

CRESCENTA VALLEY WATER DISTRICT

BOARD OF DIRECTORS - STAFF REPORT

Action Item No. 4
August 24, 2021

To: Honorable President and Members of the Board of Directors
From: David S. Gould, P.E. – Director of Engineering
Subject: Wastewater Collection System Presentation – Part 2

ACTION ITEM:

Presentation of the overview and history of CVWD's Wastewater Collection System, Part 2

BACKGROUND:

During the June 8, 2021, Board meeting, the Board requested Staff to provide a presentation with respect to the background on the District's wastewater collection system.

On June 22, 2021, Staff presented the first part of a multi-part overview and history of the system that included the following:

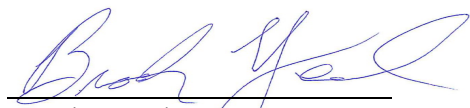
- Construction of the wastewater collection system in the early 1980s
- Funding from Assessment Districts and Grant from Clean Water Act
- Construction of the sewer interceptor to LAGWRP
- Construction ion exchange plant and brine waste line
- Development and implementation of the Sewer System Management Plan (SSMP)
- City of Los Angeles Conveyance, Treatment & Disposal of Wastewater Agreement
 - Amalgamated System Sewerage System Charges (ASSSC)
 - Amalgamated System Sewerage Facilities Charges (ASSFC)
- City of La Canada Flintridge Conveyance Agreement
- Recycled or Reclaimed Water

DISCUSSION:

The overview and history of CVWD's Wastewater Collection System, Part 2 will present the following:

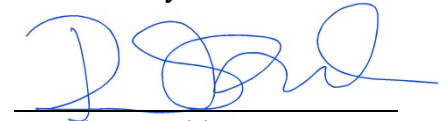
- Summary of 10-year CVWD's wastewater strength and flow data
- Breakdown of City of Los Angeles Annual Conveyance, Treatment & Disposal Costs
- 10-year Review of Conveyance, Treatment & Disposal Costs
- Summary of CVWD Wastewater Rates
- Inflow and Infiltration Study
- Wastewater Master Plan
- Wastewater Options for the Future

Prepared by:



Brook Yared, M.S., P.E.
Engineering Manager

Submitted by:



David S. Gould, P.E.
Director of Engineering

Attachment(s):

1. Wastewater System Presentation – Part 2



CVWD Wastewater Collection System:

