



# **Environmental Services Department Overview**

**Environmental Services Commission Meeting  
April 11, 2024**





# DEPARTMENTAL OVERVIEW

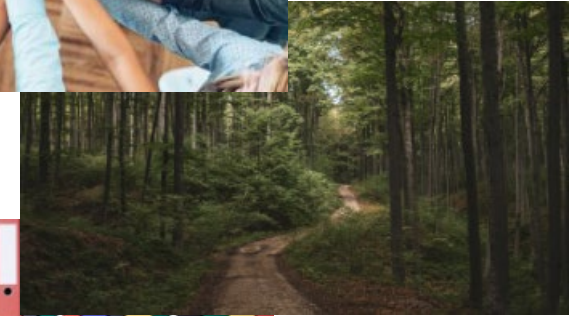
- Three Utilities
  - Wastewater
  - Stormwater
  - Solid Waste
- Five Divisions
  - Operations & Maintenance
  - Science & Engineering
  - Solid Waste Management
  - Business Operations
  - Office of Environmental Policy & Sustainability\*



# BUSINESS OPERATIONS



- Providing public-facing & department-wide shared services:
  - Billing & Technical Services
  - Environmental Compliance
  - Systems & Performance Management
  - TAGRO
  - Administrative Services





# WASTEWATER MANAGEMENT



Presenter:

Hugh Messer,  
Operations & Maintenance Division Manager  
Email: [hmesser@cityoftacoma.org](mailto:hmesser@cityoftacoma.org)





# ORGANIZATION STRUCTURE

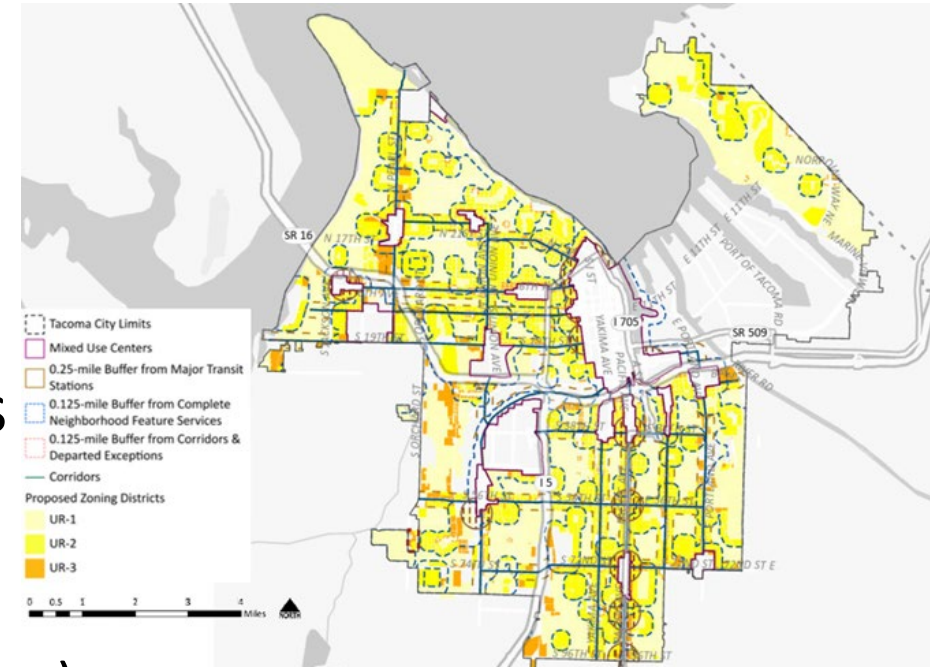
## Full-Time Equivalent Employees

- 225 FTEs across Engineering, Business Operations and Operation & Maintenance Divisions.
- 2023 Labor Budget = \$30,088,169



# GROWTH IMPACTS TO WASTEWATER

- Planning for growth based on Puget Sound Regional Council projections, plus anticipated growth from Home In Tacoma (HIT).
- Collection system & facilities will need upgrades to handle growth. Evaluating various scenarios to best plan for upcoming changes.
- Likely mitigation strategies
  - Increased funding (e.g. System Development Charge)
  - Update Interlocal Agreements with neighboring jurisdictions
  - Increase tracking of where development occurs & flow monitoring in selected areas





# WASTEWATER COMPREHENSIVE PLAN

- Develop an equitable plan that addresses:
  - Impacts of Population Growth & Regulatory Requirements
  - Needs of Replacing Aging Infrastructure
  - Community/Stakeholder Expectations
  - Financial Constraints
- Anticipated Completion in 2025
- ESC Updates provided Nov 2021, Dec 2022, & Nov 2023



# NPDES DRAFT PERMIT



- CTP NPDES Draft Permit
  - Currently being reviewed by City
  - Factual Comments due by April 19
  - Public Comment Next
  - Effective once issued (tentatively Q3 2024)
- Notable Changes
  - BOD testing moved to cBOD
  - PWW testing requirements removed
  - New parameter added (Enterococci)





# DATA MANAGEMENT IMPROVEMENTS

Replaced existing Lab Information System with Hach WIMS.

