CITY OF CORAL GABLES

COMPREHENSIVE CITYWIDE SEPTIC TO SEWER CONVERSION PLAN

Informational Community Meeting
Riviera 1 & Riviera 3

ARDURRA + 300 ENGINEERING GROUP, L.L.C.

Agenda

1. Introduction
2. Background
3. Program Overview
4. Proposed Improvements
5. Estimated Costs and Funding
6. Status, Schedule and Resources
7. Comments and Questions

Introduction

300 Engineering Group was contracted by the City of Coral Gables to develop a ***Comprehensive Citywide Septic to Sewer Conversion Assessment Plan***

This assessment plan will help the city begin the planning process to convert existing properties within the city from septic systems to sewer.

PROGRAM TEAM

ARDURRA + 300 ENGINEERING GROUP, L.L.C.

Program Purpose

Current Situation:

- 50% of properties within the City of Coral Gables are not connected to a centralized sewer system and are served by septic systems
- Many existing septic tanks are old, failing, and do not meet current construction standards

City Initiative:

- Planning a public sewer system to serve the entire City
- Eliminate non-point pollution sources

Benefits:

Water Quality Improvement:

- Enhances Miami-Dade watersheds
- Reduces pollutant loading to Biscayne Bay

Environmental Protection:

- Part of a countywide program to safeguard groundwater and natural systems by eliminating septic tanks

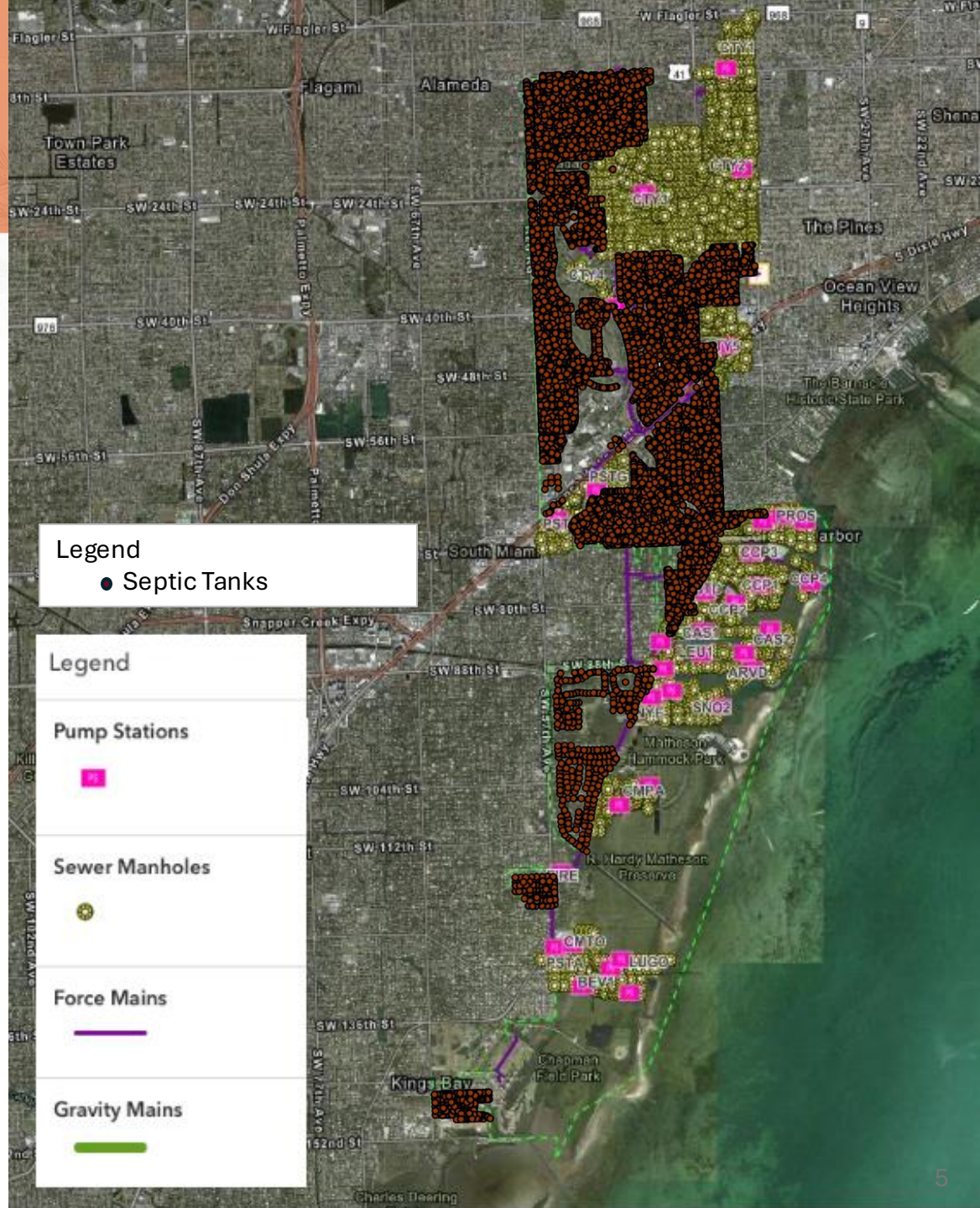
Legislative Requirement:

- Florida House Bill 1379, passed in 2023, requires that certain areas throughout Florida connect to a central sewer or upgrade to an enhanced nutrient-reducing septic tank by ***July 1, 2030.*** *(Currently not applicable to South Florida)*

City of Coral Gables Wastewater Infrastructure

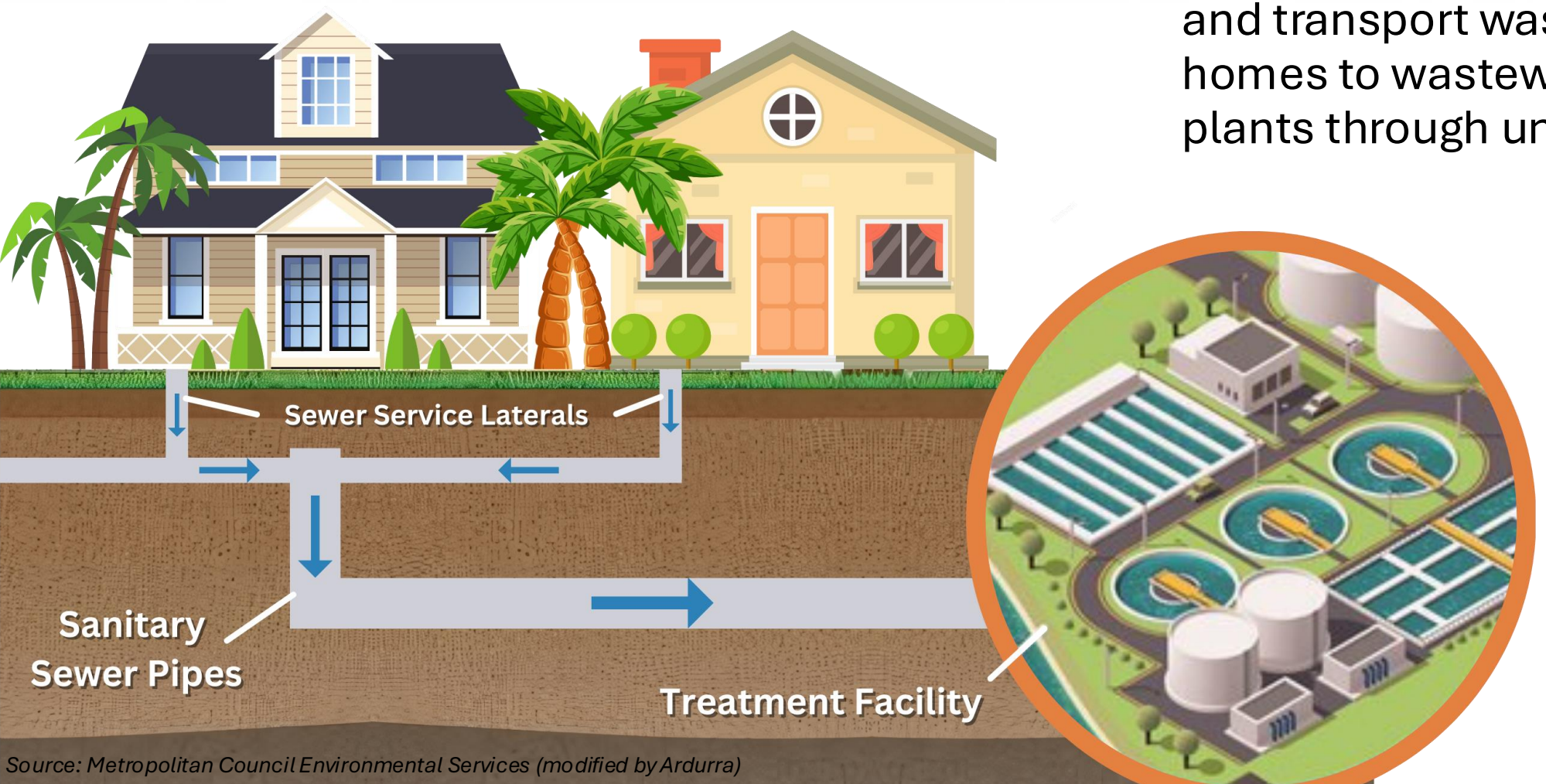
- Existing Wastewater System:
  - 35 pump stations
  - 64 miles of gravity mains
  - 14 miles of force mains
  - Approximately 1,400 manholes

- Existing Septic Tank Systems:
  - Approximately 7,642



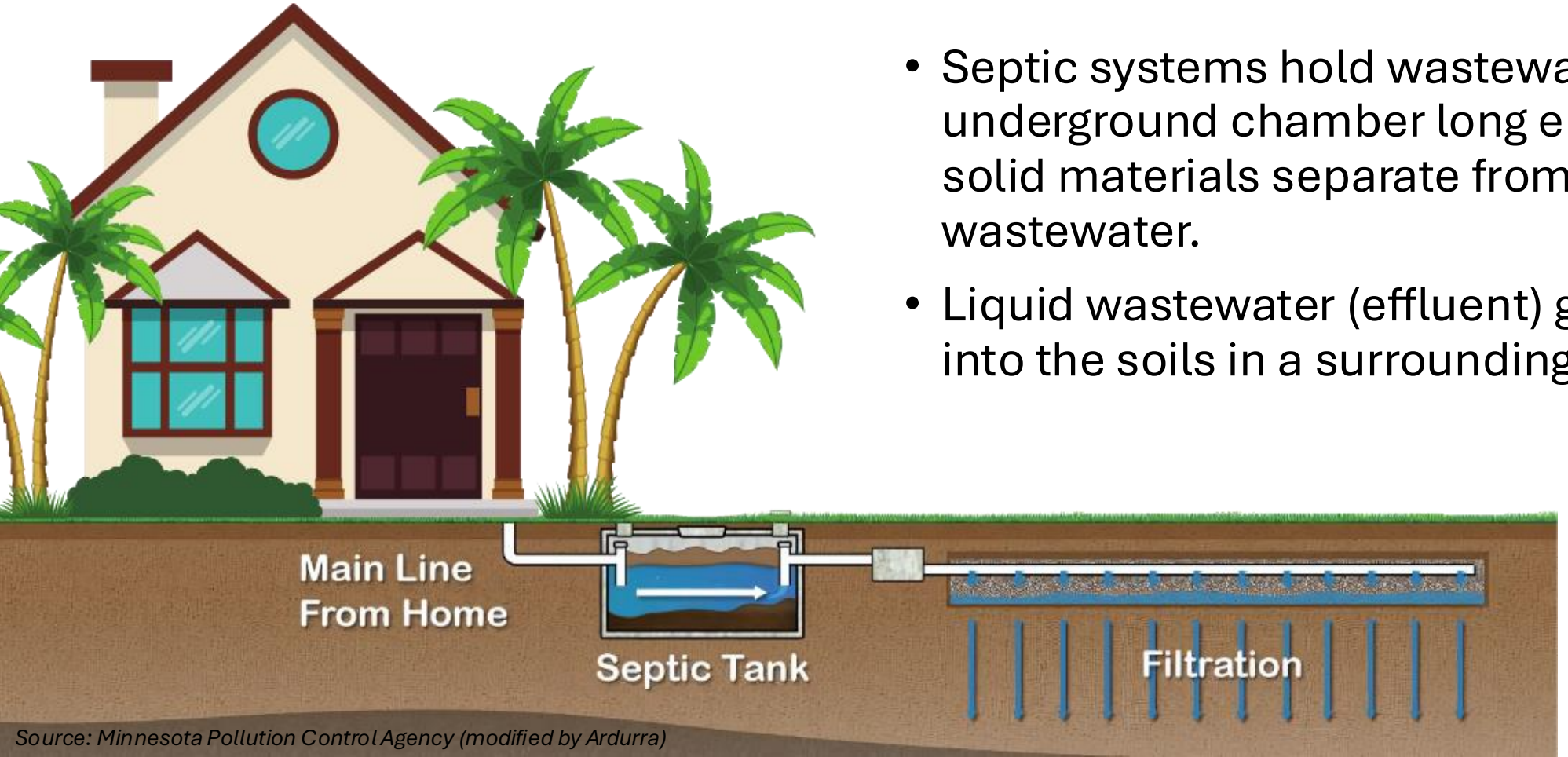
Sanitary Sewer Systems

Sanitary sewer systems collect and transport wastewater from homes to wastewater treatment plants through underground pipes.



