



# City of Marco Island

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Meeting Date: December 9, 2024  
To: City Council  
From: Jeffrey E. Poteet, General Manager- Water & Sewer  
Through: Mike McNees, City Manager  
Re: Water and Sewer (W&S) Departmental Report

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Both the City's drinking water and wastewater operations follow Florida Department of Environmental Protection (FDEP) regulations and all other regulatory entity requirements. The W&S Department is operating within the approved budget. Below is a summary of department activities during the past month.

For the benefit of the newly elected City Councilors, this month's W&S Departmental Report includes a comprehensive summary of the major, ongoing W&S Capital Improvement Program (CIP) projects, highlighting progress across critical initiatives designed to enhance the reliability, capacity, and sustainability of the water and sewer systems. This update underscores the department's commitment to transparency and its mission to deliver high-quality utility services to the community.

The W&S Department operates through an Enterprise Fund, a separate funding source, distinct from tax revenues. The W&S CIP is supported through the enterprise fund, which is sustained by the fees paid by customers for water and sewer services. This approach ensures that the program remains financially self-sufficient, allowing the department to focus on infrastructure development and improvements without relying on general tax dollars.

## **Water and Sewer Open House – A Valentine's Day to Remember!**

Looking for a unique and memorable way to celebrate Valentine's Day? We've got you covered! Whether you're celebrating with a loved one or enjoying the day solo, join us for the Water and Sewer Open House on Friday, February 14, 2025.

Discover the fascinating work your Water and Sewer Department does for the community, explore our state-of-the-art facilities, and maybe even find something new to love about the vital services we provide!

Location: North Water Treatment Plant, 807 E. Elkcam Circle, Gate "B"

Date: Friday, February 14, 2025

Time: 9:00 AM – 11:30 AM

- Presentation: Begins at 9:30 AM, providing an overview of the Water and Sewer system.
- Plant Tour: Follows the presentation.
- Important: Guests participating in the plant tour are required to wear closed-toe shoes for safety.

This is a fantastic opportunity to see behind the scenes, learn more about the services you rely on, and connect with the dedicated team working to ensure clean water and efficient wastewater management.

Mark your calendar and join us for an engaging and enlightening Valentine's Day experience! We can't wait to see you there!

### **Collection & Distribution (C&D) Building and Covered Open Storage Structure**

The C&D Department has been operating from deteriorating temporary trailers at the South Water Treatment Plant (SWTP) since 2008, transitioning to a new facility at the North Water Treatment Plant on Elkcam Circle. This project addresses the lack of locker rooms, training space, and the disruption caused to nearby residents by operational noise.



City Council approved the \$5,661,542 construction contract in January 2024, with permits issued in May 2024 and construction beginning shortly after. The project includes a CD Building with offices, locker rooms, a kitchenette, a conference/training room, workshop space, an emergency generator, new utility connections, stormwater infrastructure, and parking. Additionally, a covered open storage structure will house equipment and materials.



As of November 2024, the open storage structure is erected, with final utility and finishing touches underway. The CD Building has completed underground plumbing, the slab, exterior walls, and stormwater system installation, with trusses delivered. The project remains on time and budget, targeting completion in May 2025.

### **South Water Treatment Plant (SWTP) Generator Storage Building**

The Water & Sewer (W&S) Department requires a dedicated structure to securely house generators, ensuring their protection and readiness for operation. The structure, currently in the design phase, will be located at the SWTP. The project is supported by \$1,300,000 allocated in the W&S CIP budget. Additionally, the State of Florida Department of Commerce awarded a \$600,000 grant to help fund the initiative.

### **Annex 2<sup>nd</sup> Floor Reconfiguration**

The Water & Sewer (W&S) Department is reconfiguring the 2nd floor of the Annex, located next to City Hall on San Marco Road, to serve as the administrative headquarters for the department. The reconfiguration will include nine offices, three bathrooms, a kitchenette, and a combined training and conference room.

The project was awarded through a public bidding process, with the contract approved by City Council in July 2023. Demolition of the existing interior began late 2023 after the contractor received the demolition permit. However, approval of the building permit was delayed due to issues with the fire review, with final approval granted in August 2024.

These delays, along with design updates required during the permit review process, costs associated with demobilizing and remobilizing the contractor due to the delays, and increased material costs, resulted in a change order of \$193,421. This brought the total project cost to \$997,421 and added 44 days to the timeline.



Framing for the interior walls has been completed, and the contractor is now working on rough plumbing, electrical, and mechanical installations. The project remains on track for completion in May 2025.

