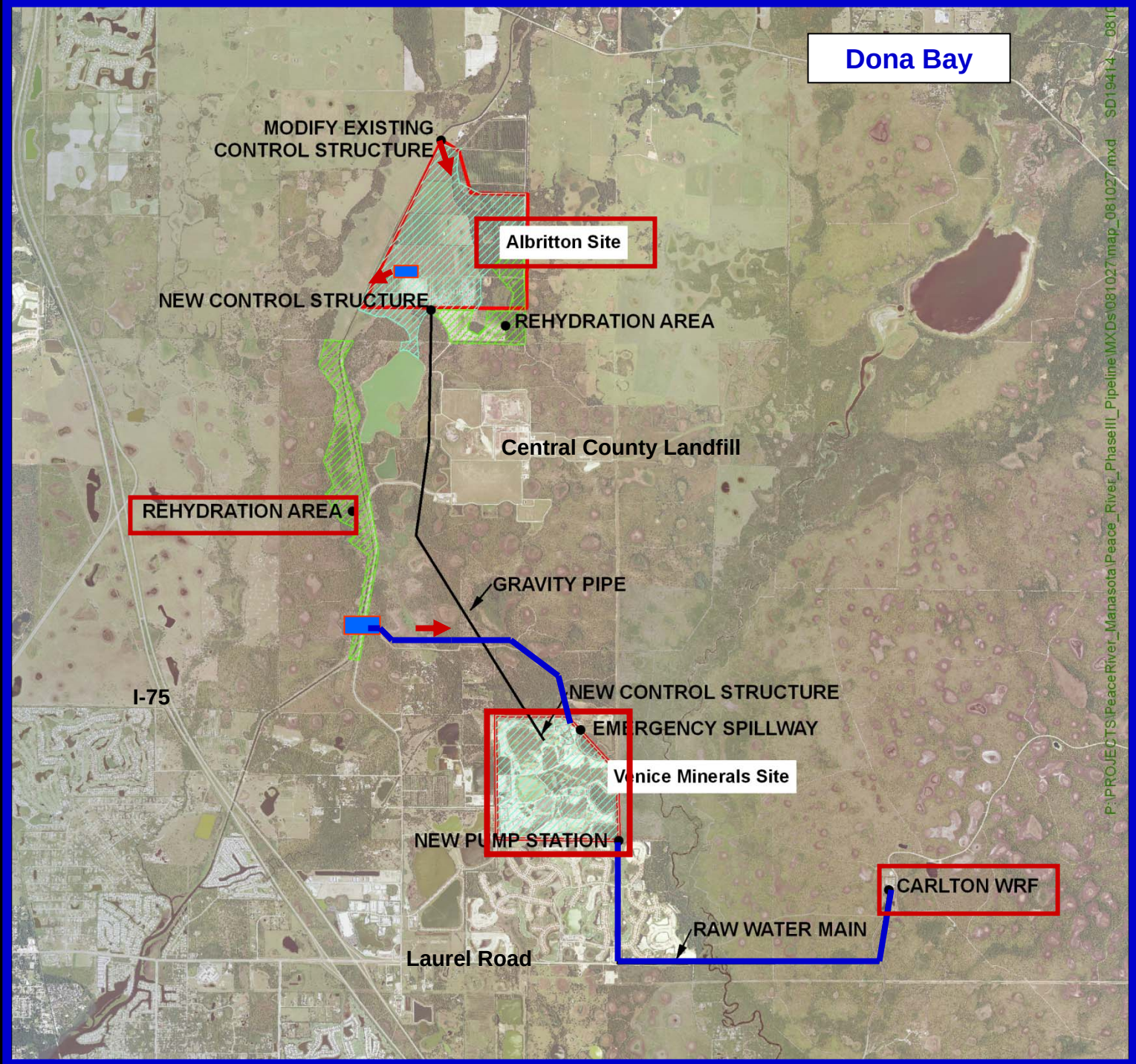

WTP Location &Connection to Regional System
Flatford Swamp
University Parkway
SR 70
To DIW
16 to 21 Miles
UM-1
UM-4
UM-6
Fruitville Road
SR 72
I75
10 MGD Yield
60 cfs Intake
6 BG Reservoir
SARASOTA CO.
MANATEE CO.
0 1 2 Miles
N

Upper Myakka River

- Uncertainties
  - Method of excess water diversion
  - Replacing excess water if land use changes
  - Lower Myakka River MFL
- Benefits
  - Aid the District in efforts to restore the hydrology and ecology of Flatford Swamp
  - Help alleviate water quality problems

Dona Bay Project

- Available water set using draft MFL
- Existing County-Owned Reservoir Sites
  - Venice Minerals (550 ac.)
  - Albritton (1000 ac)
- Phased implementation


