RESOLUTION NO. R-26-137

A RESOLUTION OF THE BOARD OF COUNTY COMMISSIONERS OF MANATEE COUNTY, FLORIDA, RELATING TO THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION STATE REVOLVING FUND; ADOPTING THE FACILITIES PLAN FOR THE MANATEE COUNTY PIPELINE RESILIENCY PROJECT IN MANATEE COUNTY; AUTHORIZING SUBMITTAL OF THE FACILITIES PLAN TO THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION; PROVIDING FINDINGS; PROVIDING FOR IMPLEMENTATION; PROVIDING FOR SEVERABILITY; AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, Manatee County (the "County") owns and operates a public water system that provides potable water service to retail and wholesale customers within Manatee County and surrounding municipalities; and

WHEREAS, the County's raw water supply system includes the East County Wellfield and transmission facilities that convey raw water from the wellfield to the Lake Manatee Water Treatment Plant; and

WHEREAS, the County is advancing the Pipeline Resiliency Project (the "Project") to improve the reliability and resiliency of the raw water transmission system between the East County Wellfield and the Lake Manatee Water Treatment Plant, including improvements to provide additional transmission capacity and redundancy; and

WHEREAS, Section 403.8532, Florida Statutes, establishes the Drinking Water State Revolving Loan Fund program administered by the Florida Department of Environmental Protection ("FDEP") to provide financial assistance for eligible public drinking water system projects; and

WHEREAS, Chapter 62-552, Florida Administrative Code, establishes requirements applicable to the Drinking Water State Revolving Fund Loan program, including requirements related to project planning, design, construction, procurement, and public participation; and

WHEREAS, the County was selected to receive $35,139,169 in Supplemental Appropriation for Hurricanes Helene and Milton ("SAHM") funding for the Project, consisting of approximately $17.57 million in principal forgiveness and approximately $17.57 million in zero-percent interest financing; and

WHEREAS, on March 3, 2026, the Board of County Commissioners of Manatee County, Florida (the "Board") adopted Resolution R-26-032 in furtherance of the County's application for and participation in the SAHM funding program for the Project, including authorization associated with the anticipated financial assistance; and

WHEREAS, Resolution R-26-032 contemplated that a subsequent loan agreement between FDEP and the County would be presented to the Board for approval; and

WHEREAS, a subsequent loan agreement has not yet been provided to the County by FDEP, and FDEP has advised that, generally, approval of planning, plans and specifications is required in connection with loan funding; and

WHEREAS, the County has prepared the East County Wellfield Pipeline Resiliency Project Facilities Plan (the "Facilities Plan") dated October 2026, attached hereto as **Exhibit 1,** as part of the planning requirements necessary to advance the Project through the SAHM and Drinking Water State Revolving Fund process; and

WHEREAS, the Facilities Plan documents the existing raw water supply and transmission system, evaluates alternatives for improving system reliability and resiliency, identifies a recommended planning alternative, evaluates anticipated environmental and financial impacts, and establishes a planning basis for subsequent design and implementation of the Project; and

WHEREAS, consistent with the public participation requirements applicable to the planning process, the County provided public notice, attached hereto as **Exhibit 2**, and conducted a public meeting at a County public library on September 15, 2026, to discuss the Project, the Facilities Plan, the alternatives evaluated, and the anticipated financial impacts and to provide an opportunity for public participation prior to adoption of the planning recommendations by the Board; and

WHEREAS, Rule 62-552.700, Florida Administrative Code, requires the planning process to address the need and justification for the project, alternatives, environmental and economic impacts and benefits, and public participation, including a public meeting, prior to the project sponsor's acceptance of the planning recommendations; and

WHEREAS, following completion of the required public participation process, formal adoption of the Facilities Plan by the Board constitutes the County's acceptance of the planning recommendations and is necessary for submittal to FDEP for review and approval as part of the applicable funding process; and

WHEREAS, following adoption of the Facilities Plan, the County anticipates submitting the adopted Facilities Plan to FDEP for review and approval, continuing development of the Project's plans and specifications, and subsequently presenting any FDEP loan agreement(s), or other documents related to the Project which require Board approval, to the Board for separate consideration; and

WHEREAS, adoption of the Facilities Plan does not constitute approval of any subsequent loan agreement(s), which agreement(s) will be presented to the Board separately if and when provided by FDEP for Board consideration and approval; and

WHEREAS, the Board finds that adoption and submittal of the Facilities Plan is in the public interest and further the County's efforts to improve the reliability and resiliency of its public water supply system and advance the Project toward eligibility for the SAHM funding the County has been selected to receive.

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF COUNTY COMMISSIONERS OF MANATEE COUNTY, FLORIDA:

SECTION 1. FINDINGS.

The foregoing recitals are true and correct and are incorporated into this Resolution by reference.

SECTION 2. ADOPTION OF FACILITIES PLAN.

The Board hereby adopts the Manatee County Pipeline Resiliency Project Facilities Plan attached hereto as Exhibit 1 and presented to the Board in connection with this Resolution.

SECTION 3. AUTHORIZATION TO SUBMIT FACILITIES PLAN.

The County Administrator, or designee, is authorized to submit the adopted Facilities Plan and related supporting documentation to FDEP and to provide such administrative, technical, and non-substantive supplemental information as may reasonably be required by FDEP for its review of the Facilities Plan.

SECTION 4. IMPLEMENTATION AND SUBSEQUENT PROJECT ACTIONS.

County staff is authorized to undertake administrative and technical activities reasonably necessary to advance FDEP review of the Facilities Plan and continue development of the Project consistent with existing County authority, approved budgets, procurement requirements, and applicable law.

Any loan agreement(s) or other documents or agreement(s) requiring approval by the Board shall be presented separately to the Board for consideration and approval.

Any loan agreement(s) between FDEP and County, or other documents related to the Project which require Board approval and/or separate Board authorization, are not approved by this Resolution and shall be presented to the Board as required for consideration and approval as necessary.

SECTION 5. RELATIONSHIP TO RESOLUTION R-26-032.

This Resolution supplements Resolution R-26-032 for purposes of adopting the Facilities Plan and advancing the planning requirements associated with the Project. Nothing in this Resolution shall be construed to supersede Resolution R-26-032.

SECTION 6. SEVERABILITY.

If any section, sentence, clause, or provision of this Resolution is held invalid or unconstitutional by a court of competent jurisdiction, such determination shall not affect the validity of the remaining portions of this Resolution, which remaining provision(s) shall continue in full force and effect, provided that the remaining provision(s) can be given legal effect absent the invalid portions.

SECTION 7. EFFECTIVE DATE.

This Resolution shall take effect immediately upon its adoption.

DULY ADOPTED with a quorum present and voting this 20th day of October, 2026.

MANATEE COUNTY FLORIDA

BOARD OF COUNTY COMMISSIONERS OF MANATEE COUNTY, FLORIDA

By: _____
Chairperson

ATTEST: ANGELINA COLONNESO
CLERK OF THE CIRCUIT COURT AND COMPTROLLER

By: _____
Deputy Clerk

EXHIBIT 1 TO RESOLUTION NO. R-26-137

East County Wellfield Pipeline Resiliency Project Facilities Plan

(71 pages)

ADOPTED IN OPEN SESSION 10/20/26 BY RESOLUTION R-26-137

MANATEE COUNTY UTILITIES

Pipeline Resiliency Project Supplemental Appropriations for Hurricanes Helene and Milton (SAHM) Funding Planning Support

East County Wellfield Pipeline Resiliency Project Facilities Plan

October 2026

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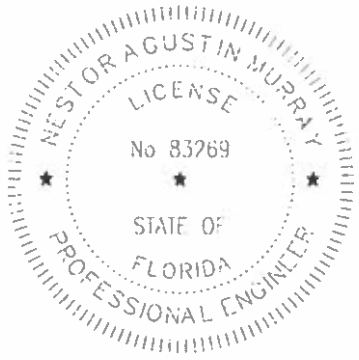
MANATEE COUNTY UTILITIES

Pipeline Resiliency Project Supplemental Appropriations for Hurricanes Helene and Milton (SAHM) Funding Planning Support

East County Wellfield Pipeline Resiliency Project Facilities Plan

October 2026



This report has been digitally signed and sealed by Anthony Ryan Horvat on the date adjacent to the seal.

Signature must be verified on any electronic copies.

301 NORTH CATTLEMEN ROAD, SUITE 302 • SARASOTA, FLORIDA 34232 • P 941-371-9832

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Abbreviations

AAD	Annual Average Demand
AOI	Area of Interest
ASR	Aquifer Storage and Recovery
bls	Below Land Surface
CWA	Clean Water Act
DWSRF	Drinking Water State Revolving Fund
ECW	East County Wellfield
EDU	Equivalent Dwelling Unit
EPA	United States Environmental Protection Agency
ERP	Environmental Resource Permit
ESA	Endangered Species Act
FDEP	Florida Department of Environmental Protection
FDOT	Florida Department of Transportation
FEMA	Federal Emergency Management Agency
FLUCCS	Florida Land Use, Cover and Forms Classification System
FMSF	Florida Master Site File
FWC	Florida Fish and Wildlife Conservation Commission
GIS	Geographic Information System
gpcd	Gallons per Capita per Day
GW	Groundwater
HDD	Horizontal Directional Drilling
IAS	Intermediate Aquifer System
IMC	IMC-Manatee Wellfield
LOS	Level of Service
LMWTP	Lake Manatee Water Treatment Plant
M&O	Operations and Maintenance
mgd	Million Gallons per Day
MM	Maximum Month
NGVD	National Geodetic Vertical Datum
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
PMD	Peak Monthly Demand

Abbreviations (Continuation)

ROW	Right-of-Way
SAHM	Supplemental Appropriation for Hurricanes Helene and Milton
SAS	Surficial Aquifer System
SCADA	Supervisory Control and Data Acquisition
SHPO	State Historic Preservation Office
SR	State Road
SWFWMD	Southwest Florida Water Management District
TDS	Total Dissolved Solids
UFA	Upper Floridan Aquifer
UPS	Uninterruptible Power Supply
USACE	U.S. Army Corps of Engineers
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
WCP	Water Well Construction Permit
WTP	Water Treatment Plant
WUP	Water Use Permit

SECTION 1 INTRODUCTION

This planning-level package has been developed to meet the planning requirements for the Supplemental Appropriation for Hurricanes Helene and/or Milton (SAHM) disaster relief funds award program through the Florida Department of Environmental Protection (FDEP). The SAHM funding provided a total of $35,139,169, of which $17,569,584 is provided as principal forgiveness. The project is described in the Intended Use Plan as shown below in **Figure 1-1**.

Impacts

The City's primary water treatment plant sustained direct damage when the metal roof over the filter tanks was torn off, compromising plant function and safety. At the same time, operations crews were dispatched to repair multiple water main breaks with limited system support and aging backup power equipment.

XX. Manatee County - DW41015 - $35,139,169

The proposed drinking water improvement projects by Manatee County are as follows:

1. Construction of two ground water production wells.
2. Installation of 20-inch raw water transmission main parallel to the current water transmission main.
3. Upgrading two degasifiers and internal hydraulic.
4. Installation of ground water treatment system electrical and ground water treatment system instrumentation/SCADA.

Impacts

During Hurricanes Helene and Milton, there were multiple line breaks and other distribution system impacts, which caused system leakage. Power outages were reported for Manatee County area during both Hurricanes Helene and Milton.

Figure 1-1 Manatee County SAHM Intended Use Plan Description

The Pipeline Resiliency Project is intended to improve the reliability and redundancy of Manatee County's raw water supply and transmission system between the East County Wellfield (ECW) and the Lake Manatee Water Treatment Plant (Lake Manatee WTP). This Facilities Plan documents the planning basis, evaluates feasible transmission alternatives, identifies a preferred planning alternative, and defines the technical, environmental, operational, and implementation considerations to be refined during future design.

1.1 Background and Hurricane Impacts

The American Relief Act was enacted by the US Environmental Protection Agency (EPA) on December 21, 2024, which provided disaster relief supplemental funding to a variety of State Revolving Fund (SRF) programs, with a focus on repairing and recovering from damages from Hurricanes Helene, Milton and

the Hawai'i wildfires. Manatee County (County), after submitting an RFI document for this program, was selected to receive funding. This report serves as the SAHM planning-level package and provides an analysis of the system needs, proposed alternative solutions, environmental review, as well as the selected alternative and implementation plans. Refer to **Appendix A** (Supplemental Appropriation for Hurricane Helene and Milton (SAHM) Request for Inclusion Supporting Documentation DWSRF Funds) for further explanations of how the project is deemed eligible for SAHM funding.

1.1.1 Location Description

Manatee County (County) owns and operates its potable water, wastewater, and reclaimed water system (System) that provides water, wastewater, and reclaimed water services to various retail and wholesale utility customers within County limits and surrounding municipalities (City of Palmetto, the Town of Longboat Key, and the three cities of Anna Maria Island: Holmes Beach, Bradenton Beach, and Anna Maria). The County also supplies water to meet some of the needs of Sarasota County and minimal amounts to the City of Bradenton. In the outlying areas of the County, households not served by any of these water systems rely upon private wells. The County's water service area is shown in **Figure 1-2.** The census tracks within the service area are as follows:

- 12081001913
- 12081001914
- 12081002010
- 12081002014
- 12081002020

The County owns and operates the Lake Manatee WTP, a facility with a combined nominal treatment capacity of 84 million gallons per day (mgd), to serve their potable water supply system. This facility uses both groundwater and surface water, which are treated in two separate treatment trains:

- A 54-mgd-capacity train for surface water from Lake Manatee.
- A 30-mgd-capacity train for groundwater from County wellfields.

The County is located within the Southwest Florida Water Management District (SWFWMD), one of five water management districts in Florida responsible for managing groundwater and surface water resources. The County's water use permit (WUP), issued by SWFWMD, allocates surface and groundwater quantities and environmental compliance monitoring requirements.

According to the 2024 Public Supply Annual Report, the County, on average, withdrew 50.1 mgd of water to meet their customer and wholesale water user demands. Of the 50.1 mgd, 34.0 mgd was supplied from surface water from Lake Manatee, and the remaining 16.1 mgd was supplied by groundwater.

Lake Manatee is the County's primary source of potable water. The County is permitted to withdraw an annual average of 34.9 mgd and a maximum monthly amount of 46.07 mgd from the reservoir. The County also has the capability to recover stored water through its aquifer storage and recovery system (ASR) at the WTP. The system consists of six ASR wells and is designed to provide up to 10 mgd for up to 180 days during emergency conditions or approximately 120 days for operational use.

The County is also permitted to withdraw an annual average of 19.086 mgd of groundwater from the East County Wellfield (ECW), a property comprising approximately 33 square miles in northern Manatee County. The ECW is comprised of approximately 24.8 miles of 30-inch and 36-inch transmission mains

that distribute raw water from seven production wells (ECW-1 through ECW-7) to Lake Manatee WTP. The wellfield is also supplemented by the three additional wells (Mosaic Wells1 through 3). Refer to **Figure 1-3** for existing relevant project infrastructure.

