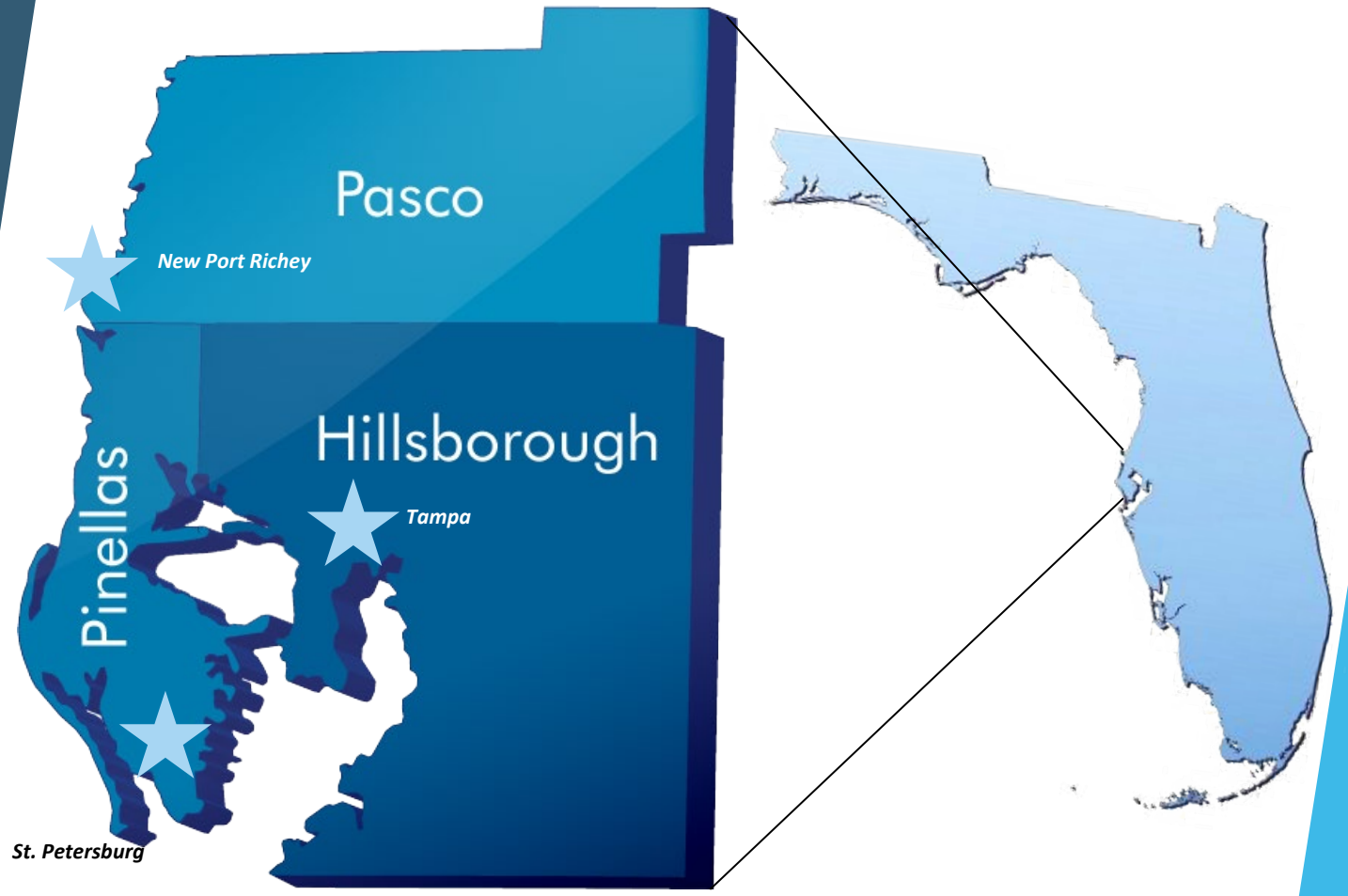
Water: A Regional Approach for the Tampa Bay Area