Overview & History of CVWD's Wastewater System Part 2

Prepared by: David S. Gould and Brook Yared

Date: August 24, 2021

Agenda

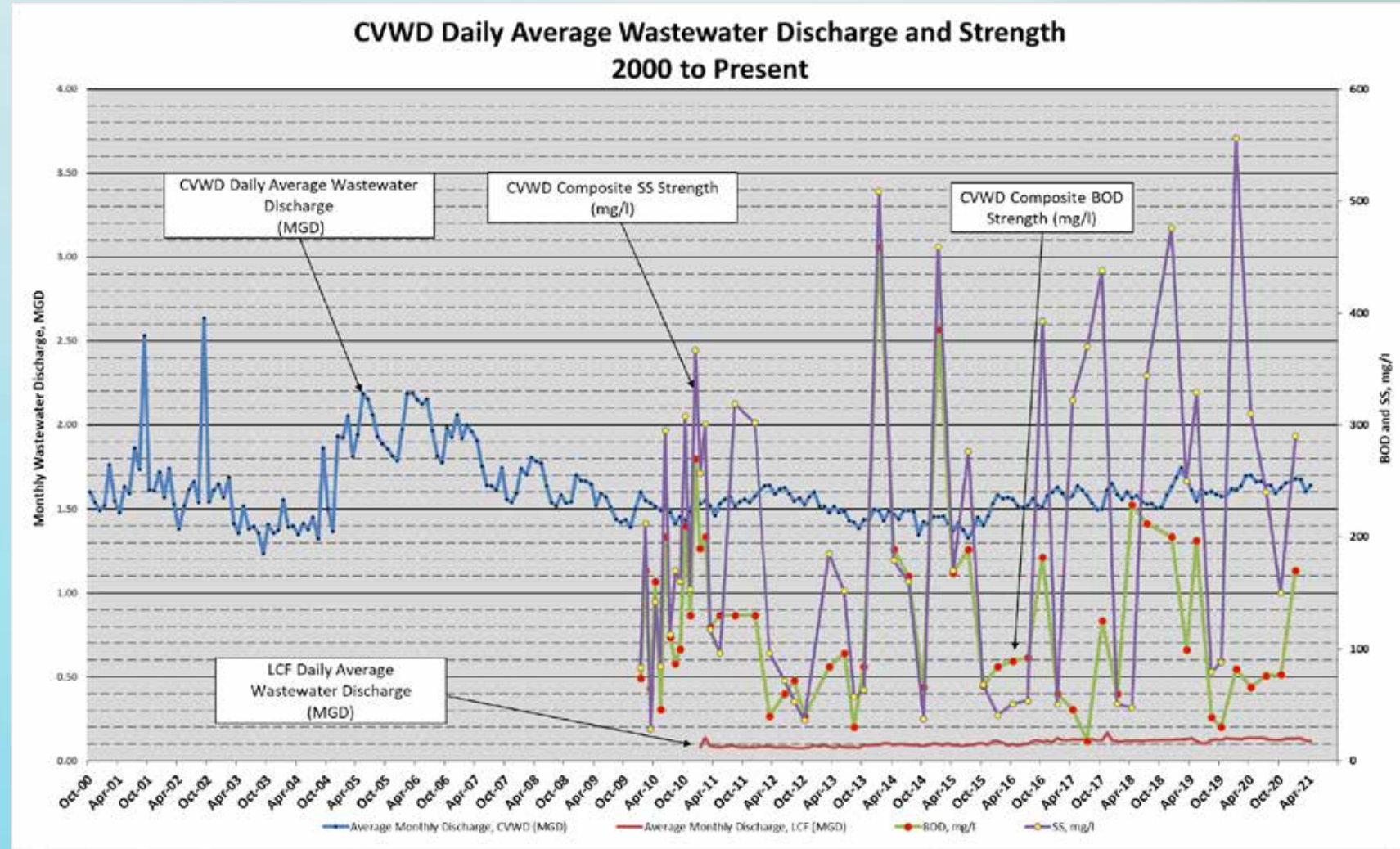
- **City of Los Angeles Contract**
 - 10-year Strength and Flow
 - Breakdown of Annual Conveyance, Treatment & Disposal Costs
 - 10-year Review of Conveyance, Treatment & Disposal Costs
- **CVWD**
 - Wastewater Rates Summary
 - Inflow and Infiltration Study
- **Wastewater Master Plan**
- **Wastewater Options for the Future**

Definition and Acronyms for Reference:

- **ASSSC** - Amalgamated System Sewerage System Charge
- **ASSFC** - Amalgamated System Sewerage Facilities Charge
- **BOD** – Biological Oxygen Demand - measure of the amount of oxygen required to remove waste matter
- **SS** – Total Suspended Solids is the number of suspended particles, that are not dissolved
- **MGD** – Million Gallons per Day
- **MGD-Miles** - Calculated based on regional flows of agencies contributing to the Amalgamated Sewer System

City of Los Angeles – 10-year Strength and Flow

- Flow – Daily Average 1.54 MGD
- Strength
 - BOD - Annual Avg. – 1,270 mg/l
 - Suspended Solids is the suspended particles, that are not dissolved
 - Annual Avg. – 310 mg/L
- Typical for Residential – 275 to 400 mg/L
- Typical for Commercial – 100 to 1,500 mg/L



City of Los Angeles – Breakdown of Costs

- ASSSC & ASSFC both dependent on MGD-Miles
 - ASSSC – Treatment/Disposal
 - ASSFC – New construction results in additional flow
- MGD-Miles
 - Calculated based on regional flows of agencies contributing to the Amalgamated Sewer System
- ASSFC
 - Bi-monthly Summary uses D-Miles
 - Pass-through cost to Developers

