



City of Port St. Lucie ■ Utility Systems Department

2014 Water Quality Report



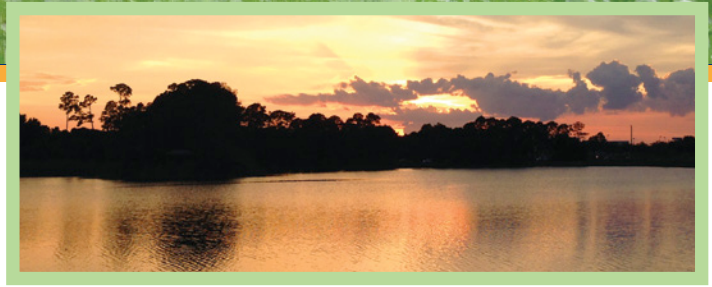


Port St. Lucie's Utility Systems Department is recognized as a leader in the water and wastewater utility industry in part because we practice good environmental stewardship by diligently working to protect the community's valuable water resources. In addition, we are committed to dependably providing a supply of clean, safe, and great tasting drinking water every time one of our 68,000 customers turns on a water tap.

A contributing factor to meeting our service commitments is the fact that our in-house staff of highly trained laboratory technicians and water treatment specialists conduct more than 12,000 analyses on water samples each year. That includes samples of untreated and treated water drawn at our water treatment plants, water sampled at designated sites throughout our 130 square mile utility service area, and samples taken at customer locations.

This report is published in compliance with Federal legislation and for the most part reflects results of the sampling and testing we conducted between January 1, 2014 and December 31, 2014. A list of Important Definitions appears on page 5 to help you interpret and understand various terms and abbreviations we are required to use in the report. However, the most important message in this document is the fact that the drinking water provided by the Port St. Lucie Utility Systems Department continues to meet all Federal and State requirements!

Long-term projects: The City intends to construct and operate a cyclic potable water treatment, storage, and recovery system at its McCarty Ranch Preserve in order to help meet the community's projected 70 million gallons per day potable water demand for its build-out population that is estimated to be approximately 400,000 in 2060. That system will include capturing water from the nearby C-23 Canal during annual wet season and pumping it to



large on-site lakes where it will then be treated to drinking water standards at a surface water treatment plant. The treated water will either be distributed to the City's water utility customers or stored in multiple on-site aquifer storage and recovery wells for recovery during annual dry season or other periods of high demand. The City's acquisition of an additional nearby property called McCarty Ranch Extension will provide supplementary raw water storage capacity and enhance the efficiency of operating the referenced future cyclic potable water treatment, storage, and recovery system.

Near-term project: The City has applied for grant funding, and if awarded to us, a 228-acre water storage reservoir or water farm will be constructed at McCarty Ranch Extension. It is estimated the reservoir will hold $\pm 1,000$ acre feet of rainwater and another $\pm 2,500$ acre-feet of water that will be pumped out of the adjacent C-23 Canal (a known impaired water body) for a total of 1.14 billion gallons total water storage capacity. Water farming benefits include, but are not limited to the following:

- Reducing freshwater discharges from the C-23 canal into the brackish North Fork of the St. Lucie River that contribute to algae blooms and fish kills; and
- Reducing overall nutrient loading (especially phosphorus and nitrogen) in the City's storm water system before it ultimately flows to the Indian River Lagoon.

Please be assured the steps we are taking now, such as acquiring the McCarty Ranch Preserve and McCarty Ranch Extension properties, will help sustain the community's natural resources and environmental health, and very importantly, will ensure that an adequate supply of drinking water is available for future generations of area residents.

If you have questions about this report or about any of our services, please feel free to contact us by calling our switchboard that is operated by Utility staff members who stand ready to assist you 24 hours a day. You can reach us at 772-873-6400 day or night because we remain as our service slogan says, "Connected To the Community!"

Jesus A. Mereja

Utility Systems Director

CONTAMINANTS THAT MAY BE PRESENT IN THE SOURCE WATER INCLUDE:

Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

Inorganic contaminants, such as salts and metals, which can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.

Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.

Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.

Radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities.



HOW SAFE IS OUR WATER?

In order to ensure that tap water is safe to drink, the EPA prescribes regulations, which limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline at 1-800-426-4791.