Chuck Carden, General Manager

TAMPA BAY WATER
Supplying Water To The Region

About Tampa Bay Water

- 6 local governments
- 2.6 million end customers
- 3 sources of water
  - Groundwater
  - Surface water
  - Seawater
- 11 water treatment plants
- 12 wellfields
- 14 pump stations
- 15.5-billion-gallon reservoir
- 200 miles of large diameter pipe
- 163 employees

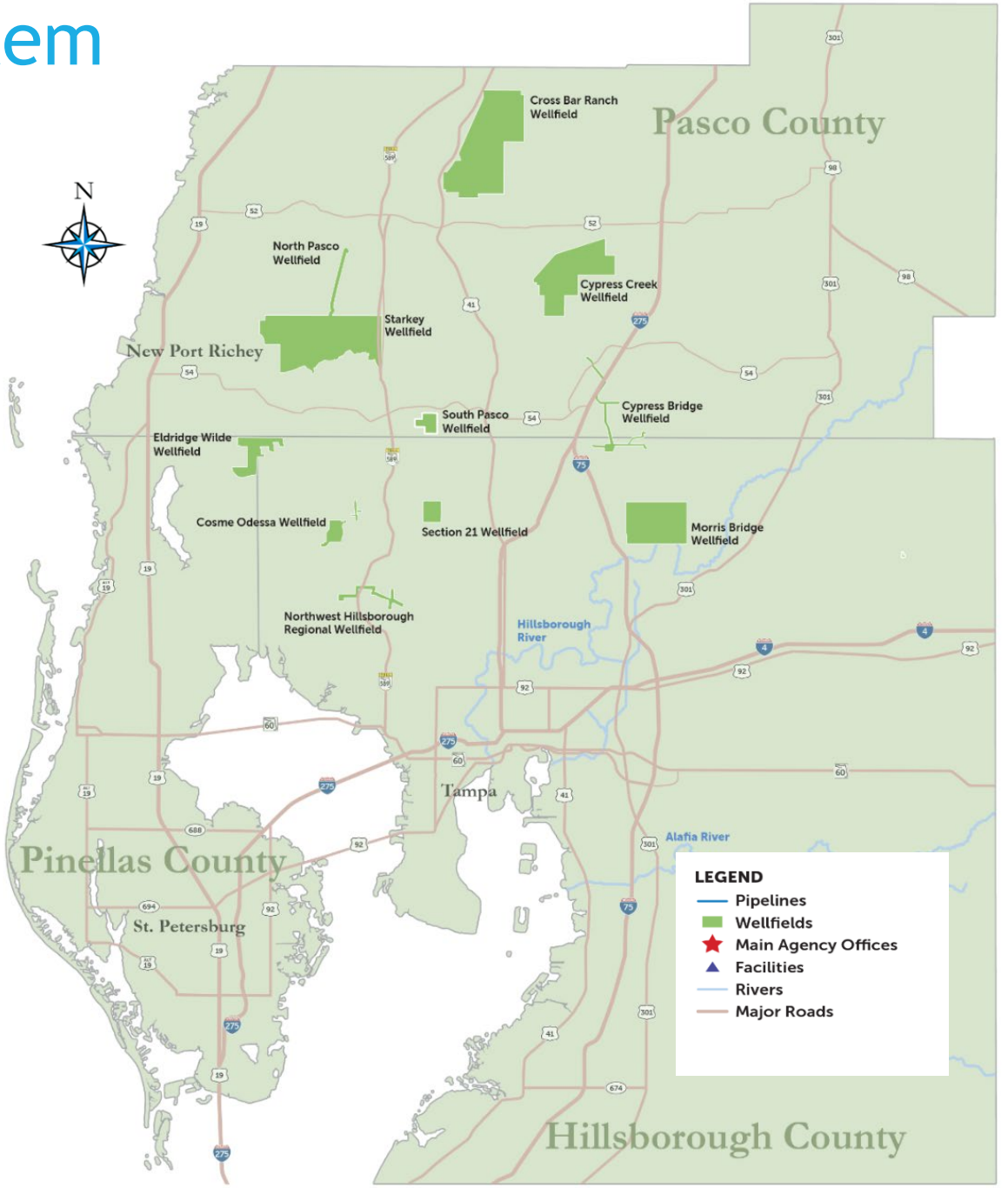


CHALLENGE

1998 Wholesale Water System

- 100% Groundwater
- 12 wellfields
- Permitted at 191 mgd
- Average production 147 mgd
- 2 million+ population