### Boom Truck Replacement

City Council approved the funding to replace the W&S Department’s boom truck as part of the FY 2025 budget. The new truck will replace the aging boom truck, which has become increasingly unreliable due to frequent repairs and the difficulty of sourcing replacement parts. This replacement is essential to maintain the department’s operational efficiency and ensure reliable service delivery.



The procurement process for the new truck is currently underway, with the purchase out for bid. In response to a request from a prospective bidder, the bid opening date has been rescheduled to December 17, 2024, to allow additional time for bid preparation. Staff is planning to present the award of contract to City Council on January 6 for Council’s consideration. The FY 2025 budget allocates \$365,000 for the purchase.

Once the replacement boom truck arrives and is prepared for deployment, the existing truck will be sent to auction. This ensures the City can recover some of the vehicle's remaining value while transitioning to a more dependable asset.

### South Water Treatment Plant (SWTP) West High Service Pump Station (HSPS)

The SWTP West HSPS, built over 40 years ago as the original pumping station for the site’s storage tanks, required replacement due to frequent leaks, inefficiency, inadequate hurricane resistance, and flooding issues. The Water & Sewer Department designed a new HSPS and secured a \$900,000 Florida Department of Environmental Protection (FDEP) Resilient Florida grant to enhance the facility’s resilience to flooding and sea level rise. The \$4,698,000 construction contract was approved by the City Council in May 2023.



To maintain uninterrupted water service, the project was delayed until mid-April 2024 to allow the North Water Treatment Plant (NWTP) to install a fourth pump, ensuring redundancy after a temporary pump failure highlighted the system's vulnerabilities.

The project entails demolishing the old HSPS and constructing a new facility with a pump room containing two 200-hp pumps (with provisions for a future third pump), an electrical room, and updated piping and flow meter infrastructure. Significant progress has been made since April 2024, including demolition, installation of suction and discharge pipes, pump cans, foundation walls, and preparation for the concrete slab.

The project remains on track and within budget, with completion expected in May 2025.

### Potable, Sewer and Reclaimed Waterline Improvements - North Collier Boulevard Bridge

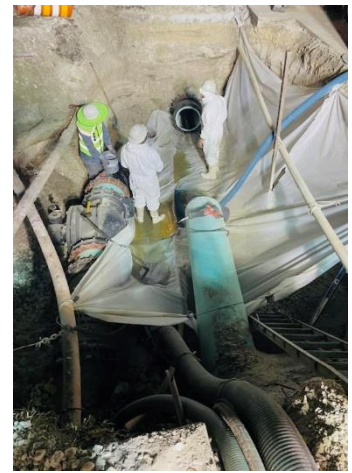
The North Collier Boulevard Bridge at the Bluebonnet waterway utility upgrade project, aimed at improving efficiency and reliability, is nearing completion. Work began in July 2024 on the southbound side of the Bluebonnet Waterway and transitioned to the northbound side in September. The project involved replacing the 12-inch water main and 16-inch wastewater force main with upgraded 20-inch piping.



Left: Looking south on east side of N. Collier Blvd., Sewage is removed by pumper trucks (right picture) following the cutting of access holes in the FM.



A critical milestone was reached on November 12, 2024, with the nighttime connection of the new 20-inch force main. This phase required a coordinated effort between Quality Enterprise and the Water & Sewer Department, involving 25 staff members. To facilitate the tie-in, all lift stations south of the bridge were temporarily shut down, and 32,000 gallons of sewage were evacuated and trucked to the treatment plant for processing. Quality Enterprise staff disconnected the old 16-inch force main and connected the new main at two locations—north and south of the bridge. Throughout the process, 10 pumper trucks stationed across the island ensured uninterrupted sewage transport to the treatment plant.



The tie-in, conducted overnight, was completed within six hours. The final phase includes restoring sidewalks, with the project set for completion by mid-December 2024.

### Manhole Rehabilitation Program

The City of Marco Island’s wastewater collection system includes approximately 900 manholes, and the W&S team continuously evaluates the system to identify areas in need of improvement. The manhole assessment program includes visual inspections, lift station pump runtime evaluations, and monitoring treatment plant flows during storm events to identify any concerns.