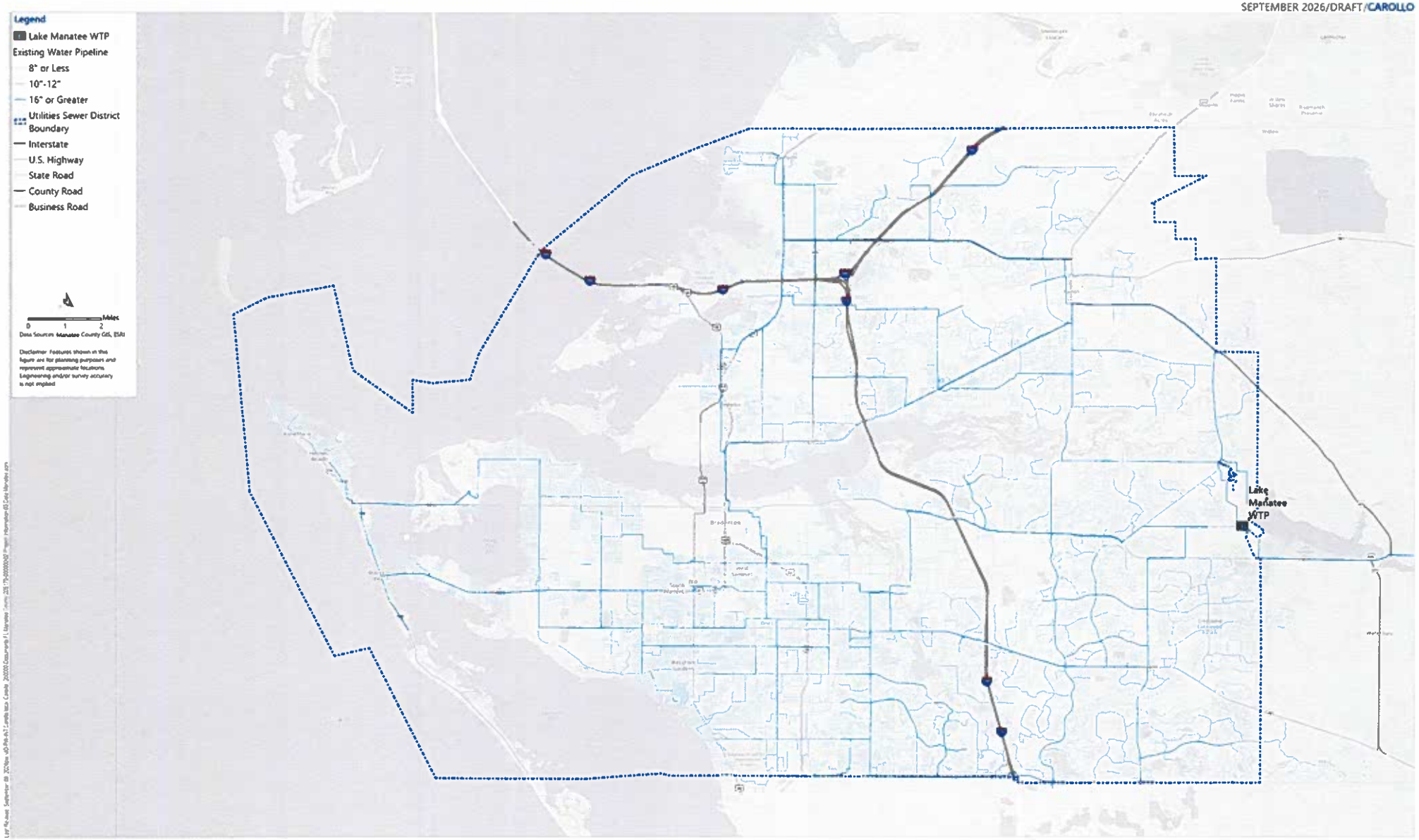

Figure 1-2 MANATEE COUNTY SERVICE AREA MAP
MANATEE COUNTY
PIPELINE RESILIENCY STUDY

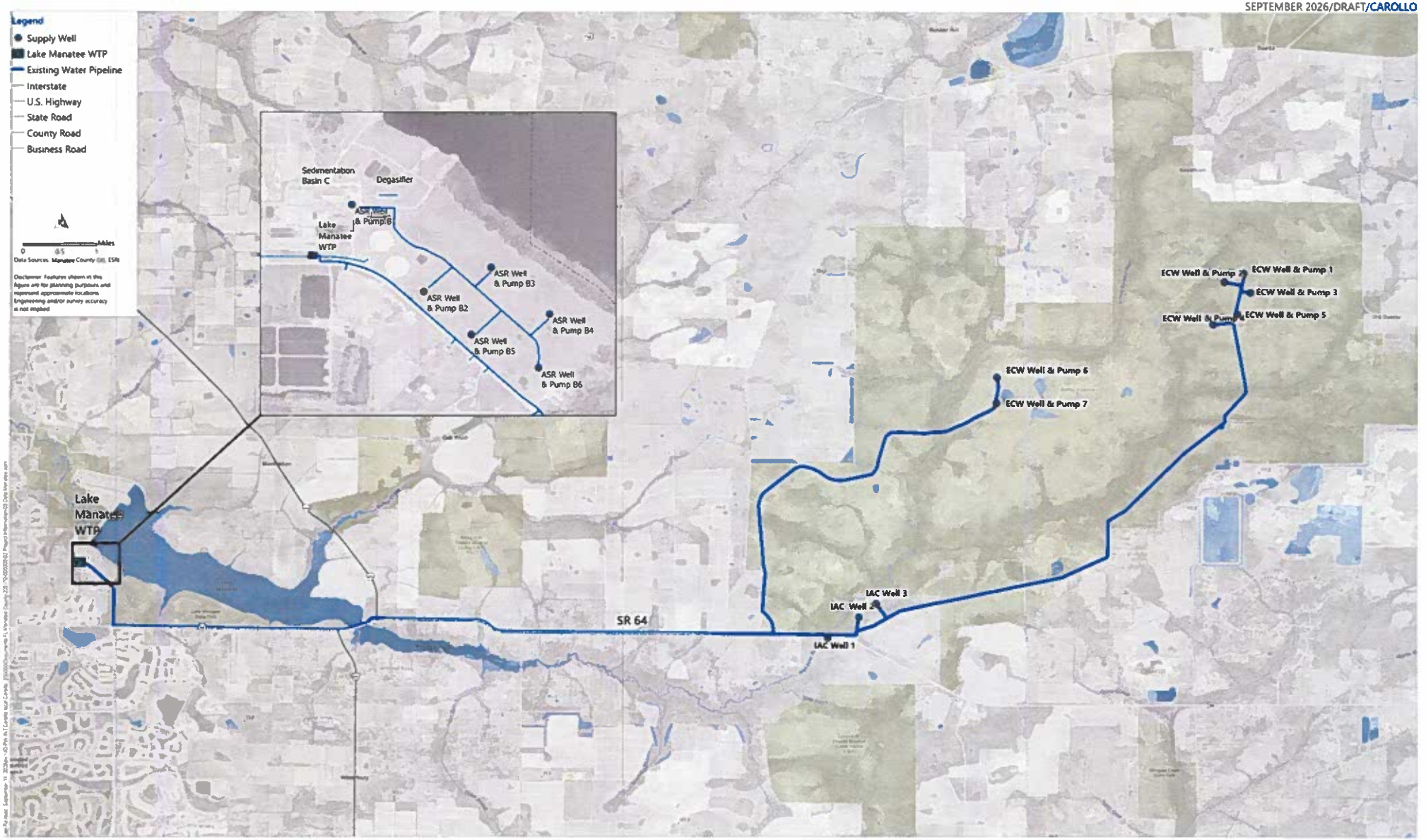

Figure 1-3 LAKE MANATEE WTP, EAST COUNTY WELLFIELD AND EXISTING PIPELINE ALIGNMENT MAP
MANATEE COUNTY
PIPELINE RESILIENCY STUDY

1.1.2 Hurricane Impacts

Hurricane Helene

Hurricane Helene made landfall on September 26th, 2024. Many stations experienced power outages during Hurricane Helene. There were multiple communication failures and instances where no data was collected throughout the Hurricane at three pump stations: Northwest Ground Storage Tank and Booster Pump Station (NWGS), Longboat Meter Station, and Cortez Booster Station. On the 26th, from 16:23 to 17:54, NWGS and Longboat Meter Station experienced power failure for their Uninterruptible Power Supplies (UPS). NWGS specifically experienced communications, power, and UPS failure from September 26th at 18:00 until November 2nd, 2024. At 18:20 on September 26th, the Longboat Meter Station also experienced communications, power, and UPS failure until November 2nd, 2024. Refer to Appendix A for pressure and flow data from the three pump stations between September 26th and 29th. At the Water Treatment Plant, the power was switched to generator power at 19:18 on the 26th and was restored to full power on the 28th.

The City of Bradenton's Water Distribution Plant at SR 70 & Natalie Way/Evers Reservoir experienced power outages due to Hurricane Helene and had to utilize generator backups during and after the storm. Manatee County stepped in to help the City of Bradenton augment their water supply since it compromised secondary drinking water parameter exceedances as a result of the storm. Specifically, 7 direct interconnects were made to support their water needs between the 27th and 28th and three water distribution locations were opened to support community water needs. The water treatment plant stabilized on the 29th, but chlorine levels were still high, so the distribution locations and direct interconnects continued till the 30th. Refer to Appendix A for the complete situation reports.

Hurricane Milton

Hurricane Milton made landfall shortly after Helene on October 9th, 2024. The Manatee County Water Treatment Plant power was switched to generator power at 18:15 on the 9th. The whole Manatee County distribution system felt the major effects of Hurricane Milton. Attached in Appendix A is a list of all the pipe breaks that were reported during and after the storm. There were 64 breaks of various pipe diameters and causes due to Milton's surge and debris between October 9th and October 12th. During Hurricane Milton, Bradenton's water plant was intentionally inactive, and water was on a bypass system with the goal to mitigate any impacts similarly to what the plant experienced in Helene. Yet, their plant still experienced water intrusion. Refer to Appendix A for the complete situation reports.

1.2 Project Scope and Objectives

Manatee County is applying for planning, design, and construction of their Pipeline Resiliency Project (Project). The Project will construct four groundwater (GW) production wells and place a 36-inch/42-inch raw water transmission main parallel to the current water transmission main. The well location and pipeline alignment will be determined in the planning and design phases but are anticipated to be near the current well field areas. The planning, design, and construction activities associated with the project are summarized (**Table 1-1**).

Table 1-1 Project Tasks Description

Task Name	Task Description
Planning	Project administration; Facilities Plan; route study; hydraulic assessment; environmental review; cost comparison; and supporting investigations.
Design	Survey, geotechnical investigation, subsurface utility engineering, environmental field verification, hydraulic and transient modeling, permitting, property coordination, and final design.
Construction	Construction of the selected transmission improvements and related wellfield, treatment, electrical, instrumentation, and SCADA components confirmed during design.

The selected Facilities Plan concept does not establish final design details. Final pipe diameters, materials, profiles, well equipment, treatment modifications, appurtenances, easements, and permitting requirements will be confirmed during design. The project objectives are to improve reliability and resiliency, provide adequate hydraulic performance, reduce environmental and permitting risk, support operational flexibility and emergency repair response, and preserve flexibility for future system needs.

1.2.1 Project Objectives

The main need and benefit of the Pipeline Resiliency Project is that it will create redundancy in Manatee County's raw water transmission system, providing increased resiliency in the event of a storm. During Hurricanes Helene and Milton, there were multiple line breaks and other distribution system impacts, which caused system leakage, further pointing to the need for system redundancy. This redundancy will beneficially support Manatee County's ability to provide water during major storm events and allow one pipe to remain operational if the other is damaged during a storm event, directing flows to the treatment plant and supporting future water security across the County.

To enhance system reliability and provide redundancy to the existing 30-inch and 36-inch transmission mains, three pipeline alternatives were developed and evaluated within the project corridor, as shown in **Figure 1-4**. Alternative 1 generally follows the existing transmission main corridor from the ECW to the Lake Manatee WTP. Alternative 2 originates at Wells and Pumps 1 through 5, extends to Wells and Pumps 6 and 7, and then follows the existing transmission main corridor to the Lake Manatee WTP. Alternative 3 consists of two segments: the first connects Wells and Pumps 1 through 5 to Wells and Pumps 6 and 7, while the second extends from the existing transmission main corridor along SR 64 to the Lake Manatee WTP.

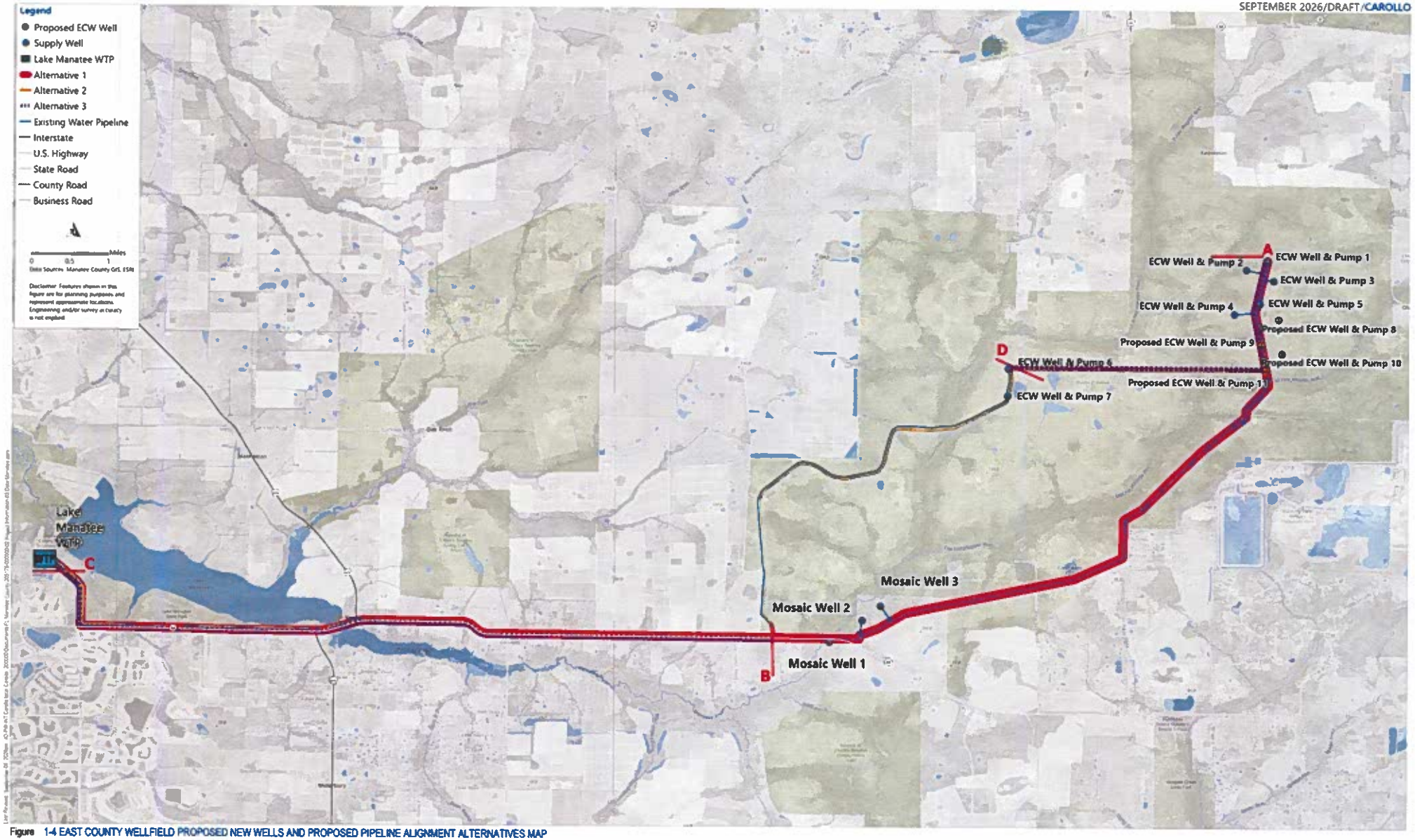

Figure 1-4 EAST COUNTY WELLFIELD PROPOSED NEW WELLS AND PROPOSED PIPELINE ALIGNMENT ALTERNATIVES MAP
MANATEE COUNTY
PIPELINE RESILIENCY STUDY

SECTION 2 EXISTING AND FUTURE CONDITIONS

2.1 Description and Climate of Planning Area

The planning area is in eastern Manatee County, Florida, extending from the Lake Manatee WTP on SR 64 northeast toward the ECW and Duette Preserve. The predominantly rural corridor contains agricultural lands, natural habitats, conservation areas, road rights-of-way, utility corridors, wetlands, drainage features, and uplands within the Lake Manatee watershed. The draft planning-area population estimate for 2025 is approximately 468,200 residents, while the project corridor itself is less densely developed than western Manatee County.

The region has a humid subtropical climate with year-round warm temperatures and a pronounced summer wet season. The corridor generally ranges from approximately 30 to 90 feet above mean sea level. Topography transitions from relatively flat terrain near the WTP to gently rolling terrain toward Duette Preserve, with runoff conveyed toward Lake Manatee and associated tributaries.

2.1.1 Data Collection

A desktop evaluation was performed using public information, County utility records, GIS data, environmental datasets, right-of-way and parcel information, record drawings, roadway information, aerial imagery, and geotechnical information (**Table 2-1**). The data sources supported route development and comparison and will require field verification during detailed design. Refer to **Appendix B** for additional information regarding the GIS Data Collection.

Table 2-1 GIS Data Collection

Dataset	Representative Sources	Use in Planning
Aerial and parcels	Manatee County; statewide parcel data	Alignment development, access, and property screening
Environmental	USDA NRCS; USFWS; FWC; FDEP; FEMA; SWFWMD	Soils, wetlands, species, conservation lands, contamination, and floodplains
Transportation	FDOT and Manatee County	Roadway crossings, rights-of-way, traffic, and planned improvements
Utilities	Manatee County and available record drawings	Existing water, wastewater, reclaimed water, power, gas, fiber, drainage, and special crossings
Cultural resources	FDEP/FMSF and supporting environmental review	Known historical and cultural resources
Hydraulic and operational	County SCADA, pump curves, water-demand information	Model development, calibration, operating scenarios, and sizing

2.1.2 Soil Conditions and Hydrology

Soil Conditions

The United States Department of Agriculture Natural Resources Conservation Service (USDA NRCS) mapping indicates that the project area is dominated by fine sands with varying hydrologic groups and drainage characteristics. Refer to **Figure 2-1**. Planning-level soil considerations include runoff potential, infiltration, poor drainage, dewatering, excavation, backfill, restoration, wetland indicators, and suitability for gopher tortoise burrowing habitat. Refer to **Table 2-2**. Soil mapping does not replace geotechnical investigation, wetland delineation, or wildlife surveys.