Source: Metropolitan Council Environmental Services (modified by Ardurra)

Onsite Sewage Treatment Systems (OSTS)



Source: Minnesota Pollution Control Agency (modified by Ardurra)

- Septic systems hold wastewater in an underground chamber long enough that the solid materials separate from the liquid wastewater.
- Liquid wastewater (effluent) gets discharged into the soils in a surrounding drain field.

The Problem with Septic…

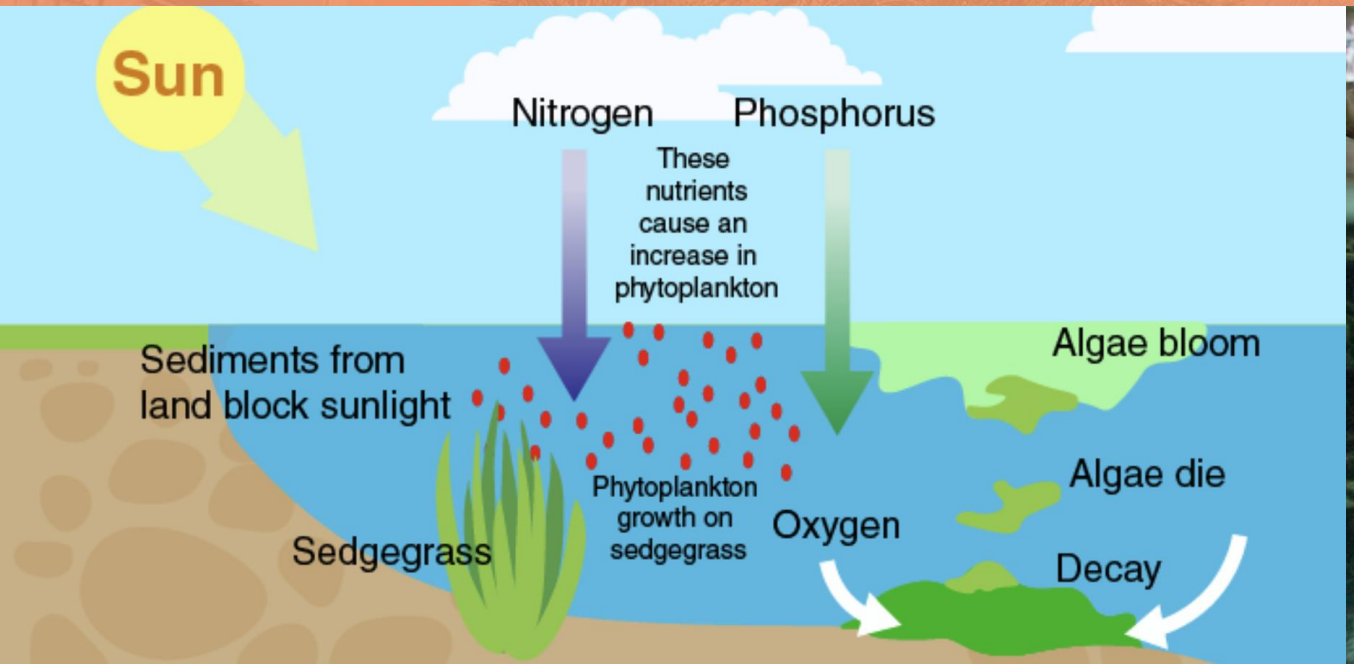
Step 1: Wastewater Generation
Step 2: Wastewater Collection into Septic Tank
Step 3: Primary Treatment in the Septic Tank
Step 4: Effluent Discharge to Drain Field
Step 5: Secondary Treatment in the Drain Field
Step 6: Contaminant Migration to Groundwater
Step 7: Groundwater Transport
Step 8: Discharge to Surface Water
Step 9: Impact on Surface Water

The U.S. EPA identified septic systems as one of the ***top five sources of pollution*** *in surface water bodies.*

Pollutants include phosphorous, nitrogen, and other contaminants.

Source: Ardurra

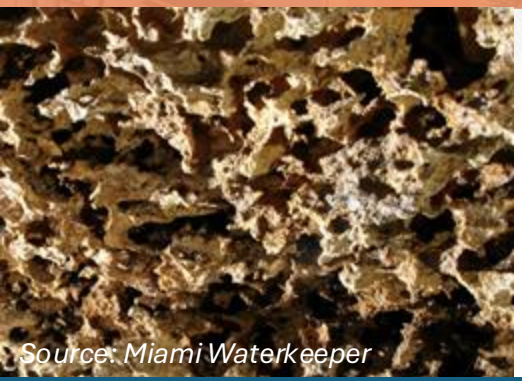
Nutrient and Pathogen Loading



Source: South Florida Water Management District

- Excessive nitrogen and phosphorus in surface waters, like Biscayne Bay, can lead to nutrient pollution, algae blooms, seagrass die-offs, harm to shellfish beds, fish kills, and more.
- Miami-Dade's marine habitats are essential to the local economy and tourism industry.

Increased Risk: Florida Septic Systems

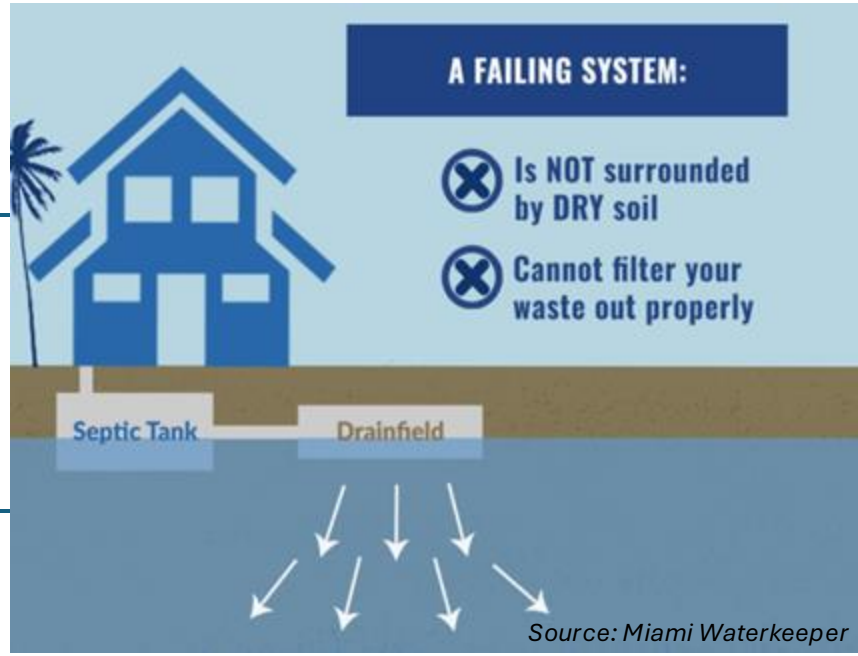

Source: Miami Waterkeeper

Limestone bedrock is porous and does not facilitate natural attenuation efficiently.

High water table provides less space/time for effluent to be filtered before it reaches the groundwater.


Source: Miami Waterkeeper

Flooding can cause septic tanks to overflow into nearby storm drains or back into residential pipes.



Source: Miami Waterkeeper

State of Florida Rules

381.0065, Florida Statute

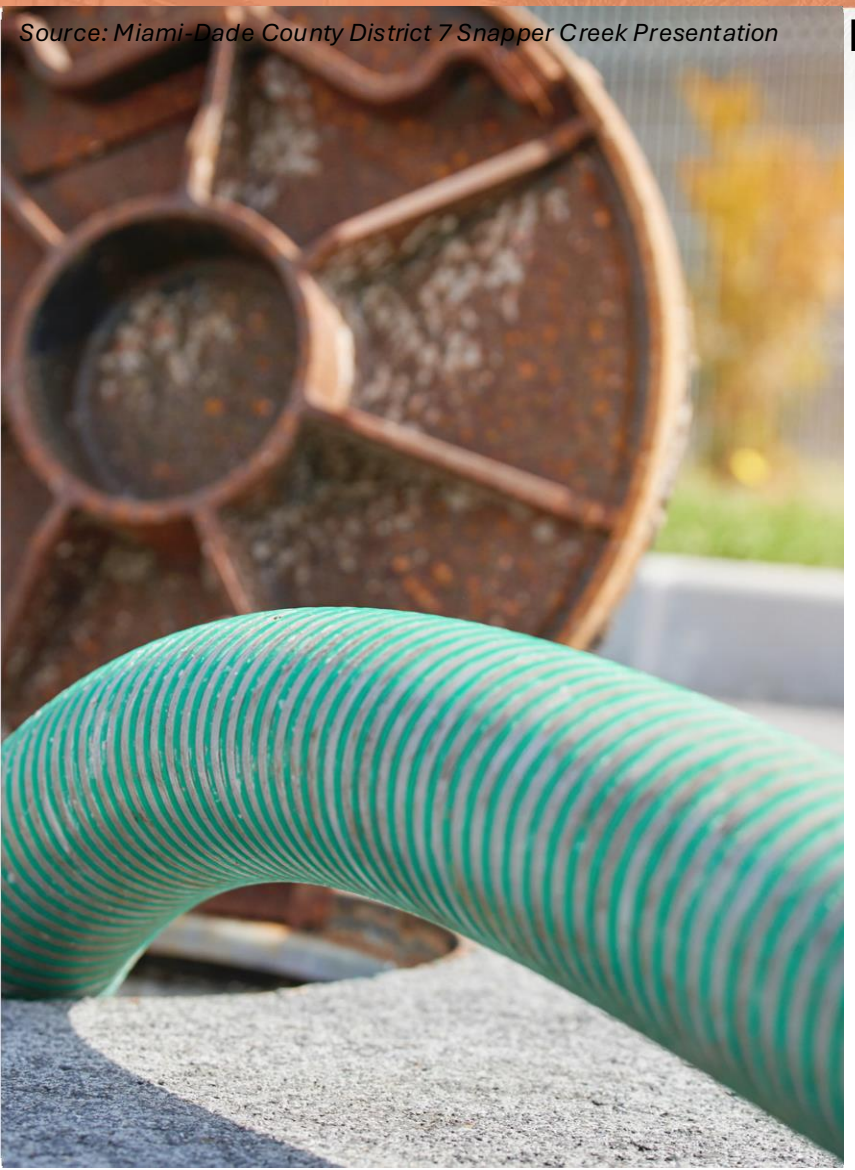
- Owner of ***properly*** **functioning** onsite sewage treatment and disposal systems **(OSTDS)**must connect to public system **within 365 days** of notification that the system is operational.
- Owner of ***improperly*** **functioning OSTDS** must connect to public system **within 90 days** of notification that the system is operational.