In addition, if present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The Utility Systems Department is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at <http://www.epa.gov/safewater/lead>.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people

with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbiological contaminants are available from the Safe Drinking Water Hotline at 1-800-426-4791.

In 2014 the Florida Department of Environmental Protection (FDEP) performed a source water assessment of the City's water supply system to identify any potential sources of contamination in the vicinity of our wells. Two potential sources of contamination that were identified for this system have a low susceptibility level. It should be noted that the potential sources of contamination identified by this assessment are just that: potential sources. All of Port St. Lucie's water supply facilities are regulated, and operate under stringent construction and maintenance standards to protect both human health and the environment. The purpose of FDEP conducting the source water assessments was to determine if any actions are needed to reduce current risks to avoid future problems. No actions were recommended. The assessment results are available on the FDEP Source Water Assessment and Protection Program website at www.dep.state.fl.us/swapp.

The Utility Systems Department has been monitoring for unregulated contaminants (UCs) as part of a study to help the U.S. Environmental Protection Agency (EPA) determine the occurrence in drinking water of UCs and whether or not these contaminants need to be regulated. At present, no health standards (for example, maximum contaminant levels) have been established for UCs. However, we are required to publish the analytical results of our UC monitoring in our annual water quality report. If you would like more information on the EPA's Unregulated Contaminants Monitoring Rule, please call the Safe Drinking Water Hotline at 1-800-426-4791.

WATER CONSERVATION TIPS

Conserving water not only helps you save money, but it also helps preserve our water resources for the use of generations to come. The responsibility to conserve water continues to rest with each of us, young and old alike so please share the following tips with your family members, friends, and neighbors.

- Turn off the water while shaving, brushing your teeth, or washing your hands.
- Upgrade plumbing fixtures and toilets manufactured before 1994 with new water-efficient models. Look for the “Water-Sense” label and buy products bearing that label that meet the Environmental Protection Agency’s criteria for water efficiency and performance.
- Become a leak detective! Regularly check faucets, toilets, hose bibs and sprinklers for leaks and make necessary repairs.
- Landscape with water-thrifty ornamental grasses, plants and trees. Group plants with the same watering needs together to avoid over water some and under watering others. Mulched landscape beds help retain moisture.
- Always follow the Water Use Restrictions imposed by South Florida Water Management District for landscape irrigation days and times.
- Additional water conservation tips and information about the importance of water conservation can be found at the following sites: www.cityofpsl.com, <http://my.sfwmd.gov>, or <http://www.epa.gov/watersense>.

CROSS CONNECTION CONTROL: Protecting our water

There are 68,000 connections to our water distribution system. When connections are properly installed and maintained, the risk of contamination is very minimal. However, unapproved and improper piping changes or connections can adversely affect not only the availability, but also the quality of the water. A cross connection may let polluted water or even chemicals mingle into the water supply system when not properly protected. This not only compromises the water quality, it can also affect your health.

What can you do? Do not make or allow improper connections at your home. An unprotected garden hose lying in a puddle is a cross connection. The unprotected lawn sprinkler system after you have fertilized or sprayed is also a cross connection. Also, residents in neighborhoods utilizing reclaimed water for irrigation must take precautions to prevent cross connections. Reclaimed water is not suitable for potable use and must not be connected to household plumbing. When the cross connection is allowed to exist at your home it will affect you and your family first. If you’d like to learn more about helping to protect the quality of drinking water, call us at 1-772-873-6400 for further information about ways you can help.

ENVIRONMENTAL PROTECTION: Preventing Urban Storm Water Runoff Pollution

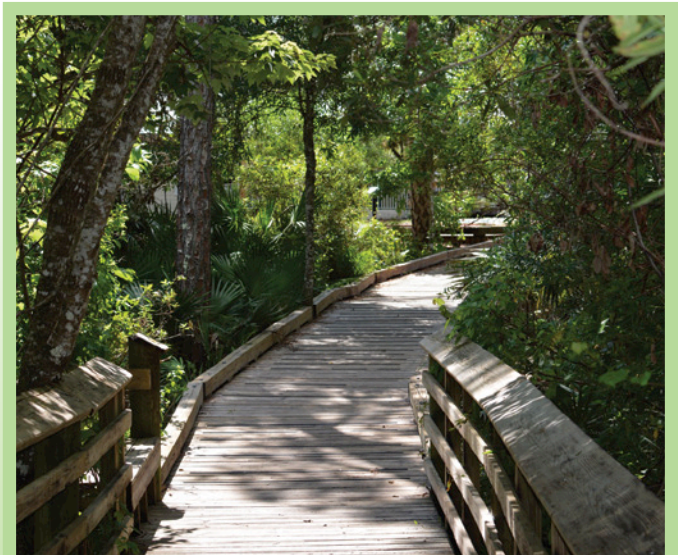
- Use fertilizers sparingly and keep it off driveways, sidewalks, and roads.
- Never dump anything down the storm drains.
- Compost your yard waste.
- Avoid pesticides; learn about Integrated Pest Management. (IPM)
- Pick up after your pet

