

TECHNICAL MEMORANDUM

Executive Summary

REGIONAL INTEGRATED LOOP SYSTEM FEASIBILITY / ROUTING STUDY

PREPARED FOR:



PEACE RIVER / MANASOTA
REGIONAL WATER SUPPLY AUTHORITY

PREPARED BY:



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Executive Summary

The Peace River/Manasota Regional Water Supply Authority (Authority) is a regional governmental agency that is responsible for supplying potable water to its member governments consisting of Charlotte, DeSoto, Manatee and Sarasota Counties. The Authority is also responsible for developing new sources of water supply for its members to serve the region. A Regional System Planning and Engineering Study in progress by the Water Planning Alliance has identified potential new water sources. These potential sources include groundwater, surface water, and salt water, and are located throughout the Peace River area. Development of these potential sources as regional supplies will require the continued cooperation of the area's utility systems and the construction of an integrated loop transmission system to move water from existing and new sources to the areas of demand.

The Authority proposes to enhance the region's water transmission systems through a Regional Integrated Loop System (Loop System). The Loop System project will create a regional potable water transmission system interconnecting water systems in the Authority's four-county service area.

The benefits of a Loop System will allow the Region to optimize and most efficiently utilize the Region's Resources. Interconnecting supplies with major demand locations provides the greatest flexibility to the region by allowing multiple sources to supply multiple areas of high demand. Major benefits of the Integrated Loop System include:

- Provides for rotational capacity and ability to rest sources
- Provides for reserve capacity for emergency transfers
- Improves reliability and redundancy
- Better matches supply and demand on a regional basis
- Optimizes the financial investment on a regional basis

A regional interconnected potable water system is not new to the area. Beginning in the 1980's, studies were performed and connections were made between adjacent water systems mostly to provide service under emergency conditions such as pipeline breaks and/or pump and equipment failures. Approximately 28 interconnects exist between the region's 15 Alliance members.

As the region continues to grow and future water sources are developed it has become more apparent that more permanent type interconnects are required to meet annual and/or seasonal demands within the region.

A history of the major events leading up to this feasibility/routing study is as follows:

<u>1980's</u>	Authority's Emergency Interconnect Study
<u>1992</u>	SWFWMD Water Supply Needs & Sources 1990 – 2020
<u>August 2003</u>	Authority Board approves a Resource/Supply Development Reserve Fund
<u>December 2003</u>	Authority applies for WMD FY05 funding

<u>June 2004</u>	Authority Board approves project
<u>September 2004</u>	SWFWMD agrees to fund up to \$250,000
<u>October 2004</u>	Matching funds from Authority members
<u>December 2004</u>	Authority advertises for consultant statement of qualifications
<u>June 2005</u>	Authority Board selects consultant (PBS&J)
<u>May 2005</u>	Authority Board approves consultant agreement
<u>June 2005</u>	Project orientation meeting with local governments and stakeholders

The Scope of Services to be provided for the Loop System Feasibility/ Routing Study includes project coordination with local government staffs, including the Authority and others, geographic information system mapping, water quality compatibility evaluation, route selection study, implementation schedule development and project administration.

The Consultant has considered alternatives and engineering parameters in such a manner that the framework for this program has been developed including pipeline routes, sizes, interconnection points and potential schedules in consideration of existing and future supply sources and demand centers. In cooperation with the Authority, a phased plan for implementation has been developed. A multi-disciplined effort consisting of the tasks identified in general below has been performed:

- Coordination with the Water Planning Alliance “Regional System Planning and Engineering Study”;
- Conducting project coordination meetings with local governments and their respective staffs including the Authority and others;
- Preparing geographic information system (GIS) mapping for the study areas identifying land use, soils, topographic, roadway and environmental features, and other restrictions that may be encountered and existing water supply sources and facilities;
- Conducting compatibility evaluations of water quality for potential blending of multiple treated water sources;
- Performing route studies identifying alternative corridors and evaluating length, environmental impacts, property acquisition, permitting requirements, local government restrictions, and consistency with existing and future sources;
- Developing cost-effective implementation schedules of loop segments considering existing and future supply sources and demand centers; and
- Preparing the Regional Integrated Loop System Route Selection Study.

The first step prior to defining alternative pipeline routes was to define the locations for connections into the Regional Loop System. Individual meetings were held with Alliance members in July and August, 2005 to receive input on their needs for connection to the Regional System, the type of connection desired (emergency or continuously active connection), estimates

of demands, surplus water available, pressure considerations, operational requirements, and any water quality/compatibility concerns.