- Permits required from the Florida Department of Health (FDOH) before constructing, repairing, modifying, abandoning, or operating an OSTDS. This ensures that **all systems meet state standards and are appropriately designed for their specific locations.**
- Only registered contractors are authorized to construct, modify, alter, repair, service, abandon, or maintain any part of an OSTDS.

Miami-Dade County: Connect 2 Protect

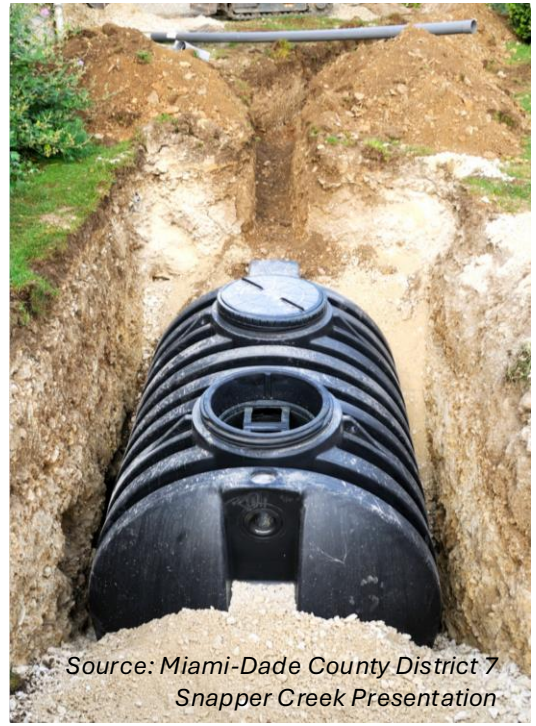
- Multi-year, countywide initiative to extend the county's sanitary sewer service to residents using septic systems and convert thousands of properties from **septic to sewer**.
- Goal: protect properties, human health, and natural areas such as Biscayne Bay from the risks of septic tank pollution into ground and surface waters.

Miami-Dade County Rules


Source: Miami-Dade County District 7 Snapper Creek Presentation

Miami-Dade County Ordinance 22-83

- On July 7, 2022, the Board of Miami-Dade County Commissioners adopted Ordinance 22-83, which instituted **more rigorous standards** for new and replacement OSTDS.
- **Conventional septic systems (Type 1) are no longer allowed** for new and total replacement
- Property owners **cannot** install or replace septic systems in areas where an approved public gravity sanitary sewer or sanitary sewer force main is available.
- If a septic system fails and a sanitary sewer connection is available, you will **not be permitted to replace or install a new septic system**.
- Property owners in Miami-Dade County should contact the **Florida Department of Health (FDOH)** to register existing septic tanks, contact FDOH at(786) 654-6620 or HRSDOH@flhealth.gov.
- Property owners can also contact **Miami-Dade County Department of Regulatory and Economic Resources (RER)**, they also maintain records on septic systems. For record inquiries, contact **RER-DERM** at (305) 372-6789 or DermRecords@miamidade.gov.
- Property owners **must disclose** if their property is serviced by a septic tank at the point of sale.


Source: Miami-Dade County District 7 Snapper Creek Presentation

Septic to Sewer Conversion Studies in Florida

Gravity Sewer: BCWWS UAZ

Gravity/Low Pressure Sewer: BCWWS District 3C

Gravity/Low Pressure Sewer: Kennedy Space Center's KARS Park, Merritt Island, FL

Planning Level: Seacoast Utility Authority Low Pressure Sewer Plan

Gravity Sewer: Gardens Subdivision, Rockledge, FL

Low Pressure Sewer: Centralized Wastewater System-Phase II, Taylor County, FL

Low Pressure Sewer: FKAA

Program Overview

Source: Miami-Dade County Connect 2 Protect (miamidade.gov)

Reasons for the Project

- Make public sewer available for residents of Coral Gables.
- Mitigate the risk of nutrient and pathogen loading into groundwater and waterways.

*Miami-Dade County Wastewater Treatment Plants remove **90-99%** of total nitrogen from raw wastewater!*

Program Overview

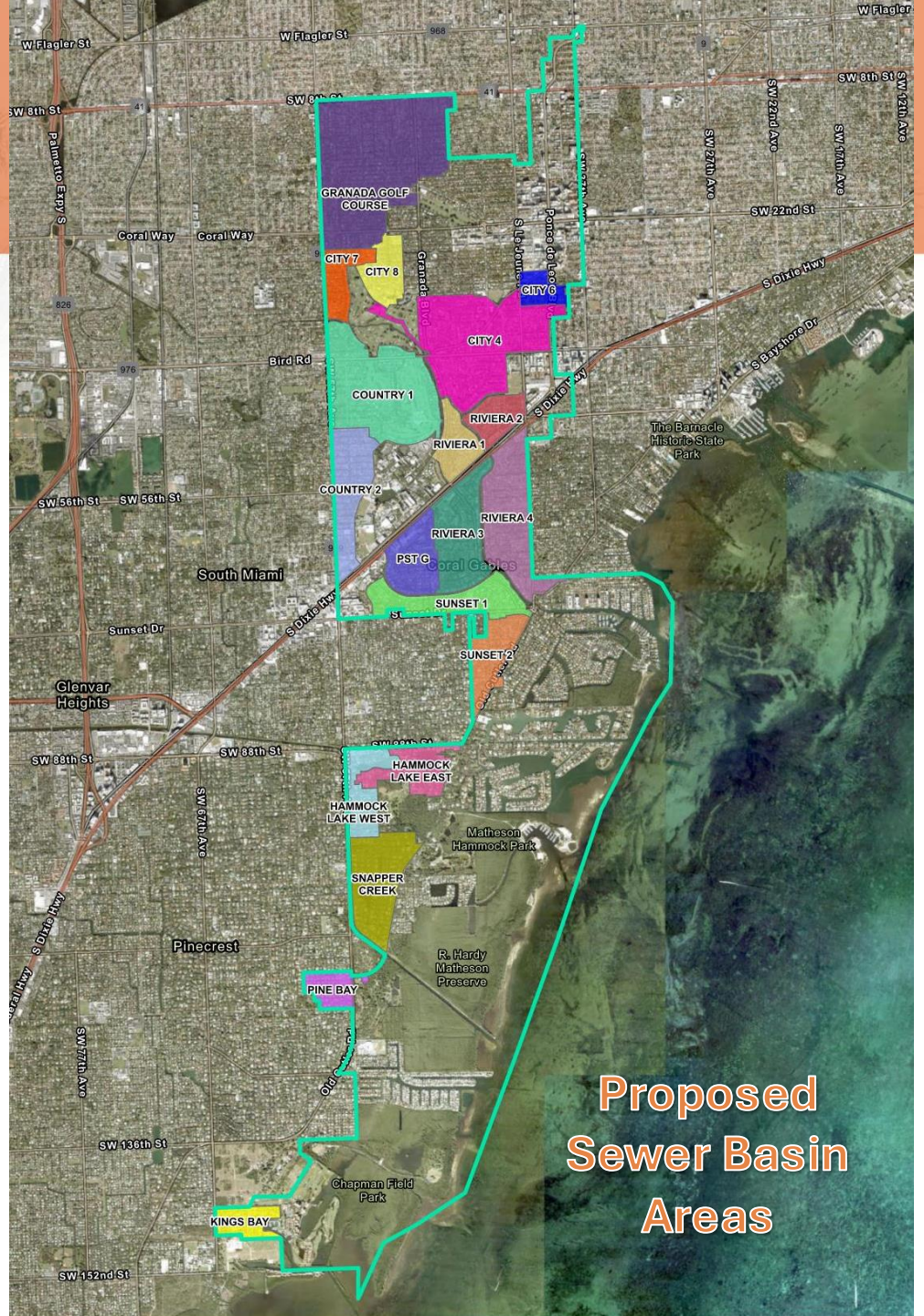
Program Benefits

- No future maintenance costs **for property owners** or costs to repair/replace septic systems. Centralized city-owned sewer system provides increased reliability.
- Enhances property by removing septic systems.
- Reduces pollution discharge into groundwater and waterways, better protecting environmental and human health.

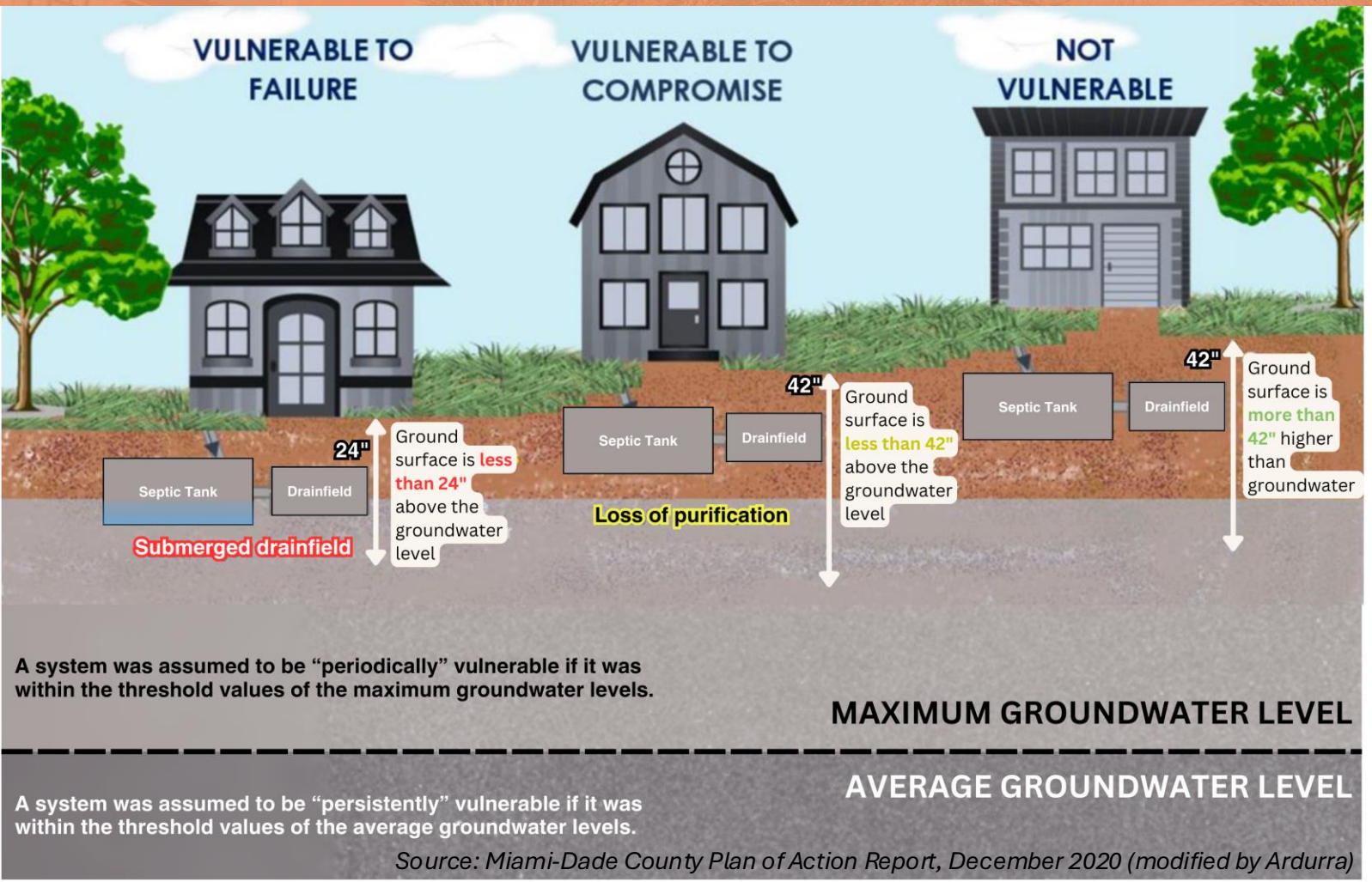
Project Overview

Sewer Basin Areas

- 19 new sewer basin areas are proposed.
- Each basin represents a distinct geographic area within the city, encompassing various neighborhoods and residential zones.
- Basins were ranked and **prioritized for implementation** based on:
  - Proximity to surface water
  - Vulnerability of septic tanks to failure
  - Flood risk
  - Soil drainage
  - Nutrient loading



Septic Tank Vulnerability



Source: Miami-Dade County Plan of Action Report, December 2020 (modified by Ardurra)

- Septic systems can pose public health **risks** and cause **negative impacts** on private properties and natural resources.
- Even when working properly, septic systems **continuously discharge nutrients** into ground and surface waters.
- Septic systems contribute an average of **700 pounds** of pollutant loading each day.
- **Sea level rise** increases septic tank vulnerability.