- New system provides Operators with quick access to key information needed to operation the treatment plants.
- System is used for DMR reporting & Process Control/data logging.

City of Tacoma  
WASHINGTON

Central Wastewater Treatment Plant  
Friday, January 12, 2024

### Data Entry Forms

CTP Primary Data Entry *	CTP Secondary Benchsheet
CTP General Observations	CTP Secondary Process Control Benchsheet
CTP Influent	CTP Lab QC
CTP Grid Biofilter	CTP DAFT #1
CTP Primary Clarifiers	CTP DAFT #2
CTP Primary Sludge	CTP DAFT #3
CTP Aeration Basins	CTP DAFT #4
CTP Aeration Summary	CTP Solids Receiving
CTP Secondary Clarifiers	CTP BSST
CTP Secondary Effluent	CTP Screw Press
CTP RAS WAS	CTP Chemical Inventory
CTP Disinfection - Chlorine	CTP Plant Utilities
CTP Effluent	

### Reports

- >> CTP Daily Process Analyses
- >> CTP DMR
- >> CTP Nutrient DMR
- >> CTP KPI Report - Monthly
- >> CTP KPI Report - Summary

### Key Performance Indicators

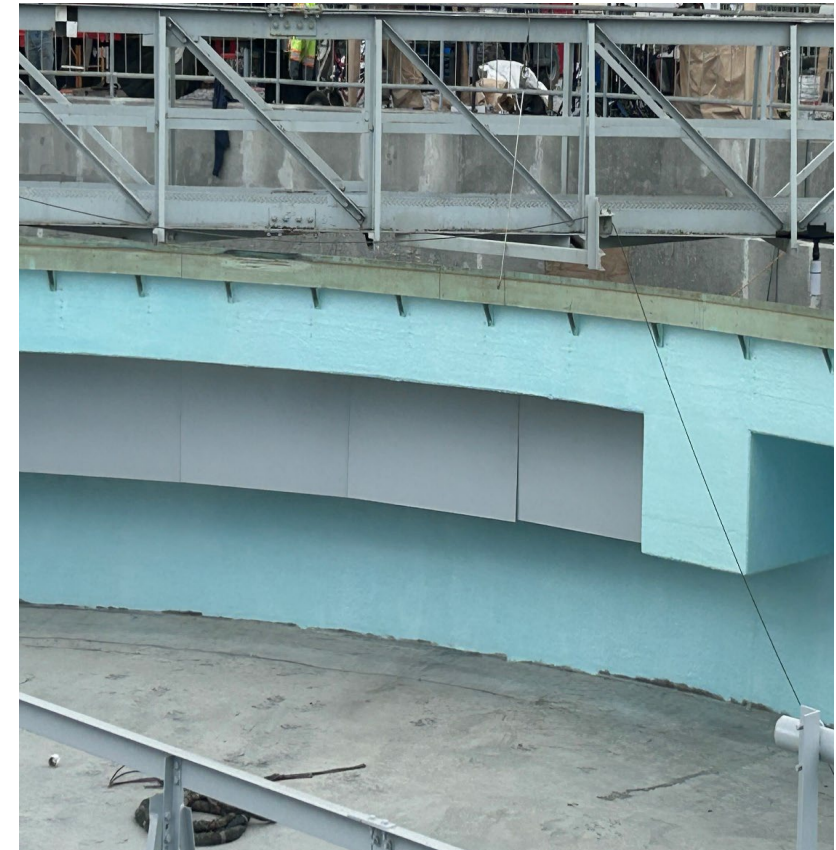
01/01/2024 thru 01/31/2024	Last	Min	Max	Avg
Inf Flow Total (MGD)	26.6	20.6	49.2	27.3
MLSS (Sample) (mg/L)	1,335.00	1,010.00	1,365.00	1,250.68
RAS TSS (mg/L)	4,740	3,670	4,740	4,272
Eff CBOD (mg/L)	10.8	10.7	10.8	10.8
Eff TSS (mg/L)	6.20	6.20	15.00	11.55
Total Residual CL2 (mg/L)	0.10	0.02	0.17	0.06
Fecal Coliform (CFU/100 mL)	16	2	20	10
Fecal Coliform Weekly Geo Mean (mg/L)	7.54	7.54	7.54	7.54
Dig #1 Det Time (Days)	5.15	5.15	5.47	5.30
Dig #2 Det Time (Days)				
Dig #3 Det Time (Days)				
Gas Methane Produced (KSCF)	207.04	202.88	216.37	209.42

NETP >>>



# UPCOMING FACILITY PROJECTS

- CTP Outfall Cathodic Protection Improvements (\$1 M) - *construction underway*
- Misc. Roof Replacements (\$3M) - *construction underway*
- Clarifier Upgrades - One complete, two planned for 2024 rehabilitation (\$3.5M). Remaining in future years.
- New trickling filter & disinfection treatment for NETP (\$11.8M) - planned construction 2025
- South Tacoma Pump Station (\$10.9M) - Project to rehab wet well & pumps. Phase 1 complete; Phase 2 under construction.