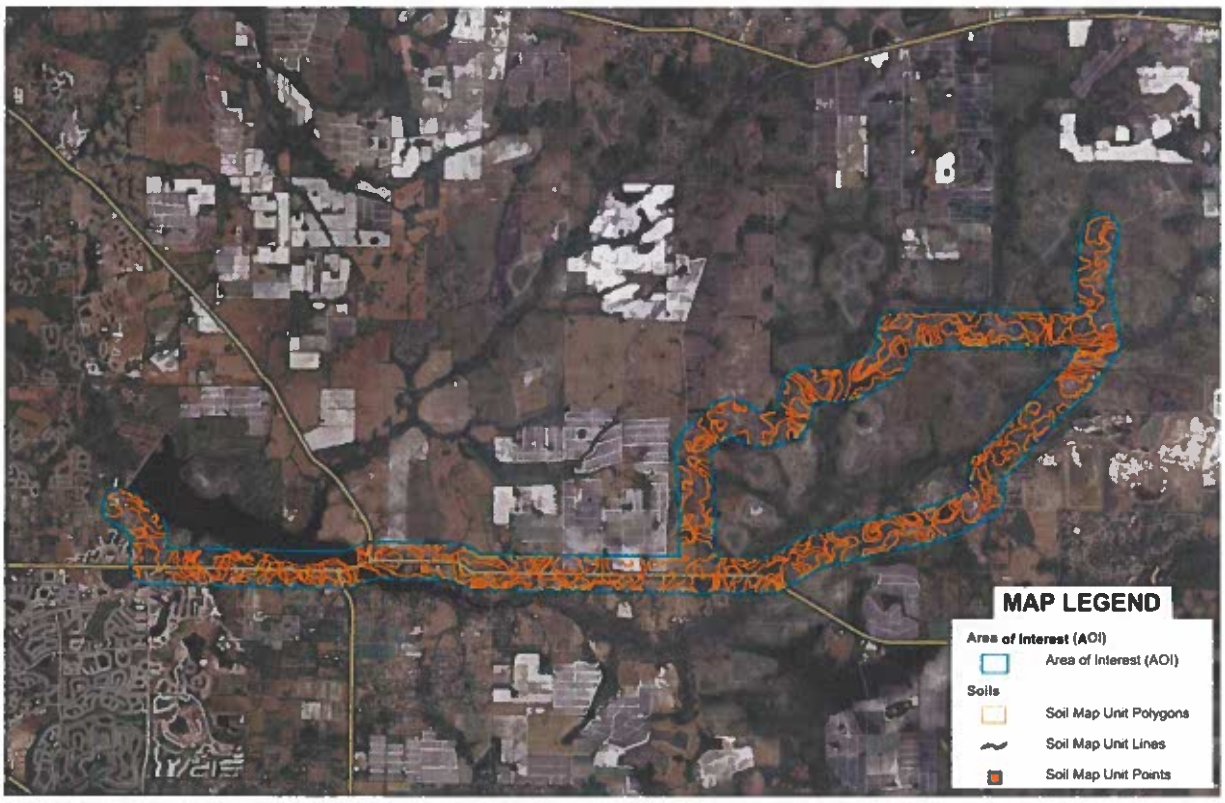

Figure 2-1 Pipeline Resiliency Project – Soil Map

Table 2-2 Predominant Soil Types and Hydrology within the Project Boundary

Soil Type	Approx. Composition	Hydrologic Group	Drainage Class
Waveland fine sand	29.34%	C/D	Poorly drained
Pomello fine sand	20.3%	A	Somewhat poorly drained
Duette fine sand	6.1%	A	Moderately well drained
Myakka-Myakka wet fine sands	5.7%	A/D	Poorly drained
Delray-Pomona complex	5.7%	A/D	Very poorly to poorly drained
St. Johns fine sand	5.7%	B/D	Poorly drained

Note: The project boundary also includes a significant portion of water (Lake Manatee) accounting for 2.3% of the Area of Interest (AOI). The table above lists the six most common soil types, excluding bodies of water.

For additional information regarding soil conditions, please refer to **Appendix C**.

Soil Hydric Rating and Gopher Tortoise Suitability

NRCS soil survey information was reviewed to characterize general soil conditions within the three alternatives. The mapped soil units were evaluated based on planning-level indication of areas that may be associated with wetland conditions and gopher tortoise gopher burrowing habitat. Refer to **Appendix D** for environmental analysis.

Alternatives 1 and 2 contain similar acreages of soils mapped as highly suited for gopher tortoise, while Alternative 3 contains a smaller total acreage but a higher proportional share of highly suited habitat for gopher tortoise because its overall corridor area is smaller. Alternative 3 has the lowest percentage of soils that would be expected to support wetland habitats.

2.1.3 Flood Plains

FEMA mapping identifies mapped flood-hazard areas within the project planning boundary. Floodplain exposure may affect design elevation, cover, erosion protection, access, permitting, construction methods, and emergency response. Final floodplain and floodway limits will be confirmed during detailed design using current mapping and survey data.

Additional maps of the parcels and floor areas can be found in **Appendix E**.

2.1.4 Environmentally Sensitive Areas or Features

Wetlands and Surface Waters

Project-specific desktop mapping was used to characterize potential freshwater emergent wetlands, freshwater forested/shrub wetlands, and other surface waters within the three alternative corridors. Refer to **Table 2-3**. The mapping provides a planning-level comparison and does not constitute a jurisdictional determination or field delineation.

Table 2-3 Desktop-Mapped Wetlands and Surface Waters within the Alternative Corridors

Resource Type	Impact Assumption	Alternative 1 (ac)	Alternative 2 (ac)	Alternative 3 (ac)
Freshwater emergent	Temporary	1.09	8.86	2.71
Freshwater forested/shrub	Permanent conversion	6.82	13.15	0.64
Other surface waters	Temporary	2.26	2.22	1.91
Total mapped area		10.17	24.23	5.26

Notes: Anticipated impact type assumes open-cut pipeline installation within the project area. Actual impacts will depend on the final pipeline alignment, construction footprint, construction methods, and field-verified wetland boundaries.

Alternative 2 has the greatest mapped wetland and surface-water impact and the greatest potential permanent forested/shrub wetland conversion. Alternative 1 has an intermediate mapped impact. Alternative 3 has the lowest mapped wetland and surface-water acreage and substantially less potential permanent conversion. Actual impacts will depend on final alignment, construction footprint, crossing methods, and field-verified boundaries.

Refer to Appendix D (Section 2.1.4) for environmental analysis.

Protected Wildlife Species

Desktop information was reviewed for federal and state protected species with potential to occur in or near the planning corridors. Potential considerations include Florida scrub-jay, gopher tortoise, eastern indigo snake, crested caracara, listed wading birds, Florida pine snake, Florida sandhill crane, southeastern American kestrel, tricolored bat, and other species identified in the supporting environmental material. Species inclusion in the desktop review does not establish presence. Final requirements will depend on field surveys and agency coordination.

Agricultural Lands

All alternatives intersect areas mapped as Farmland of Unique Importance, but much of the corridor is within existing rights-of-way or conservation land and is not actively farmed. No substantial difference among alternatives was identified from the available farmland mapping. Potential effects on active agricultural operations will depend on the final construction footprint and existing land use.

Cultural and Historic Resources

The Florida Master Site File (FMSF) review identified the Camphor Site Homestead, Bethany Baptist Cemetery, and Old Highway 39/Carlton Road within the planning area. The Camphor Site Homestead intersects all three alternatives within the SR 64 right-of-way. Old Highway 39/Carlton Road intersects Alternatives 1 and 3 within Duette Preserve. Bethany Baptist Cemetery is adjacent to the alternatives. The desktop review is not a Cultural Resource Assessment Survey and does not determine National Register eligibility or adverse effect. **Figure 2-2** below depicts the locations of the recorded resources relative to the three alternatives.

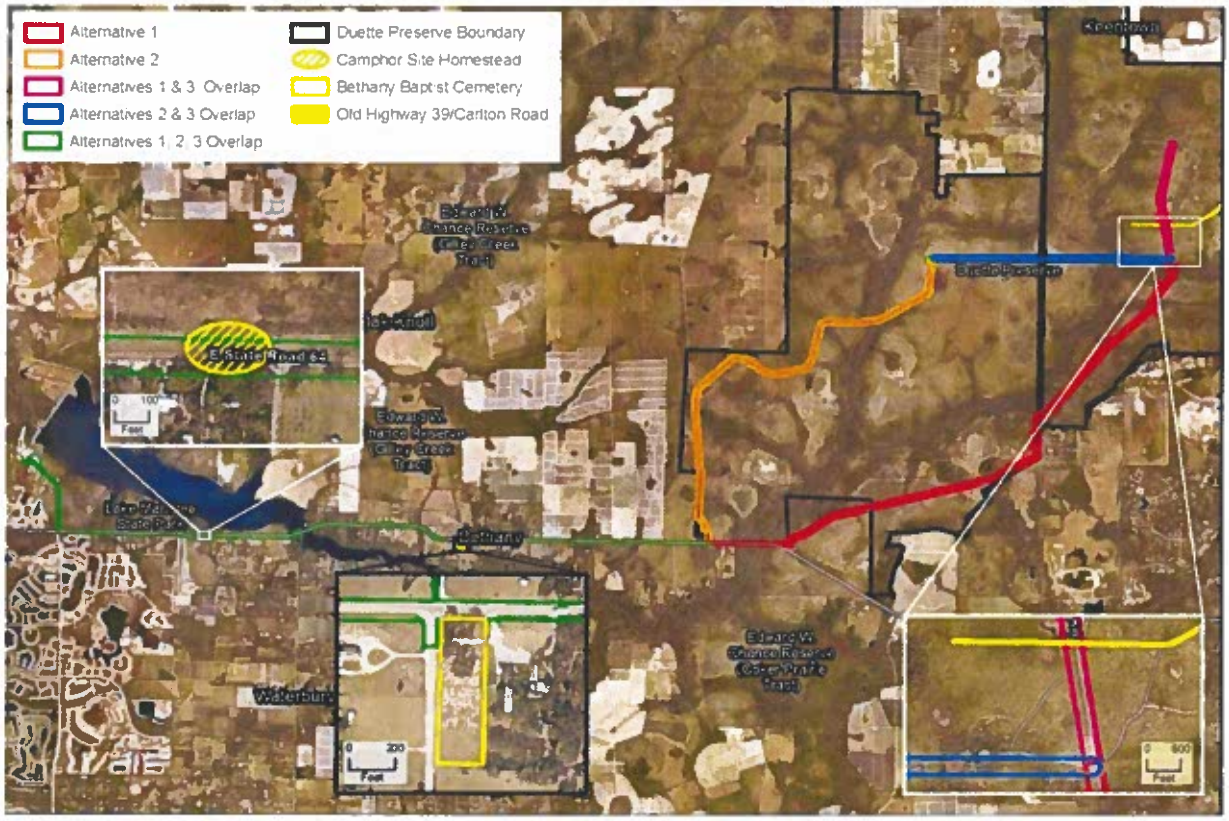

Figure 2-2 FMSF Mapped Resources

Contaminated Sites and Hazardous Materials

The desktop database review identified historical contamination records near the planning area, including a historical petroleum record at the WTP and a completed-cleanup oil-spill record near the Alternative 3 corridor. The available information did not identify a substantial differentiating constraint among the alternatives. Final design should update the database review and address unexpected conditions through construction specifications.

Environmental and Permitting Summary

The environmental evaluation is based primarily on desktop mapping and available records. It does not constitute a wetland jurisdictional determination, protected-species survey, cultural-resource assessment survey, geotechnical investigation, or final permitting determination. Final impacts, avoidance and minimization measures, mitigation requirements, construction feasibility, and permit conditions remain subject to field delineation, environmental surveys, agency coordination, final alignment, construction methods, and final design.

The final alignment will require additional evaluation near conservation lands, Duette Preserve, existing and proposed gopher-tortoise recipient areas, wetlands, surface waters, and cultural resources. The proposed connection between ECW Wells 1 through 5 and ECW Wells 6 and 7 may interact with known or proposed gopher-tortoise habitat or recipient areas. These conditions could affect alignment selection, access, construction sequence, long-term maintenance, permitting, and mitigation.

Alternative 3 has the lowest desktop-mapped wetland and surface-water acreage among the evaluated alternatives, but this comparison does not eliminate environmental or permitting risk. Actual impacts and requirements will be determined during design-phase field investigations and agency review.

2.1.5 Planning Basis and Demand Conditions

The planning basis for the Pipeline Resiliency Project was developed using the County's historical water use records, current and projected service area growth, and the water demand projections prepared as part of WA27 - Water Use Permit Modification. These demand conditions provide the basis for establishing the hydraulic and conveyance requirements for the proposed groundwater production wells and redundant raw water transmission main from the ECW and IMC-Manatee Wellfield to the Lake Manatee WTP.

The purpose of this project is not to expand finished water treatment capacity, but to improve the resiliency and redundancy of the County's raw water supply and transmission system. The proposed improvements will allow the County to maintain raw water conveyance to the Lake Manatee WTP during storm-related events, line breaks, maintenance activities, or other conditions where one segment of the existing transmission system may be unavailable.

Population projections

Future demand projections were developed based on County-provided growth forecasts for the Lake Manatee WTP service area. The County provided equivalent dwelling unit (EDU) projections for existing neighborhoods and future development areas through 2050. These EDUs were converted to population using 2.4 persons per household (pph), consistent with recent Census information for Manatee County and slightly more conservative than the 2.33 pph factor used in the SWFWMD projection methodology.

For planning purposes, the County's adopted potable water level of service (LOS) standard is currently 110 gallons per capita per day (gpcd); however, the County is in the process of revising this value to 100 gpcd. The 100 gpcd LOS value was used for the demand projections summarized in this section. In addition to the retail service area demand, 5.0 mgd was included to account for the County's existing wholesale contractual obligations, excluding Sarasota County. This includes 0.5 mgd for the City of Bradenton, 2.0 mgd for the City of Palmetto, and 2.5 mgd for the Town of Longboat Key.

Based on this approach, the projected service area population increases from approximately 534,200 in 2030 to approximately 649,895 in 2045. The corresponding annual average finished water demand increases from approximately 58.42 mgd in 2030 to approximately 70.00 mgd in 2045. **Table 2-4** summarizes the population-based finished water demand projection used for planning.

Table 2-4 Level of Service Finished Water Demand Projections

Year	Service Area Population	Annual Average Finished Water Demand (mgd)
2030	534,200	58.42
2035(1)	576,450	62.65
2040	618,700	66.87
2045(1)	649,895	70.00

(1) Values for 2035 and 2045 were interpolated.

Historical Water Usage

Historical water use was reviewed for the 2016 through 2025 period to characterize recent growth trends, seasonal demand conditions, and peaking factors. The County withdraws raw water from Lake Manatee, the ECW, and the IMC-Manatee Wellfield for treatment at the Lake Manatee WTP. Raw water withdrawals increased from approximately 39.8 mgd in 2016 to approximately 52.3 mgd in 2025 on an annual average basis. Over the same 10-year period, the average annual raw water withdrawal was approximately 45.8 mgd. Between 2019 and 2023, raw water withdrawals increased by an average of approximately 4.8 percent per year. **Table 2-5** summarizes raw water withdrawals from 2016 through 2025.

Table 2-4 Raw Water Withdrawals

Year	Average Daily		Maximum Month (mgd)	Maximum Day (mgd)
	Raw Withdrawal (mgd) (1)	Growth Change		
2016	39.8	--	43.7	51.0
2017	40.2	0.9%	47.5	54.1
2018	40.3	0.3%	44.7	54.2
2019	42.2	4.6%	45.9	52.9
2020	45.2	7.2%	49.5	56.1
2021	47.4	4.7%	53.7	55.1
2022	47.7	0.7%	51.8	57.5
2023	50.9	6.6%	53.6	61.5
2024	51.6	1.4%	58.6	62.7
2025	52.3	1.3%	56.2	60.7
Average	**45.8**	**3.1%**	**50.5**	**56.6**

Note: (1) Raw withdrawals include Lake Manatee, East County Wellfield, and IMC Manatee Wellfield.

Finished water demand followed a similar increasing trend. Annual average finished water demand increased from approximately 39.49 mgd in 2016 to approximately 49.50 mgd in 2025, with an average annual growth rate of approximately 3.8 percent over the 10-year period. Maximum month finished water demand increased from approximately 43.13 mgd in 2016 to approximately 53.30 mgd in 2025, while maximum day finished water demand increased from approximately 50.95 mgd in 2016 to approximately 59.56 mgd in 2025. **Table 2-5** presents the annual average, maximum month, and maximum day finished water demands for the past 10 years.

