



George T. Lohmeyer Wastewater Treatment Plant Capacity Update

June 6, 2023, City Commission



Agenda

- State Permitting Standards
- County Permitting Standards
- DRC Capacity Analysis Process
- Factors Affecting Capacity
- Current Average Flows and Available Capacity
- Large User Agreements and Current Average Flows
- Actions to Improve Capacity



State Permitting Standards

State of Florida Department of Environmental Protection (FDEP) Domestic Wastewater Facility Permit

Permitted Capacity Based on 3-Month Average Daily Flow

- 56.6 MGD TMADF

Annual Capacity Analysis Report on Total Capacity

- Only Required Every 5 Years for Permit Renewal

Monthly Reporting

- Monthly and Annual Average Flows
- Discharge Water Quality

GTL Peak Operational Capacity = 93.5 MGD

The image shows a permit document from the Florida Department of Environmental Protection (FDEP). The document is titled "Florida Department of Environmental Protection" and includes the state seal. It is dated September 7, 2011, and is for the City of Fort Lauderdale. The permit is for the G.T. Lohmeyer Wastewater Treatment Plant (WWTP) in Broward County. The permit number is FLA041378-012-DW1P. The document includes sections for "ELECTRONIC CORRESPONDENCE" and "NOTICE OF PERMIT ISSUANCE". The "NOTICE OF PERMIT ISSUANCE" section states that the permit is issued under Chapter 403, Florida Statutes, and that the permittee shall continue to monitor and report in accordance with previously effective permit requirements, if any. It also includes information about the Department's proposed agency action and the procedures for petitioning for a hearing.



County Permitting Standards

Broward County Resilient Environment Department Wastewater Treatment Plant Operating License

Licensed Capacity Based on Annual Average Daily Flow

- 48 MGD AADF

Monthly Reporting

- Monthly and Annual Average Flows
- Discharge Water Quality

County Monitors Capacity Availability

- Permit Applications Plus Average Flows

GTL Peak Operational Capacity = 93.5 MGD

BROWARD COUNTY Resilient Environment Department
Environmental Permitting Division
1 North University Drive, Mailbox 201, Plantation, Florida 33324-2038
954-619-1483 Fax 954-619-1412

LICENSE TO OPERATE A WASTEWATER TREATMENT FACILITY

APPLICANT: City of Fort Lauderdale-Public Works Dept.
Attention: Mr. Taha Adh-Karam, Assistant Public Works Director-Utilities
943 NW 3500 Street
Fort Lauderdale, FL 33309

RED LICENSE NO.: WWTP-0700-02
PROJECT: GTL, G.T. Lohmeyer 2022/2023 WWTP

This license is issued under the provisions of Chapter 27 of the Broward County Code of Ordinances, hereinafter called the Code. The above named applicant, hereinafter called licensee, is hereby authorized to perform the work or operate the facility shown on the approved drawings, plans, documents, and specifications submitted by applicant and made a part hereof and described specifically below. License conditions shall be deemed to be accepted if they are not objected to in writing and received by the Resilient Environment Department (RED) within fourteen (14) calendar days of receipt of the license by the applicant.

TO OPERATE: A wastewater treatment facility which includes the conveying collection/transmission system for a 48 MGD (AADF) (56.6 MGD (THAADP)) pure oxygen activated sludge WWTP (Rule 62-620.200(5), Florida Administrative Code (F.A.C.)). Major treatment components consist of four (4) 6 mm bar screens and washpresses, two (2) grit removal tanks, two (2) hydrocyclones, two (2) coagulation basins with pure oxygen provided by a coagulant oxygen plant, four (4) circular secondary clarifiers, seven (7) square secondary clarifiers, and two (2) chlorine mixing chambers with effluent screen. Solids handling consists of seven (7) belt filter presses for dewatering and disposal in a residuals management facility or landfill. Effluent disposal is via five (5) 24 inch deep injection wells. Emergency power is provided to operate the treatment and disinfection processes. Co-Licensee: Wilton Manors, Oakland Park, Tamarac, and Fort Lauderdale, Davie, see Specific Conditions.