For more information of how you can minimize urban stormwater runoff pollution, go to the following link. <http://www.cityofpsl.com/npdes/combating-pollution.html>

WHERE DOES OUR WATER COME FROM?

The City’s drinking water supply comes from two separate sources, the shallow aquifer and the deeper Floridan aquifer. Raw water from the shallow aquifer, which is about 100 feet deep, is treated by a lime softening process located at the Prineville Water Treatment Plant (WTP). This process is a combination of pH adjustment with lime, coagulation with a polymer, and multi-media filtration. Raw water from the deeper Floridan aquifer, which is about 1350 feet deep, is treated by two reverse osmosis facilities - an 11.15 million gallons per day facility located at the Prineville WTP, and a 22.5 million gallons per day facility located at the James E. Anderson WTP. The treated water is disinfected with chloramines and fluoride is added at both water treatment plants.

The sources of drinking water (both tap water and bottled water) includes rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or human activity.



IMPORTANT DEFINITIONS

Maximum Contaminant Level or MCL: The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

Maximum Contaminant Level Goal or MCLG: The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

Action Level (AL): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.

Initial Distribution System Evaluation (IDSE): An important part of the Stage 2 Disinfection Byproducts Rule (DBPR). The IDSE is a one-time study conducted by water systems to identify distribution system locations with high concentrations of trihalo-methanes (THM) and haloacetic acids (HAA). Water systems will use results from the IDSE, in conjunction with their Stage 1 DBPR compliance monitoring data, to select compliance monitoring locations for the Stage 2 DBPR.

Maximum residual disinfectant level or MRDL: The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of disinfectant is necessary for control of microbial contaminants.

Maximum residual disinfectant level goal or MRDLG: The level of drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

“ND” means not detected and indicates that the substance was not found by laboratory analysis.

Parts per billion (ppb) or Micrograms per liter (ug/l) – one part by weight of analyte to 1 billion parts by weight of the water sample.

Parts per million (ppm) or Milligrams per liter (mg/l) - one part by weight of analyte to 1 million parts by weight of the water sample.

Picocurie per liter (pCi/L): measure of the radioactivity in water.

TEST RESULTS TABLE For Prineville Water Treatment Plant

Contaminant and Unit of Measurement *	Dates of Sampling (mo/yr)	MCL Violation Y/N	Level Detected **	Range of Results	MCLG	MCL	Likely Source of Contamination
INORGANIC CONTAMINANTS							
Fluoride (ppm)	4/2014	N	0.68	N/A	4	4	Erosion of natural deposits; discharge from fertilizer and aluminum factories. Water additive which promotes strong teeth when at optimum levels between 0.7 and 1.3 ppm
Sodium (ppm)	4/2014	N	89.3	N/A	N/A	160	Salt water intrusion; leaching from soil
RADIOLOGICAL CONTAMINANTS							
Radium 226 (pCi/L)	4/2008	N	0.3	N/A	0	5	Erosion of natural deposits

Lead and Copper Results

These results are for the distribution system

Contaminant and Unit of Measurement	Dates of Sampling (mo/yr)	AL Violation Y/N	90th Percentile Result	# of Sites Exceeding the AL	MCLG	AL (Action Level)	Likely Source of Contamination
Copper (tap water) (ppm)	6/2014	N	0.076	0	1.3	1.3	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Lead (tap water) (ppb)	6/2014	N	3.1	0	0	15	Corrosion of household plumbing systems; erosion of natural deposits

TEST RESULTS TABLE (continued)