# CTP PROJECTS

- Digester #3 cleaned & external mixing addition completed. Digester #2 cleaning & mixing project planned this year.
- Administrative offices remodel Building B & locker room Building A upgrades for Transmission section.
- Completion of asbestos survey for the CTP.
- Replacement of Hypo Tanks
- PWW hypo pump replacement





# TREATMENT PLANT PROJECTS



- Replacement of Mixed Liquor Channel spray system
- Multiple pump station rehabs







QUESTIONS?



# STORMWATER MANAGEMENT

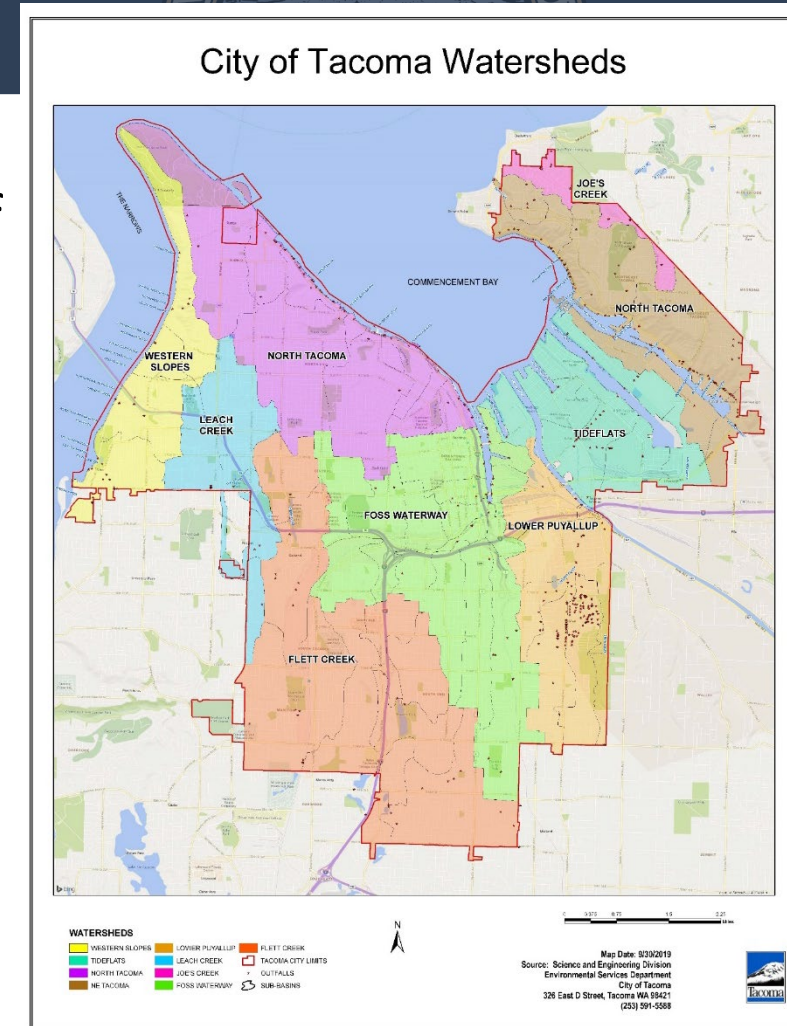


Presenter:

John Burk,  
Science & Engineering Division Manager  
Email: [jburk@cityoftacoma.org](mailto:jburk@cityoftacoma.org)

# STORMWATER OVERVIEW

- Nine Watersheds: 70% of the city drains to marine waters of Puget Sound in particular Commencement Bay, the Lower Puyallup River (a salt-wedge estuary), & the Narrows.
- Environmental Services oversees more than 66,000 stormwater accounts.
- The stormwater system consists of approx. 562 miles of public stormwater pipe, 18,840 catch basins, 4 pump stations, & 128 detention ponds/structures.
- The system was originally designed to prevent flooding & get the rainwater from lawns/streets to the Puget Sound.
- Approximately 10% of the stormwater is treated.