Table 2-5 10-Year Annual Average, Maximum Month, and Maximum Day Demands

Year	Annual Average Demand (mgd)	Annual Average Annual Growth	Maximum Month Demand (mgd)	Maximum Day Demand (mgd)
2016	39.49	-	43.13	50.95
2017	39.93	1.1%	47.44	51.96
2018	39.55	-1.0%	43.09	49.14
2019	41.55	5.1%	44.70	57.20
2020	43.93	5.7%	48.16	53.00
2021	44.75	1.9%	51.83	56.18
2022	45.31	1.3%	48.93	54.83
2023	47.70	5.3%	52.45	58.34
2024	48.89	2.5%	55.55	61.42
2025	49.50	1.2%	53.30	59.56

The County provides finished water to retail customers in unincorporated Manatee County and wholesale customers including the City of Bradenton, City of Palmetto, Town of Longboat Key, and Sarasota County. Historical growth in finished water demand has been primarily driven by the unincorporated retail service area, while wholesale demands have remained relatively stable or declined due to contractual limitations and the phased reduction in supply to Sarasota County.

Historical peaking factors were also reviewed to support planning and facility sizing. Based on the historical analysis, the County's existing planning peaking factors remain appropriate: 1.2 for maximum month demand and 1.3 for maximum day demand. These factors were applied to the selected annual average demand projections to estimate future maximum month and maximum day conditions.

20-year water demand projections

Multiple methods were evaluated for projecting future finished water demand through 2045, including linear regression of historical demand, a County population and LOS-based projection, and the SWFWMD projection methodology. The selected planning projection is based on the County population and LOS approach because it reflects the County's projected service area growth and maintains consistency with the County's potable water LOS requirement.

The selected annual average finished water demand projection for 2045 is 70 mgd. Applying the County's planning peaking factors results in a 2045 maximum month demand of approximately 84 mgd and a maximum day demand of approximately 91 mgd. These values represent the 20-year demand condition for planning the proposed improvements. **Table2-6** summarizes the selected 20-year demand projection.

Table 2-6 Selected 20-year Finished Water Demand Projection

Year	Annual Average Demand (mgd)	Maximum Month Demand (mgd)	Maximum Day Demand (mgd)
2030	58.42	70.10	75.95
2035	62.65	75.18	81.45
2040	66.87	80.24	86.93
2045	70.00	84.00	91.00

The 2045 demand condition is used as the long-term planning basis for evaluating raw-water supply and conveyance needs. The Lake Manatee WTP has a combined nominal raw-water treatment capacity of approximately 91 mgd across its surface-water and groundwater treatment trains. Actual production is constrained by source availability, authorized WUP withdrawal quantities, treatment-train limitations, operating conditions, and finished-water demand. The County is currently pursuing a WUP renewal or modification that may reflect updated demand projections, well-credit transfers, and retirement of third-party credits. Because the modification has not been finalized, proposed withdrawal quantities are planning assumptions and should not be represented as authorized quantities. Final design and phasing will be based on the WUP conditions in effect at the time of implementation.

2.1.6 Land Use and Development

Land Use and Habitat

SWFWMD FLUCCS mapping was used to characterize land use and habitat composition. Alternative 1 has a total mapped corridor area of approximately 411.77 acres, Alternative 2 approximately 430.10 acres, and Alternative 3 approximately 268.03 acres. Alternative 2 contains substantially more mapped shrub and brushland, while Alternative 1 contains more cropland/pastureland and tree plantations. Alternative 3 has the smallest overall mapped corridor area.

Refer to Appendix D for the detailed environmental analysis.

Future Capital Improvement Projects and Corridor Coordination

FDOT is developing improvements along SR 64 between Lorraine Road and Verna Bethany Road. The proposed pipeline's proximity to this corridor creates design and schedule coordination requirements involving utility placement, horizontal and vertical clearance, subsurface crossings, traffic control, permitting, and sequencing to avoid conflicts or unnecessary relocation. Coordination with FDOT should continue through design and construction.

The proposed roadway alignment corridor and study segments identified under the FDOT SR 64 Feasibility Study are conceptually illustrated in **Figure 2-3**.

Refer to **Appendix F** for Record Drawings pertaining to State Route 64.

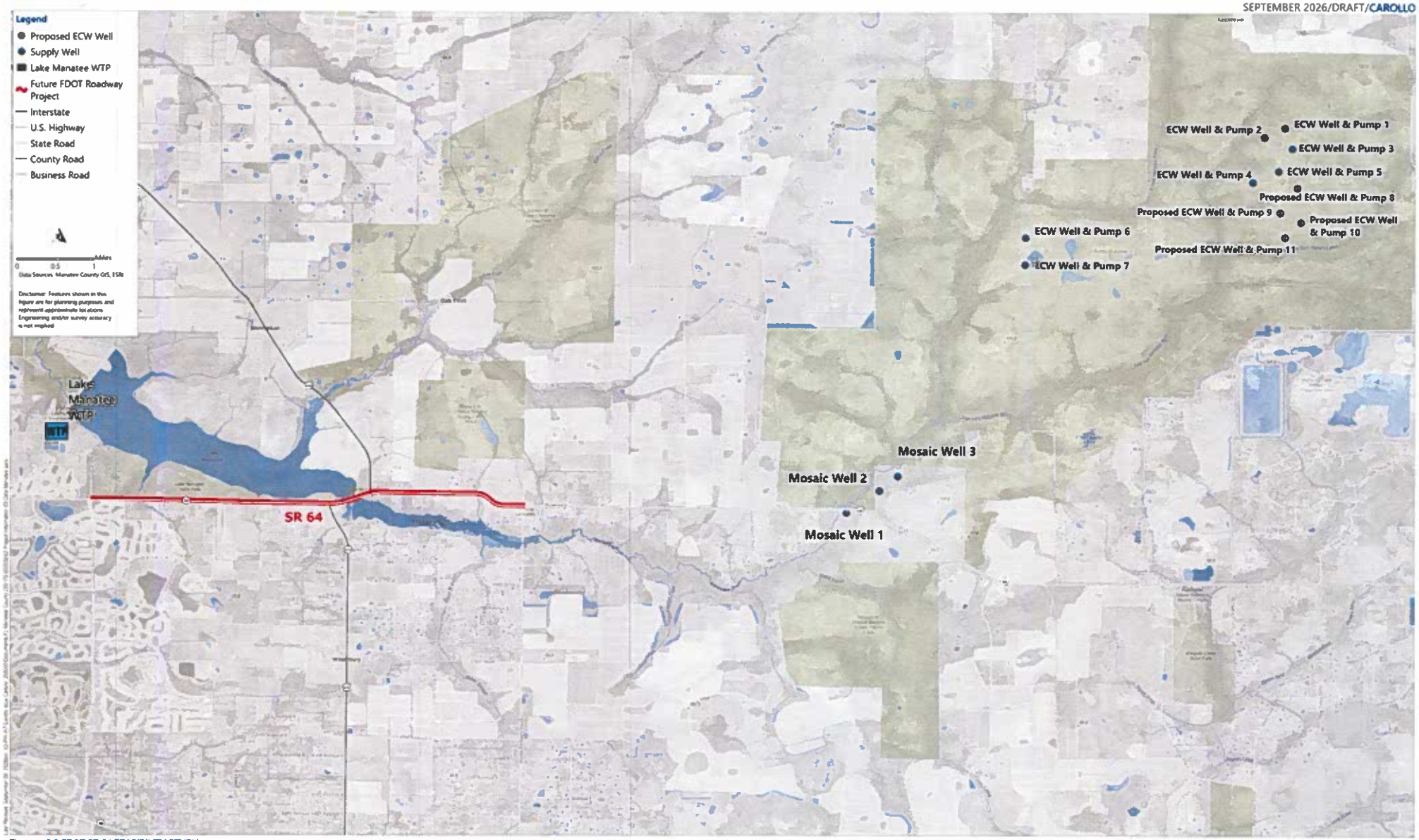

Figure 2-3 FDOT SR 64 FEASIBILITY STUDY
MANATEE COUNTY
PIPELINE RESILIENCY STUDY

2.1.7 Hydrogeologic Setting and Description

The East County Wellfield (ECW) is located in eastern Manatee County, Florida, and is operated by Manatee County Utilities under WUP No. 13343. The wellfield consists of seven production wells (ECW-1 through ECW-7, SWFWMD District IDs 128 through 134) that withdraw groundwater from the Upper Floridan Aquifer (UFA). Five monitoring wells (District IDs 150 through 154) are used to monitor groundwater levels and water quality across the surficial aquifer system (SAS), the intermediate aquifer system (IAS), and the UFA. Site locations are shown in Appendix G – WSP Hydrogeological Evaluation.

The regional hydrostratigraphy beneath the ECW site consists of three principal hydrogeologic units:

- **Surficial Aquifer System (SAS):** An unconfined aquifer composed of unconsolidated sands and shell deposits, extending from land surface to approximately 25 feet below land surface (bls).
- **Intermediate Aquifer System (IAS):** A series of interbedded carbonate and clastic units that function as a semi-confining unit between the SAS and the UFA. Monitored by well ECW-IAMW-52 (monitored interval 145 to 250 ft bls).
- **Upper Floridan Aquifer (UFA):** The principal production aquifer, composed of Tertiary-age limestone and dolomite. Production wells are cased to approximately 500 to 580 feet bls with open-hole completions extending to approximately 1,200 to 1,250 feet bls.

2.1.8 Hydrogeologic Evaluation

The planning-level hydrogeologic evaluation reviewed pumpage, groundwater levels, rainfall, and water-quality information. The wellfield has been operated seasonally using well rotation. Available water-level records generally show seasonal response and recovery, with several identified anomalies requiring confirmation. Available TDS, chloride, and sulfate data remain below the cited secondary standards, and the evaluated record does not indicate progressive saltwater intrusion or water-quality degradation.

The evaluation identified anomalies within both the pumpage and groundwater level records. Two production wells each reported a monthly withdrawal substantially exceeding their typical operating range, resulting in corresponding spikes in total wellfield production. Additionally, two monitoring wells exhibited abrupt water level changes that are inconsistent with prevailing rainfall conditions and with measurements recorded at nearby wells. These anomalies are most likely attributable to data entry, reporting, or instrumentation errors. Accordingly, the evaluation recommends that the data be verified with Manatee County Utilities and the SWFWMD prior to final design.

Resolution of the identified data anomalies is not expected to affect the comparative evaluation of the transmission main alignment alternatives, provided that the verified data remain consistent with the underlying assumptions for available well yield, aquifer operating levels, and permitted withdrawal quantities.

2.2 Water Supply and Treatment

The County supplies the Lake Manatee WTP from Lake Manatee, the East County Wellfield, and the IMC-Manatee Wellfield. The Pipeline Resiliency Project focuses on raw-water reliability rather than expansion of finished-water treatment capacity. Planning-level modeling evaluates transmission configurations capable of supporting 26.2 mgd AAD and 31.5 mgd maximum-month wellfield production under normal and outage conditions.

The broader Pipeline Resiliency Project may include up to four additional groundwater production wells, WTP hydraulic modifications, degasifier or bypass improvements, electrical improvements, and instrumentation and SCADA improvements. Final inclusion and sequencing of these components will be evaluated and refined in subsequent design phase.

Figures 2-4 and **2-5** depict the future new additional wells and ASR bypass around degasifier, respectively.

2.3 Operations and Maintenance Considerations

Operations and maintenance considerations were evaluated from the perspective of operational flexibility and emergency repair response. Key factors include the ability to isolate pipeline segments, maintain raw-water conveyance when an existing or proposed segment is unavailable, access the pipeline and appurtenances for inspection or repair, restore service following an outage, and operate under varying well availability and demand conditions.

Alternatives that provide independent conveyance paths around existing segments offer greater operational flexibility during maintenance and emergencies. An alternative that remains dependent on an existing segment may require additional operational planning, temporary supply measures, expedited repair, or future improvements if that segment is unavailable. Final isolation-valve locations, maintenance access points, air-management facilities, blowoffs, tie-ins, and operating procedures will be established during design.