AMALGAMATED SYSTEM SEWERAGE AGREEMENT													
CONTRACT AGENCY: Crescenta Valley Water District													
Amalgamated System Sewerage Facilities Charge (ASSFC) - Bi-monthly Net Increase Data Summary (New Development, Changes in Land Use, and Increases in Discharge from Industrial Dischargers)													
For the period: September 1, 2020 - October 31, 2020												Fiscal Year: 2020-21 Flow, \$ per mgd BOD, \$/ppd SS, \$/ppd Conveyance, \$ per mgd-mi Date: 12.90	Charge Rates: \$ 1,649,730.80 \$ 434.59 \$ 334.03 \$ 418,766.25
												Enter data for Fiscal Year Enter data for yellow boxes	
Item No.	Parcel No.	Date Permit Filled	Baseline Discharge			Anticipated Discharge			Net Discharge			mgd-miles	ASSFC
			Land Use	Flow (gpd)	BOD (mg/L)	SS (mg/L)	Land Use	Flow (gpd)	BOD (mg/L)	SS (mg/L)			
D-20-08 3158 Los Olivos	3158 Los Olivos Lane	08/14/20	104 = 2 Bld 1840	230	205	275	104 = 2 Bld 1840	230	205	275	110	0.34	0.25
	Convert existing garage to ADU						104 = 1 Bld 1840	110	205	275			
	Item Total										110	0.34	0.25
D-17-53 2509 Frances St	2509 Frances St	04/11/19	262 = 1 Bld 1840	185	205	275	262 = 1 Bld 1840	185	205	275	130	0.30	0.31
	Item Total										130	0.30	0.31
D-20-73 2759 Sanborn	2759 Sanborn Avenue	09/20/20	104 = 2 Bld 1840	230	205	275	104 = 2 Bld 1840	230	205	275	150	0.33	0.34
	Addition to and conversion of existing garage to ADU						2 Bld = 2 Bld 1840	150	205	275			
	Item Total										150	0.33	0.34
D-20-06 2807 Altam	2807 Altam Avenue	09/20/20	104 = 1 Bld 1840	185	205	275	104 = 1 Bld 1840	185	205	275	110	0.34	0.25
	Convert existing garage to ADU												
	Item Total										110	0.34	0.25
Total for Two-Month Period											585	1.12	1.16

Fiscal Year:	2020-21	Charge Rates:
Flow, \$ per mgd		\$ 1,649,730.80
BOD, \$/ppd		\$ 434.59
SS, \$/ppd		\$ 334.03
Conveyance, \$ per mgd-mi		\$ 418,766.25
D_{miles}		12.90
	Enter data for Fiscal Year	
	Enter data for yellow boxes	

MGD-MILES Calculation

- MGD-MILES Equation

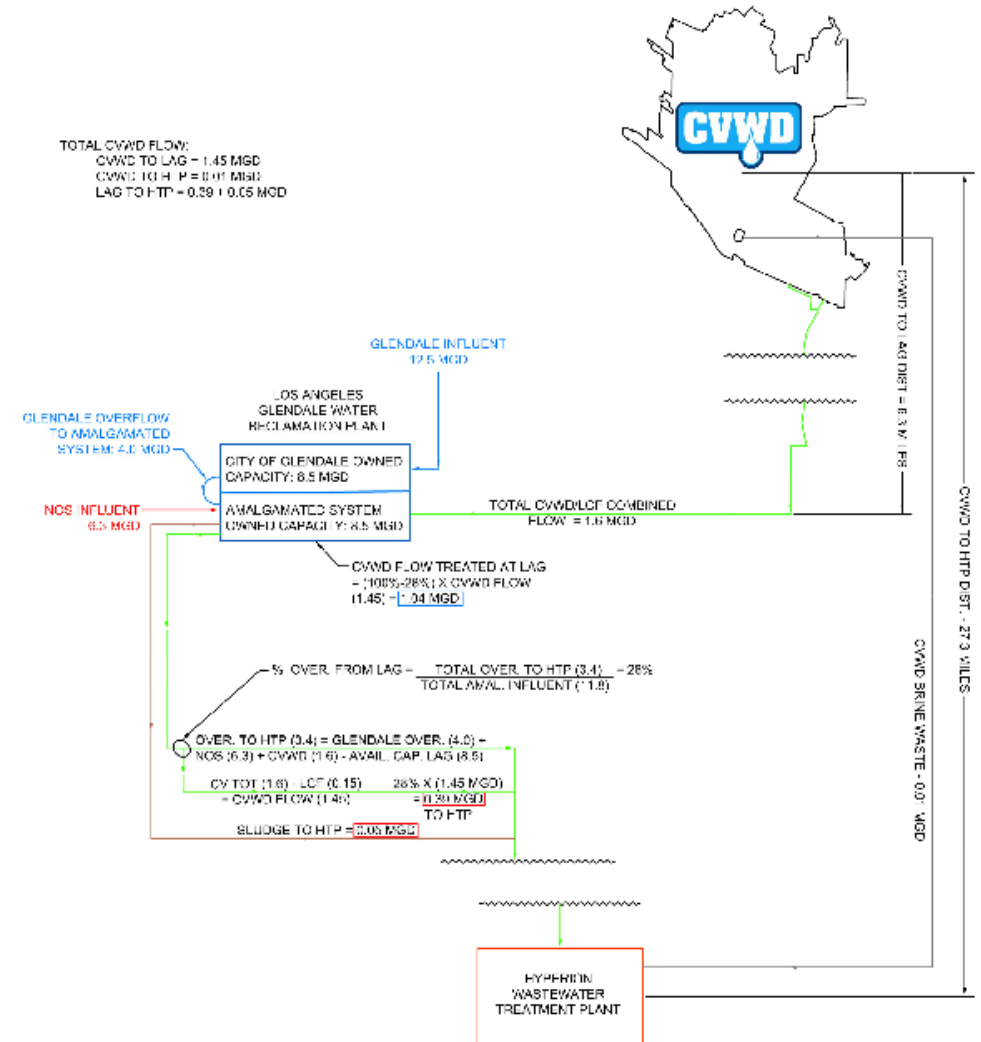
$$CVWD_{MGD-MILES} = \left((DIST.- HTP)' (Q_{CVWD-HTP} + Q_{SLUDGE} + Q_{BRINE}) \right) + (DIST.- LAG' Q_{CVWD-LAG})$$