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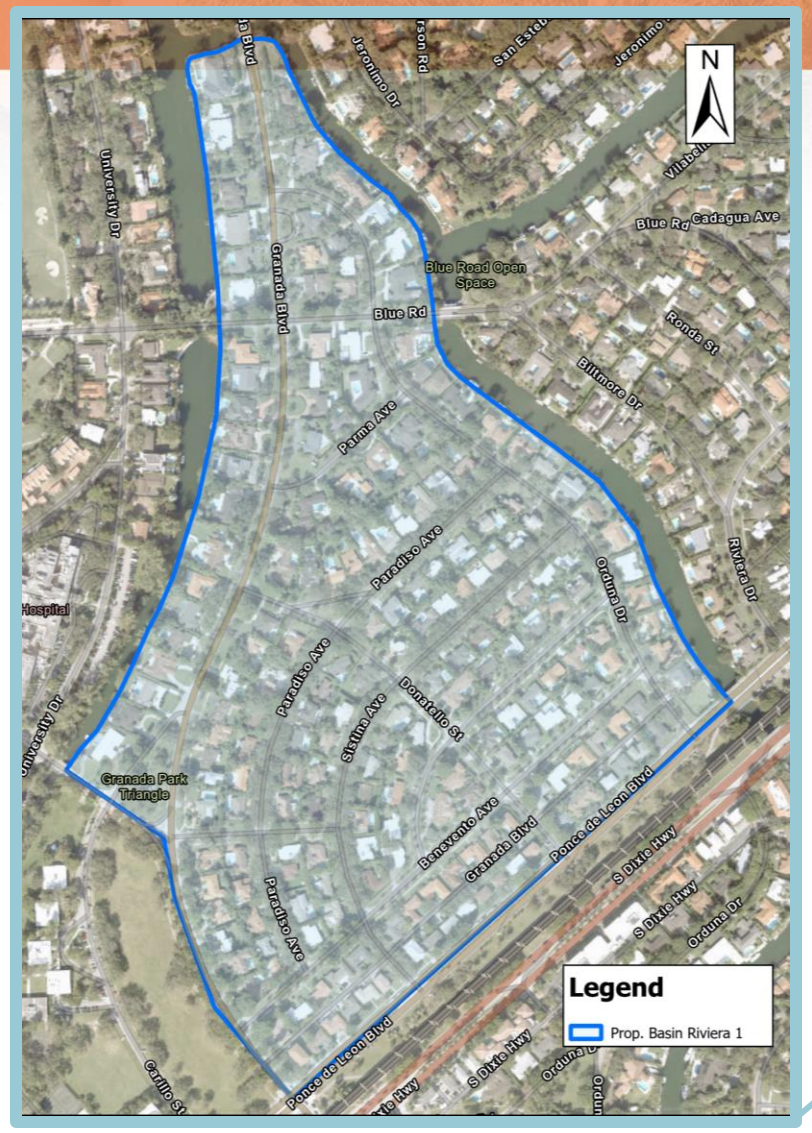
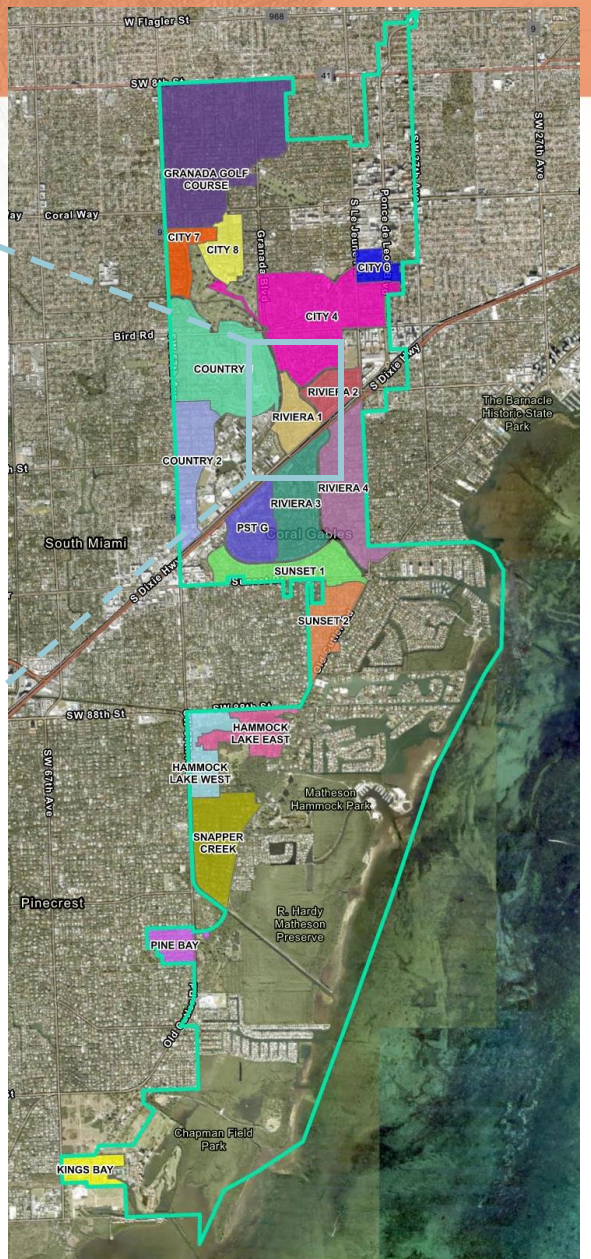
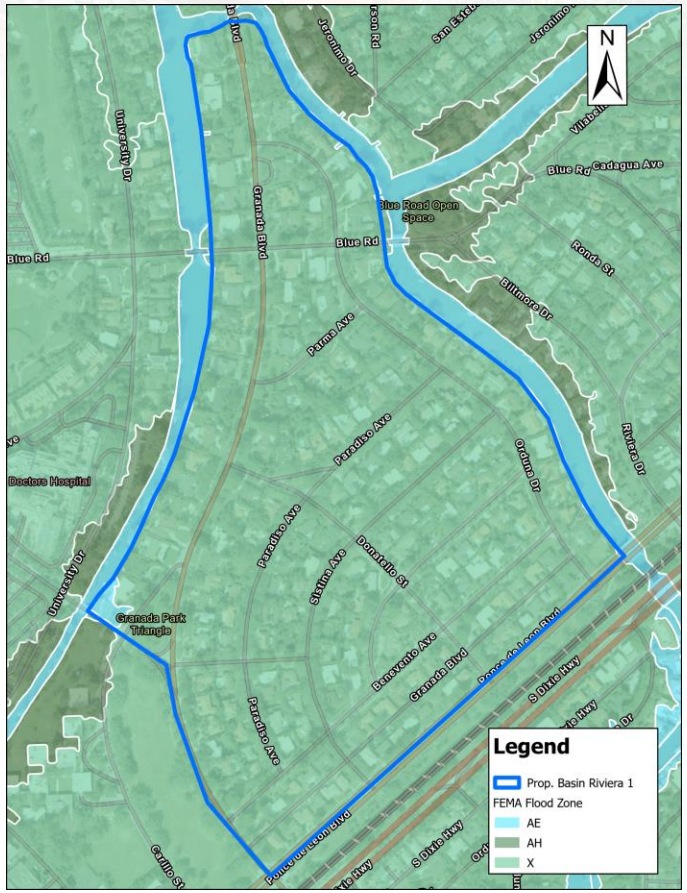
Proposed Improvements

