



CITY OF PATTERSON

Sewer Rate Study 2020

April 1, 2021



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1. INTRODUCTION

1.1 Background

The City of Patterson (the City) is a general law City located in western Stanislaus County with a population of approximately 22,000. The City owns and operates its own wastewater system, providing sewer service to nearly 7,300 residential and commercial customers. The sewer utility is a self-supporting enterprise fund; revenues are derived primarily from utility service charges and must be adequate to fund operating and capital needs.

The last sewer rate study was in 2015 and recommended five years of rate adjustments through July 1, 2019. In 2020, the City retained Bartle Wells Associates to develop a long-term financial plan and rate study for the sewer enterprise. The major objectives of the study include:

- Ensuring the continued financial health and stability of the City’s sewer enterprise;
- Developing a ten-year projection of operating and capital revenue requirements for the sewer utility;
- Recommending rates which meet these revenue requirements;
- Phase in rate adjustments over time, to the extent possible, to minimize the annual impact on ratepayers.
- Calculate impacts on the City’s customers.
- Maintaining equity among all users of the system and ensure compliance with all legal requirements such as Proposition 218.

Overall, the sewer enterprise is in good financial standing with approximately \$3.1 million in operating, capital, and sewer impact fee reserves as of July 1, 2020. However, the utility is facing capital projects, including collection system and water quality control facility (WQCF) improvements. This report details the five-year sewer rate recommendations to keep revenues in line with the costs of providing service for the five year period beginning in 2021/22 through 2025/26.

2. RATE SETTING LEGISLATION & PRINCIPLES

2.1 Constitutional Rate Requirements

The sewer rates developed in this Sewer Rate Study 2020 are designed to comply with Article 13D of the California Constitution. In accordance with the constitutional provisions, the proposed rates are designed to a) recover the City's cost of providing sewer service, and b) allocate costs in proportion to the cost for serving each customer class.

Article 13D, Section 6 (Proposition 218)

Proposition 218 was adopted by California voters in 1996 and added Articles 13C and 13D to the California Constitution. Article 13D, Section 6 governs property-related charges, which the California Supreme Court subsequently ruled includes ongoing utility service charges such as water, sewer, and garbage rates. Article 13D, Section 6 establishes a) procedural requirements for imposing or increasing property-related charges, and b) substantive requirements for those charges. Article 13D also requires voter approval for new or increased property-related charges but exempts from this voting requirement rates for water, sewer, and garbage service.

The City must follow the procedural requirements of Proposition 218 for all sewer rate increases. These requirements include:

1. *Noticing Requirement* - The City must mail a notice of the proposed rate increases to all affected property owners. The notice must specify the amount of the fee, the basis upon which it was calculated, the reason for the fee, and the date/time/location of a public rate hearing at which the proposed rates will be considered/adopted.
2. *Public Hearing* - The City must hold a public hearing prior to adopting the proposed rate increases. The public hearing must be held not less than 45 days after the required notices are mailed.
3. *Rate Increases Subject to Majority Protest* - At the public hearing, the proposed rate increases are subject to majority protest. If more than 50% of affected property owners submit written protests against the proposed rate increases, the increases cannot be adopted.

Proposition 218 also established a number of substantive requirements that apply to sewer rates and charges, including:

1. *Cost of Service* - Revenues derived from the fee or charge cannot exceed the funds required to provide the service. In essence, fees cannot exceed the "cost of service".

2. *Intended Purpose* - Revenues derived from the fee or charge can only be used for the purpose for which the fee was imposed.
3. *Proportional Cost Recovery* - The amount of a fee or charge imposed upon any parcel or person as an incident of property ownership shall not exceed the proportional cost of the service attributable to the parcel.
4. *Availability of Service* - No fee or charge may be imposed for a service unless that service is used by, or immediately available to, the owner of the property.
5. *General Government Services* - No fee or charge may be imposed for general governmental services, such as police or fire services, where the service is available to the public at large in substantially the same manner as it is to property owners.

A subsequent appellate court decision in 2011 further clarified that agencies must demonstrate, satisfactory to a court's independent judgment, that property-related fees and charges meet the substantive requirements of Section 6 (3b). This rate study provides that justification. The sewer rates derived in this report are based on a cost-of-service methodology that fairly apportions costs to all customers.

2.2 Use of Industry Standard Rate-Making Principles

The rates developed in this Sewer Rate Study 2020 use a straightforward methodology to establish an equitable system charges that recover the cost of providing service and fairly apportion costs to each rate component. In reviewing the City's sewer rates and finances, BWA used the following criteria in developing our recommendations:

1. *Revenue Sufficiency*: Rates should recover the annual cost of service and provide revenue stability.
2. *Rate Impact*: While rates are calculated to generate sufficient revenue to cover operating and capital costs, they should be designed to minimize, as much as possible, the impacts on ratepayers.
3. *Equitable*: Rates should be fairly allocated among all customer classes based on their estimated demand characteristics. Each user class only pays its proportionate share.
4. *Practical*: Rates should be simple in form and, therefore, adaptable to changing conditions, easy to administer and easy to understand.

5. *Provide Incentive:* Rates provide price signals which serve as indicators to conserve water and to produce wastewater efficiently.

3. SEWER UTILITY OVERVIEW

3.1 Overview of Sewer System

The City operates and maintains its own wastewater system which includes a treatment plant, three lift stations, and a collection system. The Water Quality Control Facility (WQCF) covers approximately 240 acres and has a design capacity of 2.25 million gallons per day.

Approximately 1.4 million gallons per day (MGD) of wastewater are treated daily. The collection system is comprised of over 63 miles of sewer mains ranging from 4 to 33 inches in diameter, 1,169 manholes, and two sewer pump stations.

3.2 Current Sewer Rates

Table 1 shows a schedule of historical and current sewer service charges. Residential customers are charged a flat monthly charge. Commercial customers are charged the same flat charge but are also billed a consumption rate per ccf for any water use over 10 ccf. The rate for industrial customers is based on actual flow, biochemical oxygen demand and suspended solids discharge. Diablo Grande customers are charged a flat charge equivalent to 1.5 times the current rate. (The sewer rates for Diablo Grande are set by contract.)

Table 1
City of Patterson - Sewer Rate Study 2020
Monthly Wastewater Rate History

	7/1/2014	12/2/2015 - 6/30/2016	2016/17	2017/18	2018/19	Current 2019/20
<i>Percent Change</i>	6%	6%	6%	6%	6%	6%
Residential						
Flat Rate	\$37.31	\$39.55	\$41.92	\$44.44	\$47.11	\$49.94
Diablo Grande (1)	\$55.97	\$59.33	\$62.88	\$66.66	\$70.67	\$74.91
Commercial						
Flat Rate includes 10 ccf	\$37.31	\$39.55	\$41.92	\$44.44	\$47.11	\$49.94
Over 10 ccf - rate per ccf	\$2.12	\$2.25	\$2.39	\$2.53	\$2.68	\$2.84
Industrial						
Flow - per gallon	0.005	0.005	0.005	0.006	0.006	0.006
BOD - per lb	0.588	0.623	0.660	0.700	0.742	0.787
SS - per lb	0.588	0.623	0.660	0.700	0.742	0.787

Source: City of Patterson Resolution Nos. 2005- 82, 714, 2015-67

1 - Diablo Grande rate is 1.5 times the City's residential flat rate.

3.3 Wastewater Customers

The City currently provides wastewater service to approximately 7,313 customers as detailed on Table 2. The majority of customers are single family residential, accounting for nearly 83 percent of all customers. The City also provides sewer service to approximately 542 customers in Diablo Grande.

Table 2
City of Patterson - Sewer Rate Study 2020
Wastewater Customers

Customer Class	Number of Accounts	Percentage of Total
Number of Accounts		
Single Family Residential	6,038	83%
Multifamily Residential	468	6%
Residential - Diablo Grande	542	7%
Commercial	<u>265</u>	<u>4%</u>
Total	7,313	100%

4. SEWER FINANCES

4.1 Sewer Reserve Funds

As of July 1, 2020, the City held \$3.1 million in total cash reserves, with \$983,906 in capital and \$1.5 million in operating reserves.