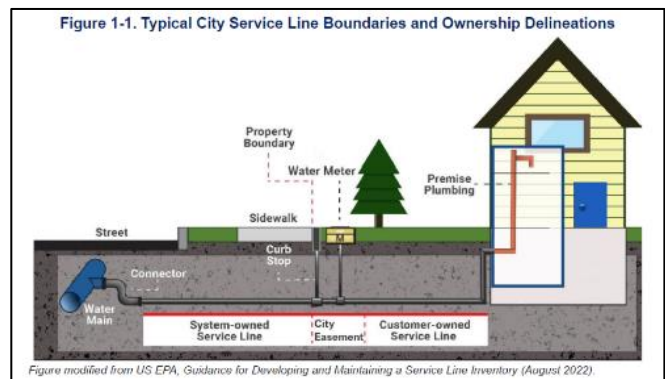
As part of an ongoing effort to address deterioration in the sewer collection system, City Council has supported the manhole repair and rehabilitation program by annually funding the program. The deterioration of these manholes has made the system more susceptible to inflow, which can increase treatment costs and operational burdens. To combat this, the program focuses on retrofitting or replacing manhole frames and lids to reduce inflow and infiltration (I&I), ultimately lowering costs, preventing system failures, and extending the lifespan of the City’s manhole structures.



In November, the W&S team successfully completed this year’s program, targeting 38 aging sanitary sewer manholes located along N. Barbados Ave, Polynesia Ct., Meadowlark Ct., Rockhill Ct., Grapewood Ct., and Briarwood Ct. Each manhole, approximately 4 feet in diameter and totaling 207 vertical feet, underwent comprehensive rehabilitation. The process involved sandblasting and high-pressure washing the interior surfaces, applying protective coatings to the walls and floor, and installing sealing mechanisms to prevent inflow and infiltration into the sewer system. B&J Lining, Inc. completed the project, ensuring improved durability and enhanced performance for the City’s wastewater system.

### The Revised Lead and Copper Rule Compliance

In response to the Environmental Protection Agency’s (EPA) revised Lead and Copper Rule, the City of Marco Island Water and Sewer Department has completed and submitted its 2024 annual service line inventory to the Florida Department of Environmental Protection (FDEP). This inventory is a dynamic document that tracks the material of every water service line in the system, both on the utility side and the customer side of each water meter.



### Compliance Requirements and Actions Taken

#### 1. Inventory and Notification:

- The revised rule requires drinking water utilities to identify any lead pipes within their

systems.

- As part of compliance, the utility must notify customers if their service line material is classified as "lead," "galvanized requiring replacement," or "unknown."
- On November 14, 2024, letters were sent to residents with unknown service line materials, informing them of this designation and outlining next steps. This proactive communication reinforces the City's commitment to ensuring safe drinking water for all residents.

2. Website Resource:

- A dedicated webpage has been created to provide residents with detailed information about the Lead and Copper Rule, the inventory process, and frequently asked questions: [Lead and Copper Rule Webpage](#).

3. Public Forum:

- To address resident concerns and provide further clarity, the City will host a Town Hall Forum on Tuesday, December 12, 2024, at 5:30 PM in the City Council Chambers.
- This forum, which will also be televised, will allow residents to ask questions and learn more about the steps we are taking to ensure compliance with the EPA's requirements.

Key Points for City Council:

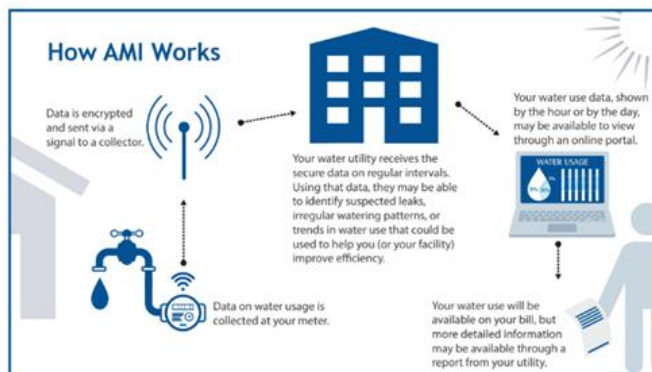
- **Service Line Inspections:** The City's inventory currently includes approximately 4,900 service lines to verify, with 630 lines marked as unknown (made of "unknown" material) on the City's side. These unknown lines are a priority.
- **Safety Assurance:** While the City does not believe there are any lead pipes in the system, this rule ensures that all water utilities across the country are held to the highest standards of public health.
- **Transparent Communication:** Our outreach is designed to keep residents informed, provide reassurance about water quality, and explain their options if they wish to independently verify their service line material.



We will continue to update Council as we progress with inspections, address resident feedback, and ensure compliance with this important regulatory effort. Please let me know if you have any questions or would like further details.

### The Meter Replacement Program and Advanced Metering Infrastructure (AMI)

The W&S Department maintains approximately 11,500 water meters across the City, the majority of which are aging mechanical models prone to accuracy decline over time. This issue results in operational inefficiencies and a significant revenue loss—estimated at 16% in 2024 due to slowing or non-functional meters. To address this, the City has budgeted annually for meter replacements as part of its Meter Replacement Program (MRP). However, recognizing the need for a more comprehensive solution, the City has been evaluating Advanced Metering Infrastructure (AMI) to modernize its water metering system.



