

City of Patterson

Water, Wastewater Storm & Capacity Fee Study

Draft Report
2/12/2019



BARTLE WELLS ASSOCIATES
Independent Public Finance Advisors



February 12, 2019

Mike Willett, Director of Public Works
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RE: **DRAFT** Water, Sewer and Storm Drainage Impact Fee Study

Bartle Wells Associates (BWA) is pleased to submit the attached *Water, Sewer and Storm Drainage Impact Fee Study*. The report develops updated water, sewer and storm drainage impact fees that are designed to equitably recover the costs of infrastructure and assets benefiting new development.

The City's current impact fees are based on a fee study adopted March 7th, 2006, which recommended charging impact fees by dwelling unit for residential customers and square footage of floor area for commercial and industrial customers. BWA's proposed fee methodology represents a transition from the City's current practices for the water and sewer impact fees. New water and sewer impact fees are recommended to be charged based on water meter size for most customers. BWA recommends no change to the storm drainage impact fee methodology.

Proposed fees are calculated under an expansion-only methodology. A summary of proposed fees is shown on Table 2 of this report. Existing capital assets are excluded from the basis of the fee calculation. The fees are based solely on future capital projects and land benefitting new customers, as identified in the City's 2018 Water Master Plan, 2018 Storm Drainage Master Plan, 2016 Wastewater Master Plan and 2018 cost update, and 2015 Urban Water Management Plan.

Proposed Fees - Expansion Only Cost Approach (1" or Below Meter, Single Family Home):

- Water: \$10,678
- Sewer: \$6,443
- Storm Drainage: \$2,535

We enjoyed working with the City on this assignment and appreciate the input and assistance received from City staff throughout the project. Please contact us anytime if you have questions about this report or related impact fee issues.

BARTLE WELLS ASSOCIATES

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1. Background, Objectives, & Government Code

Background

The City of Patterson (the City) is a general law City located in western Stanislaus County with a population of approximately 22,730. The City owns and operates its own water, sewer and storm drainage systems.

Table 1 shows the City’s current impact fee schedule. The City levies development impact fees on new development within the City’s service area. These impact fees are generally designed to recover costs for facilities that benefit growth and recover costs for capacity in system infrastructure. This report develops updated impact fees for new and expanded connections to the City’s water, sewer and storm drainage systems.

Table 1
City of Patterson
Current Impact Fees

<u>Residential Impact Fees</u>	<u>All Residential</u>	
Water - (per dwelling unit)	\$13,505	
Sewer - (per dwelling unit)	\$4,307	
Storm Drainage - (per dwelling unit)	\$5,379	
<u>Non Residential Impact Fees</u>	<u>Commercial</u>	<u>Industrial</u>
Water - (per sq. ft.)	\$6.23	\$6.23
Sewer - (per sq. ft.)	\$2.11	\$2.49
Storm Drainage - (per sq. ft.)	\$3.62	\$4.11

Objectives

A key recommendation of the report is to transition water and sewer impact fees from commercial and industrial square footage of floor area and dwelling units to meter size for all customers except multifamily and accessory dwelling units. BWA recommends multifamily units pay a reduced fee per unit because they use less water per unit than a typical single-family home. Additionally, charges by meter size for multifamily units less accurately capture capacity demands than a per unit charge and incentivizes under-sizing the meter. Accessory dwelling units are recommended to be charged based on fixture units or square footage to comply with California law by taking the varying size and impact of the accessory dwelling unit into account.

Appendix C shows the detailed calculation of accessory dwelling unit impact fees.

Key objectives of the study include:

- Provide independent review of the City's current impact fees;
- Develop updated impact fees that:
 - Recover the costs of infrastructure, assets, and water supply that benefit new development as identified in the latest engineering master plans;
 - Equitably recover costs from new connections to the City's service area;
 - Are consistent with industry-standard practices and methodologies;
 - Comply with government code.