Proposed New Basin: Riviera 1

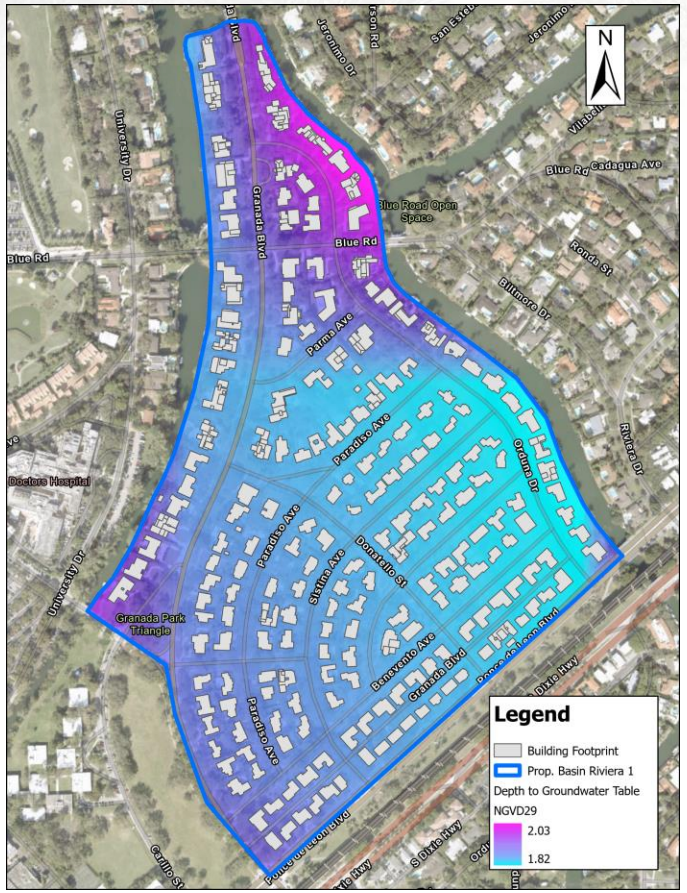




Existing Conditions - **Riviera 1**



FEMA Flood Map



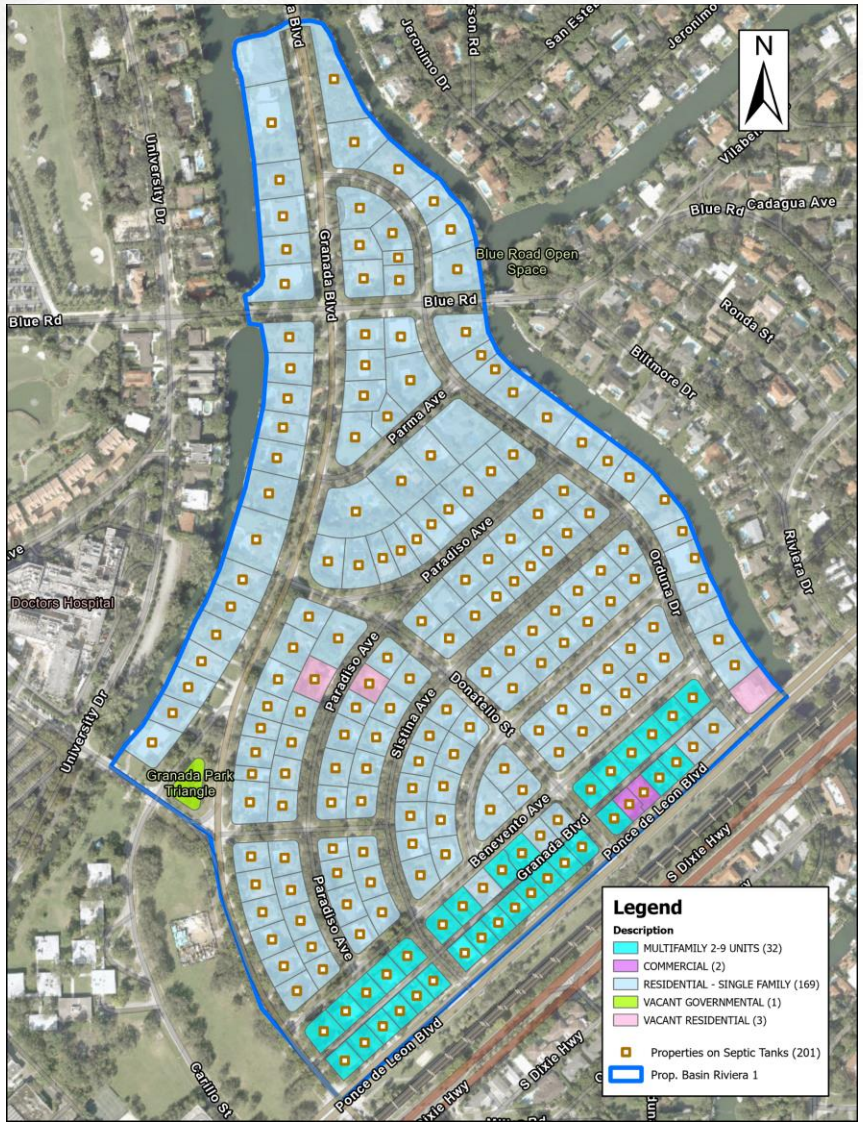
Seasonal High Groundwater

Topography

Existing Conditions - **Riviera 1**

Septic System Inventory

- 32 Multifamily (2-9 units)
- 2 Commercial Buildings
- 169 Residential
- 3 Vacant Lots (Residential)
- 1 Vacant Government Lots (City of Coral Gables)
- Total Parcels: 207
- Total Parcels connecting to the proposed Gravity System: 206
- Total existing properties on Septic Tanks: 201



Proposed Improvements – Riviera 1

Scope of Work

- Planning for the future design and construction of a new sanitary sewer collection system
- Includes service lateral line in right-of-way for **206** properties
- Proposed new sanitary sewer pump station and force main
- Roadway resurfacing

TYPE	QUANTITY	UNIT
Manholes	63	EA
Gravity Mains	15,309	LF
Force Main	33	LF
Pump Station	1	EA

Riviera 1 – Conceptual Layout

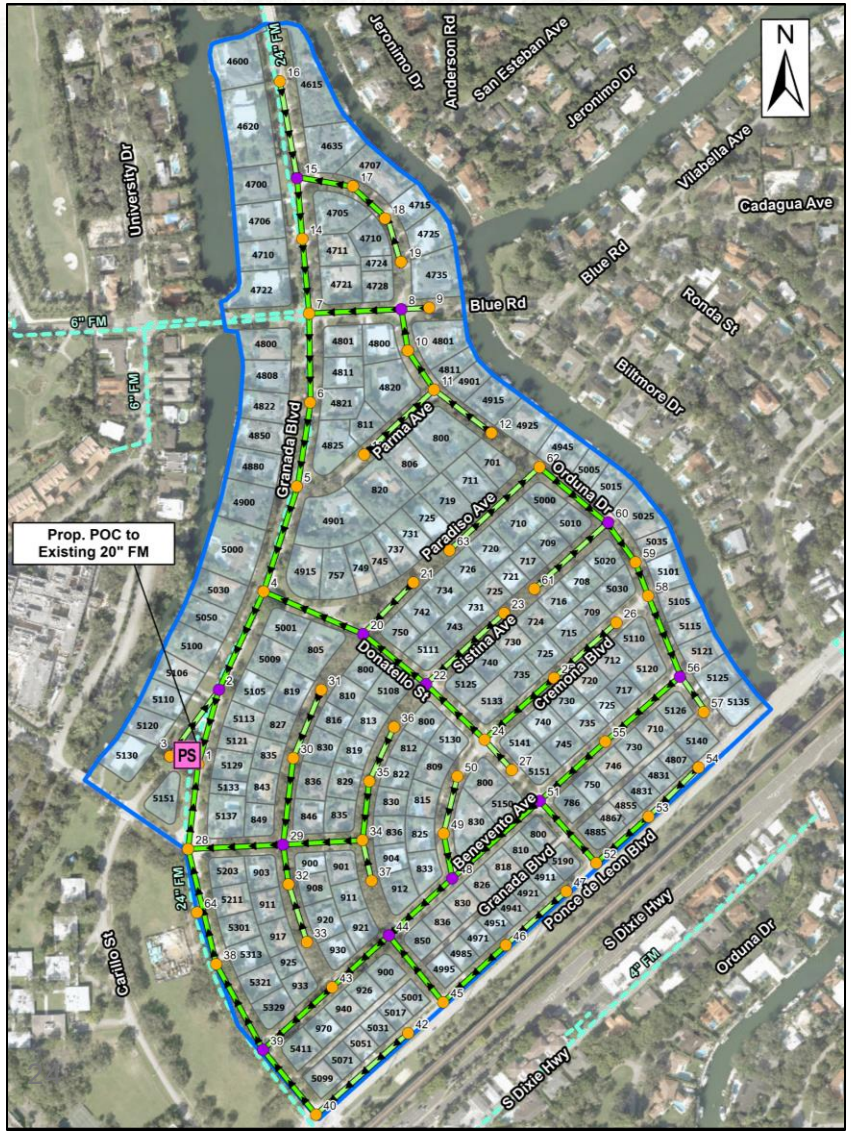
LEGEND

Proposed Improvements

- 6-inch Force Main
- 8-inch Gravity Main
- 10-inch Gravity Main
- Manhole
- Proposed Basin
- Property Boundary
- PS — Pump Station
- Point of Connection

Existing Sewer System

- Force Main (City of Coral Gables)



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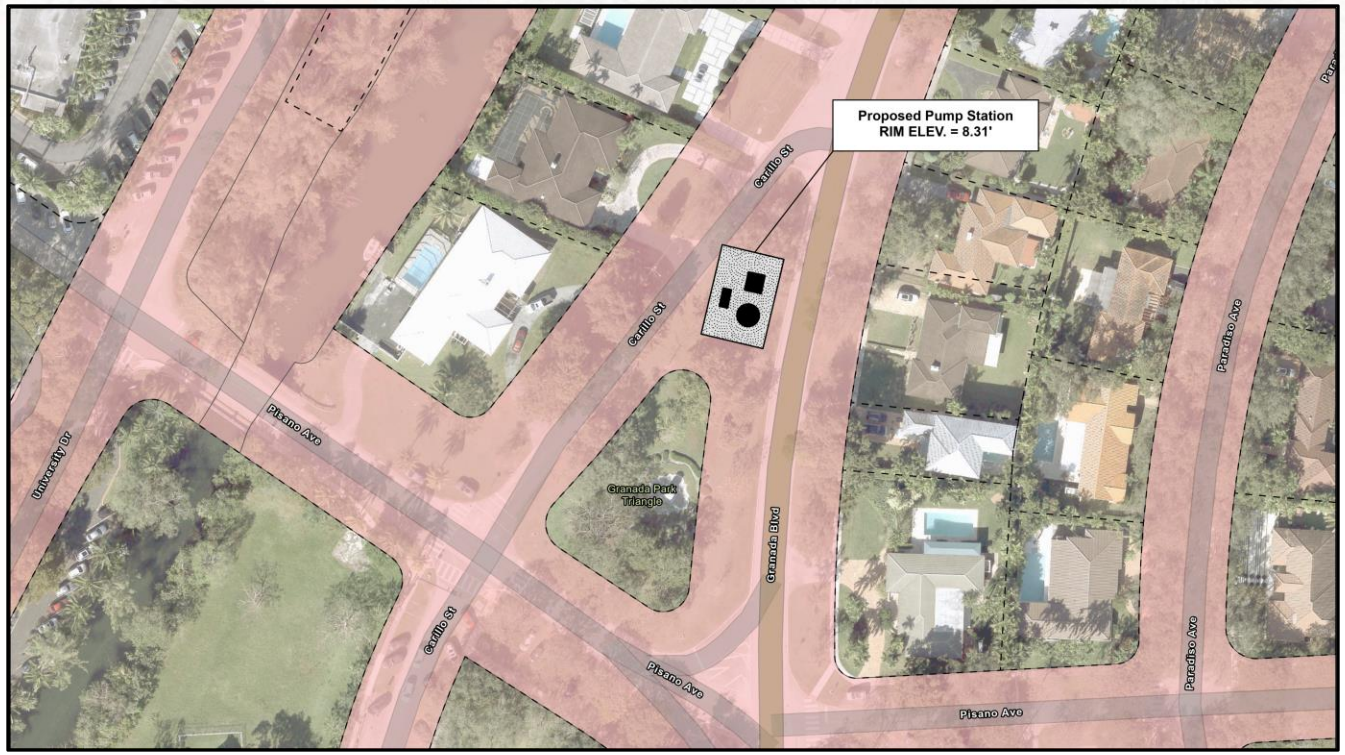
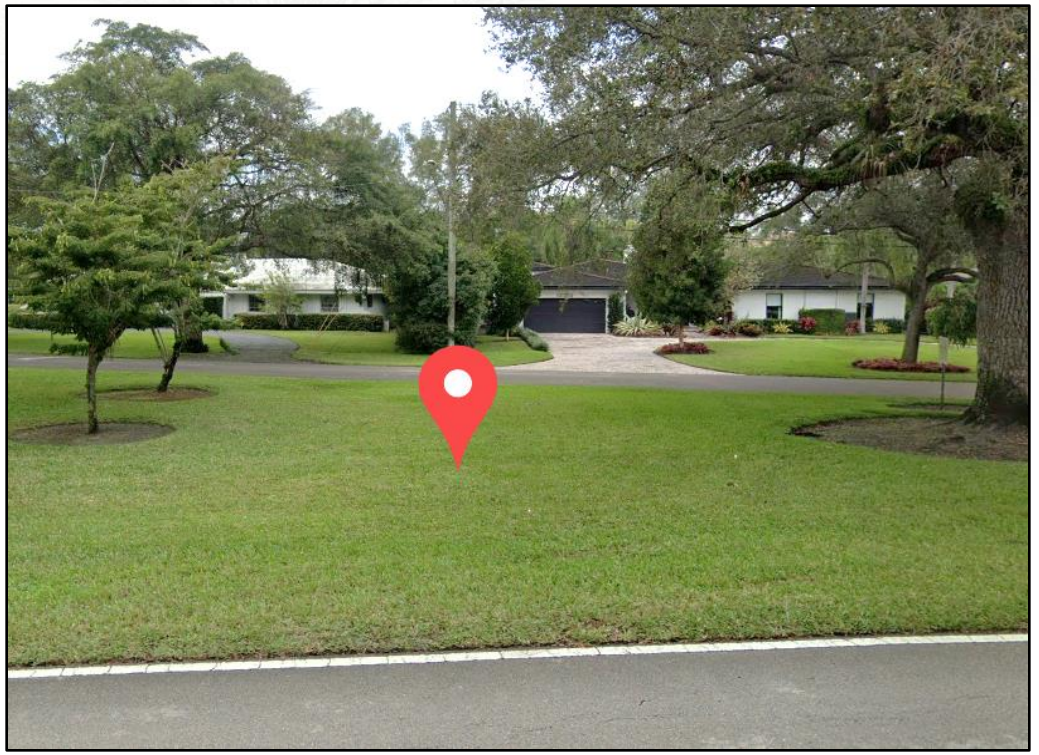
Riviera 1 – Pump Station Location





Pump Station Location

Parcels

Right-of-way

- The proposed pump station site is located at the intersection of **Carillo Street** and **Granada Boulevard**, within Granada Park Triangle, which is owned by the City.