In April 2024, the City entered into a project development agreement with Johnson Controls, a nationally recognized Energy Service Company (ESCO), to assess the feasibility of implementing AMI. The City

Council approved an investment-grade audit (IGA) at an estimated cost of \$306,000. This cost will be integrated into the project if AMI is implemented; otherwise, the IGA remains the only financial obligation.

The AMI initiative aims to:

- Reduce Water Loss: Improve billing accuracy and increase revenue by replacing aging meters with advanced ultrasonic meters.
- Enhance Efficiency: Automate meter readings at 15-minute intervals and transmit data every three hours, eliminating the need for manual meter readings.
- Decrease Maintenance Costs: Install ultrasonic meters with a 20-year accuracy lifespan (for residential and light commercial meters) or 10 years (for heavy commercial meters).
- Empower Consumers: Provide a customer portal for real-time water usage monitoring and leak notifications to promote conservation and proactive management.

Testing of existing meters began on November 6, 2024, with Johnson Controls conducting accuracy assessments of a statistical sample of smaller meters (5/8", 1", 1.5", 2") and nearly all larger meters (3" and above).

Key milestones include:

- Completion of small residential meter testing (5/8" and 1") by November 11.
- Testing of intermediate meters (1.5" and 2") scheduled for early to mid-December.
- Completion of heavy commercial meter (3"-10") testing by mid-December.

Additionally, the design of the AMI network is approximately 95% complete, and pricing for materials and installation labor is underway. Johnson Controls plans to finalize the project's benefit calculations by February 2025, which will help City Council to make a well-informed decision on whether to proceed with AMI implementation.

The AMI project represents a forward-looking investment in the City's infrastructure, with the potential to improve water metering accuracy, operational efficiency, and customer service. The IGA ensures that any decision to proceed will be well-informed, based on verified financial and operational data. If implemented, AMI is expected to transform the City's water metering capabilities and provide significant long-term benefits for residents, businesses, and the W&S Department.

## **SOURCE WATER FACILITY – BIOLOGICALLY ACTIVE FILTERS IMPROVEMENTS**

On February 20, 2024, the City Council authorized the City Manager to execute a \$9,832,000 construction contract with Cardinal Contractors, Inc., for the Biologically Active Filter (BAF) Improvements project. This advanced treatment process is designed to enhance water quality by effectively removing turbidity, organic compounds, taste and odor compounds, iron, manganese, ammonia, algal toxins, and trace chemical constituents present in the surface water.



The City's Source Water Facility, located approximately 9 miles north of Marco Island, draws surface water from lakes, which is fed by Henderson Creek. The raw water from Henderson Creek is characterized by elevated levels of hardness, total organic carbon, color, and chloride, making this project essential for improving treatment efficiency.

The new BAF facility will feature:

- Two horizontal pressure filters: Each 12 feet in diameter and 40 feet in length, installed on a reinforced concrete slab.
- Backwash system enhancements: Including a backwash air scour blower and a backwash water supply pump.

- Future expansion capability: The design accommodates the installation of two additional pressure filters to optimize future operations as demand increases.

The BAF system will significantly enhance water quality by treating raw water before it enters the lime treatment process at the North Water Treatment Plant. This will eliminate organic compounds that contribute to fouling of the microfiltration membrane system, thereby restoring the membranes' full lifespan and reducing replacement costs.

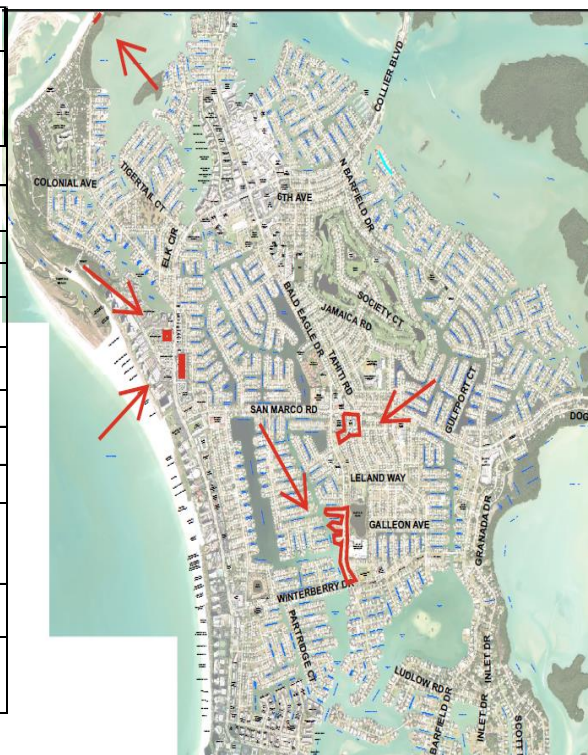
Construction began in April 2024 and is expected to be completed by March 2026. Currently, the project is 15% complete. Early progress was delayed due to permitting challenges, including a required modification from Collier County Growth Management to comply with updated FEMA requirements. The construction permit was successfully secured on November 15, 2024, allowing work to continue without further interruptions.