Dona Bay
MODIFY EXISTING CONTROL STRUCTURE
Albritton Site
NEW CONTROL STRUCTURE
REHYDRATION AREA
Central County Landfill
REHYDRATION AREA
GRAVITY PIPE
I-75
NEW CONTROL STRUCTURE
EMERGENCY SPILLWAY
Venice Minerals Site
NEW PUMP STATION
CARLTON WRF
RAW WATER MAIN
Laurel Road
P:\PROJECTS\PeaceRiver_Manasota\Peace_River_PhaseIII_Pipeline\MXDs\081027\map_081027.mxd SD19414 08

Dona Bay

- Uncertainties
  - Timing of Venice Minerals and Albritton site availability
  - Final approval of MFL
  - Local or regional project
- Benefits
  - Wetland restoration
  - Increase in healthy oyster reefs (increased filtering of water)
  - Increased dissolved oxygen
  - Decreased nutrient loads

Alternatives Comparison

Alternative	Yield, MGD	Environmental Benefits/Impacts	Property Acquisition	Permitting	Issues/Uncertainties
Upper Myakka	10	-Impacts 65 to 174 acres of wetlands -Supports the District's initiative to restore the hydrology and ecology of Flatford Swamp	- One to three owners	-WUP required -ERP required	-Method of diversion of excess water from the swamp
Shell/Prairie Creeks	12 to 20	-Minor wetland impacts -Aids projects for SPJC Reasonable Assurance Plan -Projects the Punta Gorda water supply	- Up to four owners	-ERP required -WUP required -Federal permit for discharge from reservoir	-Federal permit requirements
Dona Bay	5 – 15	-Increases oyster beds in the bay -Restores wetlands west of the canal -Decreases nutrient load -Increased dissolved oxygen -Minor wetland impacts	-Owned by Sarasota County	-WUP required -ERP required	-Schedules for excavation of Venice Minerals and Albritton sties -Final approval of MFL
PRF Re-permit		Unknown	None	-WUP re-permit	Permitting
R.V. Griffin Wells	5 (est)	Unknown	None	-WUP	-Water quality -Wellfield yield
Expand Ex. GW Source	5 (est)	Unknown	Unknown	-WUP	-Permitting -Agreements
New GW Source	5 (est)	Unknown	Unknown	-WUP	-Permitting -Location

Relative Capital and O & M Costs

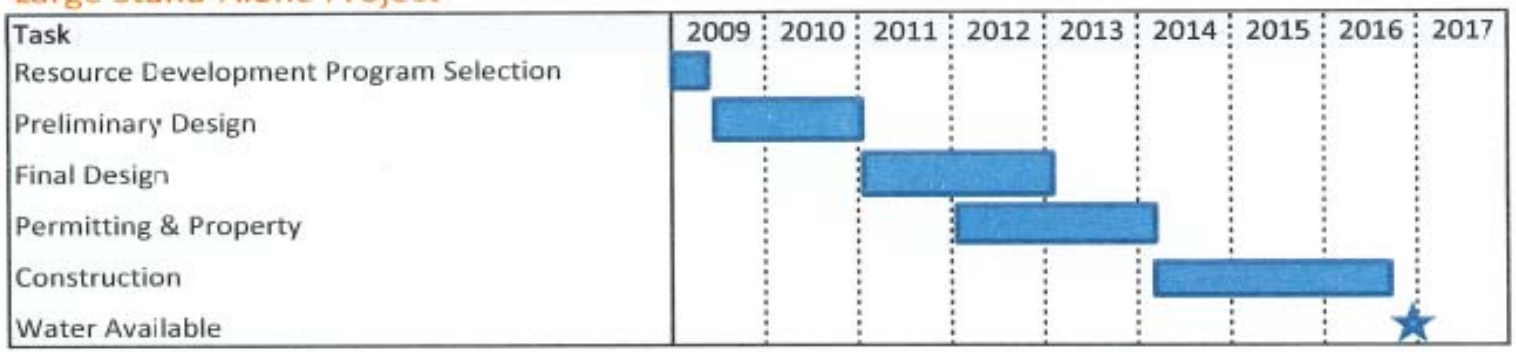
Alternative	Yield, MGD	Total Cost $ million	Capital $/Gal	Capital Cost $/1,000 gal	O & M $/1,000 gal	Total Cost $/1,000 gal
Surface Water						
Upper Myakka	10	$298	$29.83	$5.94	$1.36	$7.29
Shell Creek	12	$287	$23.89	$4.76	$1.37	$6.13
Shell Creek	20	$340	$16.95	$3.37	$1.22	$4.59
Dona Bay Ph. 1	5	$114	$22.76	$4.53	$1.42	$5.95
With Conj. Use						
Upper Myakka	10	$244	$24.44	$4.86	$1.39	$6.25
Shell Creek	12	$235	$19.58	$3.90	$1.40	$5.29
Shell Creek	20	$286	$14.29	$2.84	$1.24	$4.08
Dona Bay Ph. 1	8	$129	$16.18	$3.22	$1.39	$4.61
PRF Re-Permit	-	$1	-	-	$1.05	
R.V. Griffin Wells	5	$59	$11.86	$2.36	$1.56	$3.92
Expand Ex. GW	5	$59	$11.86	$2.36	$1.56	$3.92
New 5 MGD GW	5	$63	$12.56	$2.50	$1.62	$4.12