Table 3
City of Patterson - Sewer Rate Study 2020
Sewer Reserve Fund Balances

	Beginning Balance July 1, 2019	Projected Balance July 1, 2020
Sewer Operations - Fund 605		
Cash Bank of the West	\$1,429,271	\$1,507,725
Total Fund 605 Reserves	\$1,429,271	\$1,507,725
PPFA Sewer - Authority Bonds - Fund 607		
Cash Fiscal Agent - Reserve Fund	\$503,865	\$505,666
Total Fund 607 Reserves	\$503,865	\$505,666
Sewer Capital - Fund 606		
Cash	\$1,693,458	\$983,906
Total Fund 606 Reserves	\$1,693,458	\$983,906
Sewer Impact Fees - 416		
Cash	\$68,373	\$102,717
Total Sewer Impact Fee Reserves	\$68,373	\$102,717
Total Sewer Fund Reserves	\$3,694,967	\$3,100,014

Source: Budget FY 2020-21 pg. 15

The City has a minimum fund reserve balance for the sewer enterprise of 30% of operating expenses plus \$250,000 for capital. BWA estimates the reserve target to be approximately \$1.4 million in FY 2020/21. The City has achieved a health level of reserves that provide adequate financial cushion for dealing with annual revenue and expense fluctuations and non-catastrophic emergencies. The fund reserve target will escalate over time as expenses for the

sewer enterprise gradually increase. It is acceptable if reserves fall below the target on a temporary basis, provided action is taken to achieve the target over the longer run.

4.2 Historical Sewer Revenue Performance

As an enterprise fund, the sewer utility primarily relies on revenues generated from sewer service charges and must be adequate to fund the total cost of providing water service. Sewer service charges account for over 90% of all operating revenues. However, while the sewer enterprise is covering annual operating costs, revenues are not sufficient to cash fund projected capital expenditures. Table 4 summarizes the sewer utility's estimated revenues over the last 5 years.

Table 4
City of Patterson - Sewer Rate Study 2020
Estimated Annual Sewer Service Charges

Customer Class	2016/17	2017/18	2018/19	2019/20	2020/21
FLAT CHARGE					
Number of Accounts					
Single Family Residential	5,876	5,997	6,022	6,038	6,038
Multifamily Residential	472	474	475	468	468
Residential - Diablo Grande	532	546	542	542	542
<u>Commercial</u>	<u>251</u>	<u>249</u>	<u>252</u>	<u>265</u>	<u>265</u>
Total	7,131	7,266	7,291	7,313	7,313
Growth %		1.90%	0.34%	0.30%	0.00%
Monthly Flat Sewer Charge					
Single Family Residential	\$41.92	\$44.44	\$47.11	\$49.94	\$49.94
Multifamily Residential	\$41.92	\$44.44	\$47.11	\$49.94	\$49.94
Residential - Diablo Grande	\$62.88	\$66.66	\$70.67	\$74.91	\$74.91
Commercial	\$41.92	\$44.44	\$47.11	\$49.94	\$49.94
Total Annual Flat Charge Revenues					
Single Family Residential	\$2,955,863	\$3,198,080	\$3,404,357	\$3,618,453	\$3,618,453
Multifamily Residential	\$237,435	\$252,775	\$268,527	\$280,463	\$280,463
Residential - Diablo Grande	\$401,079	\$436,886	\$459,294	\$486,851	\$486,851
<u>Commercial</u>	<u>\$126,263</u>	<u>\$132,787</u>	<u>\$142,461</u>	<u>\$158,809</u>	<u>\$158,809</u>
Total	\$3,720,640	\$4,020,528	\$4,274,638	\$4,544,576	\$4,544,576
Percent Change		8.1%	6.3%	6.3%	0.0%
COMMERCIAL CONSUMPTION CHARGE					
Total Consumption (ccf)					
Over 10 ccf	<u>80,663</u>	<u>95,676</u>	<u>103,020</u>	<u>107,545</u>	<u>107,545</u>
Total Consumption	80,663	95,676	103,020	107,545	107,545
Percent Change		19%	8%	4%	0%
Monthly Consumption Charge					
Over 10 ccf	\$2.39	\$2.53	\$2.68	\$2.84	\$2.84
Total Consumption Charge Revenue	\$192,784	\$242,060	\$276,094	\$305,428	\$305,428
TOTAL REVENUES					
Flat Charge	\$3,720,640	\$4,020,528	\$4,274,638	\$4,544,576	\$4,544,576
<u>Consumption Charge</u>	<u>\$192,784</u>	<u>\$242,060</u>	<u>\$276,094</u>	<u>\$305,428</u>	<u>\$305,428</u>
Total Revenues	\$3,913,424	\$4,262,588	\$4,550,732	\$4,850,005	\$4,850,005

- 1 - Estimated 2019/20 accounts from Summary by Class CUSTOMERS FY 2020
- 2 - Number of accounts from fiscal year end "Summary by Class CUSTOMERS FY 2017-2020"
- 3 - Diablo Grande revenues from budget

4.3 Current Outstanding Debt Service

The sewer enterprise presently has five outstanding debt issues and an additional CWSRF loan beginning in FY 2021/22 as shown on Table 5. Annual debt service for 2021/22 is \$643,455 and will increase over the next five years as the City begins to pay its California CWSRF Loan and 2014 Banc of America debt service increases. The City must legally abide by debt covenants designed to ensure adequate repayment security. The City maintains a debt service coverage ratio at least 130 percent on income from all revenues including sewer impact fees.

Table 5
City of Patterson - Sewer Rate Study 2020
Debt Service

Issue	10 - Year Totals	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30
Fund 605 Debt											
2009 State Revolving Fund Loan	\$566,755	\$56,675	\$56,675	\$56,675	\$56,675	\$56,675	\$56,675	\$56,675	\$56,675	\$56,675	\$56,675
California CWSRF Payment Schedule	\$778,728	\$0	\$55,148	\$90,448	\$90,448	\$90,448	\$90,448	\$90,448	\$90,448	\$90,448	\$90,448
2014 Banc of America (1)	\$1,698,951	\$86,671	\$101,773	\$117,618	\$134,242	\$151,683	\$169,981	\$189,823	\$430,548	\$316,612	\$0
<u>2014 CEC Loan</u>	<u>\$1,824,358</u>	<u>\$214,630</u>	<u>\$214,630</u>	<u>\$214,630</u>	<u>\$214,630</u>	<u>\$214,630</u>	<u>\$214,630</u>	<u>\$214,630</u>	<u>\$214,630</u>	<u>\$107,315</u>	<u>\$0</u>
Total	\$4,868,792	\$357,977	\$428,227	\$479,371	\$495,995	\$513,436	\$531,734	\$551,576	\$792,301	\$571,050	\$147,123
PPFA Debt											
PPFA 2009 Sewer Revenue Bonds	\$381,088	\$96,150	\$97,350	\$93,313	\$94,275	\$0	\$0	\$0	\$0	\$0	\$0
<u>PPFA 2017 Sewer Revenue Bonds</u>	<u>\$1,754,492</u>	<u>\$117,878</u>	<u>\$117,879</u>	<u>\$117,945</u>	<u>\$117,974</u>	<u>\$212,966</u>	<u>\$212,690</u>	<u>\$212,175</u>	<u>\$216,423</u>	<u>\$215,070</u>	<u>\$213,493</u>
Total	\$2,135,580	\$214,028	\$215,229	\$211,258	\$212,249	\$212,966	\$212,690	\$212,175	\$216,423	\$215,070	\$213,493
Total Debt Service	\$7,004,372	\$572,005	\$643,455	\$690,629	\$708,244	\$726,402	\$744,424	\$763,751	\$1,008,725	\$786,120	\$360,616

1 - Split 57% Sewer Fund and 43% with the General Fund

4.4 Operating Expenses

Table 6 summarizes operating expenses for 2019/20 through 2028/29. Total operating expenses for 2019/20 are projected at approximately \$4.35 million. Operating expenses are divided between operations and collections and include salary and benefits, operations and maintenance, and ongoing capital replacement and repairs. Over the ten year period, on average, all operating expenses are anticipated to increase by 5 percent each year.