This report presents key findings and recommendations as well as final impact fee alternatives for City consideration. The recommendations and alternatives presented in this report incorporate input from City staff.

Government Code

Development impact fees are governed by California Government Code Section 66000 et. seq. commonly known as AB1600. The Code refers to impact fees as *capacity charges* since their purpose is to recover an equitable share of costs for capacity in infrastructure.

Section 66013 of the Code specifically governs water and sewer capacity charges and states that the fee "*shall not exceed the estimated reasonable cost of providing the service for which the fee or charge is imposed*" unless approved by a two-thirds vote.

The Code also states that "*Capacity charge means a charge for public facilities in existence at the time a charge is imposed or charges for new public facilities to be acquired or constructed in the future that are of proportional benefit to the person or property being charged.*" The Code does not detail any specific method for determining an appropriate fee.

Section 66013 also identifies various accounting requirements for capacity fee revenues, notably that such revenues cannot be co-mingled with other City revenues and must be used solely for the purpose for which the fee was imposed. Section 66016 of the Code identifies the procedural requirements for adopting or increasing a water or sewer capacity charge.

Summary of Proposed Impact Fees

Table 2 shows a summary of the current and proposed water, sewer and storm drainage impact fees.

Table 2
City of Patterson
Current and Proposed Water, Sewer and Storm Drainage Impact Fees

Water Impact Fees

Customer Type	Current Fee	Proposed Fee*
Residential Dwelling Unit	\$13,505	
Commercial Floor Area (sq. ft.)	\$6.23	
Industrial Floor Area (sq. ft.)	\$6.23	
<u>Meter Size (inches)</u>		
1" & below		\$10,678
1 1/2"		\$13,142
2"		\$21,356
3"		\$82,140
4"		\$104,317
6"		\$156,886
8"		\$216,848
<u>Per Dwelling Unit</u>		
Multi Family Unit		\$6,407
<u>Per Fixture Unit</u>		
Accessory Dwelling Unit		\$562

Sewer Impact Fees

Customer Type	Current Fee	Proposed Fee
Residential Dwelling Unit	\$4,307	
Commercial Floor Area (sq. ft.)	\$2.11	
Industrial Floor Area (sq. ft.)	\$2.49	
<u>Meter Size (inches)</u>		
1" & below		\$6,443
1 1/2"		\$7,930
2"		\$12,886
3"		\$49,560
4"		\$62,941
6"		\$94,660
8"		\$130,839
<u>Per Dwelling Unit</u>		
Multi Family Unit		\$5,476
<u>Per Fixture Unit</u>		
Accessory Dwelling Unit		\$339