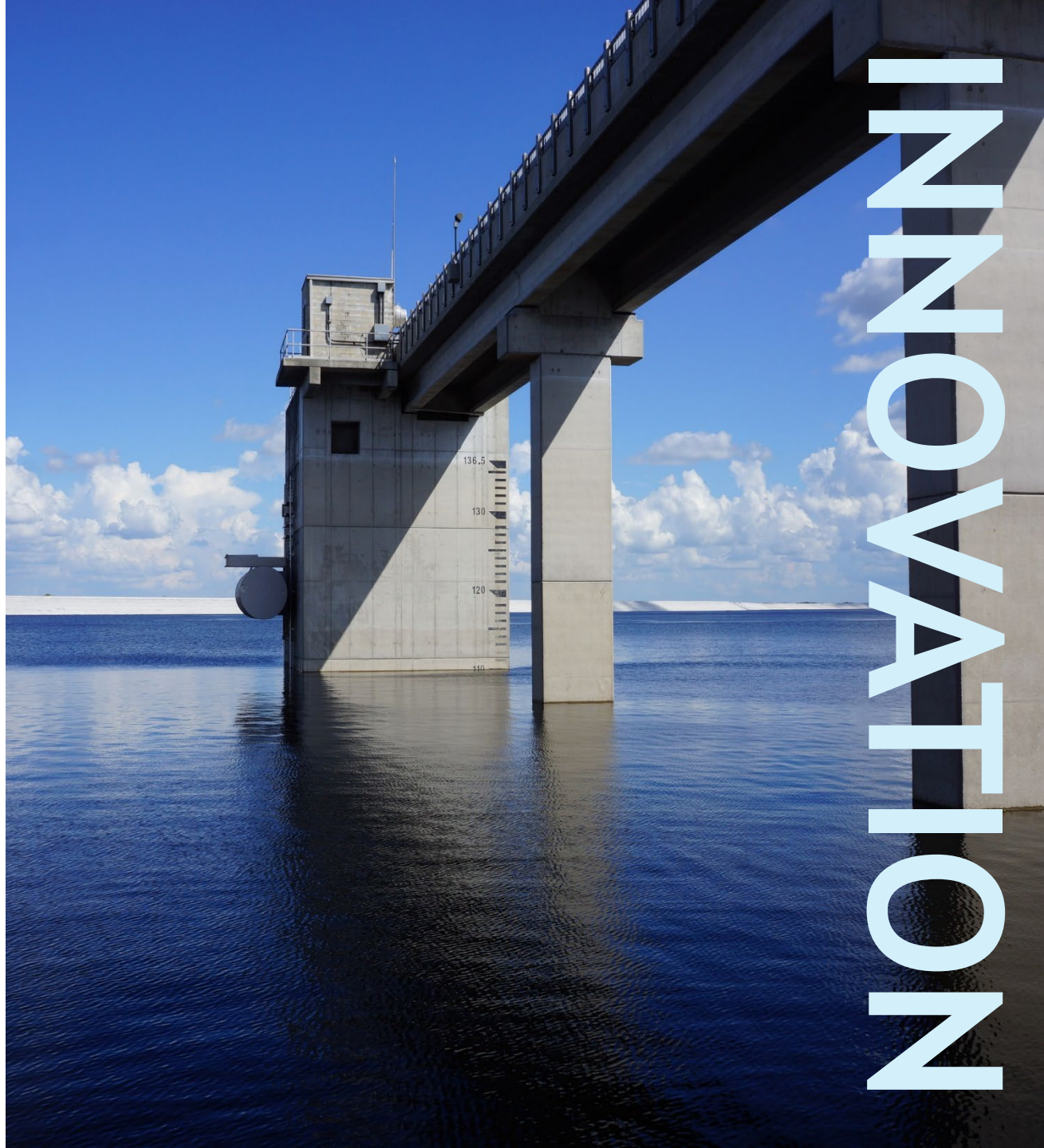
- **Meet rapidly rising demand**
- **Restore the environment**
- **Maintain an affordable uniform water rate**