The operating fund makes fund transfers each year. The first transfer is to the General Fund to cover overhead and administrative costs and is equal to 15 percent of operating expenses. The second transfer is to the Capital fund, which is a variable amount based on needs.

Table 6
City of Patterson - Sewer Rate Study 2020
Sewer Operating Expenses

	Budget 2019/20	Projected 2020/21	Annual % Growth Rate	Projected (10-Year Financial Projection)										
				2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2027/28	2027/28	2028/29	
WASTEWATER TREATMENT PLANT (WWTP)														
Salary & Benefits	\$1,669,473	\$1,709,427	5.0%	\$1,840,594	\$1,932,624	\$2,029,255	\$2,130,718	\$2,237,253	\$2,349,116	\$2,466,572	\$2,589,901	\$2,719,396	\$2,855,365	
Operations & Maintenance														
Consulting Services	267,000	267,000	5.0%	294,368	309,086	324,540	340,767	357,806	375,696	394,481	414,205	434,915	456,661	
General Contract Services	213,118	166,684	5.0%	234,963	246,711	259,046	271,999	285,599	299,878	314,872	330,616	347,147	364,504	
Utilities	35,000	35,000	5.0%	38,588	40,517	42,543	44,670	46,903	49,249	51,711	54,296	57,011	59,862	
<u>Other Operations & Maintenance Expenses</u>	<u>537,497</u>	<u>652,508</u>	5.0%	<u>592,590</u>	<u>622,220</u>	<u>653,331</u>	<u>685,998</u>	<u>720,297</u>	<u>756,312</u>	<u>794,128</u>	<u>833,834</u>	<u>875,526</u>	<u>919,302</u>	
Subtotal Operations & Maintenance	1,052,615	1,121,192		1,160,508	1,218,533	1,279,460	1,343,433	1,410,605	1,481,135	1,555,192	1,632,951	1,714,599	1,800,329	
Capital (R & R)	81,200	104,200	5.0%	89,523	93,999	98,699	103,634	108,816	114,257	119,969	125,968	132,266	138,880	
Transfers														
To General Fund	647,677	647,677	5.0%	714,064	749,767	787,255	826,618	867,949	911,347	956,914	1,004,760	1,054,998	1,107,747	
<u>To Sewer Capital Fund 606</u>	<u>0</u>	<u>0</u>		<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	
Subtotal Transfers	647,677	647,677		714,064	749,767	787,255	826,618	867,949	911,347	956,914	1,004,760	1,054,998	1,107,747	
Subtotal WWTP Expenses	3,450,965	3,582,496	5.0%	3,804,689	3,994,923	4,194,670	4,404,403	4,624,623	4,855,854	5,098,647	5,353,579	5,621,258	5,902,321	
<i>Percent Change</i>		3.8%		6.2%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	
COLLECTIONS														
Salary & Benefits	654,305	660,124	5.0%	721,371	757,440	795,312	835,077	876,831	920,673	966,706	1,015,042	1,065,794	1,119,084	
Operations & Maintenance	221,814	197,619	5.0%	244,550	256,777	269,616	283,097	297,252	312,115	327,720	344,106	361,312	379,377	
Capital (R & R)	<u>25,600</u>	<u>91,000</u>	5.0%	<u>28,224</u>	<u>29,635</u>	<u>31,117</u>	<u>32,673</u>	<u>34,306</u>	<u>36,022</u>	<u>37,823</u>	<u>39,714</u>	<u>41,700</u>	<u>43,785</u>	
Subtotal Collections Expenses	901,719	948,743		994,145	1,043,852	1,096,045	1,150,847	1,208,390	1,268,809	1,332,250	1,398,862	1,468,805	1,542,245	
<i>Percent Change</i>		5.2%		4.8%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	
TOTAL OPERATING EXPENSES														
Salary & Benefits	2,323,778	2,369,551	5.0%	2,561,965	2,690,064	2,824,567	2,965,795	3,114,085	3,269,789	3,433,278	3,604,942	3,785,189	3,974,449	
Operations & Maintenance	1,274,429	1,318,811	5.0%	1,405,058	1,475,311	1,549,076	1,626,530	1,707,857	1,793,250	1,882,912	1,977,058	2,075,911	2,179,706	
Capital (R & R)	106,800	195,200	5.0%	117,747	123,634	129,816	136,307	143,122	150,278	157,792	165,682	173,966	182,664	
Transfers	<u>647,677</u>	<u>647,677</u>	5.0%	<u>714,064</u>	<u>749,767</u>	<u>787,255</u>	<u>826,618</u>	<u>867,949</u>	<u>911,347</u>	<u>956,914</u>	<u>1,004,760</u>	<u>1,054,998</u>	<u>1,107,747</u>	
TOTAL OPERATING EXPENSES	4,352,684	4,531,239		4,798,834	5,038,776	5,290,715	5,555,250	5,833,013	6,124,663	6,430,897	6,752,442	7,090,064	7,444,567	
<i>Percent Change</i>		4.1%		5.9%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	

1 Expenses escalated from budget 2019/20

Source: City Adopted Budget 2020/21

4.5 Equipment and Vehicle Replacements

Table 7 shows the sewer utility's equipment and vehicle replacement needs from FY 2021/22 to FY 2029/30.

Table 7
City of Patterson - Sewer Rate Study 2020
Equipment and Vehicle Replacements