Disinfectants and Disinfection By-Products

These results are for the distribution system

Contaminant and Unit of Measurement	Dates of Sampling (mo/yr)	MCL Violation Y/N	Level Detected	Range of Results	MCLG or MRDLG	MCL or MRDL	Likely Source of Contamination
Chloramines (ppm)	1-12/2014	N	2.9	2.8 - 3.0	MRDLG = 4	MRDL = 4.0	Water additive used to control microbes
Haloacetic Acids (HAA5) (ppb)	2,5,8,11 2014	N	24.9 ***	1.7 - 26.8	N/A	MCL = 60	By-product of drinking water disinfection
TTHM (Total trihalo-methanes) (ppb)	2,5,8,11 2014	N	50.0 ***	0.25 - 52.2	N/A	MCL = 80	By-product of drinking water disinfection

Unregulated Contaminants

These results are for the distribution system

Contaminant and Unit of Measurement	Dates of Sampling (mo/yr)	Level Detected **	Range	Likely Source of Contamination
Chromium (ppb)	11/2014	0.27	0.25 - 0.29	Chromium is a naturally occurring element. The MCL of 100 ppb covers the two forms primarily found in the environment: trivalent chromium (chromium-3) and hexavalent chromium (chromium-6). Chromium is used in making steel and other alloys. Chromium-3 or -6 forms are used for chrome plating, dyes and pigments, leather tanning, and wood preservation. Chromium-3 is an essential nutrient.
Strontium (ppb)	11/2014	1285	1050 - 1520	Strontium is a naturally-occurring element. Historically, the commercial use of strontium has been in the faceplate glass of cathode-ray tube televisions, to block x-ray emissions.
Vanadium (ppb)	11/2014	0.1385	0.067 - 0.22	Vanadium is a naturally-occurring elemental metal. It is commonly used as vanadium pentoxide which is a chemical intermediate and a catalyst.
Chromium-6 (ppb)	11/2014	0.0565	0.034 - 0.10	Chromium-6 is the highest oxidation state of the element chromium. Although chromium-6 can be formed by the oxidation of chromium-3, the primary mode of chromium-6 occurrence in the environment is via the release of industrial containing chromium-6 chemicals

TEST RESULTS TABLE For James E. Anderson Water Treatment Plant

Contaminant and Unit of Measurement *	Dates of Sampling (mo/yr)	MCL Violation Y/N	Level Detected **	Range of Results	MCLG	MCL	Likely Source of Contamination
INORGANIC CONTAMINANTS							
Fluoride (ppm)	4/2014	N	0.69	N/A	4	4	Erosion of natural deposits; discharge from fertilizer and aluminum factories. Water additive which promotes strong teeth when at optimum levels between 0.7 and 1.3 ppm
Sodium (ppm)	4/2014	N	95.8	N/A	N/A	160	Salt water intrusion; leaching from soil