*Fire meters are proposed to be charged 15% of the regular meter rate

Storm Drainage Impact Fees

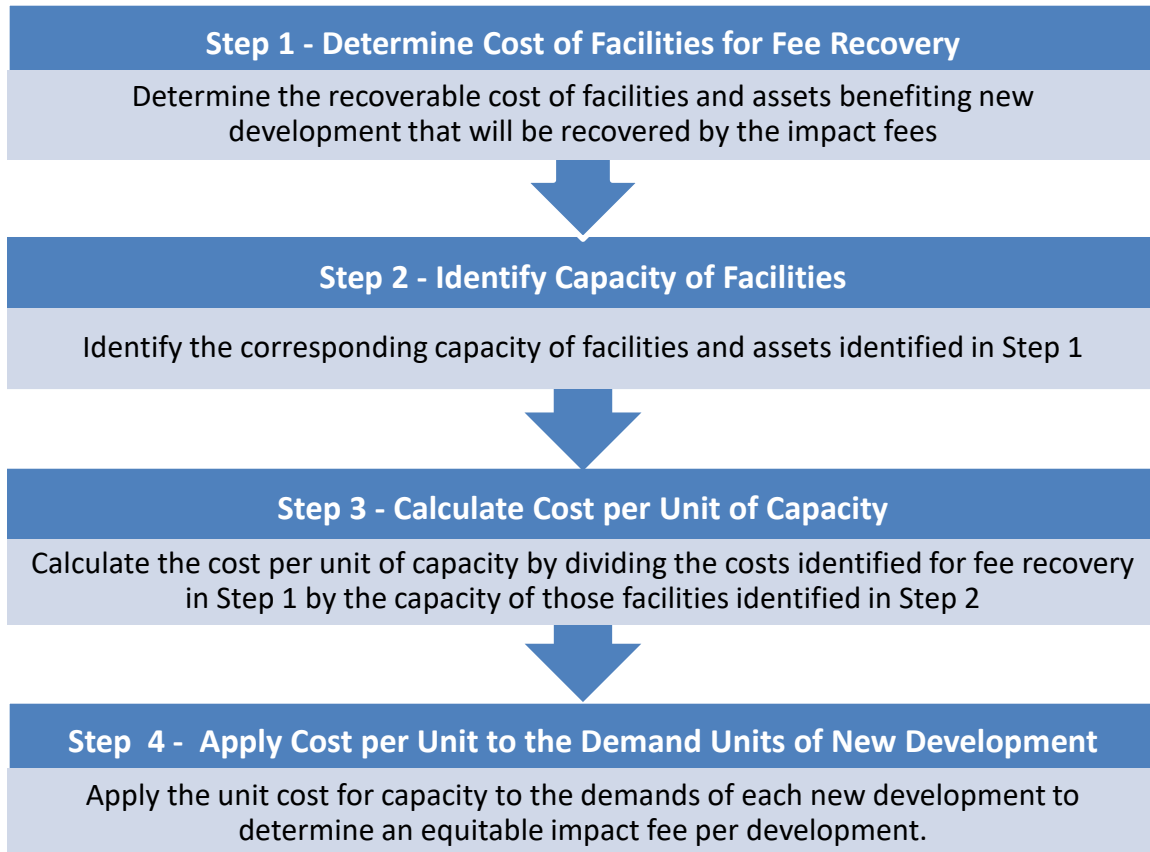
Customer Type	Current Fee	Proposed Fee
<u>Per Dwelling Unit</u>		
Residential Dwelling Unit	\$5,379	\$2,535
<u>Per Square Foot</u>		
Park / Open Space / Public / Quasi-Public (sq. ft.)	N/A	\$0.30
<u>Per Square Foot of Floor Area</u>		
Accessory Dwelling Unit (sq. ft.)	N/A	\$1.05
Commercial Floor Area (sq. ft.)	\$3.62	\$0.96
Industrial Floor Area (sq. ft.)	\$4.11	\$1.65

2. Impact Fee Calculations

This section details the calculation of updated impact fees under the expansion or marginal cost approach. The fees were calculated and designed to be simple and straightforward to implement.

General Fee Methodology

There are many methods for calculating impact fees. The general methodology used in this report is summarized below.



Facility Cost Valuation

The fees are based solely on future capital projects benefitting new customers, as identified in the City's 2018 Water Master Plan, 2018 Storm Drainage Master Plan, 2016 Wastewater Master Plan and 2018 cost update, and 2015 Urban Water Management Plan.

Expansion or Marginal Cost Approach

This report calculates new impact fees under the expansion-only fee approach. Under this approach, the fees are based on the cost of future expansion-related improvements (in current dollars) divided by the increase in system capacity associated with those improvements. Fees calculated under this approach represent the

marginal cost of adding a unit of expansion. This approach excludes cost recovery for existing facilities and assets that provide benefit to new development.

Water Proposed Impact Fees

Table 3 shows the water impact fee calculation. Based on the 2018 City of Patterson Water Master Plan Table ES – 2, total consumption of the City is projected to increase from 3,957 acre feet per year (AFY) in 2013 to 14,627 AFY at buildout in 2050. The total increase amounts to 10,670 AFY.