IN ACCORDANCE WITH: Application received 05/12/2022 and plans previously submitted (none attached).

LOCATED AT: 1765 SE 18TH ST, Fort Lauderdale, FL 33316

SUBJECT TO: General Conditions 1 - 11, Specific Conditions 1 - 26

Renewal of License #: WWTP-0700-01

Renewal application due: May 1, 2023

Expiration date: June 30, 2023

Effective the 1st day of: July, 2022

Resilient Environment Department

[Signature]
Yvael Rocher, P.E., Environmental Program Manager
Domestic Wastewater Program

Prepared by: Matthew Katterer, P.E.
cc: Justin Murray, Facilities Manager, Fort Lauderdale
Larry Teich, Environmental Program, Fort Lauderdale
John Fogelberg, Director, Seasonal Construction/Planning, Fort Lauderdale
David Alshak, Director of Utilities, Wilton Manors
Albert Carbon III, Public Works Director, Oakland Park
John Doherty, Director of Public Services, Tamarac
Renuka Mohammed, Utilities Director, Town of Davie

Issued Date: June 28, 2022

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County Permitting Standards

Broward County Quarterly Report

Monitors Treatment Plant Capacities Based on Annual Average Daily Flow

- AADF plus Committed Flows per County Permit

County Considering Modifying to be Based on TMADF to be Consistent with FDEP

Wastewater Treatment Plant Flow Calculations for Facilities in Broward County

Based on the most recent 12-month rolling Annual Average Daily Flow Data (January 2022 – December 2022)

PLANT NAME	LICENSED CAPACITY (MGD-AADF)	COMMITTED FLOWS PER BLDG. PERMITS AS OF DECEMBER 31, 2022 (MGD)	ANNUAL AVERAGE DAILY FLOW (MGD)	TOTAL FLOW (MGD)	TOTAL FLOW PERCENT OF LICENSED CAPACITY (%)
BC North Reg. (BCN)	95.00	3.049	71.38	74.43	78.35%
Cooper City (COO)	3.44	0.209	2.61	2.82	81.93%
Coral Springs (CSI)	7.72	0.250	4.83	5.08	65.80%
Davie 2 (DA2)	4.85	0.147	2.00	2.14	44.22%
Davie MBR (DRF)	3.50	0.000	1.72	1.72	49.01%
Ferncrest (FER)	Not Available	Not Available	Not Available	Not Available	Not Available
G.T. Lohmeyer (GTL)	48.00	1.477	43.59	45.07	93.89%
Homestead (HOM)	55.50	1.850	30.00	31.85	57.38%
I-75 Rest Stop	0.025	0.000	0.011	0.011	43.33%



DRC Capacity Analysis Process

From ULDR Sec. 47-25.2 Adequacy Requirements

1. *“the available capacity shall be determined by subtracting committed capacity and present flow from the design capacity”*
2. *If there is adequate capacity available in the city treatment plant to serve the proposed development, the city shall reserve the necessary capacity to serve the proposed development.*

Flows are reserved at time of Development Permit approval if there is adequate capacity.



DRC Capacity Analysis Process

Committed Capacity Reserved for Approved Projects

- Current Reserved Capacity = 3.923 MGD

Capacity Availability per County Operating License

48 MGD AADF

License Capacity – Present Flow (AADF) – Committed Capacity

$$48 \text{ MGD} - 44.523 \text{ MGD} - 3.923 \text{ MGD} = \mathbf{-0.446 \text{ MGD}}$$

Capacity Availability per FDEP Permit

56.6 MGD TMADF

Permit Capacity – Present Flow (TMADF) – Committed Capacity

$$56.6 \text{ MGD} - 45.362 \text{ MGD} - 3.923 \text{ MGD} = \mathbf{7.315 \text{ MGD}}$$