- Example – FY 19/20

$$\begin{aligned} CVWD_{MGD-MILES} &= \left((27.3)' (0.39MGD + 0.05MGD + 0.01MGD) \right) + (6.3' 1.04) \\ &= \left((27.3)' (0.45MGD) \right) + (6.55) \\ &= (12.29) + (6.55) = 18.84MGD - Miles \end{aligned}$$

- Brine waste reported to City of Los Angeles by CVWD in Annual Diversion Report.
- Per City of LA Calculation: - MGD-Miles = 17.5 MGD-Miles

CVWD WASTEWATER RECONCILIATION BILL OVERVIEW (19/20)



City of Los Angeles – 10-year Review of Costs

- **ASSSCS Billing Projections**
 - o Sent out – April / May each year
 - o Estimated for 5 years
 - o Operations & Maintenance Costs
 - o Capital Improvement Costs
 - o “F” Factor – Estimate percent
- **Reconciliation – Previous Year**
 - o Sent out – Jan / Feb each year
 - o Based on projects completed & M & O costs for the previous year
 - o Either Credit or additional payment

CITY OF LOS ANGELES CALIFORNIA					
BOARD OF PUBLIC WORKS MEMBERS ERIC GARCETTI MAYOR AURA GARRIA VICE MAYOR DR. MICHAEL A. DAVIS PROBATIONARY MEMBER JESSE M. SALAZAR COMMISSIONER M. TERESA VILLASOR COMMISSIONER Brock Yared Senior Engineer Crescenta Valley Water District 2700 Foothill Boulevard La Crescenta, CA 91214 Dear Mr. Yared: CRESCENTA VALLEY WATER DISTRICT TRANSMITTAL OF BILLING PROJECTIONS FOR FY 2021-22 THROUGH 2025-26 This letter is transmitting the 5-year billing projections for wastewater service 2021-22 through 2025-26, attached. The calculation is based on Los Angeles' WIP Improvement Program (WICIP). Since the WICIP is evaluated and adjusted based on schedule, available resources, project needs and revised cost estimates arising off projections could be lower or higher than the projections submitted to you last year. Please note that the budgeted capital costs included in these projections are only system projects with prioritization scores above the level corresponding to the available. If you would like to review the calculation of the 5-year projections, please call Susan staff at (213) 485-2326 and she will be happy to send you a copy. In addition, please with any questions or comments you may have on the projections. Sincerely, ENRIQUE C. ZALDIVAR, P.E. Director and General Manager LA Sanitation and Environment By:  Eva P. Sung Division Manager Financial Management Division SR ECZ/EPS/DHB/SR/TLM Attachment: 5-Year Projections zero waste • zero wasted water AN EQUAL EMPLOYMENT OPPORTUNITY / AFFIRMATIVE ACTION EMPLOYER					
TABLE 1. SUMMARY OF PROJECTED AGENCY CHARGES O&M AND CAPITAL PORTIONS OF ASSSCS					
	2021-22 (\$000)	2022-23 (\$000)	2023-24 (\$000)	2024-25 (\$000)	2025-26 (\$000)
Aneta Street	62.5	71.0	61.6	64.3	72.1
Beverly Hills	4,426.1	5,004.6	4,411.4	4,845.1	5,447.4
Burbank	4,544.8	5,160.6	4,567.5	4,561.7	5,031.0
Crescenta Valley	1,655.8	1,873.4	1,654.1	1,824.9	2,040.6
CSD 4	4,128.4	4,651.5	4,132.1	4,657.6	5,253.4
CSD 5	862.3	977.1	857.2	912.9	1,024.1
CSD 16	558.5	625.6	570.4	656.8	738.8
CSD 27	149.2	169.3	147.8	156.2	175.2
Culver City	2,858.1	3,242.1	2,801.3	3,084.6	3,495.0
El Segundo	2,164.4	2,467.7	2,114.7	2,133.5	2,397.9
Federal Office Building	9.6	10.8	9.4	11.1	12.5
Glendale	9,238.8	10,387.3	9,375.7	10,347.5	11,616.4
Karl Holton Camp	6.8	7.8	6.2	6.6	7.5
La Canada	173.5	196.5	172.1	188.5	212.0
Las Virgenes	554.3	624.4	559.2	619.1	695.1
Marina Del Rey	1,748.0	1,991.1	1,716.7	1,784.8	1,996.2
San Fernando	1,925.1	2,170.4	1,929.5	2,142.4	2,415.6
Santa Monica	10,641.1	12,048.3	10,528.1	11,550.7	13,036.4
Triunfo	147.4	165.2	150.4	173.8	195.4
Universal City	1,035.4	1,164.3	1,045.6	1,178.8	1,327.4
Veterans Administration	292.8	331.2	292.2	319.8	358.9
WLA Community College	22.9	26.0	22.8	24.3	27.2
CSD 9	263.9	300.6	258.9	267.2	299.7
City of Long Beach	54.8	62.6	53.5	54.4	61.1
Total	\$47,522.4	\$53,729.4	\$47,438.4	\$51,566.6	\$57,937.0