The 2018 City of Patterson Water Master Plan Table ES – 14 identifies the capital improvement needs to meet future growth. The total cost of future capital improvements required to meet buildout water demands amounts to \$238,769,000 or \$22,378 per additional AFY. A detailed table showing the capital improvement information is shown on Appendix A – Water Capital Improvement Program (Table 1).

Water Impact Fee Nexus

BWA calculated the actual demand of an average customer with a 1” and below meter to be 0.48 AFY based on the City’s actual water consumption. The proposed impact fee for a 1” and below meter is \$10,678. BWA increased the fee for larger meters based on American Water Works Association (AWWA) standard meter equivalent ratios. Multi-family units are recommended to be charged based on 60% of the 1” and below fee due to reduced water demand per unit than a typical 1” or below customer.

Private fire meters are recommended to be charged 15% of the regular meter fee to reflect the benefits private customers receive such as saving lives and extinguishing fires more quickly. The nature of this capacity differs from a regular meter capacity because it is on standby and not used except in emergencies. Additionally, private fire meters provide benefits to the public at large by preventing the spreading of fires. Therefore, the fee for private fire meters should be a fraction of the fee for a standard meter. Industry standard capacity fees for fire meters range from 0% to 25% of the standard meter capacity fee.

Figure 30-1 of Principals of Water Rates, Fees, and Charges (AWWA Manual M1, 5th Edition) shows that revenues of water utilities similar to the City of Patterson (6,000 to 7,000 customers) are allocated approximately 15% to fire protection service costs.

Appendix B shows a regional water impact fee survey.

Table 3
 City of Patterson
 Water Impact Fee Calculation

Supply and Demand Analysis	2013	2050
Potable Average Annual Demand (AFY)	3,687	14,231
Non-Potable Average Annual Demand (AFY)	<u>270</u>	<u>396</u>
Total Consumption (AFY)	3,957	14,627

Source: City of Patterson Water Master Plan Table ES - 2

Additional Future System Consumption to Buildout (AFY) 10,670

Future System (ES - 14: Capital Improvement Plan Summary) \$238,769,000

\$/AFY \$22,378

Meter Size	AWWA Meter Ratios	Demand (AFY)	Proposed Impact Fee	Proposed Impact Fee (Fire Meter)¹
1" & below ²	1.0	0.48	\$10,678	\$1,602
1 1/2"	1.2	0.59	\$13,142	\$1,971
2"	2.0	0.95	\$21,356	\$3,203
3"	7.7	3.67	\$82,140	\$12,321
4"	9.8	4.66	\$104,317	\$15,648
6"	14.7	7.01	\$156,886	\$23,533
8"	20.3	9.69	\$216,848	\$32,527

1 Based on 15% of the regular meter fee

2 Demand (AFY) based on average actual use in CY 2013

Multifamily (per unit)* Demand (AFY) Proposed Impact Fee
 *Based on 60% of 1" and below demand 0.29 \$6,407

Sewer Proposed Impact Fees

Table 4 shows the sewer impact fee calculation. Based on the City of Patterson Wastewater Master Plan 2016, Table 4-14 and input from City staff, the existing system is designed to treat 2.25 million gallons per day (MGD) of average dry weather flow (ADWF). At buildout, the system is projected to treat 6.29 MGD of ADWF, representing an increase of 4.04 MGD.

Sewer Impact Fee Nexus

BWA calculated the proposed sewer impact fees based on two components identified in the 2016 Wastewater Master Plan and 2018 cost update: 1) future collection system assets, totaling \$20.37 MM and 2) future treatment system assets totaling \$78.58 MM. The total system expansion cost amounts to \$98.95 MM or approximately \$24.49 MM per additional MGD of capacity. A detailed table showing the capital improvement information is shown on Appendix A – Sewer Capital Improvement Program (Table 2).