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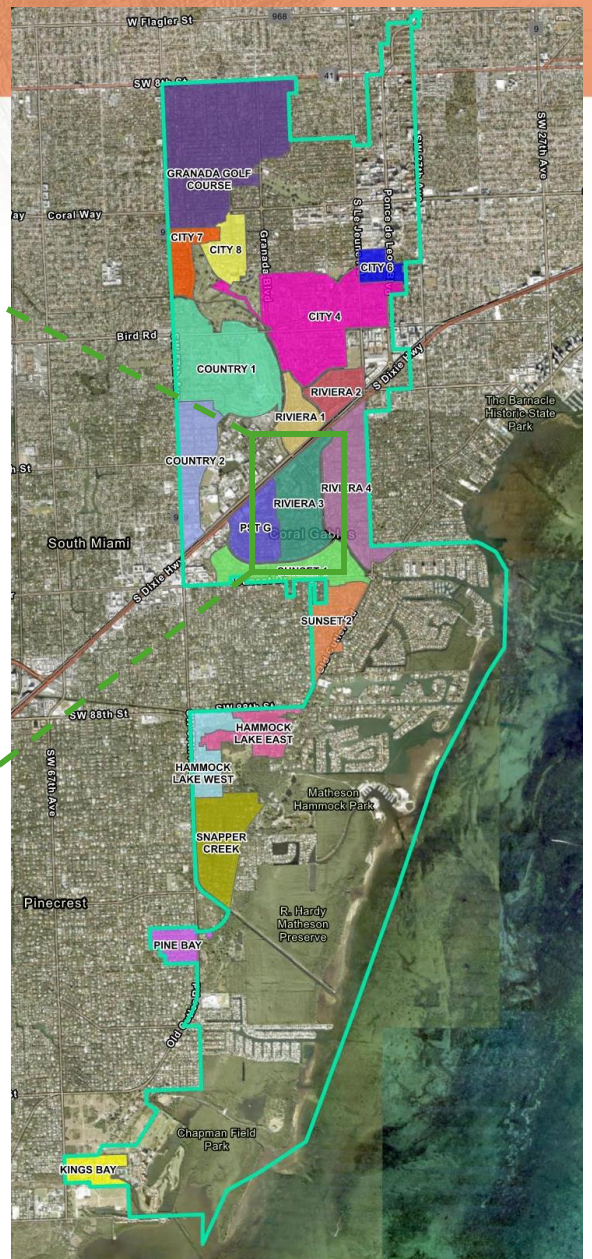
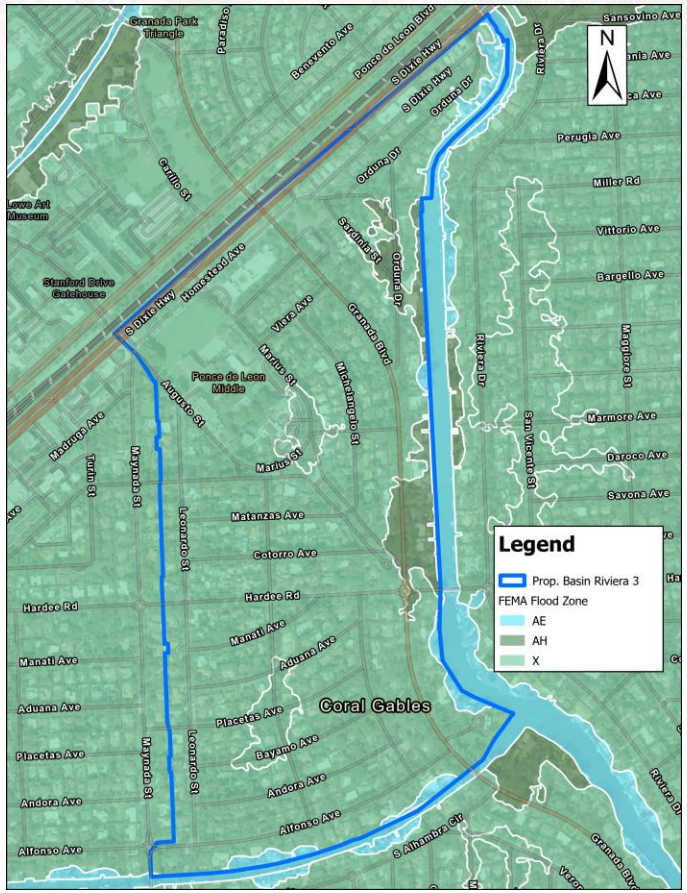
Proposed New Basin: Riviera 3



Existing Conditions - **Riviera 3**



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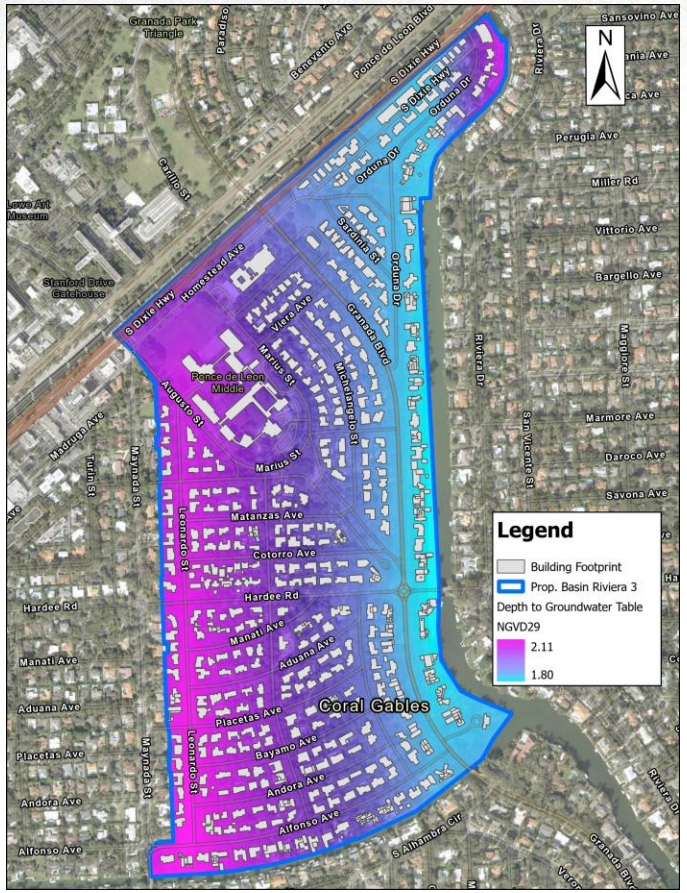
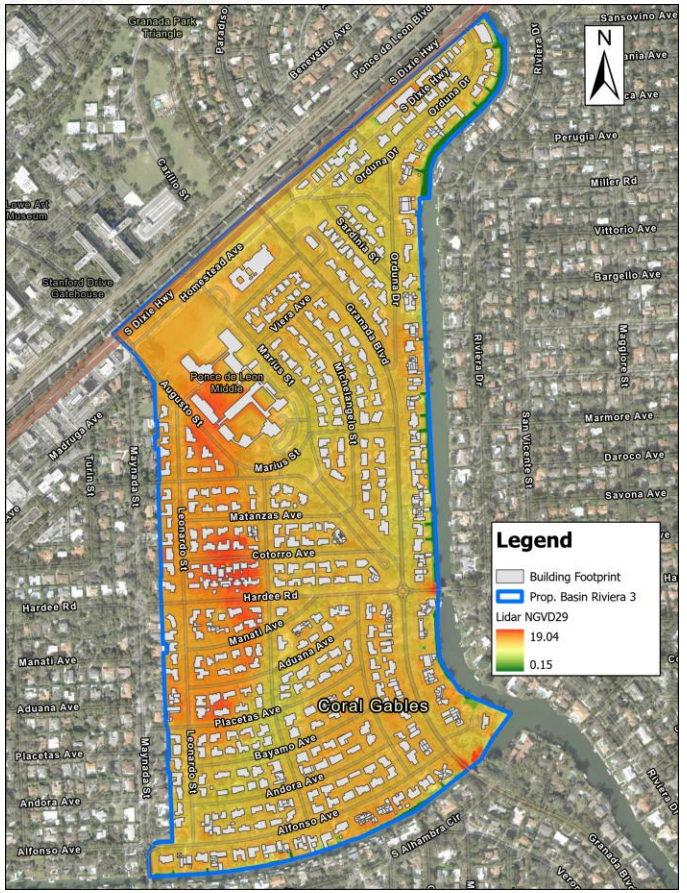


Seasonal High Groundwater

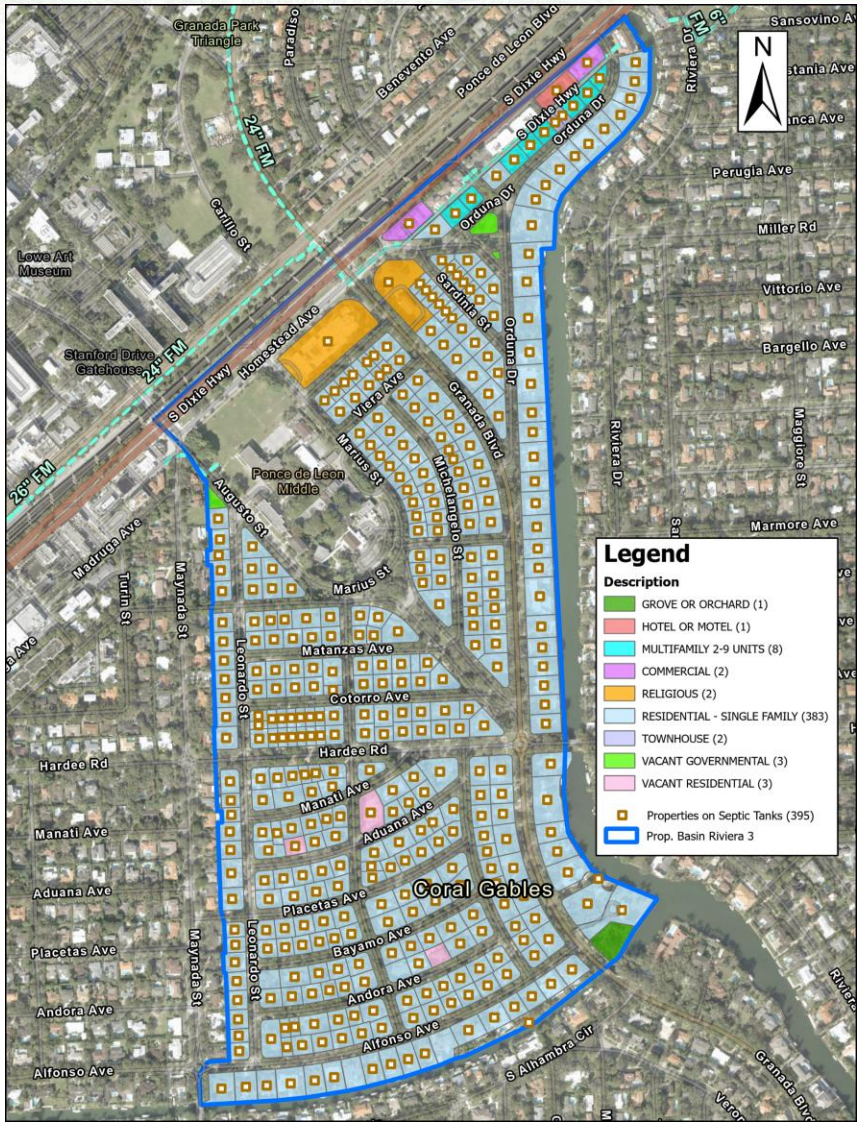


Topography

Existing Conditions - **Riviera 3**

Septic System Inventory

- 1 Grove or Orchard (Green area)
- 1 Hotel
- 8 Multifamily (2-9 units)
- 2 Commercial Buildings
- 2 Places of Worship
- 396 Residential
- 3 Townhouses
- 4 Vacant Lots (Residential)
- 3 Governmental Vacant Lots (City of Coral Gables)
- Total Parcels: 405
- Total Parcels connecting to the proposed Gravity System: 401
- Total existing properties on Septic Tanks: 395