Water Resource Development

- Enhanced Surface Water System
  - Two new surface water withdrawal pump stations
  - 66-mgd surface water treatment plant
  - 15-billion-gallon off-stream reservoir
- 25-mgd desalination plant
- Miles of large-diameter pipe

- Reduce groundwater reliance
  - 158 mgd to 121 mgd by 2002
  - 121 mgd to 90 mgd by 2007



Finance & Capital Project Procurement

Public-private partnerships

- Tampa Bay Regional Surface Water Treatment Plant
  - Online October 2002 — 3 months early
  - Saved $80 million over first 15-year contract
  - Capacity expanded in 2011; slated for expansion again in 2028
- Tampa Bay Seawater Desalination Plant
  - First major DBOOT water project in U.S.
  - First large-scale seawater desalination plant in the U.S.
  - First co-located with power plant (U.S.)

Conceptual Rendering

INNOVATION

Finance & Capital Project Procurement

Multiple funding vehicles

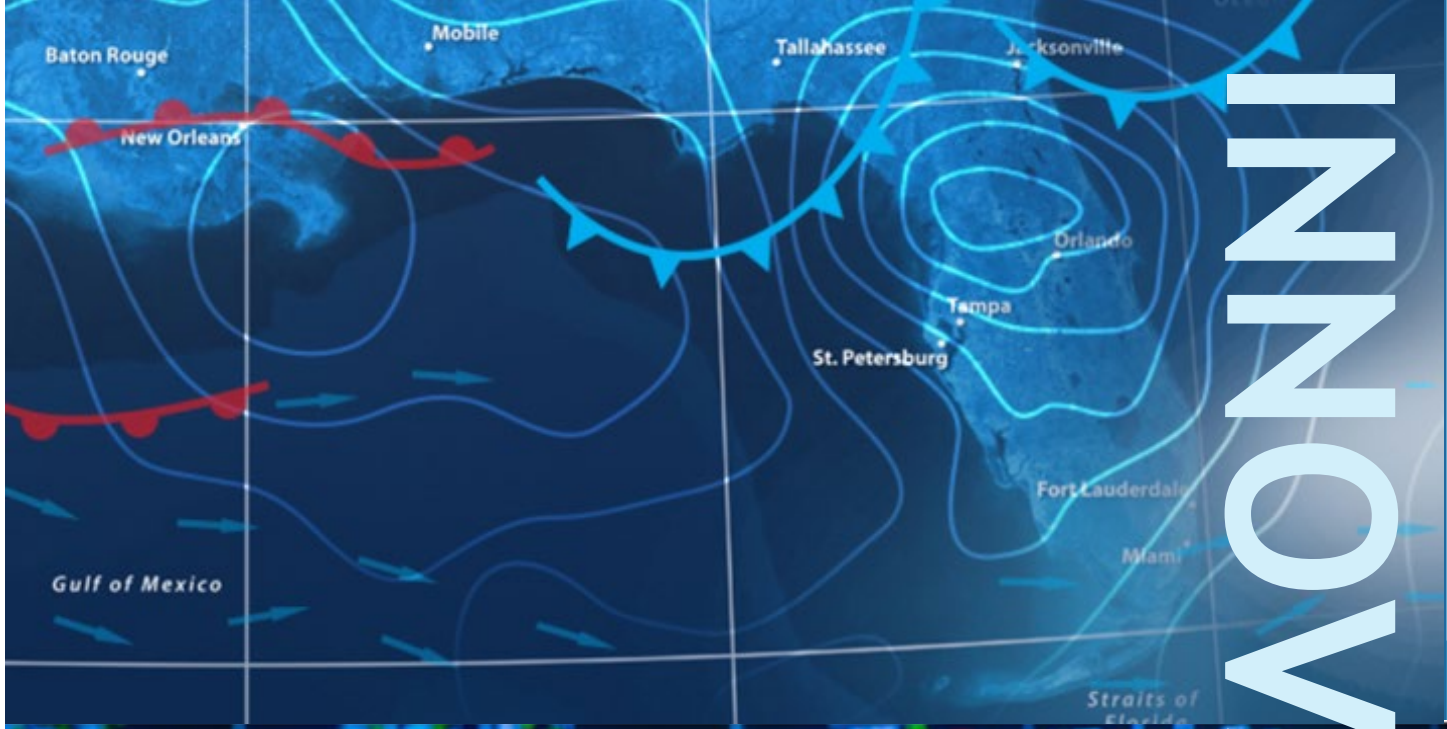
- District co-funding
- Federal funding
- Funds on hand
- Bond funds