VIN/SN	YEAR	MAKE MODEL	Description	Projected Replacement Year (Fiscal Year)	Cost to Replace
2FZHAWDA07AX52837	2007	Sterling/ Vactor	2100 Storm Drain, Vacuum Collection Body	2021-2022	\$500,000
Remote Control Mower	NEW		Mower for Vegetation Management /Salado Creek	2021-2022	\$100,000
C90LVB11944	1976	Ford	Fire Engine converted to 6 yd Dump Body	2021-2022	\$69,000
LV4210H321553	2003	John Deere 4210	Tractor / Loader	2022-2023	\$62,100
JJG0241221	1998	Case 580L Series 2	Backhoe	2022-2023	\$143,750
873 / SN # 938342/ 10375924	1987 /1973	Spencer-Stafford Loadcraft /Cummins	Emergency Lift Station Generator	2022-2023	\$287,500
J8DM7A1U8P3200409	1993	GMC 7000	Cab Forward Chassis w/ Dump Body	2022-2023	\$103,500
Crane Truck for Collections Division	NEW		Lift Station Maintenance and Used as Utility Truck	2023-2024	\$80,000
Bark Blower Machine	NEW		Blow bark in the playgrounds/parks, easements - In house	2023-2024	\$500,000
FZ-06206 / OT160TWGS / 3642-5	1980	Military Built Thompson	Trailer-Mounted Diesel Powered 6-inch Trash Pump	2023-2024	\$69,000
SN# 2356122	2006	EZ-GO	Electric Utility Cart Outfitted for Plant Use	2023-2024	\$6,900
4XARC08G4DE220702	2013	Polaris	Ranger 48V E.V. 4X4	2023-2024	\$19,550
PJ02-9H6478/ JP50LP	2003	Nissan	Optimum 50 Forklift	2024-2025	\$20,700
1GCHC24K28E105395	2008	Chevrolet Silverado	2500HD Utility Pickup	2024-2025	\$46,000
56566-03	2007	Multiquip 600TD80	6 inch Trash Pump	2024-2025	\$26,450
4XARC08G0DE220707	2013	Polaris	Ranger 48V E.V. 4X4	2024-2025	\$19,550
1GBJC34K1RE205369	1994	Chevrolet Cheyenne	3500 Utility Pickup	2025-2026	\$65,000
1D7HA16KX3J531984	2003	Dodge Ram 1500	2WD Pick-up Truck	2025-2026	\$57,500
N/A	N/A	Custom Built	Trailer Mounted 3" Trash Pump	2025-2026	\$6,900
SN# 2356131	2006	EZ-GO	Electric Utility Cart Outfitted for Plant Use	2025-2026	\$8,280
1GCEC14V76Z239171	2006	Chevrolet Silverado	1500 2WD Pickup	2025-2026	\$34,500
33.9A60		Mitsubishi	Generator-WQCF by Centrifuge	2026-2027	\$345,000
1GDJG31U741210772	2004	GMC	3500 Utility Cargo Box	2026-2027	\$120,750
CA851814	1980	Cenca Custom Build	Trailer-Mounted Diesel Powered Generator Equipped with Work Zone Lighting	2026-2027	\$69,000
119FB1019BC041192	2011	KNA, Inc.	Hotsy Trailer; Shop Equipment (Pressure washer, welder, etc.)	2026-2027	\$13,800
T0310SG942561	2004	John Deere 310SG	Backhoe	2026-2027	\$109,250
16VDX1019C2C09295	2011	Big-Tex 50DS Trailer	Single Axle Dump Bed Trailer	2026-2027	\$10,350
KRTV900A910A1910	2009	Kubota RTV900	Off-Road 4WD Utility outfitted for Weed Control Spraying	2027-2028	\$36,800
1GCEC19T35Z258659	2005	Chevrolet Silverado	1500 2WD Pickup Ext. Cab	2027-2028	\$34,500
5M3BE1629D1052591	2012	Mirage	Trailer w/Camera Equipment for Sewers	2028-2029	\$57,500
575200E19E4089741	2014	Wells Cargo	Road Force 6x12 Enclosed Trailer	2028-2029	\$9,200
5F12S1216D1004986	2013	Wanco, Inc.	Model WTVM-07 Message Sign Trailer	2028-2029	\$20,700
4RACS141X7K018839	2007	Interstate I714SAFS	SWPPP Emergency Response Trailer	2029-2030	\$59,800
1GCEC19C19Z219350	2009	Chevrolet Silverado	1500 2WD Extended Cab Pickup Truck	2029-2030	\$40,250
LV4520H750523	Jul-05	John Deere 4520	4WD Wheel Tractor	2029-2030	\$46,000

4.6 Sewer Capital Improvement Plan

The 5-year sewer capital improvement program from 2021/22 through 2025/26 includes over \$33.8 million in potential improvements. Project cost estimates in Table 8 and Table 9 have been adjusted for inflation at 3 percent annually. The sewer capital projects are divided into two categories: WQCF Projects and Collection System Projects. Major projects include the Phase III expansion of the WQCF and retrofitting collection lines in the Old Town Area. An additional \$17.9 million in infrastructure improvements are planned for 2026/27 through 2029/30. The CIP will be reviewed and updated annually by City staff.

WQCF – Phase III Expansion

The WQCF consists of three major treatment areas: 1) the North Activated Sludge Treatment System (NASTS); 2) the South Activated Sludge Treatment System (SASTS); and 3) the Advanced Integrated Pond System (AIPS). Combined, these three treatment areas are permitted to treat a capacity of 2.25 million gallons per day (mgd) average dry weather flow. However due to the stringent effluent requirements for nitrogen and overflow concerns, the WQCF can only reliably treat an approximate total flow of 1.6 mgd. The Phase III expansion project will increase the capacity of the treatment plant by 1.25 mgd and also addresses issues at the influent pump station, solids handling facilities, effluent pump station, plant water station, site drainage, and electrical and controls.

Table 8
City of Patterson - Sewer Rate Study 2020
(FY 2022 through 2030) WQCF Wastewater Capital Improvement Program

Project	Rate Study					Extended Projection				Total Estim Cost	Cost Allocation %	
	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30		Ratepayers	Growth
WATER QUALITY CONTROL FACILITIES (WQCF) PROJECTS												
Solids Thickening Pilot Testing	\$25,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$25,000	64%	36%
Solids Dewatering Improvements - Phase I	\$137,000	\$1,502,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,639,000	64%	36%
Pond 8 - Pond 2 Interconnection	\$0	\$0	\$0	\$3,000	\$22,000	\$0	\$0	\$0	\$0	\$25,000	64%	36%
Percolation Pond Repair - Ponds 10-18	\$0	\$0	\$0	\$8,000	\$134,000	\$0	\$0	\$0	\$0	\$142,000	100%	0%
WQCF Phase III Expansion	\$0	\$200,000	\$12,276,000	\$12,276,000	\$0	\$0	\$0	\$0	\$0	\$24,752,000	8%	92%
AIPS Capacity Replacement	\$0	\$0	\$0	\$0	\$0	\$200,000	\$1,800,000	\$0	\$0	\$2,000,000	100%	0%
Expand Maintaience Building	\$0	\$0	\$0	\$0	\$0	\$21,000	\$257,000	\$0	\$0	\$278,000	25%	75%
Percolation Pond Hydraulic Improvements	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$352,000	\$0	\$352,000	100%	0%
Solids Dewatering Improvements - Phase 2	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,639,000	\$0	\$1,639,000	36%	64%
Construct Equalization Basin and Automatic HFD	\$0	\$0	\$0	\$0	\$0	\$54,000	\$613,000	\$0	\$0	\$667,000	64%	36%
Wastewater Master Plan	\$0	\$0	\$0	\$0	\$0	\$142,000	\$0	\$0	\$0	\$142,000	64%	36%
Grit Removal Facilities	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,249,000	\$1,249,000	64%	36%
South Ditch Clarifer	\$278,000	\$278,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$556,000	25%	75%
Construct Tertiary Facilities	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$273,000	\$3,005,000	\$3,278,000	0%	100%
Disinfection Facilities	\$0	\$0	\$0	\$0	\$0	\$160,000	\$1,759,000	\$0	\$0	\$1,919,000	0%	100%
Fleet Parking Structure	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$850,000	\$0	\$850,000	64%	36%
Report of Waste Discharge / WDR Permit Renewal	\$0	\$0	\$0	\$0	\$0	\$80,000	\$0	\$0	\$0	\$80,000	64%	36%
Escalation Factor	1.03	1.06	1.09	1.13	1.16	1.19	1.23	1.27	1.30			
Total WQCF Projects	\$440,000	\$1,980,000	\$12,276,000	\$12,287,000	\$156,000	657,000	4,429,000	3,114,000	4,254,000	39,593,000		
Escalation Factor	1.03	1.06	1.09	1.13	1.16	1.19	1.23	1.27	1.30			
TOTAL CAPITAL IMPROVEMENT PROGRAM (ESCALATED)	\$453,200	\$2,100,582	\$13,414,317	\$13,829,127	\$180,847	\$784,492	\$5,447,111	\$3,944,722	\$5,550,505	\$45,704,903	21%	79%