Proposed Improvements – Riviera 3

Scope of Work

- Planning for the future design and construction of a new sanitary sewer collection system
- Includes service lateral line in right-of-way for **401** properties
- Proposed new sanitary sewer pump station and force main
- Roadway resurfacing

TYPE	QUANTITY	UNIT
Manholes	125	EA
Gravity Mains	34,493	LF
Force Main	404	LF
Pump Station	1	EA

Basin: Riviera 3

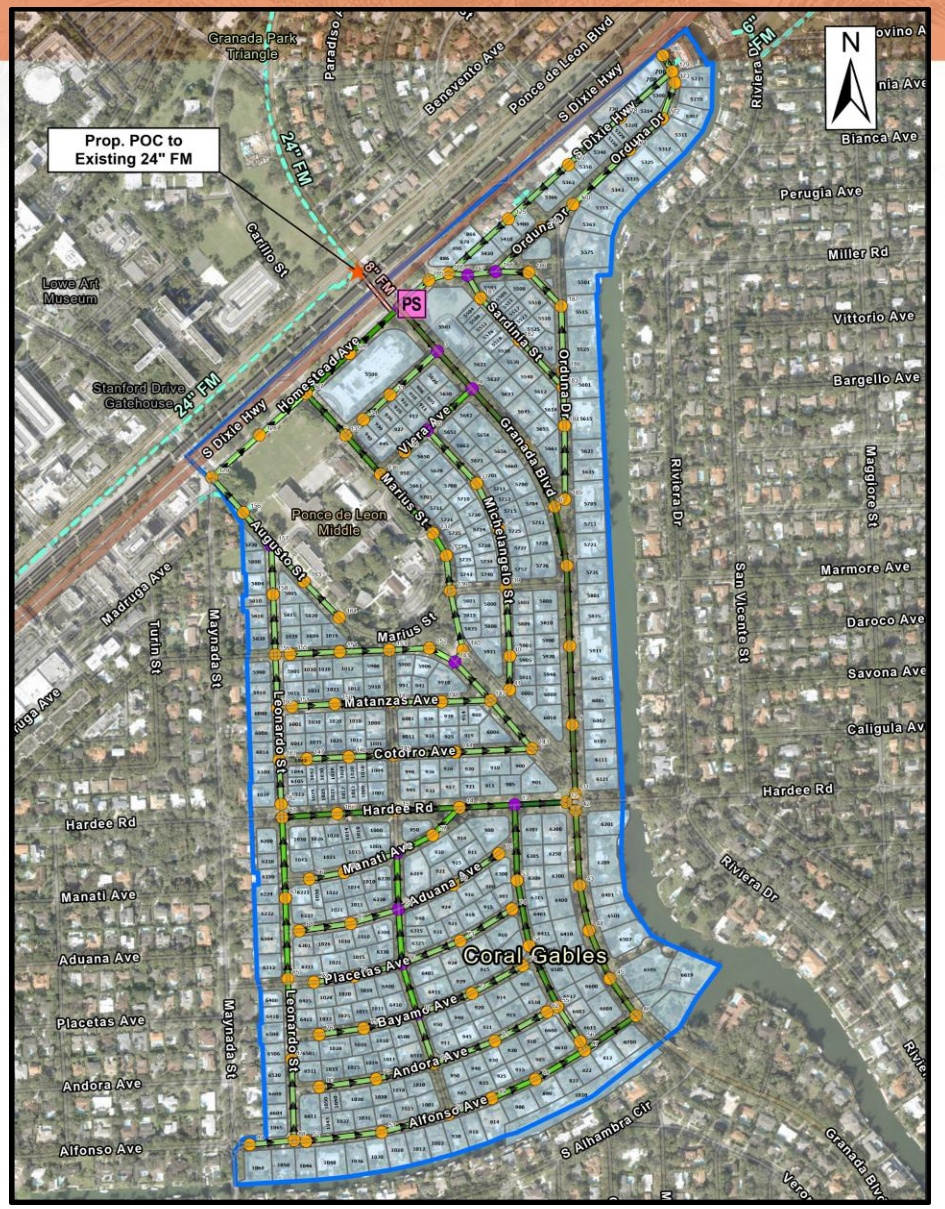
LEGEND

Proposed Improvements

- 6-inch Force Main
- 8-inch Gravity Main
- 10-inch Gravity Main
- Manhole
- Proposed Basin
- Property Boundary
- PS — Pump Station
- Point of Connection

Existing Sewer System

- Force Main (City of Coral Gables)



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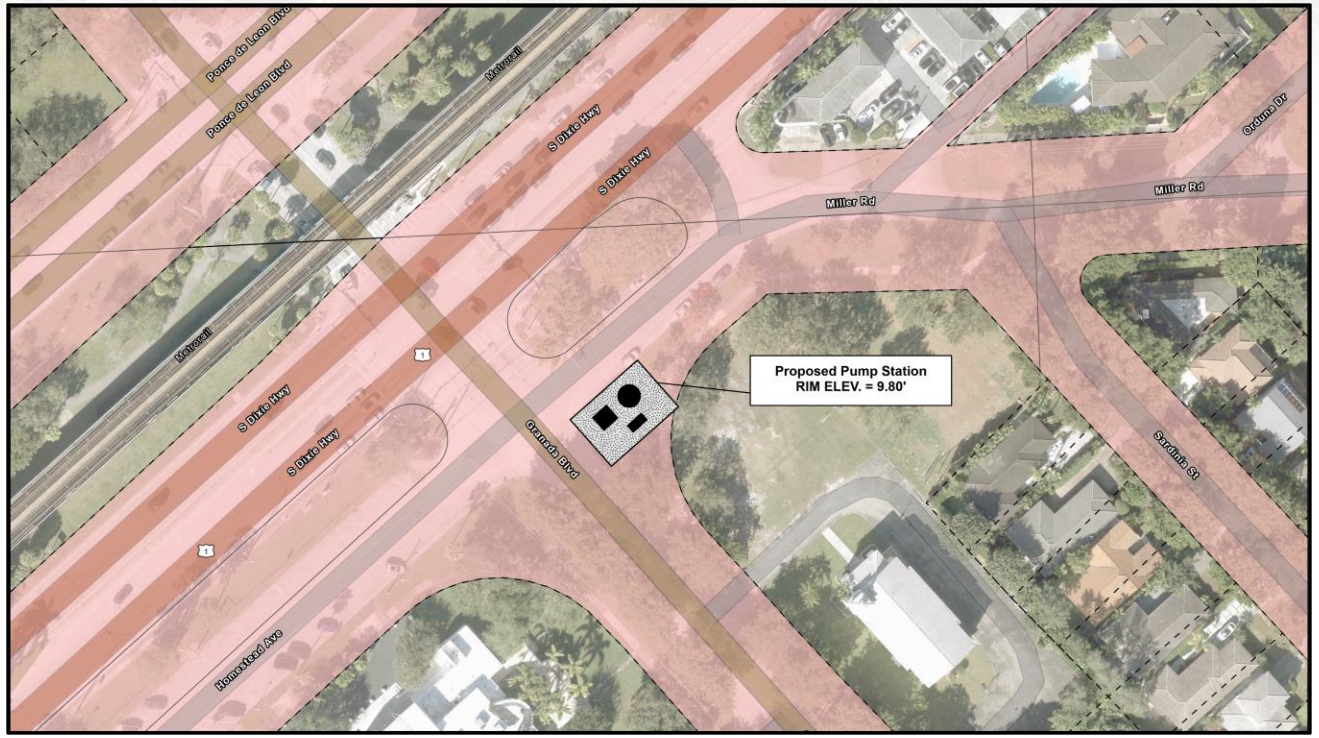
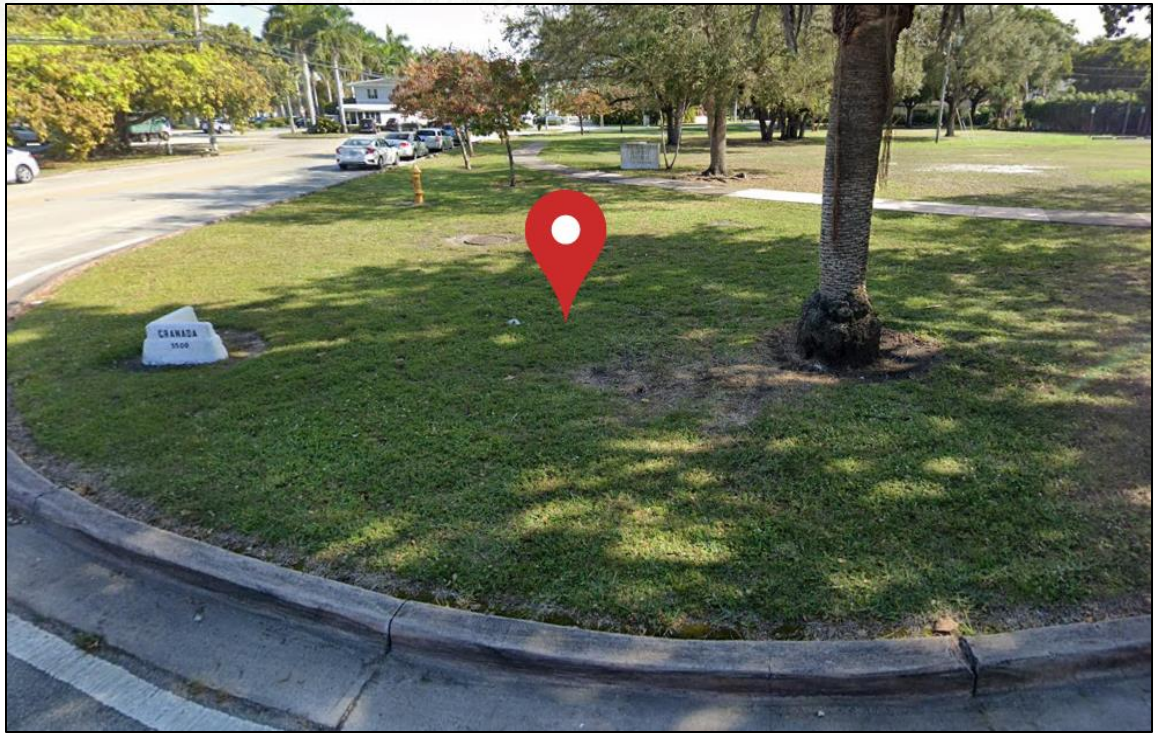
Riviera 3 – Pump Station Location





Pump Station Location
Parcels
Right-of-way

- The proposed pump station site is located between **Granada Boulevard** and **University Concourse** within a right-of-way (ROW) owned by the City.