Multiple project delivery methods

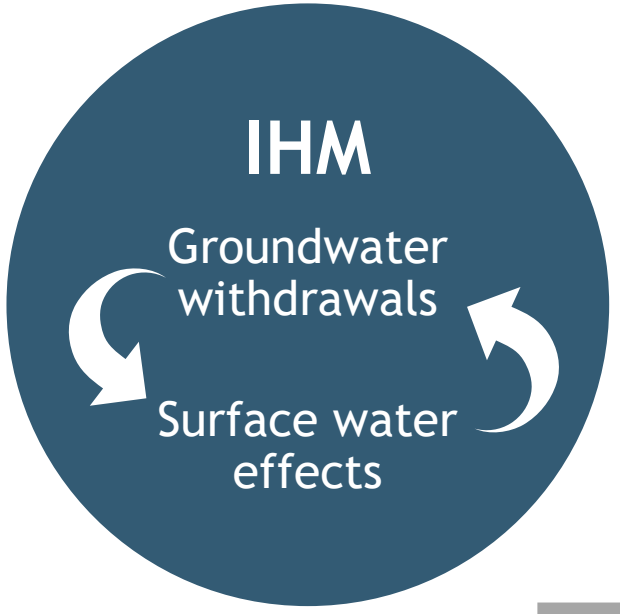
INNOVATION

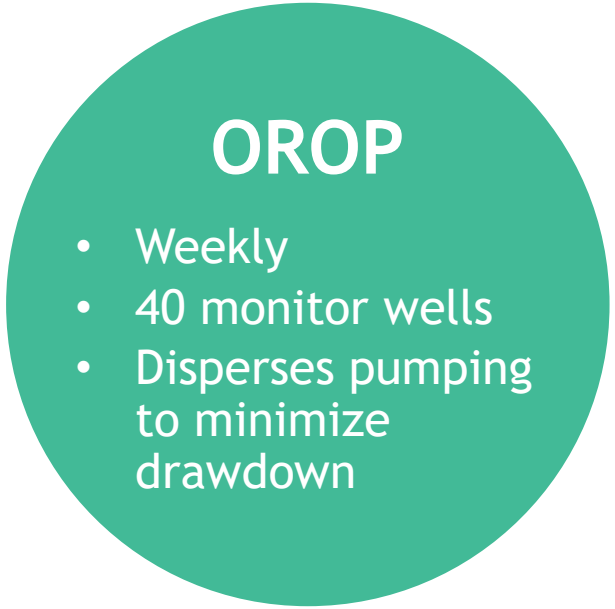
IT & Smart Water Systems

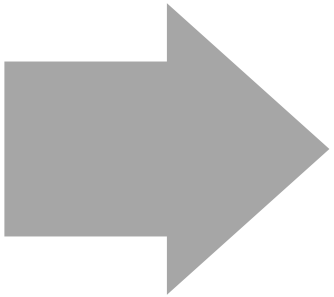
- Integrated Hydrologic Model (IHM)
  - Groundwater + surface water model
  - Real-time withdrawal effects
- Optimized Regional Operations Plan (OROP)
  - Weekly allocation of supply sources
  - Meet demand with minimal drawdown
  - 175 production wells
  - 40 monitor wells