BWA determined the demand each meter size places on the sewer system by calculating an average of actual winter use during winter months (January – March). Based on this approach, 1" and below customers are estimated to use 263 gallons per day (GPD). Under this methodology, the collection portion of the fee amounts to \$1,326 per 1" and below meter and the treatment portion of the fee amounts to \$5,116 per 1" and below meter, for a total combined fee of \$6,443. BWA increased the fee for larger meters based on AWWA standard meter equivalent ratios. Multi-family units are recommended to be charged based on 85% of the 1" and below fee due to reduced winter water demand per unit than a typical 1" or below customer.

Appendix B shows a regional sewer impact fee survey.

Table 4
City of Patterson
Sewer Impact Fee Calculation

Development Condition	ADWF ¹ (MGD ²)
Existing	2.25
Buildout	6.29

Source: City of Patterson Wastewater Master Plan 2016, Table 4-14

**Additional Future System Capacity
(ADWF) to Buildout (MGD) 4.04**

Future Collection System (City of Patterson
Wastewater Master Plan 2016, Appendix E to H) \$20,372,878
\$/MGD \$5,042,792

Future Treatment System (City of Patterson
Wastewater Master Plan 2016, Appendix E to H) \$78,581,847
\$/MGD \$19,450,952

Total System (City of Patterson Wastewater
Master Plan 2016, Appendix E to H) \$98,954,725
\$/MGD \$24,493,744

Meter Size	AWWA Meter Ratios	Demand (MGD)	Demand (GPD ³)	Collection Fee	Treatment Fee	Total Proposed Impact Fee
1" & below	1.0	0.00026	263	\$1,326	\$5,116	\$6,443
1 1/2"	1.2	0.00032	324	\$1,633	\$6,297	\$7,930
2"	2.0	0.00053	526	\$2,653	\$10,233	\$12,886
3"	7.7	0.00202	2023	\$10,203	\$39,357	\$49,560
4"	9.8	0.00257	2570	\$12,958	\$49,983	\$62,941
6"	14.7	0.00386	3865	\$19,489	\$75,171	\$94,660
8"	20.3	0.00534	5342	\$26,937	\$103,902	\$130,839

*Demand (MGD) based on average actual winter (January - March) use in CY 2013

Multifamily (per unit)**	Demand (MGD)	Demand (GPD)	Collection	Treatment	Total Proposed Impact Fee
**Based on 85% of 1" and below demand	0.00022	224	\$1,127	\$4,349	\$5,476

1 ADWF = "Average Dry Weather Flow"

2 MGD = "Million Gallons per Day"

3 GPD = "Gallons per Day"

Storm Drainage Proposed Impact Fees

Table 5 shows the storm drainage impact fee calculation. Based on the City of Patterson Storm Drainage Master Plan 2018, Appendix B, the City of Patterson is projected to have an additional 7,153 gross acres, of which 1,601 acres will be impervious. The total storm drainage facilities projected to serve new development amounts to approximately \$73 MM. The current service area contains 6,500 housing units, 5.8 MM square feet of industrial floor area and 640,000 square feet of commercial floor area.

Storm Drain Impact Fee Nexus

Based on the City's 2015 Urban Water Management Plan, the City is expected to have 15,651 additional housing units, 12.2 MM square feet of additional industrial floor area, 12 MM square feet of additional commercial floor area and 6 MM of park, open space and public space. BWA classified impervious acreage based on each of these customer categories. Total capital facilities were allocated to each customer class based on its share of impervious acreage and divided by billable units to determine a charge of \$2,535 per dwelling unit and a charge per square foot for each nonresidential class.

Appendix B shows a regional storm drainage impact fee survey.