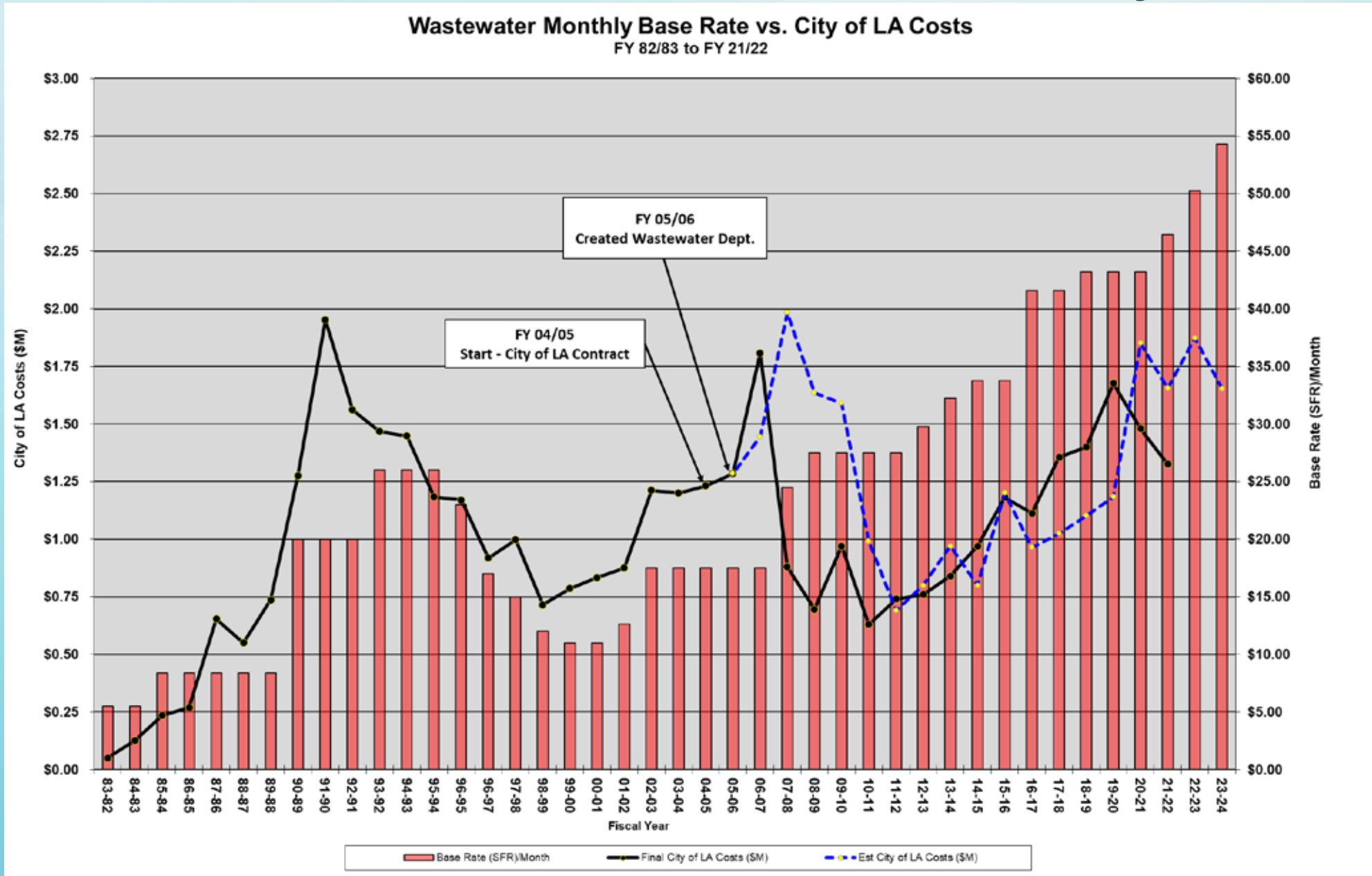
Projection -ASSSC 2021-22 - Final
Summary