# ORGANIZATION STRUCTURE



The Stormwater Utility has three divisions:

- Science & Engineering
- Operations & Maintenance
- Business Operations

Full-Time Equivalent Employees

- 97 FTEs
- 2023 Labor Budget = \$12,620,962





# SCIENCE & ENGINEERING



- Capital Delivery Group
- Laboratory Group - (Accredited for numerous analyses)
- Asset Management Group - Asset Assessments, Capital Planning, GIS & Application Development Services
- Administrative Group - Administrative & Contract Management Services, to include Budget & Purchases

# ● ● ● SCIENCE & ENGINEERING



- Field Operations Services - Construction Inspection, Field Survey, & Constructability Review Services
- Environmental Programs - Stormwater NPDES /Superfund /Sampling & Metering /Natural Systems Management /Watershed Planning /ES Homeless Outreach
- Special Programs - Collection System (CS) Support Services/ Investigations, Minor CS Work, & Lead/Arsenic Sampling



# CAPITAL PROJECT SUMMARY



- Capital (Biennium)
  - Budgeted – \$77.7 Million (2023 - 2024)
  - Installed Pipe – 10,930 LF (2023)
- Treatment & Green Projects in Construction or Completed
  - Madison District – Approx. 28 acres infiltrated in the Flett Creek Watershed
  - Manitou Neighborhood – Approx. 10 acres infiltrated in the Flett Creek Watershed
  - Larchmont District – Approx. 28 acres infiltrated in the Flett Creek Watershed
  - Upper Buckley – Basic stormwater treatment for approx. 340 acres
- Asset Management
  - 92% of system inspected & ranked (by length)