Once initial connection points were determined, general corridors for interconnecting pipelines between those points were defined.

All of the feasible corridors within the study area were initially considered. These initial corridors included all of the following areas:

- (1) Existing rights-of way (including paved roadway and adjacent areas)
- (2) Existing utility easements / rights-of-way
- (3) Abandoned railroad grades
- (4) Recreational trails
- (5) Platted rights-of-way associated with future road or utility projects

In general the Corridors were grouped into the following interconnect categories:

1. Connection from the Authority WTP to the City of Punta Gorda’s SCWTP (Phase I).
2. Connection from the Authority WTP to the City of North Port’s WTP (Phase II).
3. Connection from the City of North Port’s WTP to Sarasota County’s Carlton WTP (Phase IIA).
4. Connection from the City of North Port’s WTP to the Englewood Water District’s System at Keyway Road and S.R. 776 (Phase IIB).
5. Connection from Sarasota County’s Carlton WTP to the northern part of Sarasota County’s System at I-75 and the FP&L electrical transmission corridor (Phase III).
6. Connection from the I-75/FP&L location to Manatee County’s System at University Parkway and Lockwood Ridge Road (Phase IVA).
7. Connection from the I-75/FP&L location to Manatee County’s WTP (Phase IVB).

Within each of these categories (or phased areas) several alternative routes were identified as viable and evaluated.

As a result of the route evaluations, the following pipeline routes are recommended:

Phase I	Route 2
Phase II	Route 1
Phase IIA	Route 1
Phase IIB	Route 1
Phase III	Route 1
Phase IVA	Route 1
Phase IVB	Route 3

These routes are shown individually on **Figures 5-1** through **5-7** and collectively on **Figure ES-1**.

Preliminary estimates of probable construction cost have also been developed. These costs are as follows:

Project Phase	Construction Cost	Land Cost	TOTAL
	Pipeline, Storage, Pumping, Metering, Chemical Feed & Instrumentation	Pipeline and Site Facilities Easements	
Phase I	\$11,500,000		\$11,500,000
Phase II	\$40,641,000	\$547,000	\$41,188,000
Phase IIA	\$36,861,000	\$433,000	\$37,294,000
Phase IIB	\$26,844,000	\$342,000	\$27,186,000
Phase IIIA	\$33,290,000	\$1,328,000	\$34,618,000
Phase IIIB	\$50,924,000	\$4,085,000	\$55,009,000
Phase IVA	\$14,049,000	\$712,000	\$14,761,000
Phase IVB	\$39,818,000	\$1,956,000	\$41,774,000

Costs in June 2006 dollars.

Note that Phase III has been divided into two separate segments (A and B).