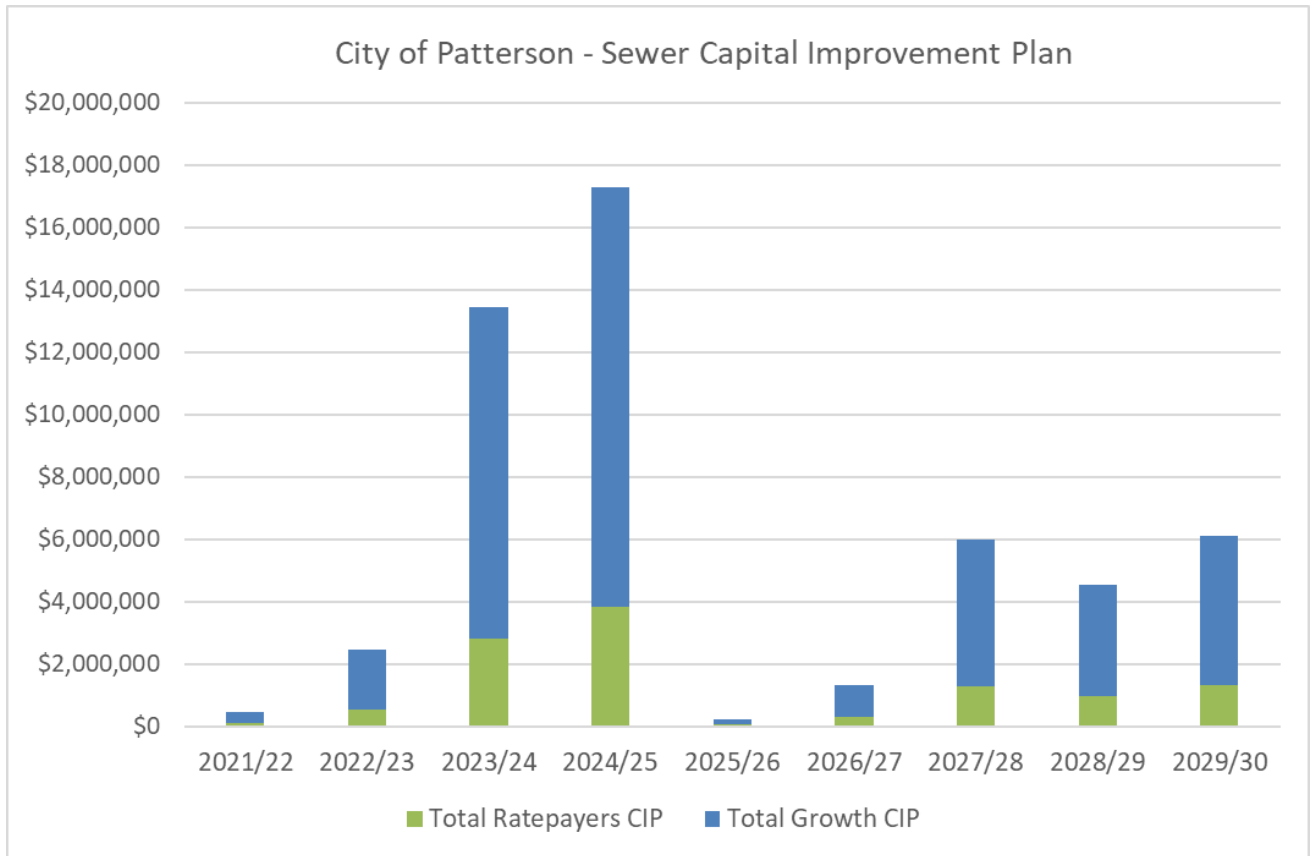
Cost Allocation	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	Total
Growth (79%)	358,028	1,659,460	10,597,310	10,925,010	142,869	619,749	4,303,218	3,116,330	4,384,899	36,106,873
Current Ratepayers (21%)	<u>95,172</u>	<u>441,122</u>	<u>2,817,006</u>	<u>2,904,117</u>	<u>37,978</u>	<u>164,743</u>	<u>1,143,893</u>	<u>828,392</u>	<u>1,165,606</u>	9,598,030
Total WWTP CIP	453,200	2,100,582	13,414,317	13,829,127	180,847	784,492	5,447,111	3,944,722	5,550,505	45,704,903

Table 9
City of Patterson - Sewer Rate Study 2020
(FY 2022 through 2030) Collection System Wastewater Capital Improvement Program

Project	Rate Study					Extended Projection				Total Estim Cost	Cost Allocation	
	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30		Rate Payer	Growth
COLLECTION SYSTEM PROJECTS												
EX-01 Walnut Trunk Repair/Correction	\$0	\$105,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$105,000	100%	0%
SD-01 First Street Cross-Connection Correction	\$0	\$100,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$100,000	100%	0%
SD-02 Housing Authority Cross-Connection Correction	\$0	\$120,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$120,000	100%	0%
Old Town Phase 2	\$0	\$0	\$0	\$3,060,960	\$0	\$0	\$0	\$0	\$0	\$3,060,960	100%	0%
Ward Avenue Sewer Lift Rehab	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$300,000	100%	0%
Year 5 Rehabilitation Project	\$0	\$0	\$0	\$0	\$35,000	\$389,340	\$0	\$0	\$0	\$424,340	100%	0%
Year 6 Rehabilitation Project	\$0	\$0	\$0	\$0	\$0	\$43,260	\$396,270	\$0	\$0	\$439,530	100%	0%
Year 7 Rehabilitation Project	\$0	\$0	\$0	\$0	\$0	\$0	\$44,030	\$403,200	\$0	\$447,230	100%	0%
Year 8 Rehabilitation Project	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$44,800	\$410,200	\$455,000	100%	0%
Total Collection System CIP	\$0	\$325,000	\$0	\$3,060,960	\$35,000	\$432,600	\$440,300	\$448,000	\$410,200	\$5,452,060		
Escalation Factor	1.03	1.06	1.09	1.13	1.16	1.19	1.23	1.27	1.30			
Total Collection System CIP (Escalated)	\$0	\$344,500	\$0	\$3,458,885	\$40,600	\$514,794	\$541,569	\$568,960	\$533,260	\$6,002,568	27%	73%

Cost Allocation	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	Total
Growth (73%)	0	251,485	0	2,524,986	29,638	375,800	395,345	415,341	389,280	4,381,874
<u>Current Ratepayers (27%)</u>	<u>0</u>	<u>93,015</u>	<u>0</u>	<u>933,899</u>	<u>10,962</u>	<u>138,994</u>	<u>146,224</u>	<u>153,619</u>	<u>143,980</u>	1,620,693
Total Collection System CIP	0	344,500	0	3,458,885	40,600	514,794	541,569	568,960	533,260	6,002,568

The following chart shows the planned sewer capital projects through FY 2029/30.



5. REVENUE REQUIREMENTS

5.1 Cash Flow Assumptions

BWA developed ten-year cash flow projections to determine annual revenue requirements and required rate adjustments. Rate adjustments are designed to 1) ensure a balanced budget in which revenues cover expenses; 2) meet debt service coverage requirements; and 3) meet sewer fund targets.

Future projections are based on the City's *10-Year Sewer Financial Plan* and incorporate the latest information available as well as a number of reasonable and slightly conservative assumptions. The cash flows only include ratepayers' share of capital improvement projects. The City anticipates that growth will fully fund the expansion portion of capital needs. Key assumptions include:

- The first rate adjustments will take effect on July 1 of each year beginning on July 1, 2021.
- The projections include growth of 3 percent per year through 2025/26. Beginning in 2026/27 and continuing, 2.5% annual growth is assumed. Assumes no growth for Diablo Grande customers.
- Other Revenues are escalated by 3% annually.
- Sewer impact fee revenues are conservatively projected at \$25,000 per year beginning in 2021/22.
- The interest earning rate on reserve funds is estimated at 0.50% each year beginning in 2021/22.
- The annual transfer to the General Fund is based on 15% of operating expenses.
- The annual transfer from the sewer operating fund to the sewer capital fund varies from 18% to 27% of sewer revenues based on cash flow needs.
- Equipment & Vehicle Replacements are funded out of the sewer capital fund.
- The financial projections include roughly \$11.1 million of debt financing. Debt financing is needed to enable the City to fund existing ratepayers' share of capital projects on schedule as sewer rate increases are gradually being phased in. Debt proceeds shown in the cash flow projections are aligned with capital funding needs. The City's actual debt issuances from year to year may vary based on actual financing needs and analysis at the time debt is issued.
- Debt service is funded out of the sewer capital fund.
- The financial projections assume a minimum sewer operating fund reserve target equal to 30% of annual operating and maintenance costs, not including transfers plus \$250,000 for emergency capital reserves. Maintaining a prudent minimal level of fund reserves provides a financial cushion for dealing with unanticipated expenses, revenue shortfalls, and non-

catastrophic emergency capital repairs. The fund reserve target will escalate over time as the City's expenses gradually increase. It is acceptable if reserves fall below the target on a temporary basis, provided action is taken to achieve the target over the longer run.