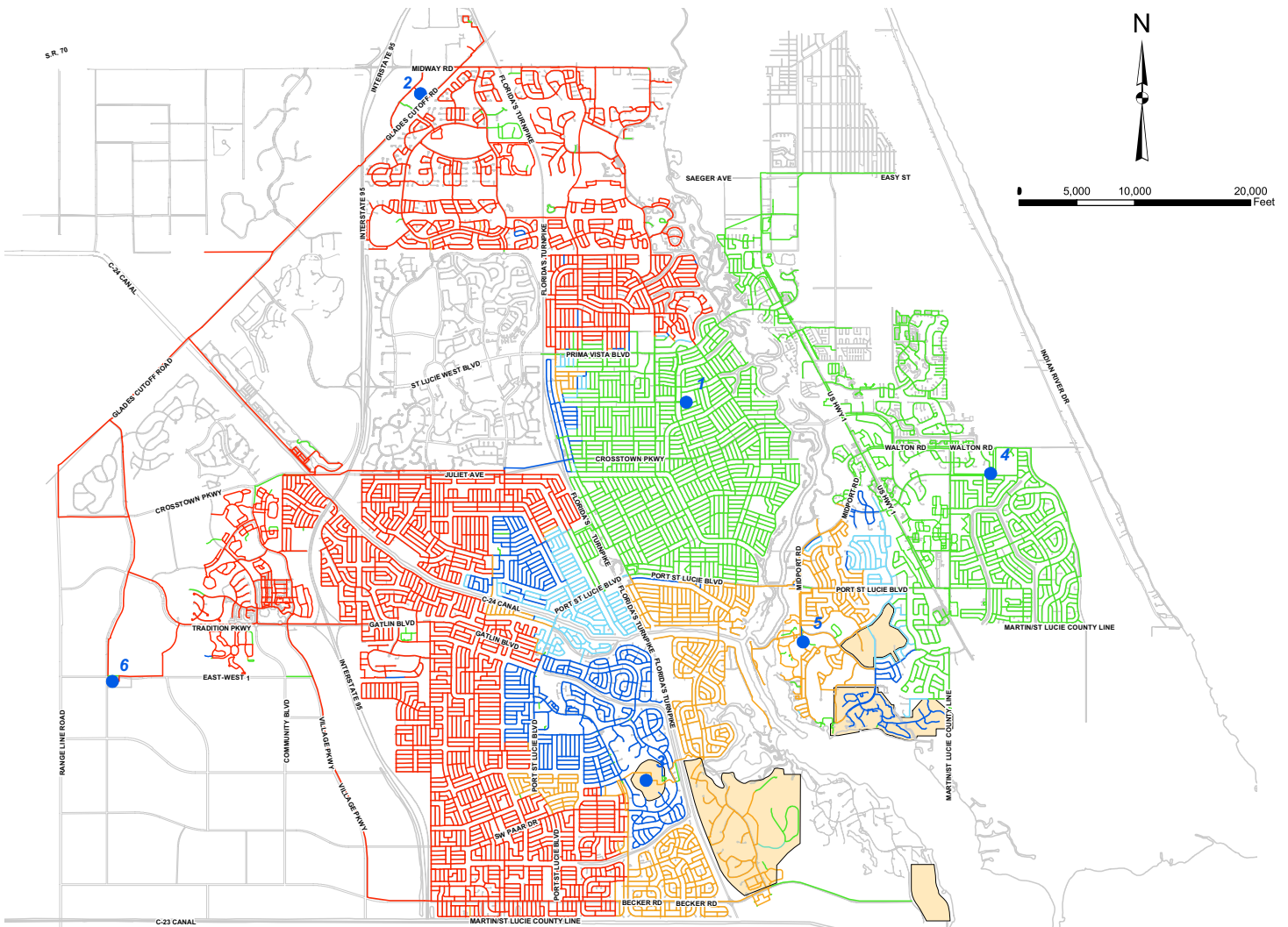
*The state allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data, though representative, are more than one year old.

** Results in the Level Detected column for radiological contaminants, inorganic contaminants, synthetic organic contaminants including pesticides and herbicides, and volatile organic contaminants are the highest average at any of the sampling points or the highest detected level at any sampling point, depending on the sampling frequency.

*** Locational Running Annual Average (LRAA): the average of sample analytical results for samples taken at a particular monitoring location during the previous four calendar quarters.

City of Port St. Lucie

Utilities System Water Distribution Map



A NEARLY UNBEATABLE VALUE

The City of Port St. Lucie's Utility Systems Department supplies drinking water at a tremendous value. If you get your daily recommended eight glasses (64 ounces) of water by drinking our tap water every day for an entire year, the total cost would only be 67¢ for the entire year! Purchasing that same volume (182.5 gallons) of bottled water from a retail store or vending machine could cost \$140 or more for the year. In today's economy, spending 67¢ to drink a year's worth of tap water instead of spending more than \$100 for an equal amount of bottled water is certainly something to consider.



LEGEND

Water Source

- 1 - Prineville WTP
- 2 - JEA WTP
- 3 - Westport Repump
- 4 - Midport Repump
- 5 - Southport Repump
- 6 - Rangeline Repump

% JEA Water

- 0 - 20
- 20 - 40
- 40 - 60
- 60 - 80
- 80 - 100
- Existing Reclaimed Water Service Area



City of Port St. Lucie

Utility Systems Department
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Port St. Lucie, FL 34983

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Here



CITY OF PORT ST. LUCIE LEADERSHIP

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Vice Mayor District 1

Michelle Lee Berger

Councilwoman District 2

Shannon M. Martin

Councilwoman District 3

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Councilman District 4

Jeff Bremer

City Manager

Jesus A. Merejo

Utility Systems Director