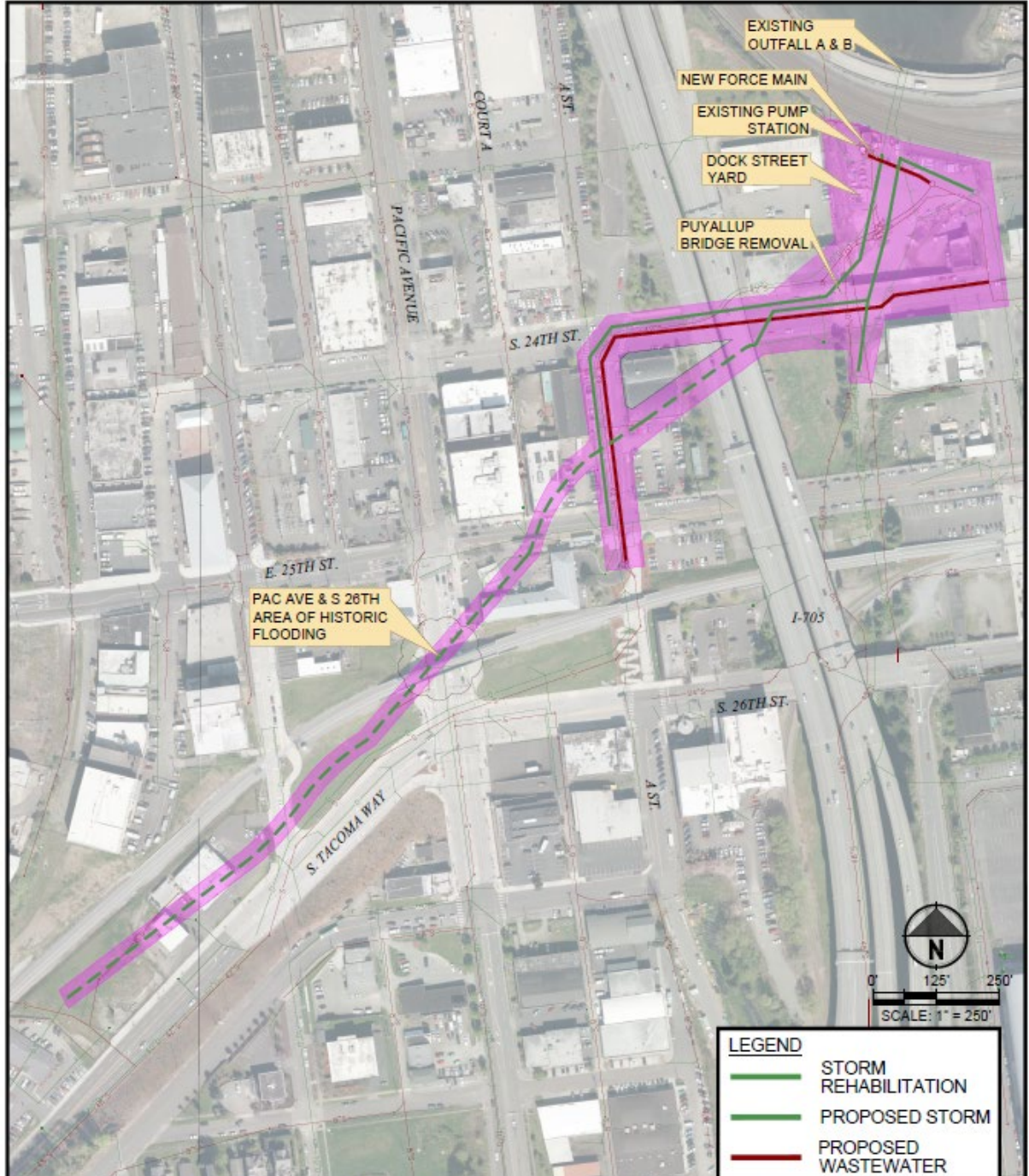
# PUYALLUP AVE INTERCEPTOR PROJECT

- Reduce severe flooding in Pacific Ave, S Tacoma Way & 26<sup>th</sup> St
- Upsize & Replace 4,700 LF of Aging 24" to 66" diameter Stormwater & Wastewater Sewer Pipes
- Removes 350 LF Puyallup Ave Bridge & replaces with fill & retaining walls
- Estimated cost \$60M
- Utilizing Progressive Design Build Process
- Estimated Schedule:
  - Selection of Design Build Team – 2024
  - Design & Sub-surface investigations - 2025 through mid-2026
  - Construction - mid-2026 through 2027





# PUYALLUP AVE SEWER UTILITY REPLACEMENT PROJECT







# PLANNING EFFORTS

- Flett Basin Stormwater Infiltration Feasibility Study 2023-2024
- Flett Pond Assessment for Capacity & Plant Management 2023. Pursuing grants for additional investigation.
- Urban Waters Protection Plan Role out in summer 2024 (Tacoma's Watershed Plan)
- Stormwater Facility Prioritization: Tool completed in 2023, draft list developed in 2024
- Stormwater Comprehensive Plan: May 2024-June 2025





# NATURAL SYSTEMS MANAGEMENT

## Objectives

- Implement Open Space Management Plans
- Increase Restoration Volunteer Opportunities
- Leverage Metro Parks Partnership
- Acquire Open Space Properties 17.2 acres acquired
- Provide Public Education
- Support Urban Forestry & Climate Action Plan Goals
- Total 80.2 acres in active restoration in 2023
- Adding more restoration acres in 2024





## NPDES Stormwater Phase 1 Permit Compliance

- City's SWMM equivalent to Ecology's Stormwater Manual July 2021.
- TMC 12.08 - separate code section for Stormwater.
- Continuing Stormwater NPDES Phase I Permit compliance activities.
- Received a \$50,000 capacity grant from Ecology for compliance activities.
- Developed & distributed an Illicit Discharge Awareness training for all staff.





# ● ● ● STORMWATER MANAGEMENT Cont.

## NPDES Stormwater Phase 1 Permit Compliance

- Stewardship program for education & outreach. Adopt-a-Drain program has over 174 participants.
- Dumpster Lid Campaign, a behavior change program, evaluation completed.
- 1st Year of Inter-Departmental Coordination Plans for NPDES compliance
- EPA NPDES Stormwater Permit for discharge to Tribal Waters issued in 2+ years. EPA is reviewing our comments. Next Steps is Federal Biological Assessment before issuance.



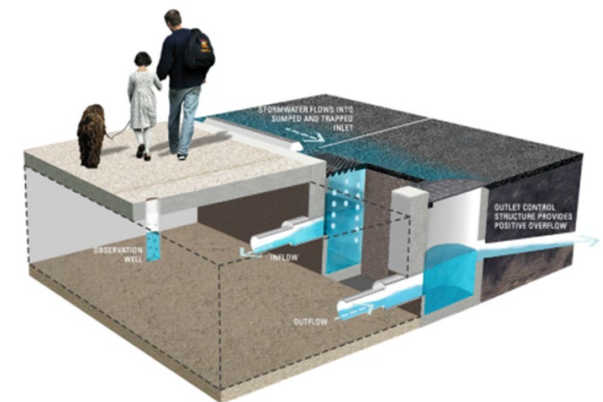
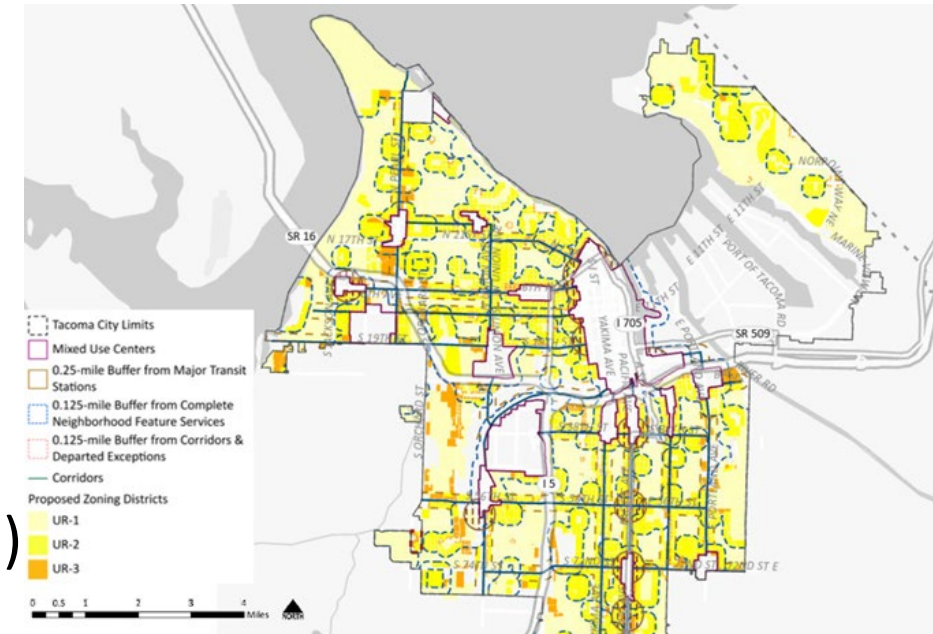
# ANTICIPATED NEW NPDES PERMIT REQ'S