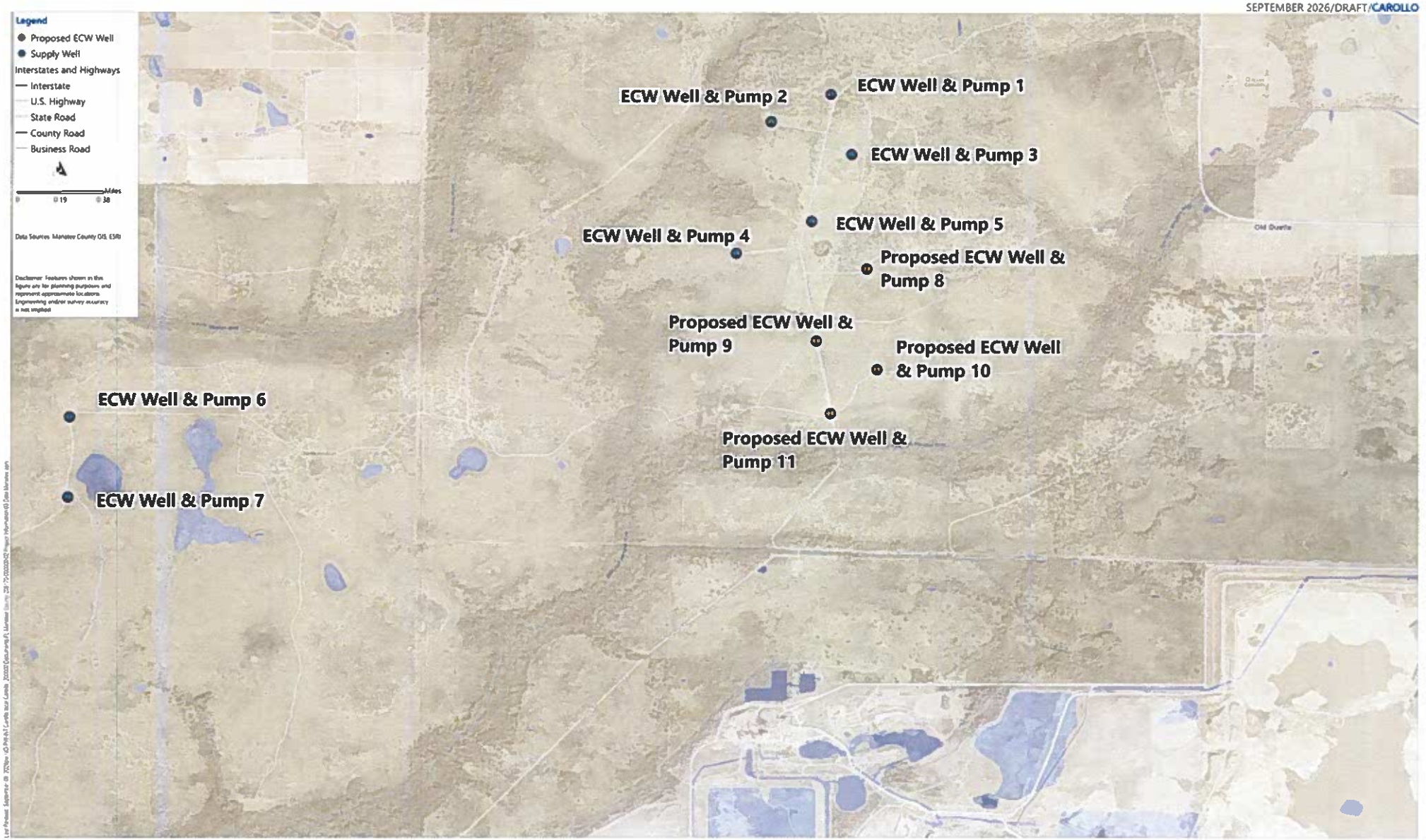

Figure 2-4 FUTURE NEW ADDITIONAL WELLS
MANATEE COUNTY
PIPELINE RESILIENCY STUDY

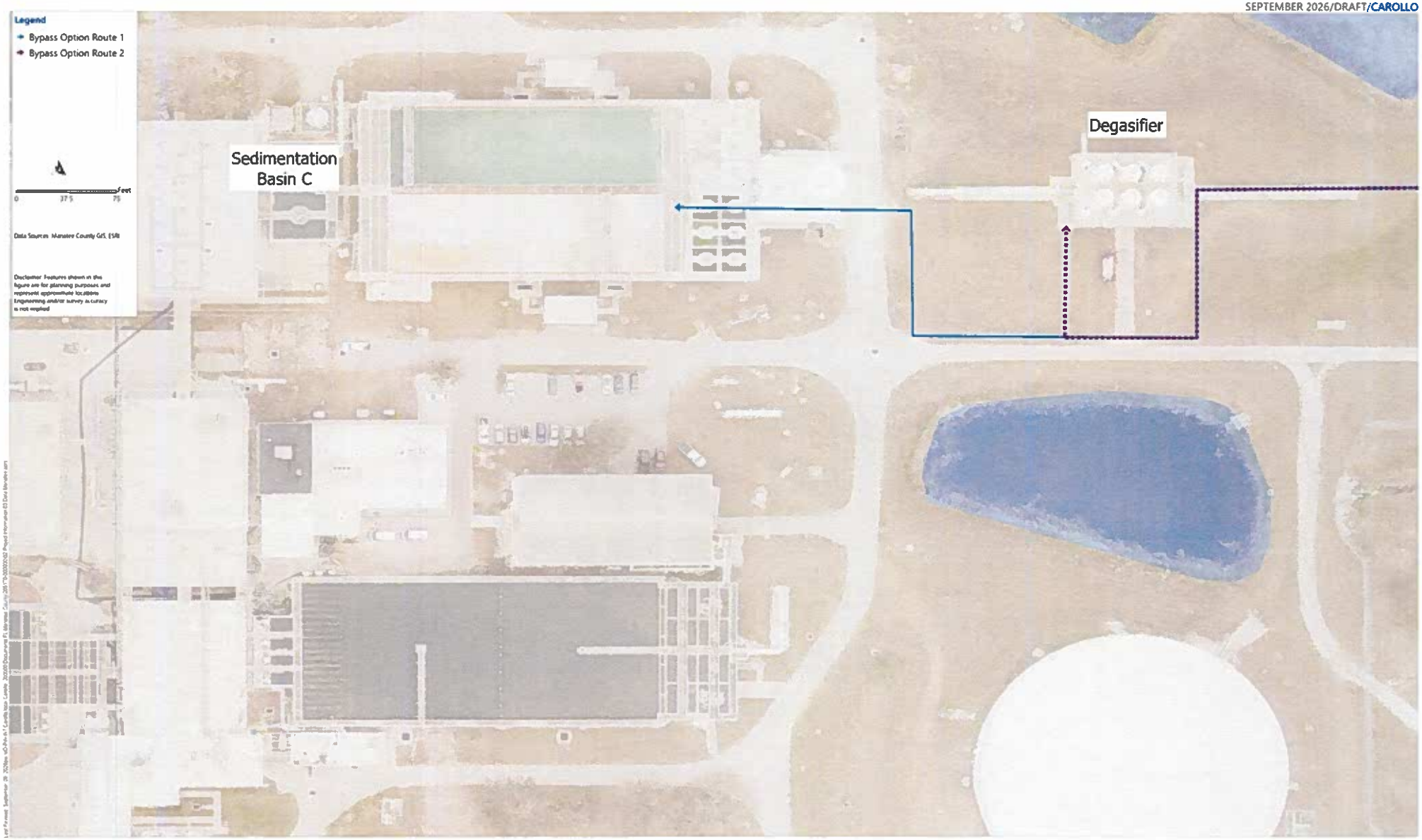

Figure 2-5 PROPOSED ASR BYPASS AROUND DEGASIFIER
MANATEE COUNTY
PIPELINE RESILIENCY STUDY

SECTION 3 DEVELOPMENT OF ALTERNATIVE ALIGNMENTS

3.1 FDEP Alternatives Analysis Requirements

The alternatives analysis evaluates feasible project concepts based on effectiveness, environmental and permitting considerations, hydraulic performance, constructability, operations and maintenance, future flexibility, and planning-level cost. Section 3 develops the alternatives and documents the primary technical findings. Section 4 synthesizes those findings through a weighted non-cost evaluation, a separate Class 5 cost comparison, and selection of the preferred planning alternative.

3.2 Overview of Alternative Alignments

3.2.1 Basis for Development

The need for the Pipeline Resiliency Project was identified based on the County's objective to enhance the reliability of its raw water supply and transmission infrastructure, particularly under extreme weather conditions such as hurricane events. The evaluation focuses on the development of redundancy within the existing system to maintain continuous conveyance of raw water during storm events or conditions that may compromise a portion of the network.

The purpose of this project is not to expand overall system capacity, but to improve resiliency by providing redundant transmission pathways between critical facilities. The proposed improvements will allow Manatee County to sustain raw water delivery during major storm events and maintain operation of at least one transmission main in the event the parallel system is damaged or taken out of service. The alternatives analysis presented in Sections 3 and 4 is limited to the identification and evaluation of three feasible transmission-main alignment alternatives. The broader Pipeline Resiliency Project may include associated wellfield, WTP, degasifier, electrical, instrumentation, and SCADA improvements, as described elsewhere in this Facilities Plan.

The alternatives were developed using the data summarized in Section 2. Route development considered existing raw-water infrastructure, utility corridors, road rights-of-way, environmental resources, conservation lands, wetlands and surface waters, cultural resources, property and access limitations, major roadway and water crossings, planned FDOT improvements, and the County's need for a redundant and operable transmission configuration. Because the planning area contains a limited number of practical conveyance corridors, the alternatives generally use or parallel existing corridors where feasible.

3.2.2 Corridor and Infrastructure Considerations

The alternatives must cross Lake Manatee and several associated waterways and drainage features. Portions of the B-C corridor parallel the existing raw-water main and PRECO overhead transmission facilities. Design will require coordination for workspace, utility separation, construction access, traffic, trenchless crossings, appurtenance access, and sequencing. Existing easements and access roads provide

advantages in some areas, while Duette Preserve and conservation restrictions create additional considerations in others.

3.2.3 Summary of Alternatives

During the route evaluation, multiple routes and alignments were explored to reduce roadway and environmental impacts. After review, three (3) alignment alternatives for the proposed transmission main were identified, delineated, and presented schematically in **Figure 3-1**. To facilitate the description of each alignment, four key reference locations were established along the corridor, as described in **Table 3-1.**

Table 3-1 Selected 20-year Finished Water Demand Projection

Alternative	Proposed Segments	Approx. Length	Planning Concept
1	A-B and B-C	97,000 ft	Continuous proposed conveyance route from the main ECW area to the WTP; existing D-B remains the connection for ECW Wells 6 and 7.
2	A-D, D-B, and B-C	104,700 ft	Most complete parallel conveyance path around the principal existing segments.
3	A-D and B-C	73,650 ft	Adds redundancy at the wellfield and between B and the WTP while retaining existing A-B as the intermediate link.

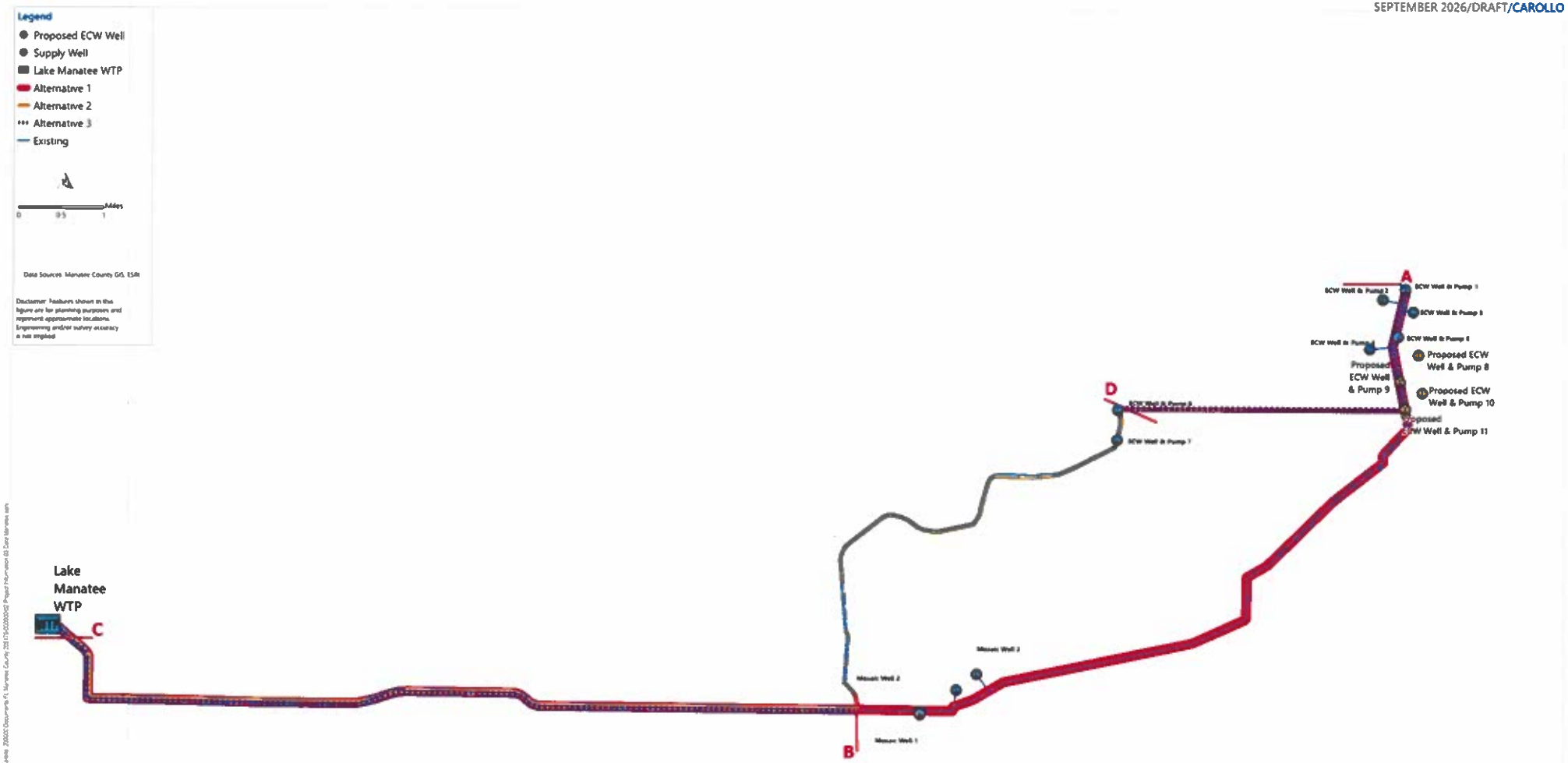

Figure 3-1 CONCEPTUAL DESIGN - PROPOSED ALIGNMENT ALTERNATIVES
MANATEE COUNTY
PIPELINE RESILIENCY STUDY

Alternative 1

Alternative 1 follows the existing transmission corridor from Location A to Location B and continues west to Location C, as shown in **Figure 3-2**. The A-B segment is approximately 48,300 feet and the B-C segment approximately 48,700 feet. The route benefits from established utility access and known site conditions but requires construction along the full corridor and parallel to existing infrastructure.

Major considerations include workspace adjacent to the existing transmission main and PRECO facilities, the Lake Manatee crossing, other waterway crossings, access, construction sequencing, and protection of existing facilities. The Lake Manatee crossing is assumed to use HDD at the planning level. Four additional major waterway crossings require design-specific structural, hydraulic, environmental, and constructability evaluation.

Alternative 2

Alternative 2 includes A-D, D-B, and B-C segments. The route initially follows the existing corridor, then traverses a portion of Duette Preserve toward Location D, continues along the D-B corridor, and follows the common B-C route to the WTP. The total new pipeline length is approximately 104,700 feet. The alternative 2 alignment is shown in **Figure 3-3**.

Record drawings depicting the existing waterway crossings are included in **Appendix H** and provide additional information regarding the existing transmission main crossing configurations.

Alternative 3

Alternative 3 consists of a new A-D segment and a new B-C segment. The A-D segment is approximately 24,950 feet and connects the northern and southern portions of the wellfield. The B-C segment is approximately 48,700 feet and provides a parallel connection from the wellfield transmission system to the Lake Manatee WTP. The alternative retains the existing A-B segment as the intermediate conveyance link.

Alternative 3 has the least new pipeline length, lowest mapped wetland and surface-water impact, and lowest Class 5 pipeline cost. It remains dependent on the existing A-B segment, which is the controlling hydraulic limitation for an A-B outage. The selected planning configuration uses a 36-inch A-D segment and 42-inch B-C segment, subject to final design confirmation.

The alternative 3 alignment is shown in **Figure 3-4**.

Figure 3-2 PROPOSED ALIGNMENT ALTERNATIVE 1
MANATEE COUNTY
PIPELINE RESILIENCY STUDY

Figure 3-3 PROPOSED ALIGNMENT ALTERNATIVE 2
MANATEE COUNTY
PIPELINE RESILIENCY STUDY

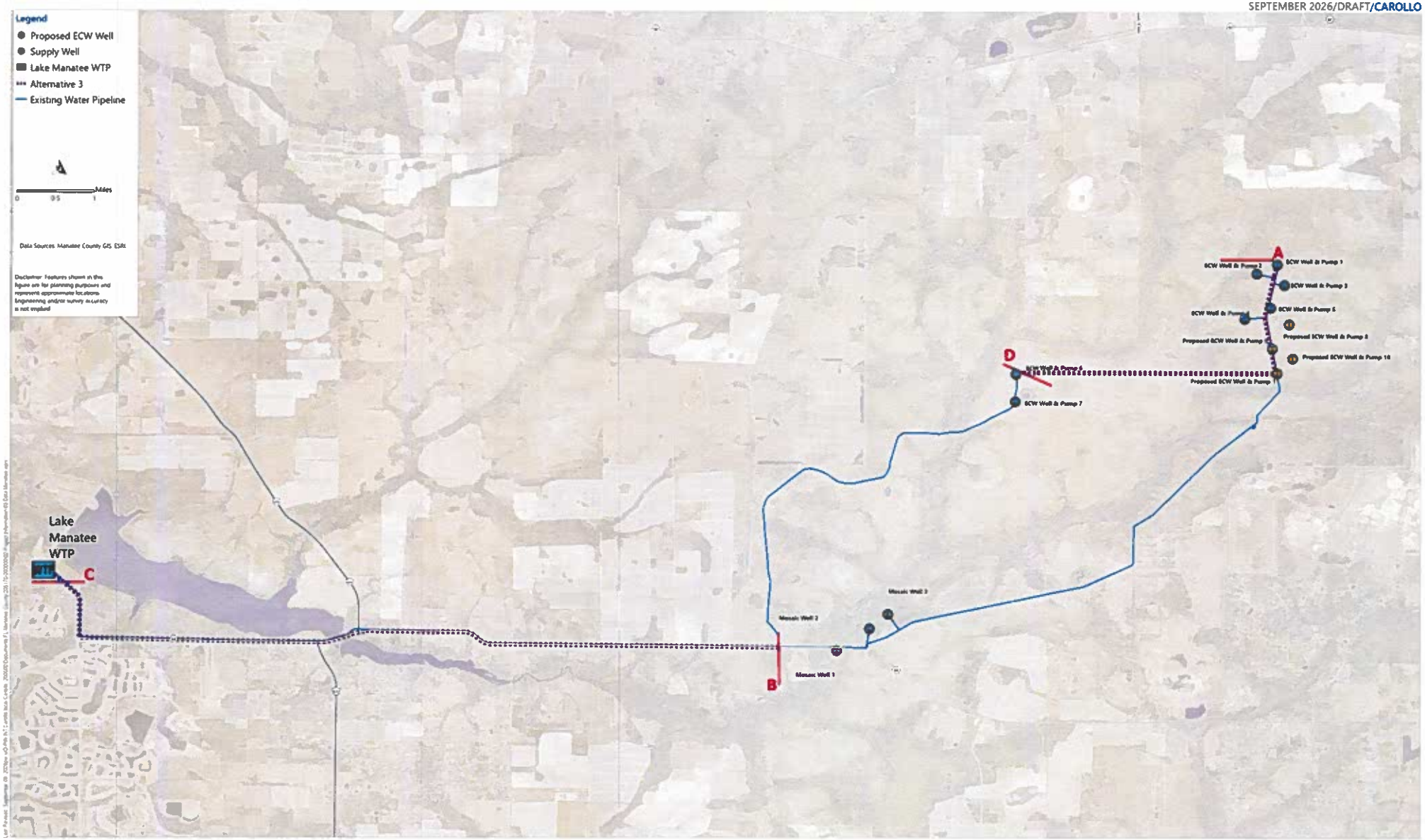

Figure 3-4 PROPOSED ALIGNMENT ALTERNATIVE 3
MANATEE COUNTY
PIPELINE RESILIENCY STUDY

3.3 Hydrogeologic and Environmental Constraints

3.3.1 Hydrogeologic Constraints

The hydrogeologic evaluation does not directly differentiate the alignments but informs future well operation, pump selection, and WUP coordination. Environmental conditions provide significant differentiation. Alternative 2 has the greatest mapped wetland and surface-water impact and a unique conservation-easement constraint. Alternative 1 has intermediate mapped wetland impact. Alternative 3 has the lowest mapped wetland and surface-water acreage and substantially less potential permanent forested/shrub wetland conversion.

Refer to Appendix G for a full planning-level hydrogeologic evaluation prepared by WSP.

3.4 Hydraulic Modeling and System Capacity

Planning-level hydraulic modeling evaluated the capacity and resiliency of the existing ECW raw-water transmission system and three proposed alignments. The evaluation uses an AAD production requirement of 26.2 mgd and maximum-month production requirement of 31.5 mgd. Model assumptions include a Hazen-Williams C-factor of 130, available well pump curves, assumed aquifer levels, representative proposed future wells, Mosaic Well availability, a separate proposed-main WTP entry, and SCADA-informed operating conditions. These assumptions are suitable for comparative planning and require refinement during detailed design.