5.2 Cash Flow Projections & Recommended Rate Adjustments

As shown on Table 10, the recommended annual rate increases are 6 percent each year for the next five years beginning in 2021/22 to meet reserve fund targets and to minimize the impact on customers. Estimates of future rate increases for planning purposes only.

Table 10
City of Patterson - Sewer Rate Study 2020
Cash Flow Projection

	Budget 2020/21	Rate Study					Extended Projection			
		2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30
Assumptions:										
% Rate Adjustment (1)		6.0%	6.0%	6.0%	6.0%	6.0%	5.0%	5.0%	5.0%	5.0%
Single Family Residential Monthly Bill	\$49.94	\$52.94	\$56.12	\$59.49	\$63.06	\$66.84	\$70.18	\$73.69	\$77.37	\$81.24
Interest Earnings Rate	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
Other Revenues		3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
Growth - %		3.00%	3.00%	3.00%	3.00%	3.00%	2.50%	2.50%	2.50%	2.50%
BEGINNING FUND BALANCE										
Operating Fund 605	\$1,507,725	\$1,048,146	\$465,525	\$407,704	\$572,729	\$927,674	\$1,500,845	\$1,527,197	\$1,687,104	\$1,996,394
<u>Capital Fund 606 & Sewer Impact Fees (2)</u>	<u>1,086,623</u>	<u>313,957</u>	<u>251,330</u>	<u>8,619,813</u>	<u>5,066,670</u>	<u>1,137,191</u>	<u>1,028,365</u>	<u>965,475</u>	<u>427,111</u>	<u>574,539</u>
Total Beginning Fund Balance	2,594,348	1,362,103	716,855	9,027,517	5,639,400	2,064,865	2,529,210	2,492,672	2,114,215	2,570,932
REVENUES										
OPERATING REVENUES										
Sewer Service	4,363,153	4,764,000	5,201,000	5,678,000	6,199,000	6,768,000	7,284,000	7,839,000	8,437,000	9,080,000
Sewer Service - Diablo Grande (3)	486,851	516,000	547,000	580,000	615,000	652,000	685,000	719,000	755,000	793,000
Interest	12,972	6,811	3,584	45,138	28,197	10,324	12,646	12,463	10,571	12,855
Other Revenues	40,488	200,000	206,000	212,000	218,000	225,000	232,000	239,000	246,000	253,000
Transfer from General Fund	41,197	49,402	58,011	67,042	76,518	86,459	89,000	92,000	95,000	98,000
Transfer from BAD Districts	0	0	0	0	0	0	0	0	0	0
Subtotal Operating Revenue	4,944,661	5,536,213	6,015,595	6,582,180	7,136,715	7,741,784	8,302,646	8,901,463	9,543,571	10,236,855
CAPITAL REVENUES - RATEPAYER'S SHARE										
Sewer Impact Fees	0	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000
Transfer from Sewer Operating Fund 605 (4)	873,001	1,320,000	1,034,640	1,126,440	1,226,520	1,335,600	2,151,630	2,310,660	2,481,840	2,665,710
<u>Projected Loan Proceeds</u>	<u>2,000,000</u>	<u>0</u>	<u>9,130,459</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Subtotal Capital Revenues - Ratepayer's	2,873,001	1,345,000	10,190,099	1,151,440	1,251,520	1,360,600	2,176,630	2,335,660	2,506,840	2,690,710
TOTAL REVENUES	7,817,662	6,881,213	16,205,694	7,733,620	8,388,235	9,102,384	10,479,276	11,237,123	12,050,411	12,927,565
EXPENSES										
OPERATING EXPENSES										
Operations										
Salary & Benefits	2,369,551	2,561,965	2,690,064	2,824,567	2,965,795	3,114,085	3,269,789	3,433,278	3,604,942	3,785,189
Operations & Maintenance	1,318,811	1,405,058	1,475,311	1,549,076	1,626,530	1,707,857	1,793,250	1,882,912	1,977,058	2,075,911
Capital (R & R)	195,200	117,747	123,634	129,816	136,307	143,122	150,278	157,792	165,682	173,966
Subtotal Operating Expenses	3,883,562	4,084,770	4,289,009	4,503,459	4,728,632	4,965,064	5,213,317	5,473,983	5,747,682	6,035,066
Transfers										
To General Fund (5)	647,677	714,064	749,767	787,255	826,618	867,949	911,347	956,914	1,004,760	1,054,998
<u>To Sewer Capital Fund 606 (4)</u>	<u>873,001</u>	<u>1,320,000</u>	<u>1,034,640</u>	<u>1,126,440</u>	<u>1,226,520</u>	<u>1,335,600</u>	<u>2,151,630</u>	<u>2,310,660</u>	<u>2,481,840</u>	<u>2,665,710</u>
Subtotal Transfers	1,520,678	2,034,064	1,784,407	1,913,695	2,053,138	2,203,549	3,062,977	3,267,574	3,486,600	3,720,708
Total Operating Expenses	5,404,240	6,118,834	6,073,416	6,417,155	6,781,770	7,168,613	8,276,293	8,741,557	9,234,282	9,755,774
CAPITAL EXPENSES - RATEPAYER'S SHARE										
Existing Debt Service	572,005	643,455	690,629	708,244	726,402	744,424	763,751	1,008,725	786,120	360,616
<u>New Debt Service (6)</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>503,882</u>	<u>503,882</u>	<u>503,882</u>	<u>503,882</u>	<u>503,882</u>	<u>503,882</u>	<u>503,882</u>
Capital Improvement Projects	3,073,662	95,172	534,137	2,817,006	3,838,016	48,940	303,738	1,290,117	982,011	1,309,586
<u>Equipment & Vehicle Replacements (7)</u>	<u>0</u>	<u>669,000</u>	<u>596,850</u>	<u>675,450</u>	<u>112,700</u>	<u>172,180</u>	<u>668,150</u>	<u>71,300</u>	<u>87,400</u>	<u>146,050</u>
Subtotal Capital Expenses - Ratepayer's	3,645,667	1,407,627	1,821,616	4,704,583	5,180,999	1,469,426	2,239,521	2,874,024	2,359,412	2,320,134
TOTAL EXPENSES	9,049,907	7,526,462	7,895,032	11,121,737	11,962,770	8,638,039	10,515,814	11,615,580	11,593,694	12,075,908
NET REVENUES										
Net Revenues: Operating Fund	(459,579)	(582,621)	(57,821)	165,025	354,945	573,171	26,353	159,907	309,290	481,081
<u>Net Revenues: Capital Fund</u>	<u>(772,666)</u>	<u>(62,627)</u>	<u>8,368,483</u>	<u>(3,553,143)</u>	<u>(3,929,479)</u>	<u>(108,826)</u>	<u>(62,891)</u>	<u>(538,364)</u>	<u>147,428</u>	<u>370,576</u>
TOTAL NET REVENUES	(1,232,245)	(645,249)	8,310,662	(3,388,117)	(3,574,535)	464,345	(36,538)	(378,457)	456,717	851,657
ENDING FUND BALANCE										
Operating Fund 605	1,048,146	465,525	407,704	572,729	927,674	1,500,845	1,527,197	1,687,104	1,996,394	2,477,475
<u>Capital Fund 606 & Sewer Impact Fees</u>	<u>313,957</u>	<u>251,330</u>	<u>8,619,813</u>	<u>5,066,670</u>	<u>1,137,191</u>	<u>1,028,365</u>	<u>965,475</u>	<u>427,111</u>	<u>574,539</u>	<u>945,114</u>
Total Ending Fund Balance	1,362,103	716,855	9,027,517	5,639,400	2,064,865	2,529,210	2,492,672	2,114,215	2,570,932	3,422,589
Fund Reserve Target (30% of Oper Exp + \$250k)	1,415,069	1,475,431	1,536,703	1,601,038	1,668,590	1,739,519	1,813,995	1,892,195	1,974,305	2,060,520
Target Met	no	no	yes	yes	yes	yes	yes	yes	yes	yes
Debt Service Coverage (8)	1.86	2.29	2.54	1.74	1.98	2.24	2.46	2.28	2.96	4.89
Min. 1.30x - Target Met	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
1 - Rate increases will go into effect on July 1 of each year. 2 - Fund 606 and 416 3 - Diablo Grande rate is 1.5 times the City's rate. 4 - Transfer amount varies from 18% to 27% of Sewer Revenues 5 - 5% Growth Rate 6 - \$9.1MM loan at 3.5% interest rate, 30 year term, 1.5% issuance costs. 7 - From City Equipment & Vehicle Replacement Schedule 8 - Includes sewer connection fees										