Next Steps

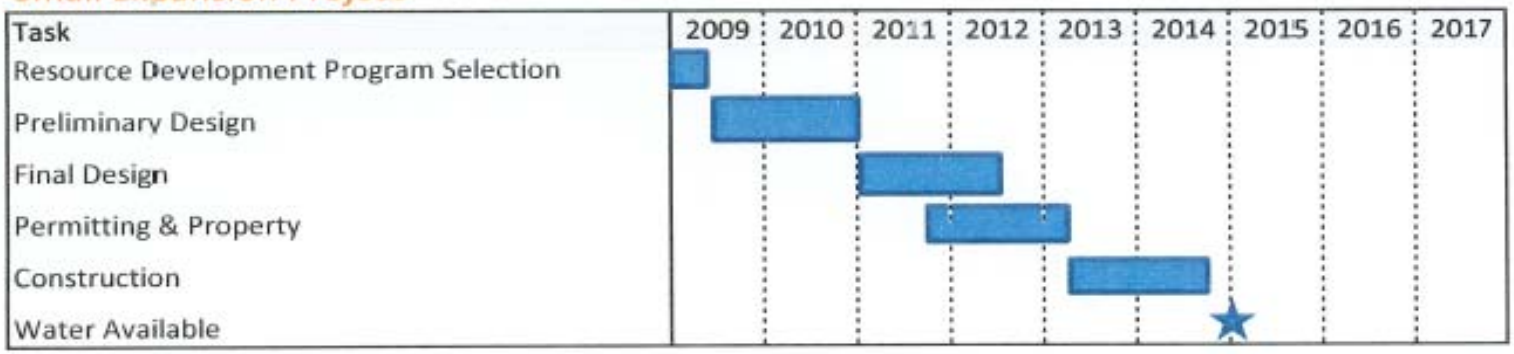
- February 2009: Review of Projected Needs, Identification and Discussion of Project Groups for Preliminary Design Consideration
- March 2009: Present Updated Customer Need Projections, Recommendations on Resource Development Program Phase 1 Projects, Selection of a resource development Program
- Summer 2009: Initiate Preliminary Design for RDP Projects.

Questions?

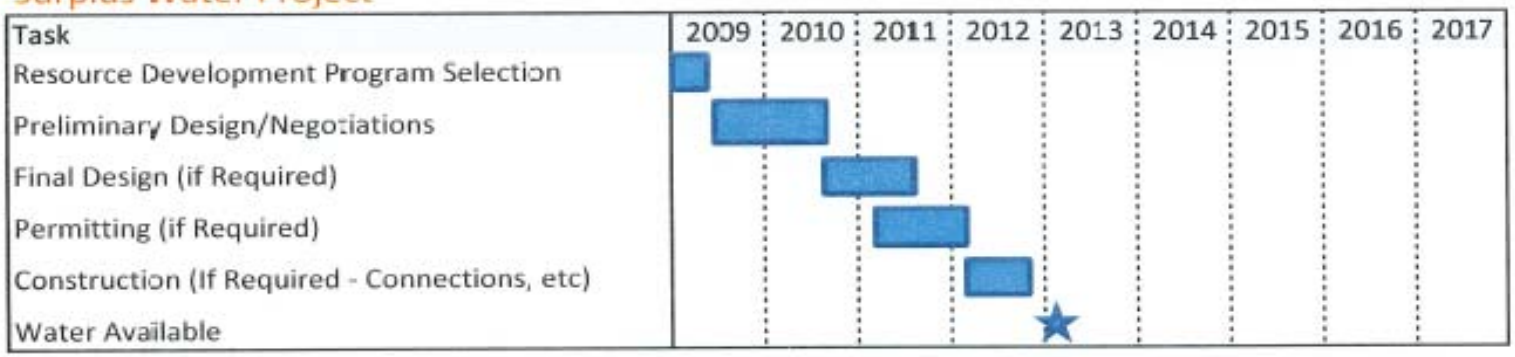
Large Stand-Alone Project



Small Expansion Project



Surplus Water Project



Tampa Bay Water Alternatives

Type Source	Project	Avg. Annual Yield, MGD	Capital Cost $ million	Unit Cost $/1,000 gal
Brackish groundwater	Small footprint RO	5	$80 $163	$5.51-$8.20
	Desal project	5	$116	$7.16
Seawater	Tampa Bay	10	$110-$163	**$6.99 - $7.91**
	Anclote	25	$461	$7.61
Fresh GW	New and expanded wellfields	5 – 10	$36 - $152	$1.24 - $3.79
Surface water	Alafia expansion	10 – 20	$123 - $837	$3.97 - $10.26
Reclaimed water	Augmentation Alafia	10 – 15	$1,054	$8.26
	Augmentation Hillsborough River	5 – 11	$186	$5.82
	Aquifer Recharge	20	$370 - $382	$4.39 - $7.06