

# PALM COAST UTILITIES DEPARTMENT, FLORIDA

## Palm Coast RO WTP Expansion From 3.2 to 9.6 mgd

### HIGHLIGHTS

#### Design-build project delivery.

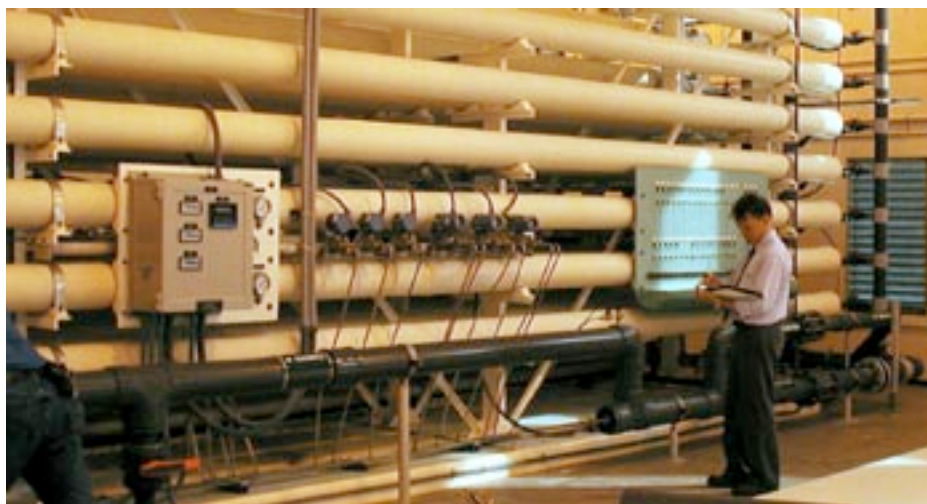
Updates the Palm Coast NF plant with state-of-the-art technology that will greatly improve the operational performance and costs.

Fast-track RO expansion with work completed ahead of an aggressive schedule.

The Palm Coast RO WTP has been operating since 1992 and is used to remove hardness, color, iron and disinfection by-product precursors. Increased potable water demand and limited fresh water resources led Florida Water Services to seek expansion of the RO WTP to an ultimate build-out capacity of 9.6 mgd.

Due to schedule constraints, FWS decided to expand the Palm Coast RO WTP using a design/build project delivery format. Carollo, in association with Harn R/O Systems, and McMahan Construction, was selected to design, permit, and construct the expansion in only 13 months. Carollo's services included all process, mechanical, electrical and structural engineering, permitting activities, as well as on-site inspection during the construction phase.

Carollo's design updates the Palm Coast RO WTP with state-of-the-art technology that will greatly improve the operational performance and costs. Value-added engineering services included upgrades to the NF pumping with VFDs, and the addition of inter-stage booster pumps to the membrane equipment. Both of these improvements will enhance system performance in terms of hydraulic balance and water quality. Improved hydraulic balance will reduce overall operating costs by reducing power consumption and potentially limiting membrane fouling by reducing lead element flux rates. Estimated savings in O&M may exceed \$100,000 per year based on energy savings alone. Additional upgrades designed by Carollo included chemical feed systems, degasification, and high-service pumping.



*Carollo's services include value-added engineering that will reduce the O&M costs for the Palm Coast RO Water Treatment Plant.*