6. PROPOSED SEWER SERVICE CHARGES

6.1 Sewer Service Charge Comparison

The following tables show the proposed sewer rates based on the annual 6 percent increases for the next five years. The rates presented on Table 11 include a reduced industrial charge in FY 2021/22 based on an updated cost of service analysis. Currently no users are charged the industrial rate. The first sewer rate increase will be effective on July 1, 2021. Subsequent rate increases will be effective on July 1 of each year.

Table 11
City of Patterson - Sewer Rate Study 2020
Proposed Sewer Charges

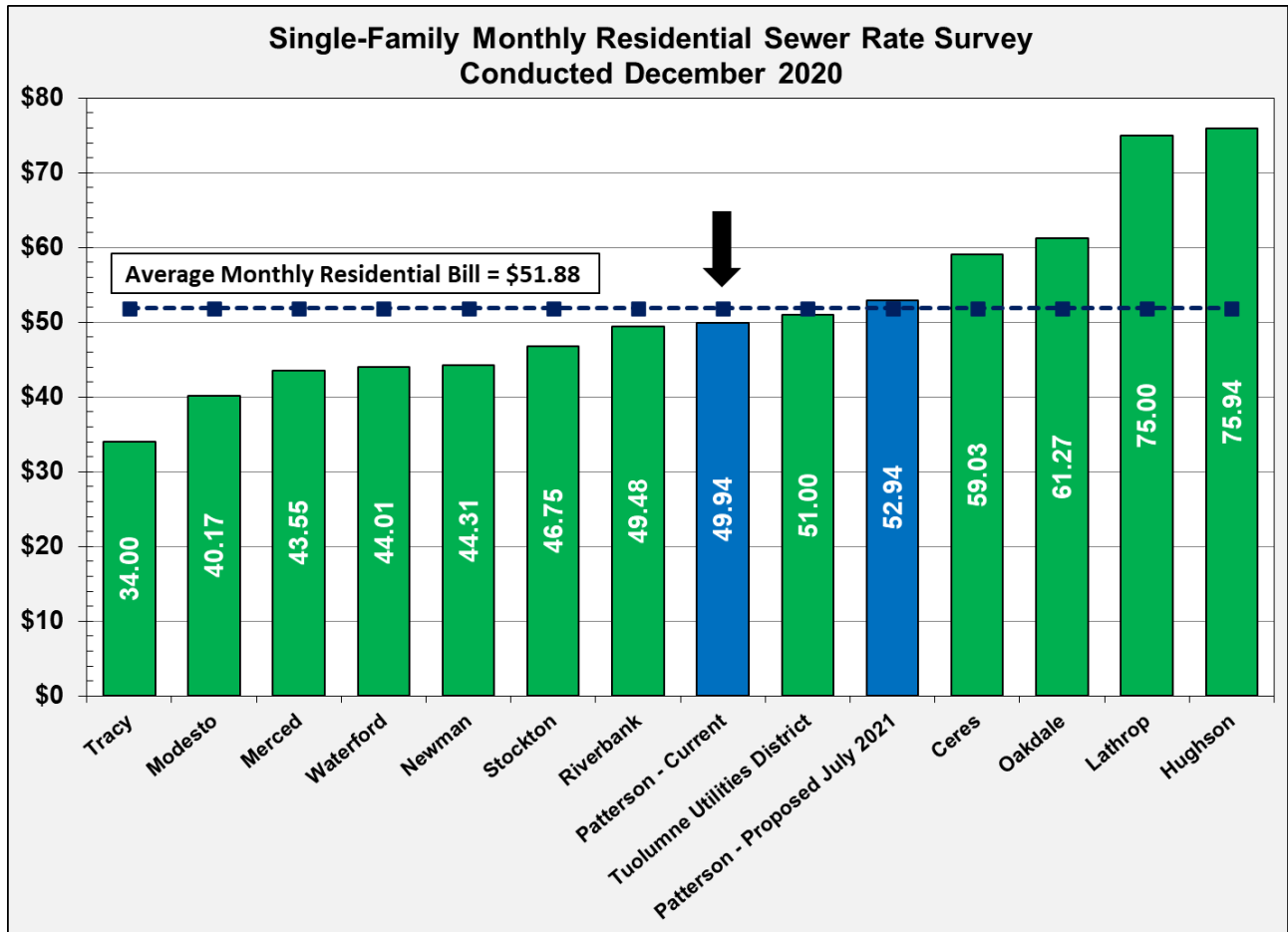
	Current	Proposed				
		July 1, 2021	July 1, 2022	July 1, 2023	July 1, 2024	July 1, 2025
Residential						
Flat Rate	\$49.94	\$52.94	\$56.12	\$59.49	\$63.06	\$66.84
Diablo Grande	\$74.91	\$79.41	\$84.18	\$89.24	\$94.59	\$100.26
Commercial						
Flat Rate includes 10 ccf*	\$49.94	\$52.94	\$56.12	\$59.49	\$63.06	\$66.84
Over 10 ccf - rate per ccf	\$2.84	\$3.01	\$3.19	\$3.38	\$3.58	\$3.79
Industrial						
Flow - per gallon	\$0.006	\$0.004	\$0.005	\$0.005	\$0.005	\$0.006
BOD - per lb	\$0.787	\$0.639	\$0.677	\$0.718	\$0.761	\$0.807
SS - per lb	\$0.787	\$0.623	\$0.661	\$0.700	\$0.742	\$0.787

1 - Diablo Grande rate is 1.5 times the City's residential flat rate.

* 1 ccf = one hundred cubic feet = 748 gallons of water

6.2 Sewer Rate Survey

The following chart compares the City's current and proposed sewer rates to those of other regional agencies for a single family home. Rates can vary widely from agency to agency due to a wide range of factors. The City's sewer rates are in the middle range compared to other regional agencies and are expected to remain in this range as many other regional agencies are also facing financial pressures to raise rates in upcoming years.



7. COST OF SERVICE ANALYSIS

The California Constitution does not give agencies leeway to arbitrarily set rates purely based on policy preferences. Instead, it provides agencies with flexibility to implement rates within a framework established by Proposition 218. While there is no single correct approach for cost attribution and rate-setting, BWA believes that costs should be allocated within a reasonable range that reflects both a) underlying cost causation, to the extent such causation can reasonably be determined or estimated, and b) the policy preferences of the agency within the parameters of having a reasonable cost basis.

The rates developed in this report are designed to achieve the City's policy preferences while complying with the requirements of the California Constitution. This study proposes rate adjustments through July 1, 2025 but does not make propose any changes to the City's current sewer rate structure.