3.4.1 Hydraulic model basis and assumptions

The following assumptions were used for the planning-level calculations:

- A Hazen-Williams C-factor of 130 was used for the transmission mains.
- Existing wells were modeled using their respective factory pump curves.
- »Proposed future ECW Wells 8 through 11 were represented using available existing ECW pump-curve information until final future-well pump selections are established.
- ECW Wells 1 through 7 and the proposed future wells were assumed to pump from an aquifer water level of approximately -10 ft NGVD for the evaluated condition.
- Proposed ECW Wells 8-11 were assumed to pump from an aquifer water level of approximately -25 ft NGVD.
- Mosaic Well 3 was assumed to remain available for operation, while Mosaic Wells 1 and 2 were generally modeled out of service.
- Well operating combinations were varied by scenario so that the modeled pumps remained on their respective pump curves while determining the maximum conveyable system flow.
- The proposed raw water main was assumed to have a separate entry to the WTP degasifier rather than manifold into the existing transmission main immediately upstream of the degasifier.
- Historical SCADA flow and pressure data were used to inform model development. Field pressure logging was identified to verify ECW transmission-main pressures because some reported SCADA pressures appeared lower than expected.

These assumptions are appropriate for the current planning-level comparison of alternatives and are expected to be refined as field pressure data, final groundwater operating levels, future well pump selections, and WTP connection details are confirmed. Accordingly, the modeled capacities should be used to compare alternatives and identify controlling conditions rather than as final design capacities.

3.4.2 Hydraulic Criteria

Pipeline sizing was screened using conveyance capacity, velocity, and headloss. The preferred planning velocity range is approximately 3 to 5 ft/s. Lower velocities can increase deposition potential, while higher velocities increase friction loss, energy, wear, and surge potential. The analysis compares diameter combinations under normal operation and outages of the existing A-B, D-B, and B-C segments.

3.4.3 Hydraulic Performance

The hydraulic evaluation demonstrated that both pipeline alignment and pipeline diameter influence the ability of the system to meet the project resiliency objectives. Planning-level modeling was completed to evaluate multiple pipeline diameter combinations for each alternative under normal operating conditions and representative outage scenarios. The evaluation focused on the ability of each alternative to satisfy the 26.2 mgd AAD criterion and the 31.5 mgd PMM criterion while providing redundancy within the raw water transmission system (per WUP Modification). The evaluated alternatives differed not only in pipeline diameter but also in the degree of conveyance redundancy provided by the respective alignment configurations (**Table 3-2**).

Table 3-2 Summary of the Pipeline Segments for Each Alternative and the corresponding Planning-Level Resiliency

Alternative	Approx. Length	Diameter Findings	Planning-Level Result
1	Segment A-B: 48,300 ft Segment B-C: 48,700 ft	42/42 and 42/48 meet the 31.5 mgd MM criterion in all modeled cases.	Continuous conveyance route from ECW Pumps 1-7 to the WTP. The existing D-B branch remains the only connection for ECW Wells 6 and 7.
2	Segment A-D: 24,950 ft Segment D-B: 31,050 ft Segment B-C: 48,700 ft	42/36/48 and 42/42/42 meet or exceed 31.5 mgd in all modeled cases.	Most complete parallel conveyance path by extending the proposed system through the northern/eastern ECW branch and continuing to the WTP.
3	Segment A-D: 24,950 ft Segment B-C: 48,700 ft	Several combinations exceed 31.5 mgd under normal conditions, but none meet 26.2 mgd during A-B outage.	Adds redundancy at the northern/eastern ECW branch and between B and the WTP, while retaining the existing A-B segment as the intermediate conveyance link.

Alternative 1 provides a continuous parallel transmission route between the ECW and the LMWTP. The hydraulic results demonstrate that system capacity increases as proposed pipeline diameters increase, with the larger diameter combinations providing the highest conveyance capacity. Under the evaluated outage conditions, Alternative 1 maintained sufficient hydraulic performance to satisfy the 31.5 mgd MM criterion for the larger diameter configurations. Because the proposed alignment provides a continuous parallel conveyance route between Locations A, B, and C, the alternative provides a high degree of

redundancy and resiliency while maintaining hydraulic performance during the modeled outage scenarios (**Figure 3-5**).

Alternative 2 provides the greatest hydraulic redundancy of the alternatives evaluated because the proposed alignment creates an independent conveyance path around each principal existing transmission segment. The hydraulic results demonstrate that Alternative 2 consistently achieved the highest system capacities under both normal operating conditions and modeled outage scenarios. Multiple pipeline diameter combinations satisfied the 31.5 mgd MM criterion, demonstrating the resiliency benefits associated with providing redundancy throughout the ECW transmission system. Because Alternative 2 provides conveyance redundancy around the primary transmission corridors, it exhibited the strongest hydraulic performance and outage resiliency of the alternatives evaluated (**Figure 3-6**).

Alternative 3 provides redundancy between the northern and southern portions of the ECW and between the transmission system and the LMWTP. Under normal operating conditions, Alternative 3 demonstrated the ability to achieve the 31.5 mgd MM criterion for several evaluated diameter combinations. However, because Alternative 3 remains dependent on the existing A-B segment, the modeled A-B outage condition limits available conveyance capacity. As a result, none of the evaluated diameter combinations achieved the 26.2 mgd AAD criterion during the A-B outage scenario. Despite this limitation, Alternative 3 still provides redundancy improvements relative to the existing system and improves operational flexibility through the addition of the A-D and B-C transmission segments (**Figure 3-7**).

The hydraulic evaluation demonstrates that Alternative 2 provides the highest degree of system redundancy and outage resiliency by providing an independent conveyance path around each principal transmission segment. Alternative 1 provides strong hydraulic performance through a continuous parallel conveyance route between the ECW and the LMWTP. Alternative 3 improves redundancy within the ECW transmission system but remains dependent on the existing A-B segment during certain outage conditions. Final pipe diameters, operating criteria, and system configuration will be confirmed during future design using updated field data, refined hydraulic analyses, transient evaluation, and confirmed operating requirements.

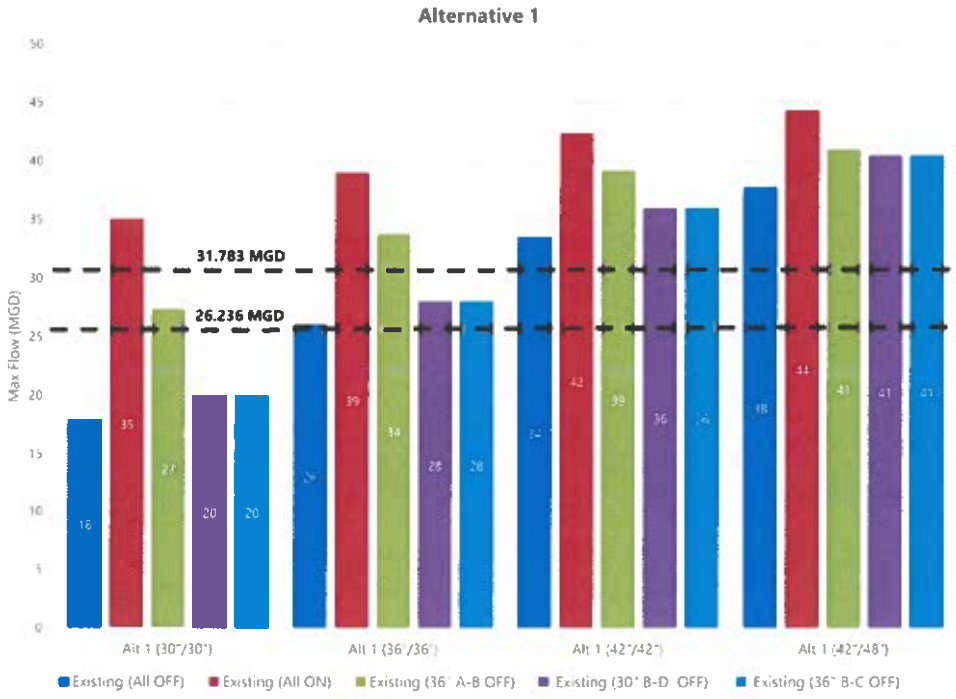

Figure 3-5 Hydraulic Results for Alternative 1

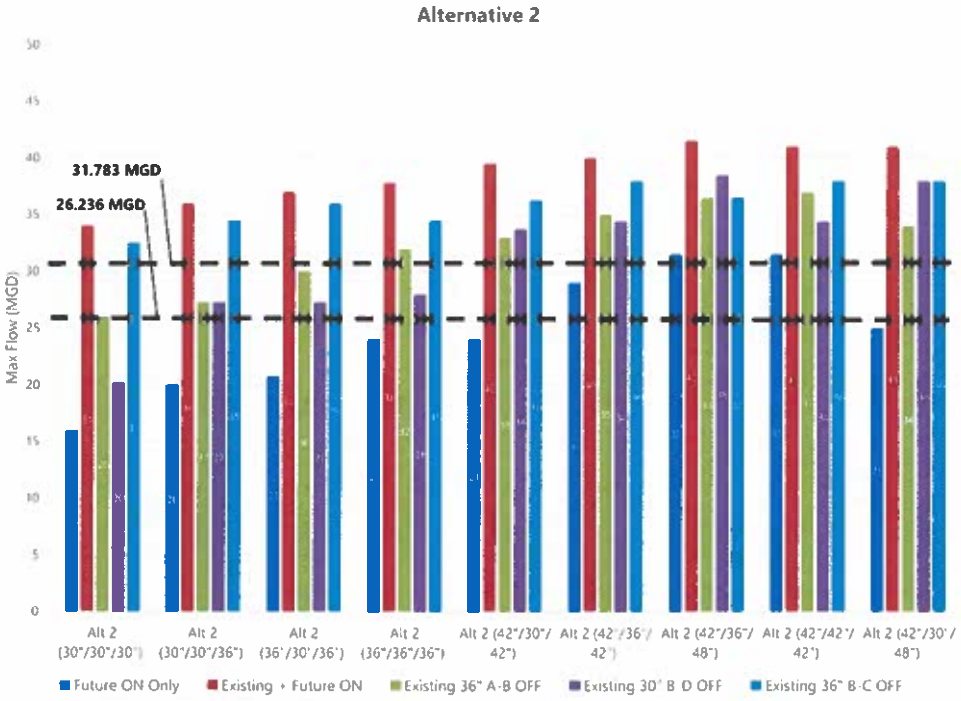

Figure 3-6 Hydraulic Results for Alternative 2

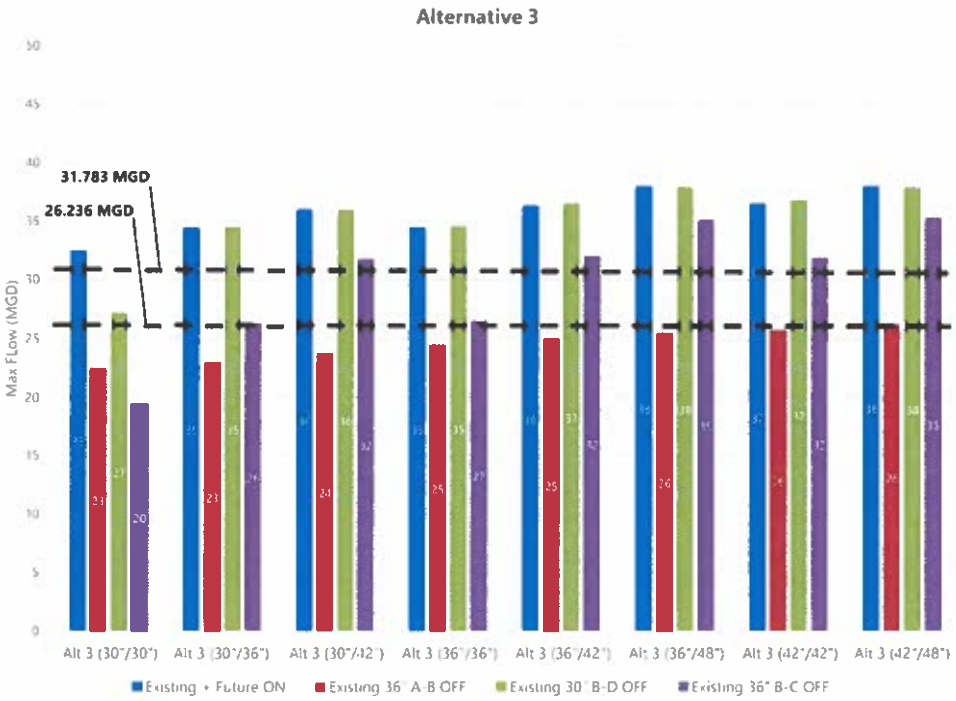

Figure 3-7 Hydraulic Results for Alternative 3

SECTION 4 ANALYSIS OF ALTERNATIVE ALIGNMENTS

4.1 Evaluation Methodology

The alternatives evaluation identifies the alternative that best balances the County's planning objectives rather than the alternative with the highest performance in a single category. The evaluation included a non-cost assessment, a planning-level cost evaluation, and a combined cost and non-cost evaluation to identify the recommended planning alternative. The non-cost assessment considered reliability and resiliency, hydraulic performance, environmental and permitting considerations, constructability and implementation risk, operations and maintenance, and future expandability and flexibility. Planning-level capital costs were evaluated separately and incorporated into the final combined evaluation to support selection of the preferred planning alternative.

4.2 Non-Cost Criteria Evaluation

Information developed in Sections 1 through 3 was synthesized using six non-cost criteria (**Table 4-1**). Cost was evaluated separately due to the nature of the Class 5 estimates which are intended to indicate relative cost rather than establish final construction cost.

Table 4-1 Non-Cost Evaluation Weighting Criteria

Criterion	Weight	Evaluation Basis
Reliability & Resiliency	25%	Hydraulic independence, service continuity, outage performance, and system recovery
Hydraulic Performance	25%	Capacity relative to AAD/MM criteria, velocity, headloss, and controlling outage
Environmental & Permitting	15%	Wetlands, surface waters, species, conservation lands, cultural resources, and permitting complexity
Constructability & Implementation Risk	15%	Length, access, crossings, utility coordination, workspace, property, and schedule risk
Operations & Maintenance	10%	Operational flexibility, isolation, emergency repair response, access, and restoration
Future Expandability & Flexibility	10%	Ability to support future wellfield conditions and design refinement
TOTAL	100%	

Each alternative was assigned an integer raw score from 1 to 10. A score of 10 represents the most favorable relative performance, 5 represents a condition that generally meets the planning objective but is not preferred, and 1 represents the least favorable relative performance. Raw scores are multiplied by the criterion weight to calculate weighted scores. Refer to **Table 4-2** for non-cost criteria weighted results for each alternative.

Table 4-2 Non-Cost Evaluation Weighting Criteria

Evaluation Criterion	Weight	Alt. 1 Raw	Alt. 1 Weighted	Alt. 2 Raw	Alt. 2 Weighted	Alt. 3 Raw	Alt. 3 Weighted
Reliability & Resiliency	25%	9	2.25	10	2.50	6	1.50
Hydraulic Performance	25%	9	2.25	10	2.50	6	1.50
Environmental & Permitting	15%	7	1.05	3	0.45	10	1.50
Constructability & Implementation Risk	15%	7	1.05	4	0.60	8	1.20
Operations & Maintenance	10%	8	0.80	9	0.90	6	0.60
Future Expandability & Flexibility	10%	8	0.80	9	0.90	7	0.70
TOTAL	100%	---	8.20	---	7.85	---	7.00

4.3 Cost Criteria Evaluation

Planning-level capital cost estimates were developed for each alternative using route-specific pipeline lengths, planning-level unit costs, alternative-specific allowances, and design and construction contingencies. The estimates use unit costs of $450 per linear foot for 36-inch ductile iron pipe and $625 per linear foot for 42-inch ductile iron pipe. Additional allowances were included, as applicable, for major waterway crossings, valves and appurtenances, tie-ins, utility coordination, access and restoration, environmental mitigation, engineering and design development, construction contingency, and construction management.

The estimates are intended for relative planning and budgeting comparison and do not represent final design-level construction costs. Detailed planning-level cost estimates for Alternatives 1, 2, and 3 are included in **Appendix I**, respectively. The resulting capital cost comparison was summarized in **Table 4-3**.

Table 4-3 Capital Cost Summary

Cost Component	Alternative 1	Alternative 2	Alternative 3
Bid-Based Pipeline Construction	$52,172,500	$55,637,500	$41,665,000
Alternative Specific Allowance	$7,000,000	$7,000,000	$6,500,000
Design and Construction Contingency	$16,520,000	$19,050,000	$12,880,000
Total Capital Cost	$75,692,500	$81,687,500	$61,045,000
Relative Capital Cost Rank	2	3	1

Alternative 3 has the lowest planning-level capital cost because it requires the least new pipeline length and retains the existing A-B segment as the intermediate conveyance link. Alternative 2 has the highest

planning-level capital cost due to its longer proposed pipeline alignment and higher environmental, access, and implementation allowances. Alternative 1 has an intermediate planning-level capital cost.