4/27/2021

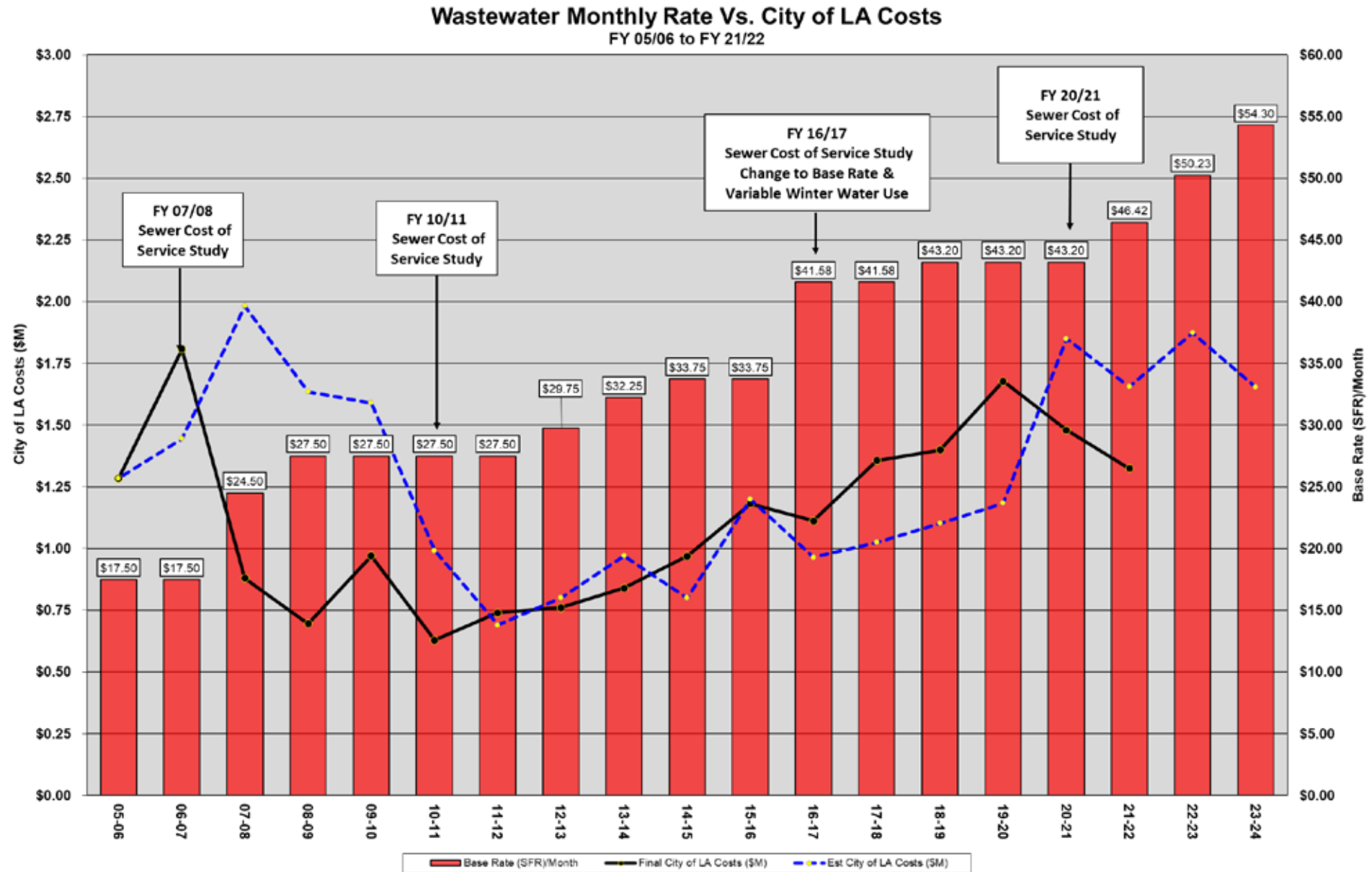
City of Los Angeles – 10-year Review of Costs