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Typical Lateral Connection Sample

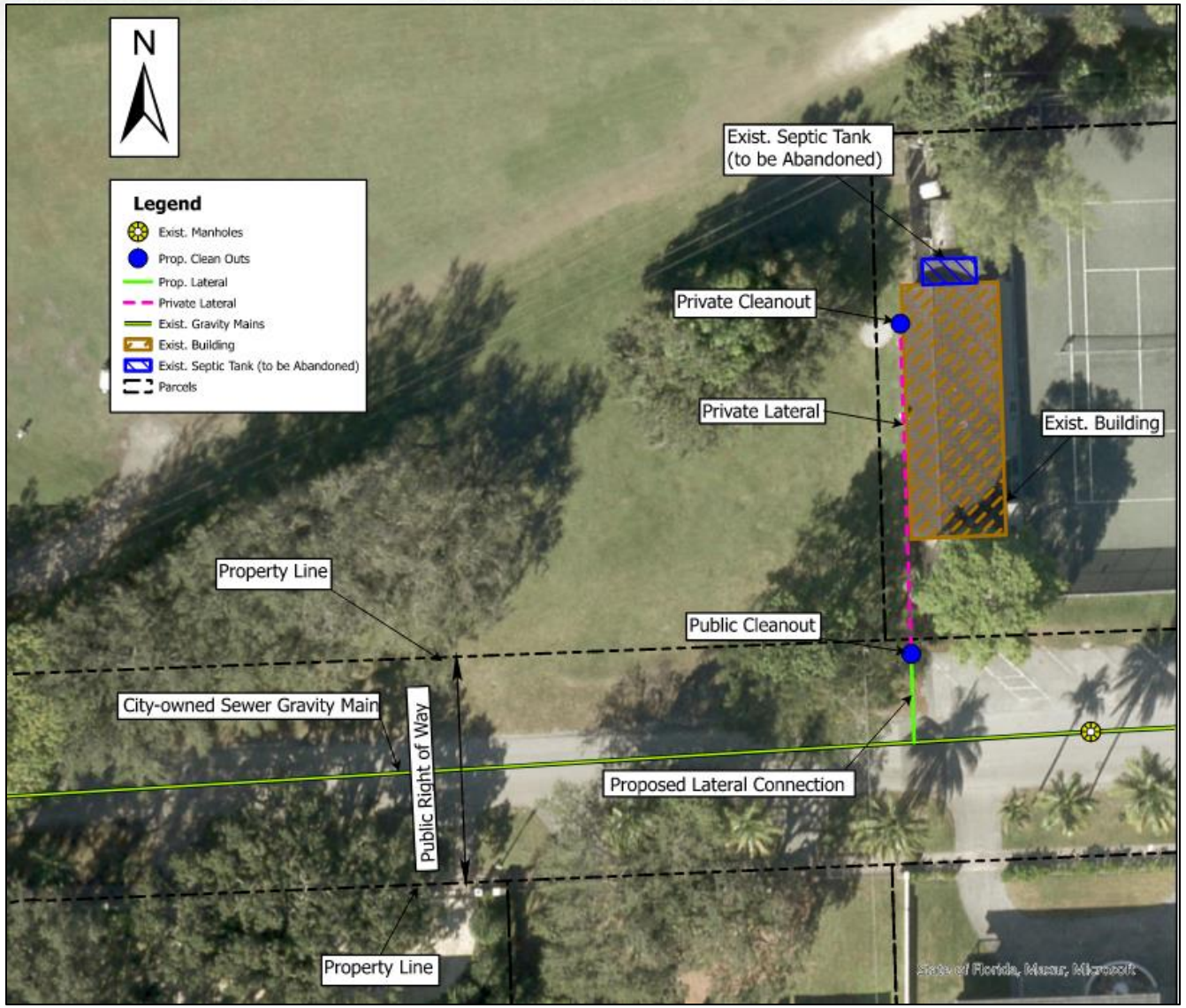
How connection is made:

Installation of City Sewer Gravity Main (green).

New connection/lateral to the City's sewer (dark green) + Cleanout.

New Private Lateral connection to Private Property (pink).

Existing Septic Tank to be abandoned.



Sample Pump Station (PS) Layout

- The **city** will work closely with the community to develop appropriate screening and aesthetic enhancements for the proposed pump station, ensuring the design aligns with the character of each neighborhood.

Costs & Funding

Cost Information on Enhanced Nutrient Removal OSTD

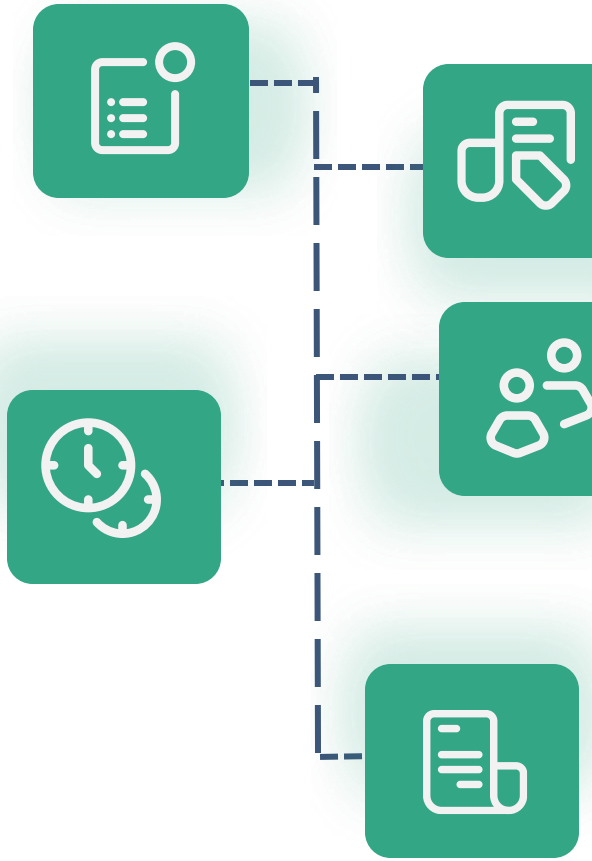
The cost to replace a traditional septic tank with an **Enhanced Nutrient Removal (ENR) Onsite Sewage Treatment and Disposal (OSTD)** system could exceed ***$65,000*** (in today's dollars) or more. Several factors can contribute to greater associated costs:

Complex site conditions

If the soil is poor, there's limited space, or the ground is difficult to work with (e.g., rocky or unstable), extra excavation or engineering work may be needed.

Upgraded system design

Larger or more advanced ENR systems (such as those that handle high flows or larger homes) can be more expensive.



Specialized permits or regulations

Increased local permitting requirements & environmental regulations.

Higher Maintenance Costs

Compared to conventional septic systems, ENR systems require more frequent maintenance and monitoring, leading to higher long-term costs.

Disposal of old system

If the traditional septic tank needs to be removed and disposed of properly, this could add to the cost.

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Estimated Costs and Funding

Riviera 1 (New Basin)

- Preliminary Rough Order of Magnitude Cost Estimate:
  - *Total Cost for Basin:* **$9.8M**
  - *Number of Parcels:* **206**
  - *Cost per Parcel:* **$47.6K**

Riviera 3 (New Basin)

- Preliminary Rough Order of Magnitude Cost Estimate:
  - *Total Cost for Basin:* ***$23M***
  - *Number of Parcels:* ***401***
  - *Cost per Parcel:* ***$56K***

* Please note that all estimated costs are based on current dollars and are subject to change due to inflation, material costs, labor rates, and other economic factors. Final costs may vary depending on the timeline of each project.

Estimated Costs and Funding

Estimated Costs within Private Property

- Homeowner Cost Estimate Per Property*:
  - Sewer Capacity Certification: $200
  - Miami-Dade WASD Impact Fees: $1,800
  - FDOH Septic Abandonment Fee: $100
  - Pump and Abandon Tank: $2,500
  - Private Lateral and Plumbing Re-Route: $12,000
  - TOTAL: **$16,600**

* *Costs to abandon septic and connect to sewer.*

* *Assuming septic systems are located at the back of the property and plumbing re-route needed to connect at the front of the property.*

* *Costs may vary per specific property conditions.*

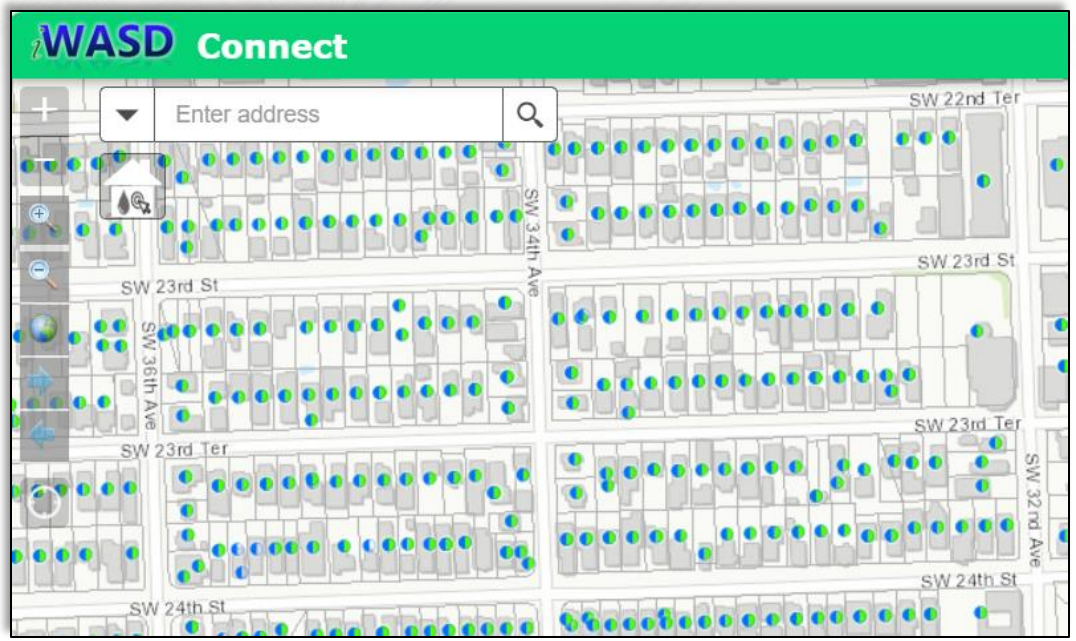
Estimated Costs and Funding

Potential Funding Assistance for Homeowners

- Grant program to assist with assessment and private connection costs
  - Contingent on receiving state or federal funding.
  - Establish qualification criteria, for example:
    - Income levels
    - Scope and cost of project
    - Property in good standing with the City
- Solar Energy Loan Fund (SELF) Home Improvement Loan
- Clean Water State Revolving Fund

Resources for Homeowners

- **Miami-Dade County Septic System Care:**
  - Provides homeowner guidance on septic system maintenance and best practices.
  - www.miamidade.gov/global/economy/environment/septic-system-care.page
- **Miami-Dade County iWASD Connect GIS Viewer:**
  - Helps users determine utility service area boundaries, among other useful information
  - gisweb.miamidade.gov/iWASDConnect/
- **Miami Waterkeeper:**
  - Highlights the impact of septic failures on water quality and promotes sustainable wastewater solutions through advocacy and education.
  - www.miamiwaterkeeper.org/septic



MIAMI WATERKEEPER®

Stay Updated & Get Involved

septictosewer@coralgables.com

City of Coral Gables Public Works Department
305-460-5000

Coral Gables | Septic to Sewer Program Website

Public Survey

PLEASE SCAN QR CODE TO COMPLETE SURVEY