A 20-year net present value analysis was also completed to provide a consistent life-cycle cost comparison among the alternatives. The analysis considers initial capital cost, the present value of annual maintenance costs, and the present value of the remaining asset value at the end of the 20-year evaluation period. The NPV analysis uses a 3.0 percent discount rate and assumes a 75-year useful life for the transmission main facilities. At the end of the 20-year evaluation period, 55 years, or approximately 73.3 percent, of the assumed useful life remains.

Annual maintenance costs were estimated at $125,000 for Alternative 1, $175,000 for Alternative 2, and $75,000 for Alternative 3. The uniform-series present-worth factor, P/A, is 14.8775, and the single-payment present-worth factor, P/F, is 0.5537. Total net present cost was calculated as initial capital cost plus the present value of annual maintenance costs, less the present value of the residual asset value. The NPV results are summarized in **Table 4-4**.

Table 4-4 20-Year Net Present Value Summary

Economic Component	Alternative 1	Alternative 2	Alternative 3
Capital Cost	$75,692,500	$81,687,500	$61,045,000
Annual Maintenance	$125,000	$175,000	$75,000
Present Value of Maintenance	$1,859,684	$2,603,558	$1,115,811
Present Value of Residual Asset Value	($30,733,341)	($33,167,485)	($24,786,033)
Total Net Present Cost	$46,818,843	$51,123,573	$37,374,777
Relative NPV Rank	2	3	1

Alternative 3 has the lowest total net present cost and ranks first in the NPV comparison. The NPV ranking is consistent with the capital cost ranking and does not change the relative cost position of the alternatives.

The planning-level estimates should be refined during future design phases based on refinement to project specific requirements. Funding eligibility will be confirmed with FDEP.

4.4 Combined Cost and Non-Cost Evaluation

The alternatives evaluation included both a non-cost technical assessment and a planning-level cost comparison. The non-cost evaluation considered reliability and resiliency, hydraulic performance, environmental and permitting considerations, constructability and implementation risk, operations and maintenance, and future expandability and flexibility. A separate evaluation of planning-level capital cost was then completed to determine the overall planning value of each alternative. The combined evaluation results are summarized in **Table 4-5**.

Table 4-5 Combined Cost and Non-Cost Evaluation

Evaluation Component	Weight	Alternative 1	Alternative 2	Alternative 3
Non-Cost Evaluation Score	60%	8.2	7.85	7.00
Cost Score (Relative Planning-Level Cost Competitiveness)	40%	8.0	7.0	10.0
Non-Cost Weighted Score	--	4.92	4.71	4.20
Cost Weighted Score	--	3.20	2.80	4.00
Final Combined Score	100%	8.12	7.51	8.20
Overall Ranking	--	2	3	1

The combined cost and non-cost evaluation indicates that Alternative 3 achieved the highest overall score and ranked first among the evaluated alternatives. Alternative 1 ranked second, driven by its strong technical performance, while Alternative 2 ranked third due to higher planning-level costs and implementation challenges.

4.5 Key Alternative Strengths and Considerations

All three alternatives provide necessary improvements, but each has distinct strengths and planning considerations. The key strengths and planning considerations associated with each alternative were summarized in **Table 4-6**.

Table 4-6 Key Alternative Strengths and Considerations

Alternative	Key Strengths	Key Considerations
1	Strong hydraulic performance; continuous proposed A-B and B-C route; can satisfy the MM requirement in all modeled outage cases with sufficiently large segments.	Greater new pipeline length and cost than Alternative 3; intermediate mapped wetland impact; corridor and crossing complexity along the full route.
2	Strongest modeled hydraulic redundancy; parallel path around each principal existing segment; greatest operational flexibility during modeled outages.	Highest pipeline cost; greatest mapped wetland impact; conservation-easement and gopher tortoise recipient-site constraint; elevated permitting and implementation risk.
3	Lowest pipeline cost; least new pipeline length; lowest mapped wetland and surface-water impact; favorable implementation and planning flexibility.	Dependent on existing A-B; modeled A-B outage capacity below AAD; preliminary 36-inch A-D and 42-inch B-C diameters require final confirmation.

Alternative 1 and Alternative 2 provide stronger hydraulic outage performance. Alternative 3 provides the most favorable combination of pipeline cost, mapped environmental impact, reduced new pipeline length, and planning flexibility.

4.6 Recommended Planning Alternative

4.6.1 Evaluation Results

The non-cost evaluation indicated that Alternatives 1 and 2 provided greater hydraulic redundancy and outage resiliency than Alternative 3. Alternative 2 achieved the highest hydraulic evaluation score, while Alternative 1 achieved similar hydraulic performance with fewer environmental and implementation constraints. The evaluation also identified differences in environmental impacts, permitting complexity, constructability, and planning-level capital cost. Alternative 2 had the greatest estimated wetland impacts, the highest permitting complexity, and the highest planning-level capital and net present costs. Alternative 1 had lower environmental and implementation impacts than Alternative 2 but remained higher in both capital and net present cost than Alternative 3. Alternative 1 had lower environmental and implementation impacts than Alternative 2 but remained higher in cost than Alternative 3.

Alternative 3 had the lowest planning-level capital cost, the lowest 20-year net present cost, the shortest length of new transmission main, and the lowest mapped wetland and surface-water impacts. Alternative 3 also remains dependent on the existing A-B transmission segment, resulting in lower hydraulic redundancy than Alternatives 1 and 2. When cost and non-cost considerations were evaluated together, Alternative 3 achieved the highest combined evaluation score. Based on the combined evaluation results, Alternative 3 was selected as the preferred planning alternative for advancement into future design and implementation.

4.6.2 Basis for Selection

Based on combined consideration of technical performance, environmental findings, constructability and implementation, operations and maintenance, future flexibility, planning-level capital cost, 20-year net present cost, and County planning direction, Alternative 3 is recommended as the preferred planning alternative. (**Figure 4-1**).

Figure 4-1 PROPOSED SELECTED ALTERNATIVE 3 (36-INCH A-D AND 42-INCH B-C)
MANATEE COUNTY
PIPELINE RESILIENCY STUDY

The recommendation transparently recognizes that Alternatives 1 and 2 provide stronger modeled outage performance, while Alternative 3 provides a favorable overall planning and budgeting approach.

For planning and budgeting, Alternative 3 consists of an approximately 24,950-foot, 36-inch A-D segment and an approximately 48,700-foot, 42-inch B-C segment. Final diameters and connection details will be confirmed during future design based on refined hydraulic analyses, updated design criteria, verified groundwater levels, confirmed well availability, WTP boundary conditions, transient analyses, constructability, permitting, and operational requirements.

Alternative 3 provides meaningful resiliency improvements but does not provide complete hydraulic independence from the existing transmission system. The proposed A-D segment provides an additional connection between the northern and southern portions of the ECW, and the proposed B-C segment provides a parallel transmission path to the WTP. However, the configuration continues to use the existing A-B and D-B segments.

The planning-level hydraulic analysis identifies the existing A-B segment as the controlling outage dependency. Under the modeled A-B outage condition, none of the evaluated Alternative 3 diameter combinations achieved the 26.236-mgd AAD criterion. Alternative 3 was nevertheless selected as the preferred planning alternative because its lower cost, shorter length, reduced mapped environmental impacts, and lower implementation risk produced the highest combined cost and non-cost evaluation score.

Selection of Alternative 3 represents a planning and budgeting decision rather than a conclusion that the alternative provides the same hydraulic independence as Alternatives 1 and 2. Future design shall establish the County's minimum acceptable service level for an A-B outage and evaluate well availability, available flow, WTP operation, isolation and maintenance requirements, emergency repair procedures, temporary supply measures, recovery actions, and potential future improvements. If the County's required outage performance cannot be achieved through operational measures, subsequent phases may include additional transmission improvements to reduce or eliminate the A-B dependency.

4.6.3 Potential Project Phasing

The planning-level cost estimates indicate that implementation of the selected alternative may require phased delivery to align project expenditures with available funding and future system needs. Potential project phasing strategies are summarized below.

- **Phase 1 – Core Resiliency Improvements**

Phase 1 would focus on the transmission infrastructure improvements that provide the greatest resiliency benefits and support increased raw water conveyance capacity between the ECW and the Lake Manatee WTP.

Potential Phase 1 improvements include:

- Construction of priority transmission main segments associated with the selected planning alternative.
- Improvements to transmission capacity between the Mosaic wells and the Lake Manatee WTP.
- Evaluation and potential construction of an interconnection between ECW Wells 1 through 5 and ECW Wells 6 and 7 within the ECW.

- **Phase 2 – Supply and Operational Improvements**

Phase 2 would focus on increasing raw water supply availability and improving operational flexibility within the existing treatment system.

Potential Phase 2 improvements include:

» Construction of two additional groundwater production wells.
» Construction of ASR bypass piping around the existing degasifiers.
» Construction of additional transmission infrastructure as warranted based on system demands, operational needs, and available funding.

- **Phase 3 – Long-Term Redundancy Improvements**

Phase 3 would focus on future water supply expansion and completion of additional system resiliency improvements.

Potential Phase 3 improvements include:

» Construction of two additional groundwater production wells.
» Completion of remaining transmission system redundancy improvements identified through future planning, design, and operational evaluations.

The final project phasing strategy will be refined during subsequent planning and design phases based on funding availability, regulatory requirements, operational priorities, hydraulic evaluation results, and future water demand projections.

SECTION 5 SELECTED ALTERNATIVE

Alternative 3 was selected for Facilities Plan development, planning, and budgeting. The selected concept includes the A-D wellfield connection and the B-C transmission segment to the Lake Manatee WTP. The preliminary configuration uses a 36-inch A-D segment and a 42-inch B-C segment. The selection establishes a planning basis and does not represent final design approval of materials, profiles, appurtenances, or connection details.

5.1 Description of the Proposed Project

The selected planning alternative includes approximately 24,950 feet of new 36-inch raw-water transmission main between Locations A and D and approximately 48,700 feet of new 42-inch raw-water transmission main between Locations B and C. The A-D segment connects the northern and southern portions of the East County Wellfield. The B-C segment provides a parallel connection between the wellfield transmission system and the Lake Manatee WTP. The selected concept operates with the existing A-B and D-B segments.

Planning-level components include tie-ins, isolation valves, air-release and vacuum-valve assemblies, blowoffs, access facilities, major roadway and water crossings, WTP connection modifications, and other appurtenances required for reliable operation. Final design will confirm the relationship between the selected transmission improvements and proposed wellfield, treatment, electrical, instrumentation, and SCADA improvements included in the broader project.

Refer to **Figure 5-1** for the selected Alternative 3 proposed tie-ins and major constraints. Refer to **Appendix H** for more detailed information on the major constraints and existing transmission main record drawings.

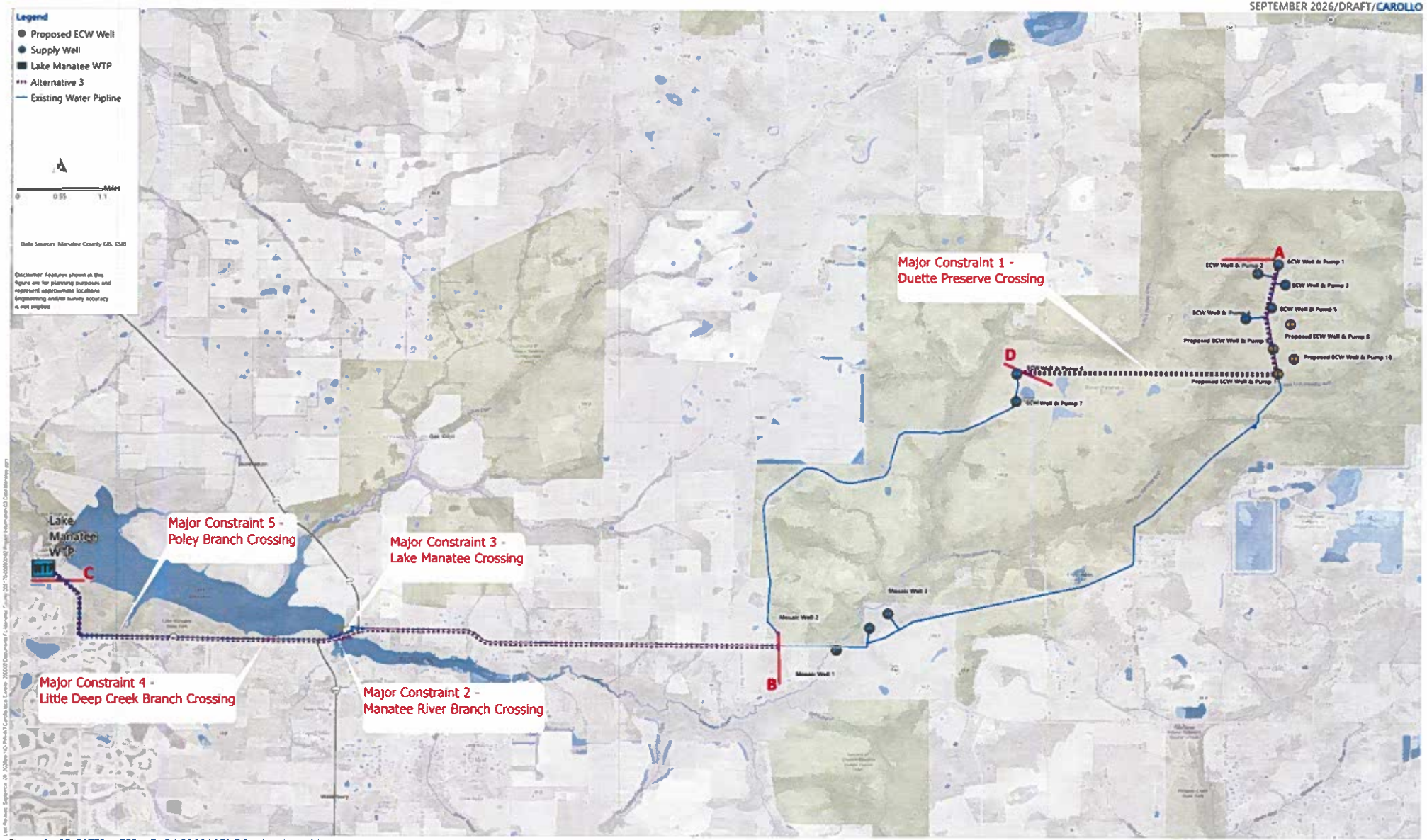

Figure 5-1 SELECTED ALTERNATIVE 3 PROPOSED TIE-INS AND MAJOR CONSTRAINTS
MANATEE COUNTY
PIPELINE RESILIENCY STUDY

5.2 Project Implementation

Implementation will require coordinated survey, route refinement, geotechnical investigation, subsurface utility engineering, environmental field verification, property and easement coordination, permitting, hydraulic and transient modeling, design, procurement, construction, startup, and closeout. Coordination with FDOT and other agencies will be required where the project interfaces with planned roadway work, rights-of-way, regulated resources, and other infrastructure.

The project may be phased to align design, permitting, property acquisition, funding, procurement, and construction. Phasing should maintain County operations, reduce service disruption, and preserve the ability to advance critical wellfield and transmission improvements as information is refined.

5.2.1 Project Schedule

The preliminary funding implementation schedule presented in **Table 5-1** presents the current funding-program target dates. It identifies the milestones for Facilities Plan completion, funding coordination, field investigations, preliminary design, permitting, property acquisition, final design, procurement, construction, startup, and closeout. These dates are preliminary and have not yet been validated through a detailed critical-path method schedule. Achieving the dates depends on timely definition of the funded scope, selection of the project delivery approach, completion of field investigations, resolution of the WTP and degasifier interface, acquisition of necessary property rights, agency coordination, permit reviews, funding authorization, procurement, and construction.

The July 2027 date for design documents, permits, and site acquisition and the December 2031 project-completion date should therefore be treated as target milestones subject to schedule validation. Early schedule development shall identify controlling activities, responsible parties, dependencies, decision dates, float, and required escalation procedures.

Activities that should begin or be defined early because they may control the implementation schedule include confirmation of the SAHM-funded scope and project phasing; definition of the WTP and degasifier project boundary; confirmation of the delivery and procurement approach; survey, SUE, environmental field investigations, and geotechnical investigations; hydraulic criteria and required outage scenarios; property and easement acquisition; FDOT and conservation-land coordination; major-crossing feasibility; permitting coordination; final design; funding approval; procurement; construction; startup; and acceptance.

Table 5-1 Preliminary Funding Implementation Schedule

Schedule Categories	Month and Year
Submit the Planning or SSES documentation	Completed
Submit the design documents, obtain permits, and acquire sites (as necessary)	July 2027
Start activity (such as construction or non-structural best management practice)	January 2028
Complete activity (such as construction or non-structural best management practice)	December 2031

5.2.2 Project Cost and Funding Basis

The planning-level capital cost estimate for the Alternative 3 transmission improvements is $61,045,000. This estimate is based on approximately 24,950 linear feet of 36-inch transmission main along Segment A-D and approximately 48,700 linear feet of 42-inch transmission main along Segment B-C. The estimate includes the pipeline construction and the allowances, contingencies, engineering, and construction-management costs specifically identified in **Appendix I**.