Projects Awaiting Site Plan Approval

- 0.988 MGD Pending
- ~30 More Projects in Queue for Analysis



Factors Affecting Capacity

Seasonal Variations

- Rainfall
- Groundwater Levels
- Inflow and Infiltration (I&I)

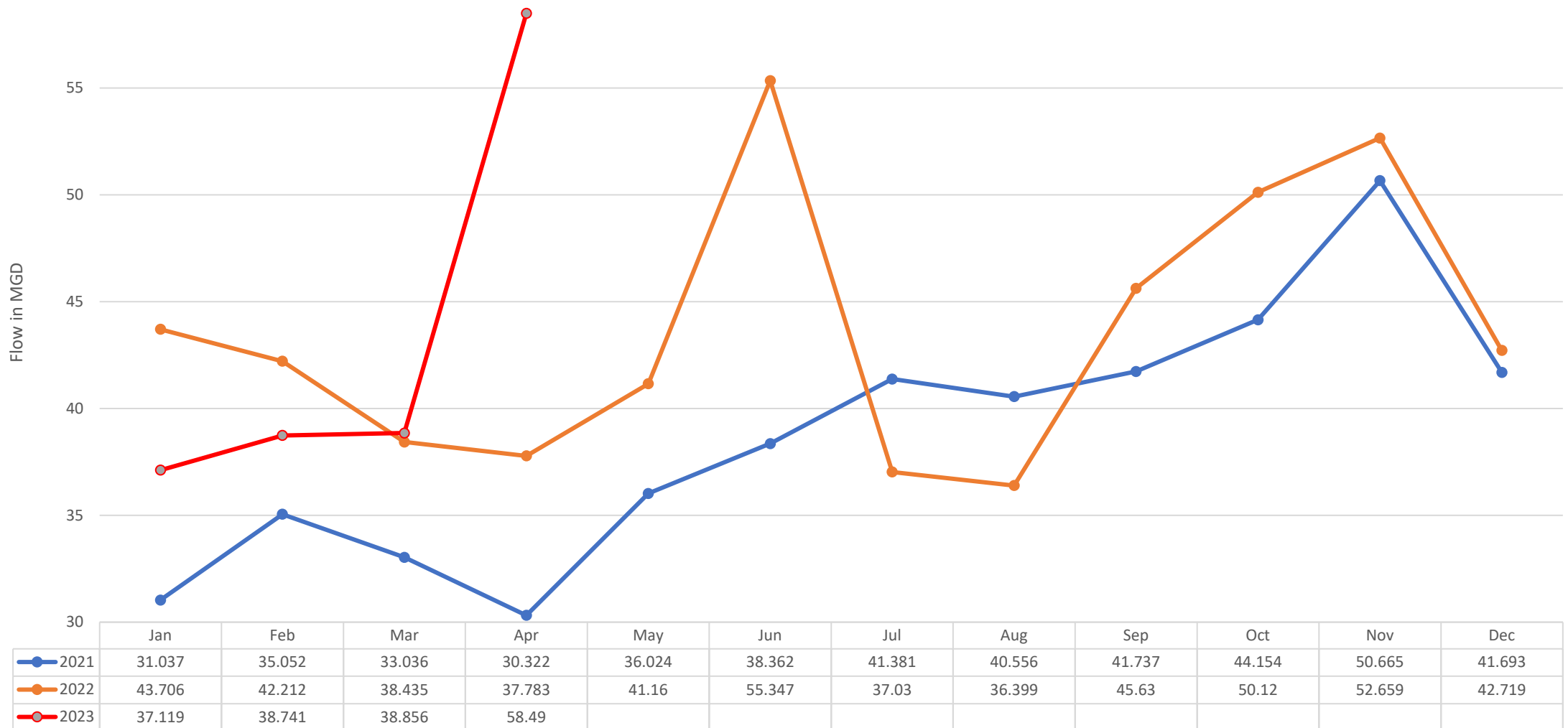
Committed/Permitted Future Flows

- Developments Retaining Entitlements from DRC
 - Construction Remains Pending
- Developments Obtaining Building Permits
 - Construction is Imminent