- Mapping Tree Canopy
- New development & redevelopment
  - WQ treatment threshold reduced from 5,000 sf to 2,000 sf of new or replaced pollution-generating hard surfaces
- Stormwater retrofits for existing development
  - Increasing retrofit/habitat project points from 300 to 750 points
- Street sweeping requirements
  - New program requirement to sweep 90% of high priority areas each year
- Actions to address PCBs, PFAS, & 6PPD
  - Develop policies, practices & procedures for PCB capture from building washing, demolition debris, etc. for buildings 1950-1980
- Environmental Justice
  - Overburdened communities participate in the decision-making around the development, implementation, & update of the Permittee's SMAP & SWMP



# GROWTH IMPACTS TO STORMWATER

- Planning for growth based on Puget Sound Regional Council projections, plus anticipated growth from Home In Tacoma (HIT).
- Evaluated various scenarios & widespread collection system flooding would increase.
- Likely mitigation strategies
  - Increased funding (e.g. System Development Charge)
  - Build regional flow control/treatment facilities, where feasible, & use In-Lieu of Fees for development
  - Maintain stormwater onsite, use green stormwater infrastructure where applicable, use pervious pavement or build-out system where no services exist





# ENVIRONMENTAL CLEANUPS



## Foss Waterway

- Monitoring of Stormwater Discharges
  - 98% of trends, all decreasing
  - Maintaining improvements
- In-Waterway Long Term Monitoring Plan in place through 2028
  - Monitoring events will occur 2028
  - Working with EPA on final approval of the remedial action & delisting of this portion of the Commencement Bay Superfund Site. Monitoring will continue.





# 2023\* OUTREACH EFFORTS - HEAL

## 1 FTE in Natural Systems

\*includes all outreach efforts including those on ES open space sites

- 3,021 Individual Contacts Made
- 1,429 persons interested in shelter/resources
- 262 persons placed into temporary shelter
- **1.4M** lbs. of garbage/debris collected
- 8,800 Purple bags distributed/collected



Before

After



# ENHANCED STORMWATER MAINTENANCE GRANTS

- Two Ecology grants to perform enhanced stormwater maintenance for stormwater line cleaning & street sweeping. The grants cover 75% of the cost (labor, equipment, & disposal).
- The total grant value is roughly \$1.3M. Over \$820K in reimbursement was received in 2023 for these two grants.



## 2023 Totals:

- 1600 additional miles swept
- 88,000 LF additional pipe cleaned



QUESTIONS?



# SOLID WASTE MANAGEMENT



Presenter:

Lewis Griffith,  
Solid Waste Management Division Manager  
Email: [lgriffit@cityoftacoma.org](mailto:lgriffit@cityoftacoma.org)





# ESD STRATEGIC PLAN FOCUS



## CUSTOMERS

Partner with our community on customer-valued services to meet the diverse needs of our neighborhoods



## EMPLOYEES

Foster a safe culture built on trust, conversation and equity



## OPERATIONS

Operate using best practices and innovation to meet changing environmental and community needs

HEALTHY NEIGHBORHOODS + THRIVING PUGET SOUND = A BETTER TACOMA

# CUSTOMERS



- 57,192 residential customers
  - Single family residences & duplexes
  - Bundled garbage, recycling, & yard waste
  - Two Call-2-Hauls per year
- 5,258 commercial customers
  - Garbage – City of Tacoma franchise
  - Recycling & yard/food – open market

CUSTOMER BASE					
Customer Class	2019	2020	2021	2022	2023
Residential	56,087	56,563	57,089	57,115	57,192
Commercial	5,236	5,310	5,243	5,407	5,258
<b>Total Customers</b>	<b>61,323</b>	<b>61,873</b>	<b>62,332</b>	<b>62,522</b>	<b>62,450</b>