Under the current sewer rate structure, residential customers are charged a flat monthly charge. Commercial customers are charged the same flat charge but are also billed a consumption rate per ccf for any water use over 10 ccf. The rate for industrial customers is based on actual flow, biochemical oxygen demand and suspended solids discharge. The following tables shows a detailed derivation supporting the proposed rates for fiscal year 2021/22.

7.1 Fixed vs. Variable Cost Recovery

Table 12 shows an attribution of sewer fund expenditures between fixed and variable costs. Fixed costs are costs that do not change based on the level of wastewater discharge or strength in the short run, while variable costs are costs that are directly affected by the level and strength of discharge. Based on the City's expenditures, approximately 39% of sewer system costs are allocated for fixed cost recovery and 61% are allocated to variable cost recovery.

In reality, many costs of providing service do not exclusively tie in to specific components of an agency's rate structure; some costs can be attributed to different components of an agency's rate structure based on a range of reasonable approaches. For example, costs for salaries, debt service, and capital improvements can reasonably be treated as a) fixed annual costs that should be recovered from fixed charges, b) costs related to system capacity to meet customer discharge and therefore costs that should be recovered from variable rates based on each customer's estimated flow or water use, or c) costs that can be recovered by both fixed and variable rates, a middle-road approach. Ultimately, there is no single correct way to allocate or attribute costs. Hence, five similar agencies may have five different rate structures provided

each agency can establish a reasonable cost basis for their own particular rate structure within the parameters of meeting the various requirements of the California Constitution.

Table 12
City of Patterson - Sewer Rate Study 2020
Cost Allocation

	2021/22 Expenses	Cost Recovery %		Cost Recovery \$	
		Fixed	Variable	Fixed	Variable
OPERATING EXPENSES					
<i>Operations</i>					
Salary & Benefits	\$2,561,965	50%	50%	\$1,280,983	\$1,280,983
Operations & Maintenance	\$1,405,058	20%	80%	\$281,012	\$1,124,046
<u>Capital (R & R)</u>	<u>\$117,747</u>	<u>20%</u>	<u>80%</u>	<u>\$23,549</u>	<u>\$94,198</u>
Subtotal Operating Expenses	\$4,084,770	39%	61%	\$1,585,544	\$2,499,227
<i>Transfers</i>					
To General Fund	\$714,064	15%	85%	\$107,110	\$606,954
To Sewer Capital Fund 606	\$1,320,000	15%	85%	\$198,000	\$1,122,000
<u>To Streets Fund</u>	<u>\$0</u>	<u>15%</u>	<u>85%</u>	<u>\$0</u>	<u>\$0</u>
Subtotal Transfers	\$2,034,064	15%	85%	\$305,110	\$1,728,954
Total Operating Expenses	\$6,118,834	31%	69%	\$1,890,653	\$4,228,181
CAPITAL EXPENSES - RATEPAYER'S SHARE					
Existing Debt Service	\$643,455	100%	0%	\$643,455	\$0
New Debt Service	\$0	100%	0%	\$0	\$0
Capital Improvement Projects	\$95,172	50%	50%	\$47,586	\$47,586
<u>Equipment & Vehicle Replacements</u>	<u>\$669,000</u>	<u>50%</u>	<u>50%</u>	<u>\$334,500</u>	<u>\$334,500</u>
Subtotal Capital Expenses - Ratepayer's	\$1,407,627	73%	27%	\$1,025,541	\$382,086
TOTAL SEWER EXPENSES	\$7,526,462	39%	61%	\$2,916,195	\$4,610,267

7.2 Sewer Rate Derivation

Table 13 shows the rate derivation for the proposed 2021/22 sewer rates. The total revenue requirement for 2021/22 is 5.28 million. To calculate the fixed portion of the sewer rate, the fixed recovery allocation is 38.7% of the total revenue requirement, or \$2.05 million. This fixed allocation is divided by the projected number of accounts in 2021/22 to derive an annual fixed (flat) charge per account of \$274.12. The annual charge is divided by 12 months to calculate the proposed 2019/20 monthly fixed (flat) charge of \$22.84.

The sewer rates assume that typical sewer discharge for a residential customer is 10 ccf, representing average winter water use. Winter water use is commonly used as an approximation of indoor use, which represents typical residential discharge to the wastewater system. Therefore, all customers are charged the same flat rate which includes 10 ccf of estimated discharge. Commercial customers, which generally have higher discharges, are levied an additional charge for any consumption above 10 ccf.

The variable portion of the sewer rate recovers \$3.23 million, or 61.3% of the total revenue requirement. The variable allocation is divided by estimated volume in 2021/22 to calculate a rate per unit of \$3.01. Multiplying the rate per unit by the typical residential monthly discharge of 10 ccf equals \$30.10.

Combined, the fixed cost recovery charge of \$22.84 and the variable cost recovery charge of \$30.10 equals \$52.94 which is the proposed residential and commercial flat charge for 2021/22.

Industrial Sewer Rates

Table 14 shows the development of the industrial sewer rates. The rate for industrial customers is based on actual flow, biochemical oxygen demand (BOD) and suspended solids (TSS) discharge. The City currently does not charge any customers according to the industrial sewer rate.

To calculate the rate, BWA estimated total annual sewer to be 1,074,000 hundred cubic feet or 803,405,700 gallons and average strength factors to be 274 mg/l BOD and 281 mg/l TSS based on the City of Patterson Report of Waste Discharge, revised in February 2018. Inflow and infiltration, estimated to be 10%, is removed from the calculation to derive an estimated billable flow of 732,065,130 gallons. The total revenue requirement of \$5.28 million is allocated 60% to flow, 20% to BOD and 20% to TSS. Dividing the revenue requirements by the associated billing units determines a rate of \$0.0044 per gallon of flow, \$0.6391 per pound of BOD and \$0.6232 per pound of TSS.

Table 13
City of Patterson - Sewer Rate Study 2020
Rate Derivation - 2021/22

TOTAL REVENUE REQUIREMENT		
Total 2021/22 Sewer Rate Revenue (Table 10)		\$5,280,000
FIXED COST RECOVERY		
Allocation of Cost Recovery (Table 12)	38.7%	\$2,045,783
Estimated 2021/22 Number of Accounts		7,463
Annual Fixed (Flat) Charge per Account		\$274.12
Monthly Fixed (Flat) Charge per Account		\$22.84
VARIABLE COST RECOVERY		
Allocation of Cost Recovery (Table 12)	61.3%	\$3,234,217
Estimated 2021/22 Volume (ccf)		1,074,000
Rate per Unit (\$/ccf)		\$3.01
Typical Residential Monthly Discharge (ccf)		10
Typical Residential Discharge x Rate per Unit		\$30.10
PROPOSED 2021/22 RATES		
Fixed (Flat) Rate		\$52.94
Variable Rate (for Commercial only)		\$3.01
Fixed Cost Recovery		\$22.84
<u>Variable Cost Recovery</u>		<u>\$30.10</u>
Total 2021/22 Flat Rate		\$52.94

Table 14
City of Patterson - Sewer Rate Study 2020
Industrial Rate Derivation - 2021/22

	<u>Hundred Cubic Feet</u>	<u>Gallons</u>
Estimated Annual Flow	1,074,000	803,405,700
I and I (est)	10%	80,340,570
Billable Flow		723,065,130
	<u>mg/l</u>	<u>lbs</u>
BOD*	274	1,652,320
TSS*	281	1,694,532

	<u>Allocation</u>	<u>Revenue Requirement 2021/22</u>	<u>Annual Units</u>	<u>Unit Rate</u>
FLOW	60%	\$3,168,000	723,065,130	\$0.0044
BOD	20%	\$1,056,000	1,652,320	\$0.6391
TSS	<u>20%</u>	<u>\$1,056,000</u>	1,694,532	\$0.6232
	100%	\$5,280,000		

*From City of Patterson Report of Waste Discharge, Revised February 2018