Summary of City of LA - Projections																
Fiscal Year	FY 2010-11	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26
FY 2010-11	\$992,300	\$1,116,000	\$995,500	\$980,700	\$1,280,400											
FY 2011-12		\$966,200	\$1,088,900	\$1,116,300	\$983,000	\$1,074,600										
FY 2012-13			\$1,045,400	\$1,201,900	\$1,373,000	\$1,492,600	\$1,530,100									
FY 2013-14				\$1,421,300	\$1,682,500	\$1,699,700	\$1,631,000	\$1,594,200								
FY 2014-15					\$1,103,211	\$2,222,700	\$1,940,400	\$1,900,800	\$1,337,900							
FY 2015-16						\$1,605,696	\$1,803,700	\$1,618,400	\$1,349,300	\$1,121,900						
FY 2016-17							\$1,202,982	\$1,386,600	\$1,218,000	\$1,545,100	\$817,300					
FY 2017-18								\$1,220,221	\$1,378,000	\$1,293,000	\$1,094,700	\$1,006,900				
FY 2018-19									\$1,326,900	\$1,492,700	\$1,159,800	\$1,181,300	\$1,106,000			
FY 2019-20										\$1,578,524	\$1,582,800	\$1,424,200	\$1,378,800	\$1,331,700		
FY 2020-21											\$1,850,000	\$1,709,000	\$2,084,200	\$1,881,500	\$1,947,900	
FY 2021-22												\$1,655,800	\$1,873,700	\$1,654,100	\$1,824,900	\$2,040,600
Estimated Invoice		\$706,221	\$940,868	\$1,079,869	\$803,498	\$1,195,867	\$964,799	\$1,024,959	\$1,101,540	\$1,183,861	\$1,480,000	\$1,325,987	\$1,500,484	\$1,324,626	\$1,461,405	\$1,634,140
Estimate "F" Factor		0.73	0.90	0.76	0.73	0.74	0.80	0.84	0.83	0.75	0.80	0.80	0.80	0.80	0.80	0.80
Reconciliation Cost		\$51,529	(\$42,416)	(\$128,557)	\$166,323	(\$14,262)	\$89,079	\$331,219	\$331,777							
Actual Cost w/Reconciliation	\$629,204	\$757,750	\$898,452	\$951,312	\$969,821	\$1,181,605	\$1,053,878	\$1,356,178	\$1,433,317	\$1,183,861	\$1,480,000	\$1,325,987				
Actual - Projected	(\$363,096)	(\$208,450)	(\$146,948)	(\$469,988)	(\$133,390)	(\$424,091)	(\$149,104)	\$135,957	\$106,417	(\$308,839)	\$320,200	\$144,687				
Percentage increase/decrease from previous year		20%	19%	6%	2%	22%	-11%	29%	6%	-17%	25%	-10%				