INNOVATION





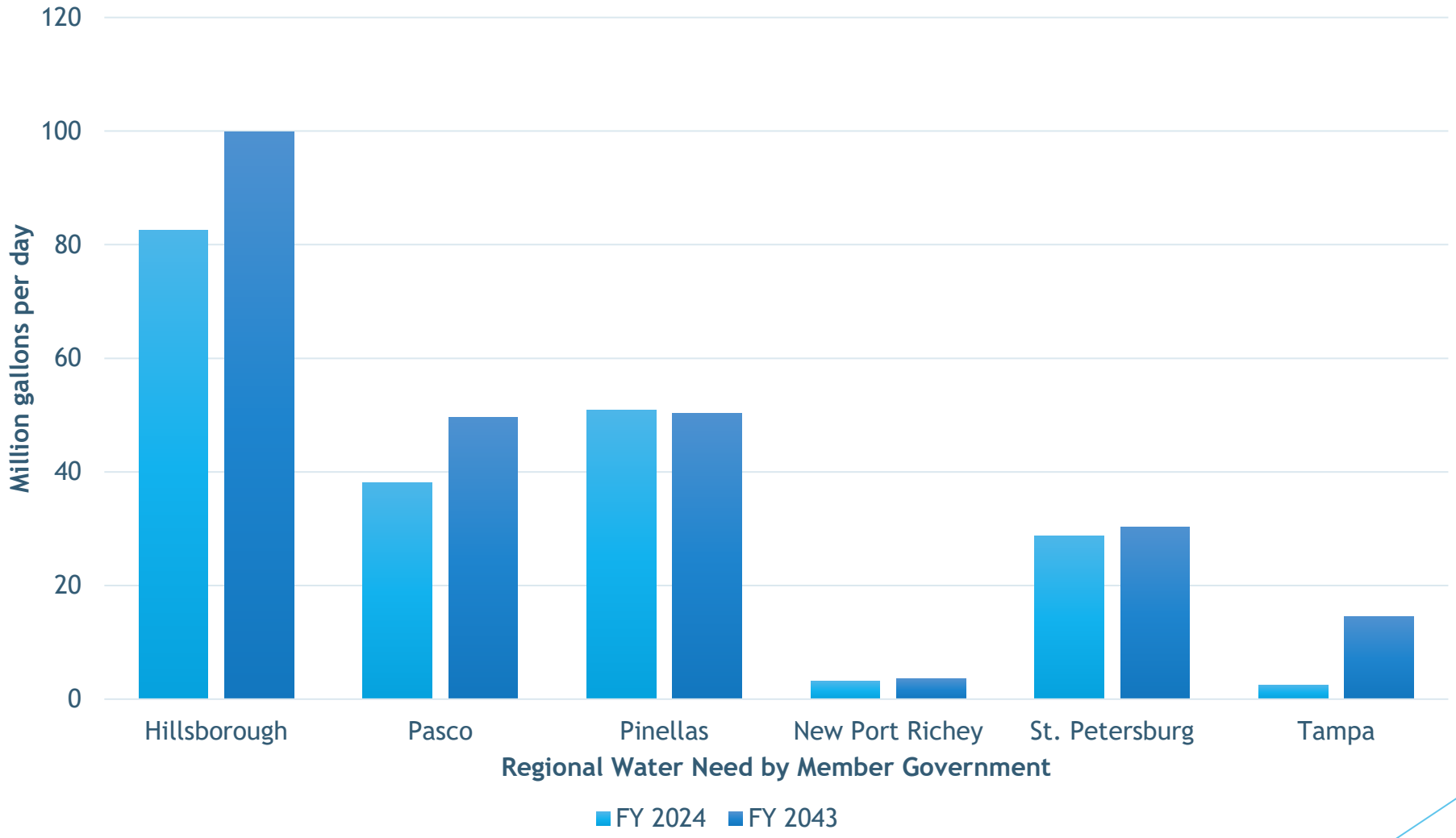


Long-term Demand Forecast Model

- 30-year demand forecast
- Water use
- Population
- Residential square footage
- Multi-family vs. Single family
- Census data
- Climate
- Precipitation
- Temperature
- Residential / Business / Industrial
- Traffic analyses