# EMPLOYEES



Solid Waste  
Management

On-Site  
Operations  
52 employees

Collections  
Operations  
109 employees

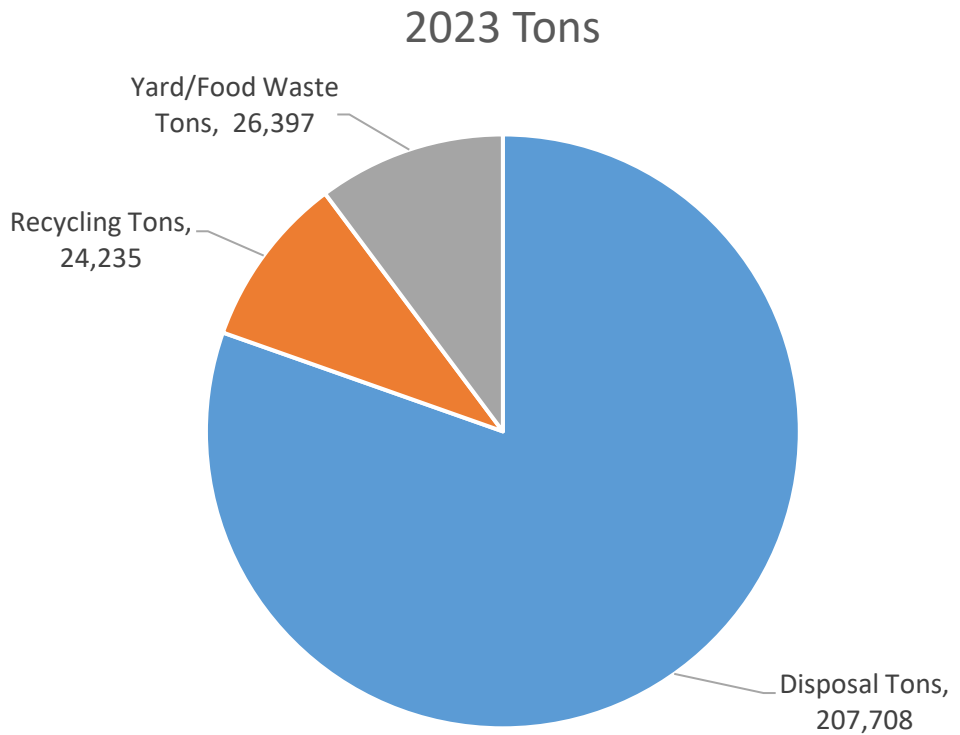
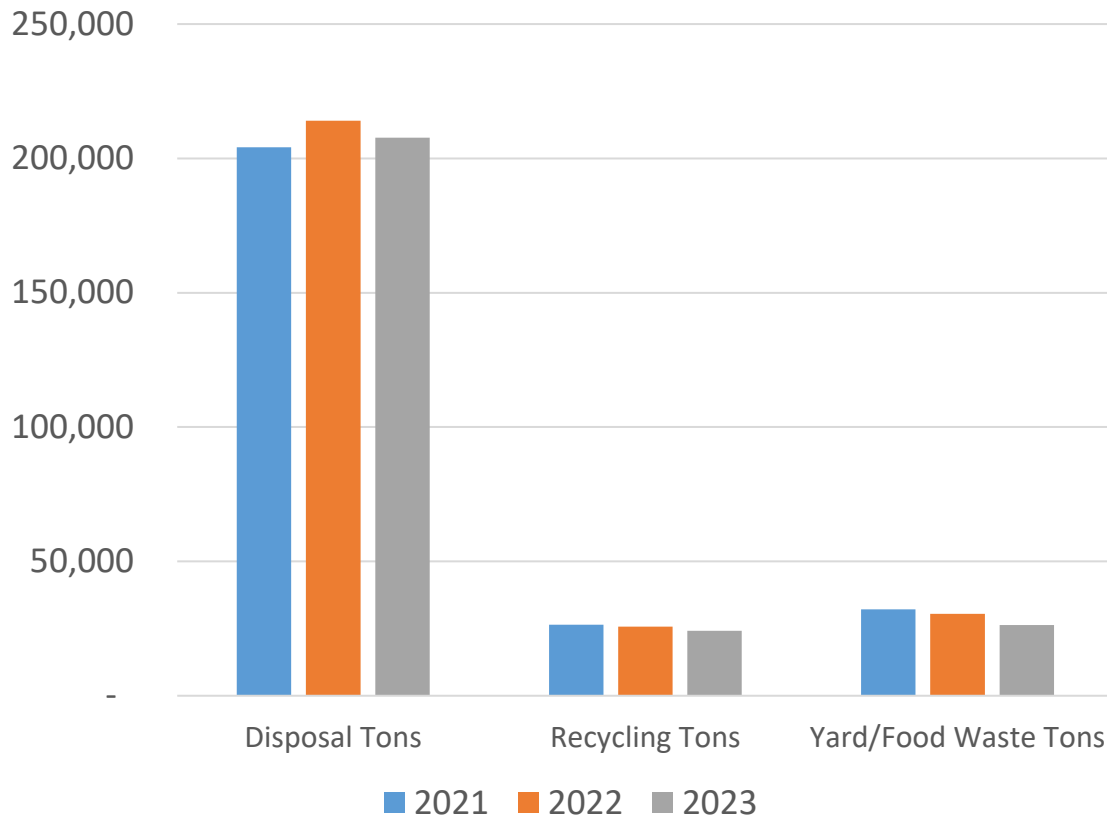
Support Services  
13 employees