CVWD – Wastewater Rates Summary



CVWD – Wastewater Rates Summary

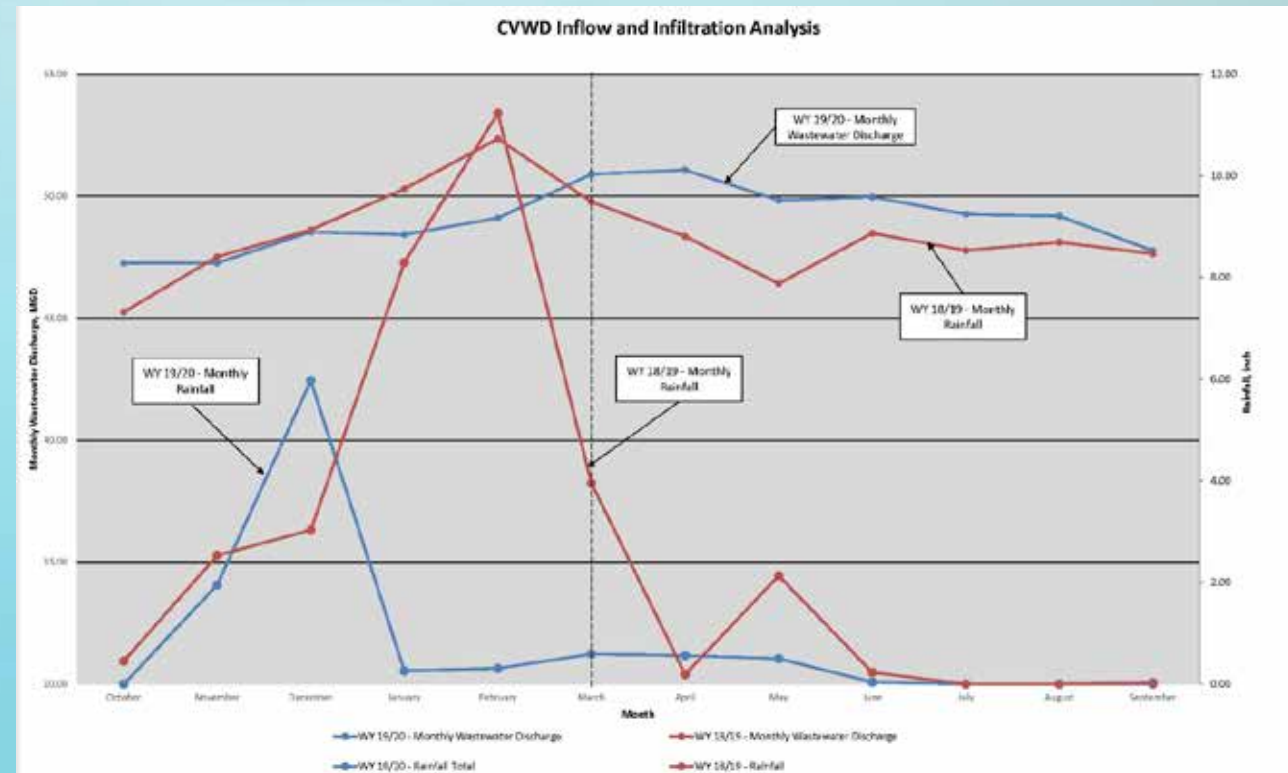


Inflow and Infiltration

- Where does inflow and Infiltration come from:
 - Surface Flows through Maint. Hole Covers
 - Cracks in Sewer Mains
 - Offsets at Pipe Joints
 - Maintenance Holes Section Gaps
- Ratio of the average dry weather wastewater flows and average wet weather wastewater flows (ADWF).
- Not currently regulated but adds to treated wastewater. Good Indicator of system condition.
- ADWF is equal to the average wastewater discharge over three driest months (June, July, Aug.)
- AWWF is equal to the average wastewater discharge over three wettest months (January, February, March)

Inflow and Infiltration Summary

Year	Dry Weather (MGD)	Wet Weather (MGD)	Difference (MGD)	5-yr avg
2010	1.47	1.56	0.06	11.09%
2011	1.55	1.53	-0.01	9.50%
2012	1.59	1.63	0.03	5.95%
2013	1.45	1.50	0.04	4.34%
2014	1.49	1.47	-0.01	2.08%
2015	1.36	1.44	0.06	2.11%
2016	1.53	1.57	0.03	2.83%
2017	1.58	1.59	0.01	2.54%
2018	1.53	1.58	0.03	2.41%
2019	1.60	1.70	0.06	3.86%
2020	1.65	1.65	0.00	2.62%



Wastewater Master Plan

Major elements:

1. Use CVWD's wastewater GIS & As-builts
2. Location of new flow monitoring stations
3. Hydraulic Analysis – Determine design vs actual capacity
4. Develop an Inflow/Infiltration Study
5. Future Development & Flows – Review Zoning & Housing Element Plan for Los Angeles County & LCF
6. Review District's standard details (i.e. pre-cast sewer manhole).
7. Prioritized short- & long-term Capital Improvement Program (CIP) plan.

• Proposed Project Schedule

Wastewater Master Plan Preliminary Project Schedule			
Task	State Date	End Date	Days
Draft RFP	July-21	August-21	35
Staff Report	August-21	August-21	4
Engineering Com	August-21	August-21	0
Final RFP	August-21	September-21	6
Send out	September-21	September-21	2
Pre-Proposal Mtg	September-21	September-21	20
Proposal Due	September-21	October-21	22
Staff Report	October-21	October-21	2
Board Meeting - Award Contract	October-21	October-21	4
Kickoff Mtg	October-21	November-21	14
Data Request	November-21	November-21	14
30% Submittal	November-21	March-22	120
90% Submittal	March-22	September-22	176
Staff Report	September-22	September-22	1
Engineering Com	September-22	September-22	4
100% Submittal	September-22	October-22	30
Staff Report	October-22	October-22	1
Board Meeting - Approved	October-22	October-22	4

Wastewater Options for Future

Wastewater Treatment Feasibility Study

- Future 3.0MG (min.) WW Treatment Plant by CVWD with possible partnerships - Glendale & LCF
- LA County Sanitation District - New Pump Station – Send Flow to LA County Sanitation District through LCF & Pasadena
- Membrane Bioreactor (MBR) Plants – combines membrane filtration with biological treatment
 - Reduce flow to City of LA
 - Sludge Removal
 - Recycled Water – Groundwater Recharge

Next Step