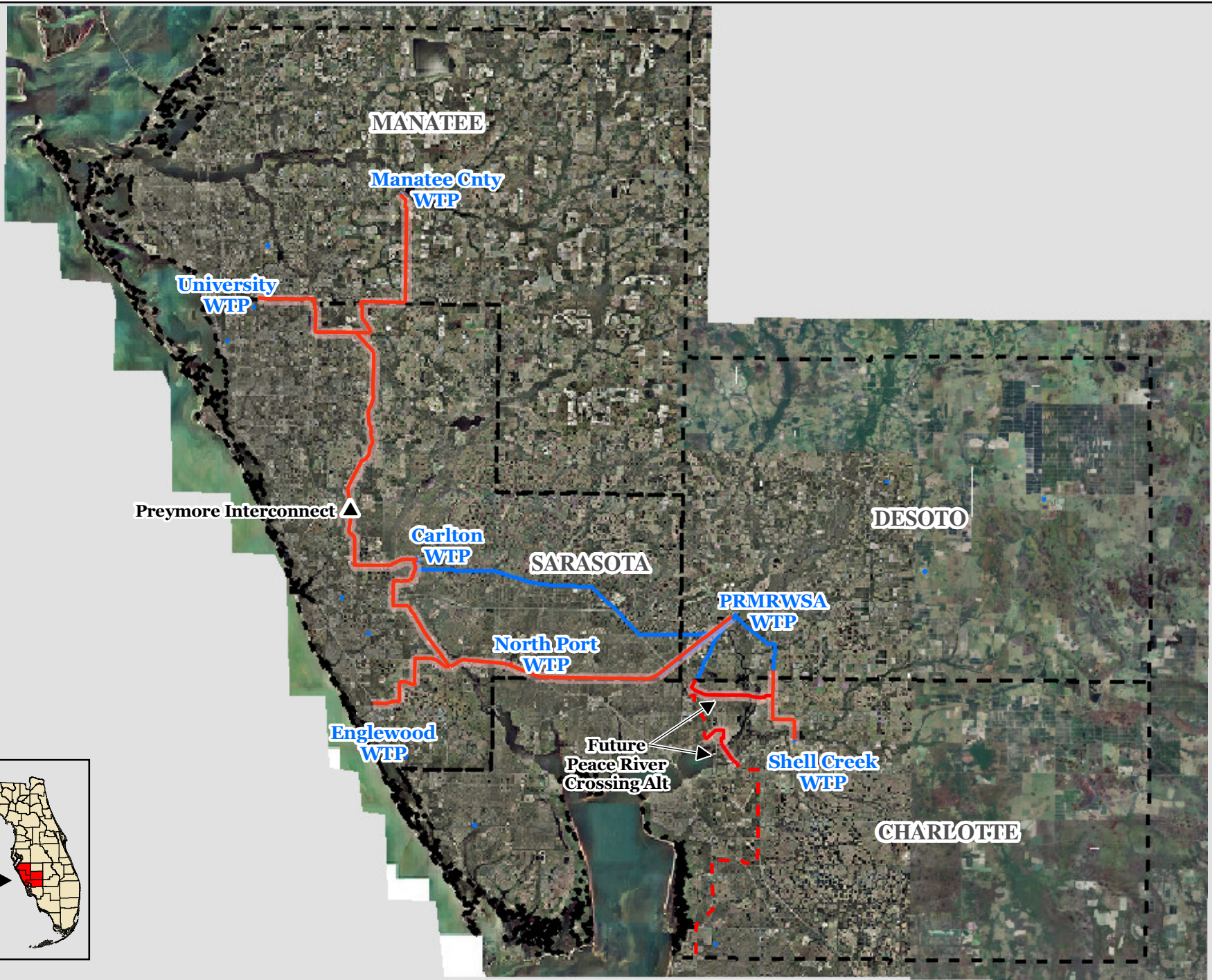
Construction costs have been broken down into an itemized estimate of lineal feet of pipe and appurtenances required for construction of each project phase. Costs include the cost for each transmission main and appurtenances, flow metering, a 2 mg storage tank, booster pump station, chemical feed facilities for blending, and instrumentation and controls.

A preliminary implementation schedule for the identified eight (8) Regional Integrated Loop System projects has been developed and is presented below and in Section 6.5. The schedule identifies engineering, land acquisition, bidding, and construction activity durations and preliminary dates for all eight projects from 2006 through 2018.

Schedule for Implementation (20 Year CIP)

Project	Preliminary Engineering	Design/Permitting	Property Acquisition	Bidding	Construction
*Phase I	7/06-9/06 (2 months)	9/06-12/06 (3 months)	N/A	N/A	1/07-5/08 (16 months)
Phase II	1/07-6/07 (6 months)	6/07-6/08 (12 months)	6/07-6/08 (24 months)	6/08-10/08 (4 months)	10/08-11/10 (25 months)
Phase IIA	7/13-1/14 (6 months)	1/14-1/15 (12 months)	1/14-1/16 (24 months)	1/16-5/16 (4 months)	5/16-4/18 (23 months)
Phase IIB	12/09-5/10 (6 months)	5/10-5/11 (12 months)	5/10-5/12 (24 months)	5/12-9/12 (4 months)	9/12-5/14 (20 months)
Phase IIIA	1/07-6/07 (6 months)	6/07-6/08 (12 months)	6/07-6/09 (24 months)	6/09-10/09 (4 months)	10/09-3/11 (17 months)
Phase IIIB	5/08-11/08 (6 months)	11/08-11/09 (12 months)	11/08-11/10 (24 months)	11/10-3/11 (4 months)	3/11-3/13 (24 months)
Phase IVA	12/08-5/09 (6 months)	5/09-5/10 (12 months)	5/09-5/11 (24 months)	5/11-9/11 (4 months)	9/11-1/13 (16 months)
Phase IVB	7/11-1/12 (6 months)	1/12-1/14 (24 months)	1/12-1/13 (12 months)	1/14-5/14 (4 months)	5/14-5/16 (24 months)


*Design / Build Contract



- Alternative Pipe Routes
- Regional Route
 - - - Future Charlotte Co. Utilities Project

- PRMRWSA
- Existing Mains

**Peace River/Manasota Regional Water Supply Authority
Regional Integrated Loop System
Preferred Routes**





 0 15,000 30,000 60,000 Feet
 


Figure ES-1