



Memorandum

Memorandum No: 23-065

Date: May 15, 2023

To: Honorable Mayor, Vice Mayor, and Commissioners

From: Greg Chavarria, City Manager 
Greg Chavarria (May 18, 2023 17:22 EDT)

Re: George T. Lohmeyer Wastewater Treatment Plant Capacity Issues

Background:

Section 47-25 of Fort Lauderdale's Unified Land Development Code contains adequacy requirements, which include analyzing available capacity of the water and wastewater systems, including the treatment plants. The review criteria used to evaluate treatment plant capacity includes reviewing the demand imposed upon the public water and wastewater systems by a proposed development. This review is done to determine system adequacy exists prior to site plan approval. During the Development Review Committee (DRC) process, staff evaluates the projected demand for water and wastewater services, considering the capacity of the water distribution system, water treatment plants, wastewater collection system including pump stations, and the wastewater treatment plant. If there is adequate capacity available to serve the proposed development, the City reserves the necessary capacity to accommodate the proposed development at site plan approval.

Based on the City's operating license capacity limit for the George T. Lohmeyer (GTL) Wastewater Treatment Plant (WWTP), recent reviews indicate a capacity shortfall, which may prevent the City from assuring adequacy of wastewater infrastructure or issuing site plan approvals. This will impact the City's ability to approve future development. It is important to note, however, that this limitation has been reached based on all DRC approved development, inclusive of projects that have yet to be constructed, and that the WWTP is not currently operating over capacity due to existing development. The following is an overview of the GTL WWTP, the plant's current capacity, and the plan to address the expected shortfall.

The GTL WWTP is a central regional facility where wastewater is treated for the City of Fort Lauderdale, Wilton Manors, Oakland Park, and Port Everglades, as well as sections of Tamarac and unincorporated Broward County. The WWTP is permitted to operate by both the Florida Department of Environmental Protection (FDEP) and Broward County Environmental Protection and Growth Management Department (BC-EPGMD) as a conventional pure oxygen activated sludge domestic wastewater treatment plant consisting of influent screening, grit removal, aeration, secondary clarification, sludge

dewatering, and chlorination. The FDEP permit provides a permitted capacity of 56.6 million gallons per day (MGD), which is calculated based on a three-month average daily flow (TMADF). The BC-EPGMD permit provides a permitted capacity of 48 MGD, which is calculated based on a twelve-month annual average daily flow (AADF). While the permitted capacity includes peaking factors and other operational safety considerations as part of their calculation, it should be noted that the GTL WWTP has sufficient physical capacity to operate with flows greater than what is permitted.

Seasonal variations and recent flood event in April have significantly impacted inflows to the plant and the average flow calculations used for permitting. Generally, variations correlate to increased rainfall and rising groundwater levels, with the summer and fall months (June through November) having the largest daily flows. When the committed flow is combined with the current TMADF and AADF values, we arrive at an expected wastewater flow value that exceeds the BC-EPGMD permitted capacity (48.449 MGD). Because the projected flow of 48.449 MGD AADF exceeds the Broward County permitted capacity of 48 MGD, the City cannot approve any further site plans.

While the permitted capacity is based on the three month or annual average flows, GTL does have the physical capacity to treat and dispose of significantly higher volumes to provide for peak flows. Analysis of the major plant process components indicates the limiting factor is the ability to dispose of fully treated effluent through the five permitted injection wells, which have a design peak hourly flow capacity of 93.5 MGD. The injection capacity does degrade over time, requiring periodic maintenance to restore flow capacity. During recent, extreme rain events in 2023, the plant successfully managed up to 80 MGD before exceeding the injection wellfield's capacity and discharging fully treated effluent through the emergency outfall.

Seasonal variations significantly impact inflows to the plant. Generally, these variations correlate to increased rainfall and rising groundwater levels, with the summer and fall months (June through November) having the largest daily flows. The 2017 Comprehensive Utility Strategic Master Plan (CUSMP) identifies a key issue affecting the wastewater system is intrusion of rainwater and groundwater into the wastewater collection system. The CUSMP attributes approximately 21 MGD of daily flows received at the GTL WWTP to inflow and infiltration (I&I) and recommends continued investment in I&I reduction projects to address capacity concerns. Since 2017, the City has spent more than \$28M on wastewater pipe rehabilitation projects to address I&I, with an additional \$22M in project funding within the current CIP, and an additional \$120M planned over the upcoming five years.

To allow for further development in the City, staff has taken the following steps:

- 1) Removal of allocated capacity for projects which have expired site plan approvals. Staff will continue to review projects with a current allocation on a quarterly basis and remove projects that have expired site plans and are not moving forward to free up the capacity for new projects.

- 2) Permit capacity increase. Staff has engaged a consultant to evaluate the GTL WWTP's process components and prepare a technical memorandum to FDEP and Broward County to request modification of the permitted capacity to allow for greater daily flows. The amount of increase will be determined as part of the technical evaluation.
- 3) Options to increase physical capacity. Staff has engaged a consultant to evaluate the GTL WWTP's process components and identify structural improvements to the WWTP's systems to increase plant capacity. Potential CIP projects may include construction of an additional injection well, modifications to clarifiers or other components, or the construction of a second wastewater treatment plant.
- 4) Increase investment in I&I projects. Staff has completed an analysis of the City's 186 wastewater basins to identify those with the greatest I&I impacts. The top twenty basins will be prioritized in the CIP for funding, with an estimated cost of \$120M.
- 5) Mechanical integrity testing (MIT) and deep well cleaning. The City will increase the frequency of deep well cleaning work on the five (5) existing injection wells to improve performance and capacity during peak flow events. Maintaining GTL's physical capacity will reduce the frequency of discharges through the emergency outfall during extreme flow events.
- 6) Review Large User agreements. The City recently renewed Large User agreements with Wilton Manors, Oakland Park, Port Everglades, Tamarac, and Broward County. A review of average monthly flows from these customers indicates that most exceed their agreed upon allocations for wastewater flow. While the agreements provide for a 25% surcharge in payments when flows exceed allocations, staff will work with these customers to increase their I&I efforts and to reduce their overuse of allotted capacity.
- 7) Staff is working with the City Attorney's Office to determine if there is a more reasonable process for reserving capacity at the time of building permit application rather than during the DRC review process. This change in process will ensure capacity is verified and allocated only to those projects that are moving forward for construction.

c: Anthony G. Fajardo, Assistant City Manager
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