The Alternative 3 estimate is a Class 5 planning-level estimate and is not the total cost of the broader Pipeline Resiliency Project. Unless expressly included in Appendix I, the estimate does not establish the final cost of additional production wells, well equipment, WTP hydraulic modifications, degasifier modifications or bypasses, electrical and SCADA improvements, property and easement acquisition, environmental mitigation, escalation to the midpoint of construction, or other improvements that may be added as the project scope is refined.

The current SAHM funding amount is $35,139,169, including $17,569,584 in principal forgiveness. Compared with the $61,045,000 planning-level estimate for the Alternative 3 transmission improvements, the presently identified funding is approximately $25.9 million less than the planning-level estimate. This comparison does not represent a final funding determination because project scope, eligible costs, phasing, and the total project estimate remain under development.

The County will coordinate with FDEP to confirm which project components and costs are eligible under the current SAHM funding package. Costs exceeding the available SAHM funding may require scope refinement, phased implementation, local funding, additional grant or loan funding, or a combination of funding sources. The Facilities Plan does not represent that funding eligibility or the source of the remaining funds has been finalized.

Cost estimates will be updated through final design as the scope, design criteria, crossing methods, property requirements, environmental mitigation, implementation schedule, and procurement approach are developed. The corresponding 20-year net present cost will be updated after the useful-life and residual-value assumptions are reconciled. These values are planning-level estimates for comparison, budgeting, and funding coordination. Funding eligibility and the relationship between the selected transmission alternative and broader SAHM-funded project components will be coordinated with FDEP and documented before issuance.

5.3 Future Design Confirmation

Items identified for confirmation are assigned to one of three resolution stages. Information needed to support the Facilities Plan conclusions, funding basis, public process, and regulatory submission will be resolved before final Facilities Plan issuance or expressly documented as a remaining planning limitation. County or agency determinations that occur after Facilities Plan submission, including funding eligibility, authorized WUP conditions, minimum acceptable outage service levels, property actions, and agency permit requirements, will be completed by the County with the applicable agency and consultant support before the related design, funding, or construction decision. Design details requiring survey, SUE, field investigation, geotechnical information, agency review, or progressive design development will be completed by the DCP/PDB team during project definition, permitting, or final design.

The project team will complete or expressly document the status of the hydrogeologic anomalies; reconcile alternative cost inclusions and exclusions; correct the net-present-value and residual-value basis; confirm the current funded scope and funding comparison; complete the public-meeting and appendix

references; and finish report-wide terminology, title, address, and clerical QA/QC. These items are not deferred to final design.

Following the Facilities Plan issuance, the County will lead decisions involving the funded scope, funding eligibility, minimum outage service level, emergency operating expectations, property acquisition, and project phasing, with FDEP, SWFWMD, FDOT, land managers, and other agencies providing determinations within their respective authorities. The DCP/PDB team will complete the final alignment, profiles, pipe materials and diameters, survey and SUE, geotechnical investigations, environmental fieldwork, permit applications, major-crossing methods, detailed hydraulic and transient analyses, WTP/degasifier interface, electrical and SCADA integration, construction sequencing, commissioning, and acceptance criteria.

Future design will confirm the alignment and preliminary diameters using updated survey, field investigations, utility and property data, environmental verification, agency coordination, hydraulic criteria, and operating data. The design process should confirm:

- Final A-D and B-C alignments, profiles, materials, and diameters.
- Updated demand, WUP, groundwater-level, well-availability, and WTP boundary conditions.
- Final isolation strategy, emergency operating procedures, maintenance access, and service restoration.
- Tie-ins, appurtenances, air management, blowoffs, and access facilities.
- Water and roadway crossing methods, geotechnical requirements, and construction staging.
- Property, easement, right-of-way, and agency-permit requirements.
- Environmental field surveys, avoidance and minimization, and mitigation.
- Updated cost estimates and schedule as design advances.

5.3.1 Hydraulic and Diameter Confirmation

The future hydraulic evaluation should refine model calibration and confirm performance under representative existing and future conditions. The analysis should evaluate normal operation, individual existing-main outages, future-well availability, operational sequencing, and recovery. Final diameters should be based on capacity, velocity, headloss, pressure, operational flexibility, energy, surge, and future-system requirements.

5.3.2 Surge and Air Management

A detailed transient and air-management evaluation should be completed during design development using the selected pipeline profile, final materials and diameters, confirmed pump conditions, WTP and degasifier boundary conditions, proposed valve locations, and operating sequences. The evaluation should address pump startup and shutdown, power failure, minimum and maximum pressures, column separation, check-valve behavior, air admission and release, individual-main outages, air accumulation at high points and HDD crossings, and the need for operating controls or dedicated surge mitigation.

Transient pressure, column separation, trapped air, and uncontrolled air release are key design risks for the proposed long, large-diameter transmission mains, major elevation changes, pump systems, and HDD crossings. Potential consequences include excessive positive or negative pressure, loss of pipeline

integrity, check-valve slam, pump or valve damage, air locking, reduced conveyance capacity, and difficulty restarting or recovering the system following an outage.

Design development shall include appropriate allowances for air-release and vacuum-valve assemblies, controlled valve operation, check-valve selection, surge-control facilities, instrumentation, emergency power and controls, and other mitigation identified by the transient analysis. Final locations and sizes will be established from the design-phase analysis and confirmed operating requirements.

5.4 Environmental and Regulatory Commitments

During design development, a permitting and approval matrix should be completed to identify the anticipated approval, reviewing agency, supporting information, critical-path dependency, resolution phase, responsible party, and next actions. Agency applicability and review durations should be confirmed through early coordination. In the early part of the design development, the DCP/PDB team should develop permit-supporting information and applications, and each reviewing agency will determine its final requirements and issue the applicable approval.

Environmental review for Alternative 3 should focus on field verification of wetlands and surface waters, protected-species surveys, cultural-resource coordination, conservation-land requirements, contaminated-site considerations, and applicable permits. Desktop evaluation indicates that Alternative 3 has the lowest mapped wetland and surface-water acreage and substantially less potential forested/shrub wetland conversion. Final impacts will depend on surveyed alignment, footprint, construction methods, and field-verified boundaries. The project should prioritize avoidance and minimization. Unavoidable impacts, mitigation, species-protection measures, cultural-resource requirements, and permit conditions will be established through design-phase surveys and agency coordination. Refer to **Figure 5-2** for the selected Alternative 3 environmental commitments.

Based on the preliminary alignment, environmental screening, and initial agency coordination, the anticipated permits are listed below. Additional permits may be required as the design progresses.

- Environmental Resource Permit (FDEP/SWFWMD)
- Section 404 / Section 10 Authorization (USACE)
- Clean Water Act Section 401 Water Quality Certification (FDEP/SWFWMD)
- Endangered Species Act Section 7 Consultation (USFWS)
- Gopher Tortoise Permit and Recipient Site / Conservation Easement Approval (FWC)
- Section 106 Coordination with the State Historic Preservation Officer (USACE/SHPO)
- Water Well Construction Permit (Manatee County Environmental Protection Division)
- Public Drinking Water System Construction Permit (FDEP)
- Generic Permit for the Discharge of Produced Groundwater from Dewatering (FDEP)
- Utility Permit (FDOT)
- NPDES Generic Permit for Stormwater Discharge from Construction Activities (FDEP)

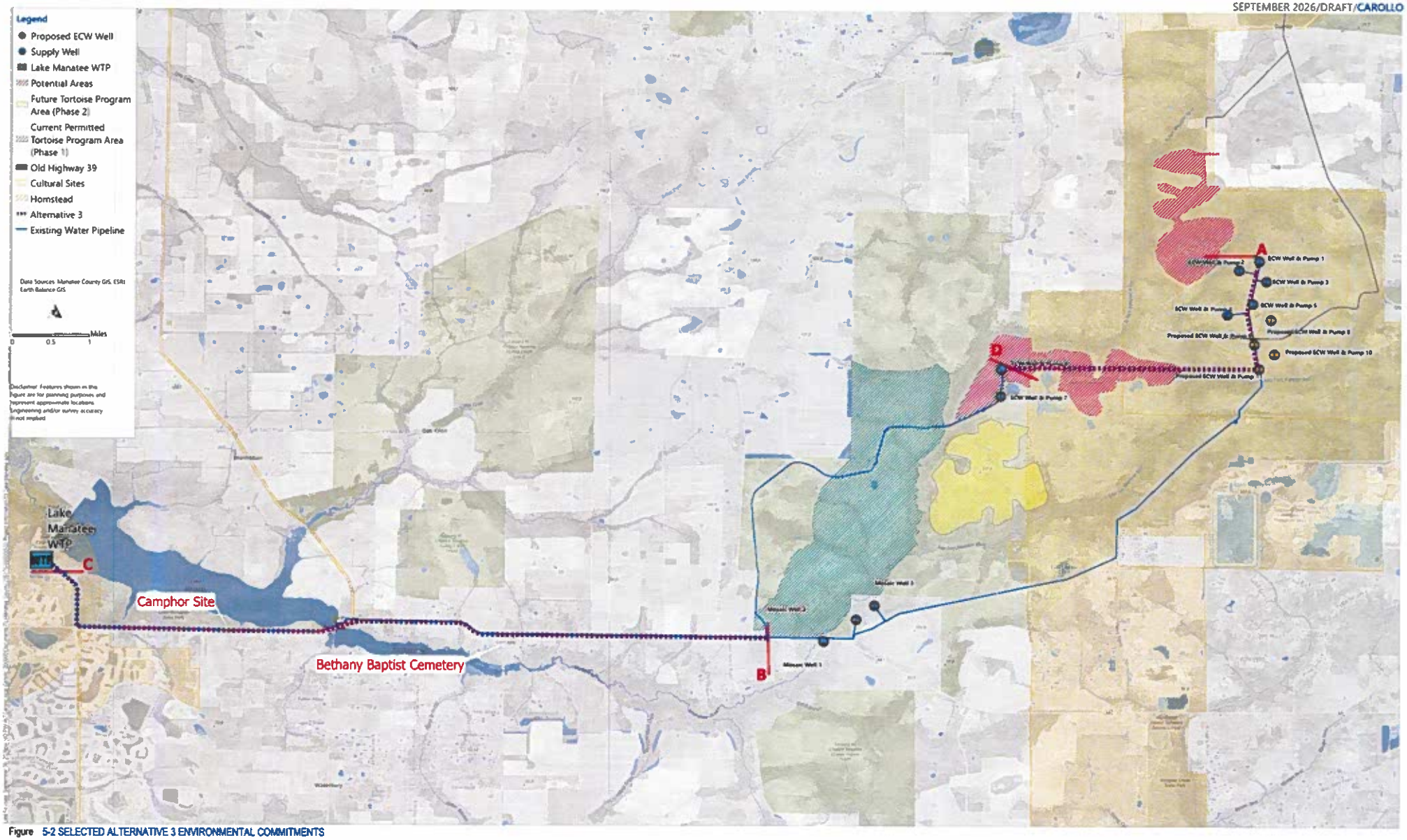

Figure 5-2 SELECTED ALTERNATIVE 3 ENVIRONMENTAL COMMITMENTS
MANATEE COUNTY
PIPELINE RESILIENCY STUDY

SECTION 6 COMPLIANCE

This section summarizes additional aspects of compliance requirements of the selected alternative, including public engagement and regulatory review. It is intended that the project will be executed in a timely manner while maintaining compliance with applicable federal, state and local requirements and the conditions of the SAHM award.

6.1 Public Engagement Meeting

Manatee County hosted a public engagement meeting on September 15, 2026, to present the proposed project and receive public comments. Refer to **Appendix J** for the public notice and **Appendix K** for the public notice meeting minutes.

The Facilities Plan and associated resolution will be presented to the Manatee County Board of County Commissioners for consideration and adoption. The approving resolution will be included in the final designated appendix following adoption.

6.2 Regulatory Agency Review

Implementation of the selected alternative will require review and approval by the applicable regulatory agencies. As part of the SAHM funding process, this Facility Plan will be submitted to FDEP for review to confirm the project's eligibility under the funding program requirements. Future phases of project development, such as design, may require additional agency coordination, permitting, and approvals associated with public water supply facilities, wells, construction, and any other applicable local, state and regulatory requirements.

APPENDIX A

SUPPLEMENTAL APPROPRIATION FOR HURRICANE HELENE AND MILTON (SAHM) REQUEST FOR INCLUSION SUPPORTING DOCUMENTATION DWSRF FUNDS

APPENDIX B

GIS DATA COLLECTION TABLE

APPENDIX C

NRCS SOIL REPORT FOR MANATEE COUNTY

APPENDIX D

ENVIRONMENTAL EVALUATION REPORT

APPENDIX E

FEMA FLOOD MAPS

APPENDIX F

FDOT SR 64 RECORD DRAWINGS

APPENDIX G

PLANNING-LEVEL HYDROLOGICAL EVALUATION REPORT

APPENDIX H

MAJOR CROSSINGS AND TRANSMISSION MAIN RECORD DRAWINGS

APPENDIX I

ALTERNATIVES 1-3 PLANNING-LEVEL CAPITAL COST ESTIMATES

APPENDIX J

PUBLIC NOTICE

APPENDIX K

PUBLIC NOTICE MEETING MINUTES

APPENDIX L

USEFUL LIFE CERTIFICATION

APPENDIX M

COST AND EFFECTIVENESS CERTIFICATION

APPENDIX N

BUISINESS PLAN (NOT INCLUDED)

EXHIBIT 2 TO RESOLUTION NO. R-26-137

Affidavit of Publishing and Public Notice

(2 pages)

MANATEE COUNTY GOVERNMENT

STATE OF FLORIDA

COUNTY OF MANATEE

Before the undersigned authority personally appeared **Quantana Acevedo,** who on oath says that she is a **County Employee of Manatee County Government, Manatee County, Florida**; that the attached copy of advertisement, being a public notice in the matters of **Public Notice of Special Meeting** for **Proposed Manatee County Pipeline Resilience Facility Plan,** in Manatee County Florida, was published on the publicly accessible website of Manatee County Government, Manatee County, Florida, of www.mymanatee.org on **September 1, 2026**.

Affiant further says that the website complies with all legal requirements for publication in Chapter 50, Florida Statutes.

By: Q Acevedo
Quantana Acevedo, Planning and Zoning Tech III

Sworn to and subscribed before me this 1st day of September, 2026, by Quantana Acevedo, who is personally known to me or who has produced (type of identification) as identification.

ABIGAIL RUTH-ELLEN BONDS
Notary Public-State of Florida
Commission # HH 815493
My Commission Expires
July 26, 2030

Abigail Bonds
(Signature of Notary Public)

Abigail Bonds
(Print Name of Notary Public)

Notary Public
(Title)

My Commission Expires: July 26, 2030

Commission Number: HH 815493

PUBLIC NOTICE

Notice is hereby given that the Board of County Commissioners of Manatee County, Florida, will hold a special meeting on September 15, 2026. The meeting is at 6:00 p.m. at 16410 Rangeland Parkway, Bradenton, Florida, for the purpose of considering the approval of the proposed Manatee County Pipeline Resiliency Facility Plan.

This hearing will include a discussion of the Facilities Plan and the financial impact on system users. The hearing is intended to afford the opportunity to individuals to be heard on the economic and social effects of the location, design, and environmental impact of the East County wellfield Pipeline Resiliency Project.

Responsible Entity:	Florida Department of Environmental Protection
Applicant:	Manatee County
Project Title(s):	Pipeline Resiliency Project

Location of Proposed Work: 17915 Water Line Service Road, Bradenton, FL 34212
GPS Coordinates: 27° 29' 16.7892" N82° 21' 41.4252" W

A portion of the funding for this project is anticipated to come from the Florida Department of Environmental Protection (FDEP) Supplemental Appropriations for Hurricanes Helene and Milton and Hawai'i Wildfires (SAHM) program. Financial impacts on utility users will be presented at the hearing. All interested persons are invited to attend and be heard.

COMMENTS: This will serve as both the initial and final public notice regarding the project funded by the FDEP SAHM program. Interested persons may submit comments, questions, or request documents and data relevant to this specific project by writing to Chad Butzow at Manatee County Utilities Administration, 3647 Cortez Road West, Bradenton, FL 34210, or by emailing chad.butzow@mymanatee.org. Comments should be sent in writing or by email with the subject line "FDEP SHAM Pipeline Resiliency Project Facility Plan" at the above address within 14 days of the date of this notice.

SPECIAL REQUIREMENTS: If you require special aid or services as addressed in the American Disabilities Act, please contact the County Clerk's Office at (904) 652-8521, no less than five (5) days prior to the above stated hearing date.

THIS NOTICE MAY BE REMOVED FROM PUBLIC VIEW ON THE 14TH DAY FROM ORIGINAL DATE OF POSTING.

NOTICE WAS POSTED ON THE 1ST DAY OF SEPTEMBER 2026