This project is included in the City's legislative priority project, with a request for \$750,000 in grant funding to help offset the total project cost. Securing this funding will help reduce the financial burden on ratepayers, ensuring the community benefits from critical water quality improvements at a more affordable cost.

This project is a vital step in ensuring the long-term reliability and efficiency of the City's water treatment processes while addressing the challenges posed by high concentrations of organic and inorganic contaminants in the source water.

Water Service Interruptions with Boil Water Notice (BWN)			
Month	Number of Service Calls Resulting in a BWN	Number of Customers Affected in the Month	Large Interruptions 50 Customer or More
Nov-23	2	52	
Dec-23	9	528	Seabreeze W. 70, Tradewinds-204
Jan-24	3	174	Marco Villas 95
Feb-24	0	0	
March-24	3	193	Royal Marco Way-112, Mainsail-80
April-24	5	290	Eagle Cay-126, Madeira-103
May-24	2	403	4 Condos
June-24	4	229	4000 Royal Marco Way-
July-24	4	170	San Marco Villas-65
Aug-24	0	0	****NOTE NO PRECAUTIONARY BOIL WATER NOTICES FOR AUG
Sept-24	4	307	Marco Villas-68 Twice, and Seabreeze 120
Oct-24	5	320	Aquarius 50, Marco Villas-68, 6000 Royal Marco Way-78, Seawatch-80



# Treatment Plant Data

Starting Date: **10/1/2024** Rain Fall for Time Period **6.60** Inches  
 Ending Date: **10/31/2024**

## Aquifer Storage & Recovery

ASR - Injection Avg. Daily Flow **6.40** MGD Oct-24  
 ASR - Recovery Avg. Daily Flow **0.00** MGD

**Average Daily Flow (ADF)**  
**Million Gallons per Day (MGD)**  
 "U" Undetected - results below detection limit

## Marco Island Drinking Water

		Max Day	Max Day	Flow
Combined Consumer ADF	<b>9.22</b> MGD	10/28/2024	<b>11.21</b>	MGD
NWTP Consumer ADF	<b>3.76</b> MGD	10/31/2024	<b>4.67</b>	MGD
SWTP Consumer ADF	<b>5.47</b> MGD	10/30/2024	<b>7.27</b>	MGD

### Finished Water Testing

Minimum Chlorine Residual **1.80** mg/L  
 Maximum Minimum Maximum Minimum

Turbidity	<b>0.01</b>	<b>0.01</b>	NTU	Chlorides	<b>114</b>	<b>99</b>	mg/L
Total Dissolved Solids	<b>389.00</b>	<b>220.00</b>	mg/L	Color	<b>13</b>	<b>2</b>	mg/L
P-Alkalinity	<b>10.00</b>	<b>3.00</b>	mg/L	Phosphate	<b>0.78</b>	<b>0.11</b>	mg/L
M-Alkalinity	<b>45.00</b>	<b>37.00</b>	mg/L	Ammonia	<b>1.1</b>	<b>0.33</b>	mg/L
Cal-Hardness	<b>160.00</b>	<b>68.00</b>	mg/L	Aluminum	<b>0.11</b>	<b>0.06</b>	mg/L
Total Hardness	<b>200.00</b>	<b>84.00</b>	mg/L	pH	<b>8.97</b>	<b>8.26</b>	SU

## Oct-24 Wastewater - RWPF

### Monthly Testing

	Average Flow	Monthly Max Day		Influent	Effluent
Influent	<b>2.44</b> MGD	<b>10/9/2024</b>	<b>4.30</b>	BOD	<b>114.8</b> <b>1.00</b> mg/L
Reuse	<b>1.45</b> MGD	<b>10/30/2024</b>	<b>2.4</b>	TSS	<b>117.3</b> <b>0.6 U</b> mg/L
Deep Well	<b>0.98</b> MGD	<b>10/10/2024</b>	<b>4.315</b>	Total N	<b>NA</b> <b>5.91</b> mg/L
				Total P	<b>4</b> <b>2.48</b> mg/L