Tidy Up Tacoma  
12 employees





# OVERALL DISPOSAL & RECYCLING TONNAGES 2023





# BUDGET



<i>2023</i>	<i>Budget</i>	<i>Actual</i>	<i>Variance</i>
Revenue	\$87.4M	\$94.8M	\$7.4M

<i>2023</i>	<i>Budget</i>	<i>Actual</i>	<i>Variance</i>
Capital Expense	\$15.5 M	\$5.5M	(\$10.0 M)
Operations Expense	\$79.5M	\$78.5M	(\$1.0M)
Total Expense	\$95.0M	\$84.0M	(\$11.0M)

# FACILITIES



- Tacoma Recovery & Transfer Center
  - Recycle Center
  - Household Hazardous Waste
  - Transfer Center
  - Landfill Environmental Systems
- Collection Operations
  - Truck parking lot
  - Fleet Maintenance Shop
  - Container Storage & Maintenance
  - CNG Fueling Infrastructure
- Site Master Plan in development

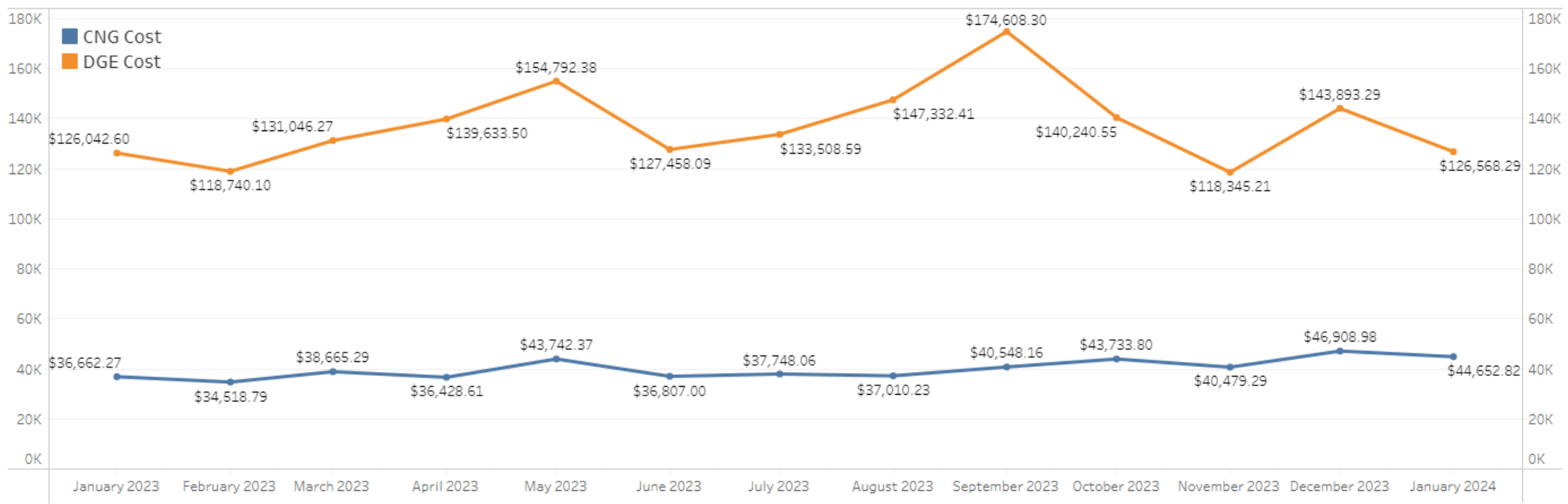






# RECENT ACCOMPLISHMENTS

- 7 CNG trucks added in 2022-23 for a total of 54 CNG trucks
- \$3M savings for CNG vs DGE potential cost since 2021





# UPCOMING CHALLENGES

- Landfill disposal contract with LRI Landfill ends February 2030
- Evaluating rail haul options to regional landfills
- Need to identify sites for rail yard
- Potential to collaborate with Pierce County & JBLM
- Contracting process should start within next 2-3 years





QUESTIONS?