GTL Average Monthly Flow

Average Monthly Flow GTL (MGD) 2021 vs. 2022 vs. 2023

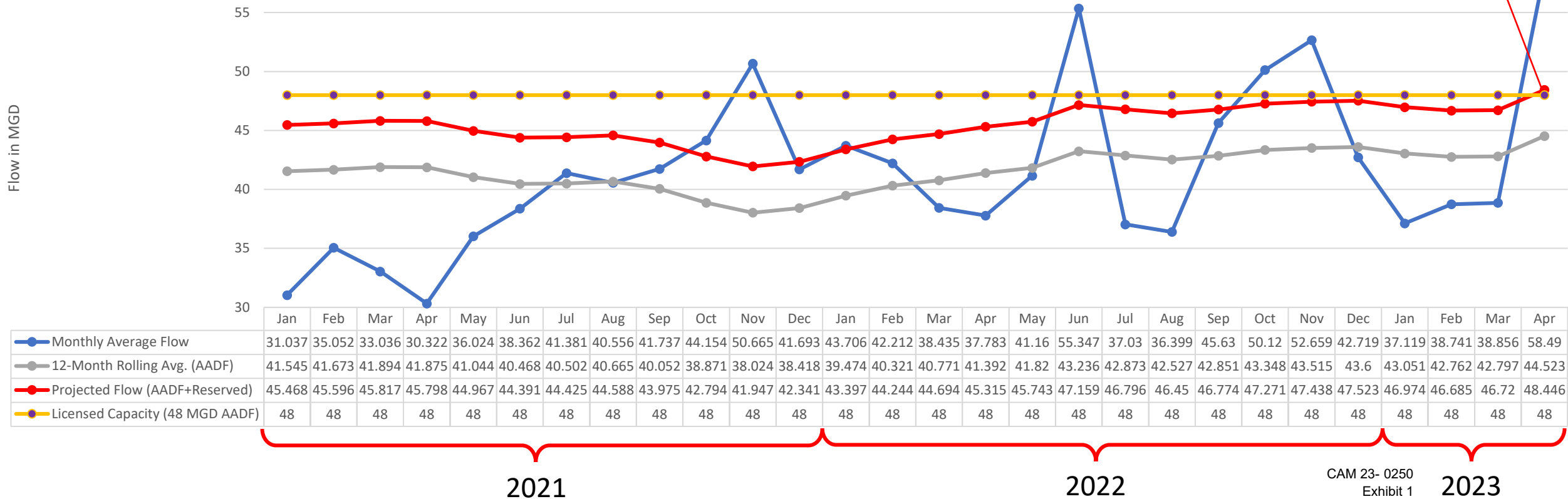




Capacity Availability – Per County License

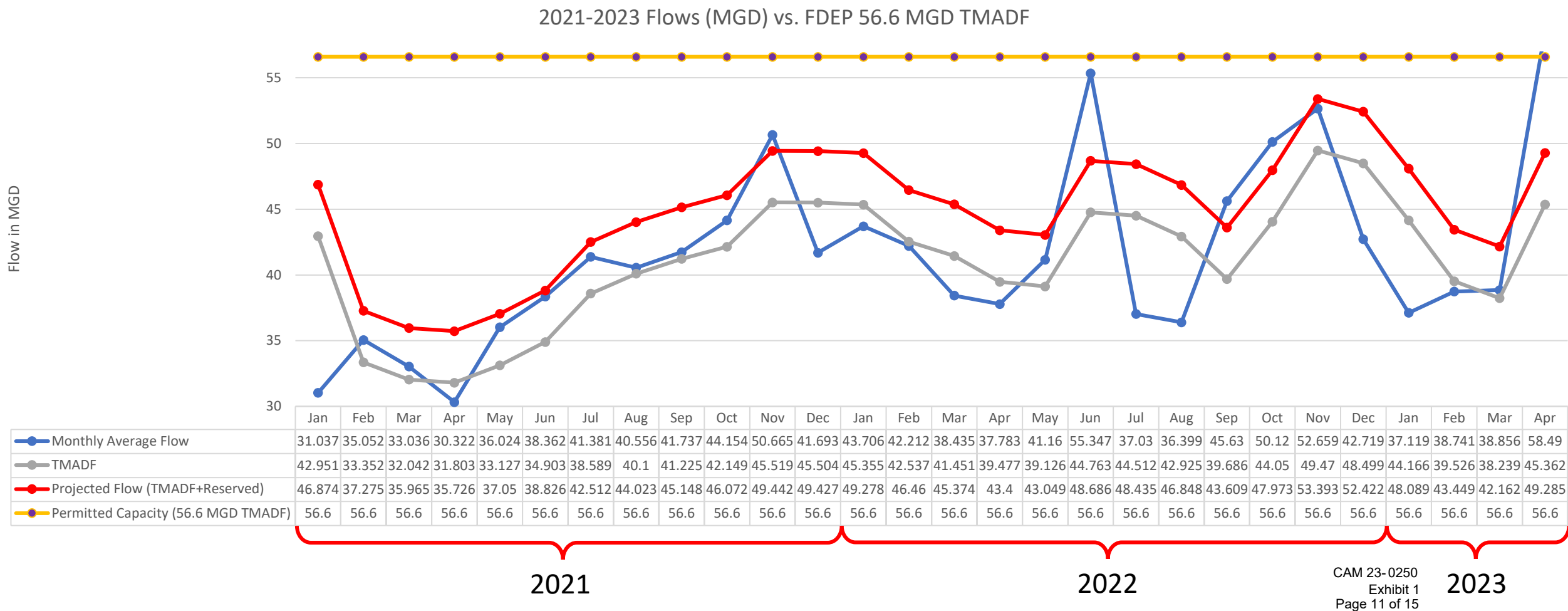
Exceeded 48
MGD

2021-2023 Flows (MGD) vs. Broward County License 48 MGD AADF





Capacity Availability – Per FDEP Permit





Large User Agreements – Who We Serve

- City of Fort Lauderdale
- City of Wilton Manors
- City of Oakland Park
- Port Everglades
- Portions of Tamarac, Davie, and Unincorporated Broward County



Large User Wastewater Flows

		Oakland Park	Tamarac	Davie	Wilton Manors
Agreement Limits	Monthly AADF* Allocation FY 22-23 (MGD)	2.93	0.226	0.1	1.98
	Max Monthly Allocation FY 22-23 (MGD)	3.93	0.26	0.22	2.46
April Data	April AADF* (MGD)	5.259	0.213	0.067	1.97
	April Month Flow (MGD)	6.83	0.276	0.106	2.779

*Per Large User Agreements, this is a 3-year running average.

- We are receiving approximately 2.3 MGD over the expected amount from Oakland Park



Actions To Improve Capacity

Continue Addressing I&I Reduction With Increased Funding

- Previous 5-Year CIP = ~\$25M
- Planned/Upcoming 5-year CIP = ~\$120M

Increased Frequency of Deep Injection Well Cleaning to Maintain Maximum Capacity

- Previous Schedule = Cleaning Every 5 Years
- New Schedule = Cleaning Every 2.5 Years

Develop and Implement CIP Projects to Increase Plant Capacity

- Potentially Enables City to Increase FDEP Permitted Capacity

The City Will Work With Large Users to Identify and Address Their Sources of Excess Flow

All Capacity Analyses Will Be Based on FDEP Permit Conditions

- We Currently Have Approximately 7.315 MGD in Available Capacity

Continue Addressing I&I, Modify Processes at GTL, and Clean Deep Injection Wells

- Maintaining and Increasing Maximum Capacity

Enforce Overflow Surcharge Clause in Large User Agreements

Work With Large Users to Encourage Them to Properly Address Their Sources of Excess Flow