INNOVATION

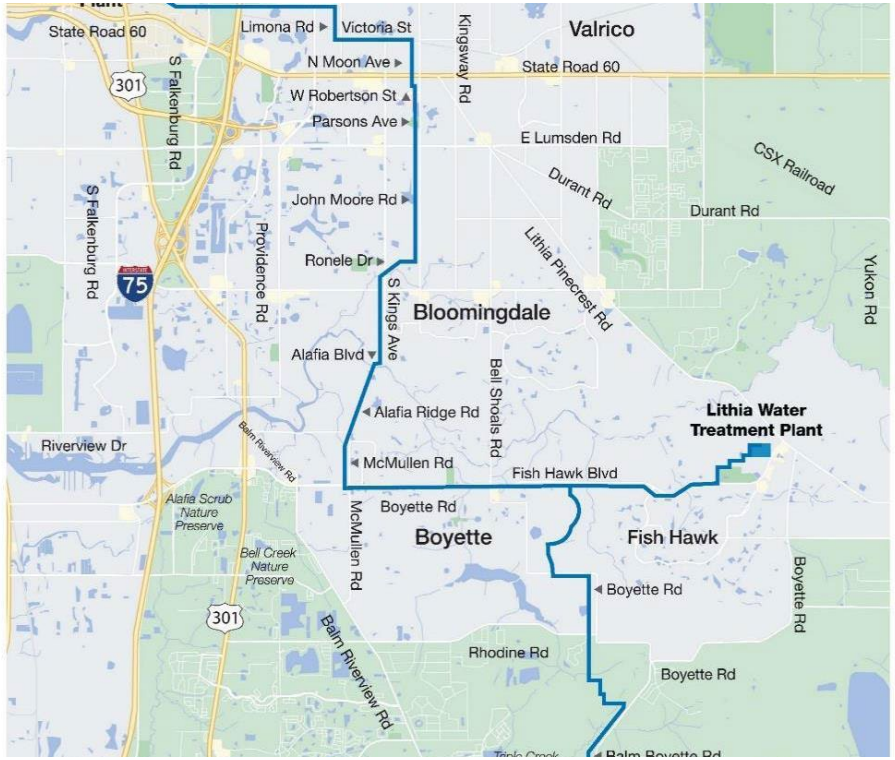
2024 vs 2043 Member Government Demands



PLANNING

TAMPA BAY WATER

2028 Projects for New and Expanded Supply



PLANNING

TAMPA BAY WATER

Feasibility Program Concepts

A. Eastern Pasco Wellfield*

B. Consolidated WUP Increase

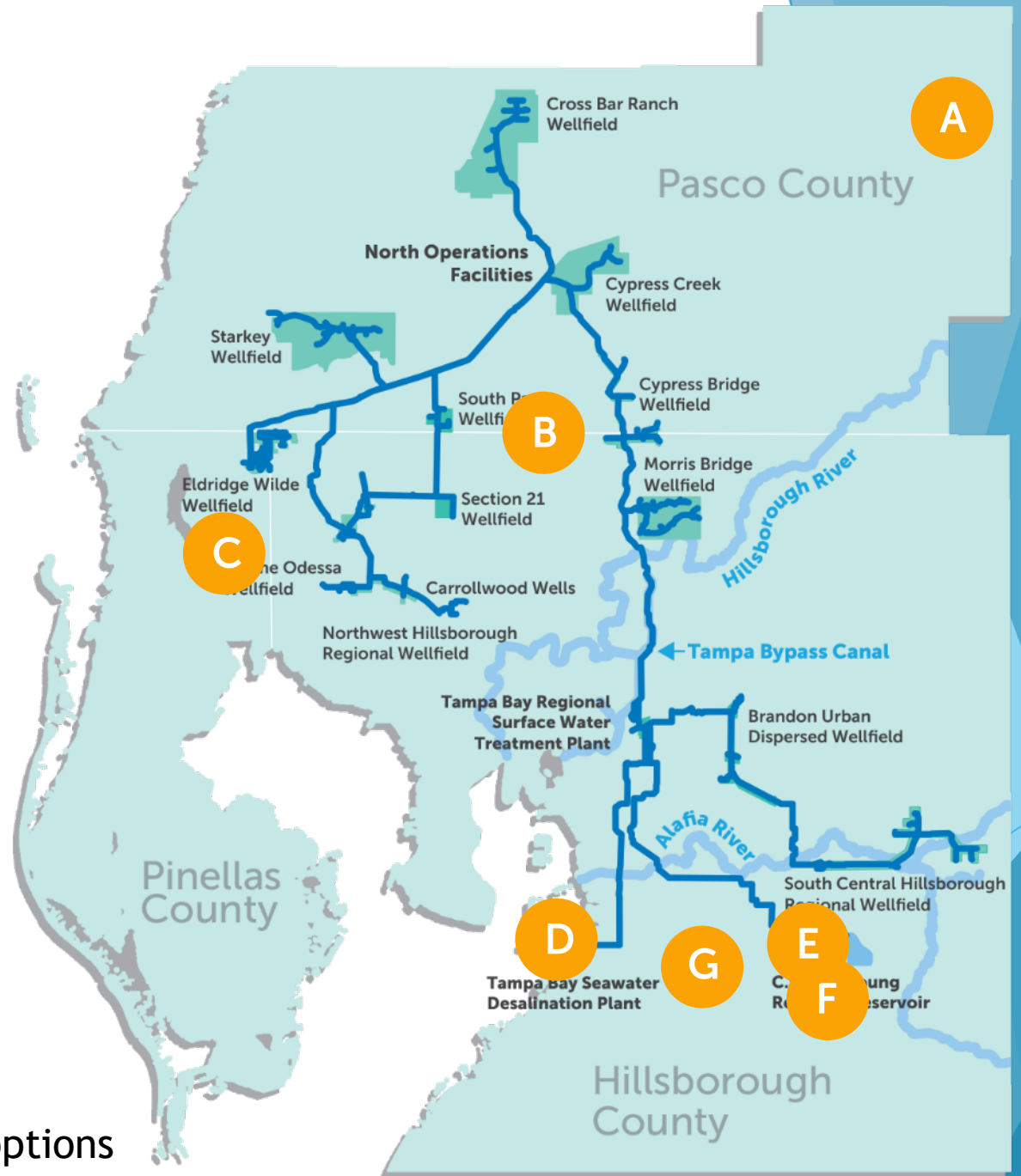
C. North Pinellas Surface WTP & Reservoir

D. Desalination Plant Expansion*

E. Surface WTP at C.W. Bill Young Regional Reservoir via Alafia withdrawals

F. South Hillsborough Surface WTP & Reservoir

G. South Hillsborough Wellfield via Aquifer Recharge



* Indicates multiple types of water source options

PLANNING

TAMPA BAY WATER

RESULTS

Realistic, Sustainable System

TAMPA BAY WATER

RESULTS

Realistic, Sustainable System

- $2 billion in interconnected infrastructure
- Meet demand from lower groundwater withdrawals
- Consolidated Permit renewed a second time at 90 mgd
- Water use caution area lifted

$2.62

1K gallons

Thank you. Questions?