Table 5
 City of Patterson
 Storm Drainage Impact Fee Calculation

Future Acreage	Acreage
Gross Future	7,153
Impervious Acreage	1,601

Source: City of Patterson Storm Drainage Master Plan 2018, Appendix B

Future System Impervious Acreage **1,601**
Future System Impervious Square Footage **69,737,905**

Facilities to Serve New Development
(Table 5-4 Storm Drainage Master Plan) \$73,096,984

Customer Category	% Impervious	Gross Future Acres	Impervious Future	Future Sq. ft.
Estate Res.	6.0%	1,084	65	47,219,040
Gen Comm	50.0%	460	230	20,033,244
Heavy Industrial	44.0%	375	165	16,330,644
HDR	38.0%	14	5	609,840
Highway SVC Comm	50.0%	47	23	2,025,540
Light Industrial	44.0%	624	275	27,185,796
LDR	19.0%	3,755	713	163,554,732
MDR	32.0%	0	0	13,068
Mixed Use (Hillside)		656	85	28,562,292
Park / Open Space	6.0%	43	3	1,855,656
Public/Quasi-Public	38.0%	<u>96</u>	<u>37</u>	<u>4,190,472</u>
		7,153	1,601	311,580,324

Customer Type	Current			Impervious Future Acres	% Impervious		Current Fee	Proposed Fee
	Service Area	Buildout*	Additional		Future	Cost Allocation		
Housing Units	6,500	22,151	15,651	869	54%	\$39,681,053	\$5,379	\$2,535
Park / Open Space / Public / Quasi-Public (sq. ft.)			6,046,128	39	2%	\$1,785,782	\$0.00	\$0.30
Industrial Floor Area (sq. ft.)	5,800,000	17,991,605	12,191,605	440	27%	\$20,069,502	\$4.11	\$1.65
Commercial Floor Area (sq. ft.)	640,000	12,633,175	11,993,175	<u>253</u>	<u>16%</u>	<u>\$11,560,647</u>	\$3.62	\$0.96
				1,601	100%	\$73,096,984		

*2015 Urban Water Management Plan, Section 3.3

APPENDIX A

Additional Supporting Tables

Table 1
City of Patterson
Water Capital Improvement Program

Project	Project Number	Notes	2020	2021	2022	2023	2024	2025	2026	2027	2028	2028-2035	2035-2040	After 2040	Estimated Project Cost	Existing Deficiency	Future System
			5-year					10-year					Buildout				
New 1.25 MG Storage Tank (Zone 2)	ST-2	10-year						2,654,000							2,654,000	0	2,654,000
New pipeline to serve the new Zone 2 (Arambel) tank.	WM-ST-0	5-year	1,212,000												1,212,000	0	1,212,000
Add a pump station to pressure zone 2 at the new Zone 2 (Arambel) tank to meet demand/pressure requirements.	PS-0	5-year	1,487,000												1,487,000	0	1,487,000
Add a pump to pressure zone 2 at the new wellfield tank to meet flow requirements.	PS-1	10-year						1,724,000							1,724,000	0	1,724,000
Construct a new well in the northwest portion of the City serving Zone 2.	WL-1	10-year						3,656,000							3,656,000	0	3,656,000
New percolation ponds to capture and recharge stormwater from Del Puerto Creek.	PP-1	5-year		100,000	2,723,000	2,805,000	2,789,000								8,417,000	0	8,417,000
Replace 4240 lf of existing pipe with 4-inch, 6-inch, 8-inch, 10-inch, 12-inch and 16-inch pipe	WM-2	Existing Need			1,639,000										1,639,000	1,068,000	571,000
Replace around 17,750 lf of existing pipe with 4, 6, 8 and 10-inch pipe and install around 1,000 lf or new 6 and 8-inch pipe.	WM-6B	Existing Need				5,811,000									5,811,000	5,510,000	301,000
Upsize 1725 lf of existing pipe with 12-inch pipe and install 68 lf of new 12-inch pipe	WM-9	10-year						839,000							839,000	0	839,000
Upsize 1731 lf of existing pipe with 12-inch pipe and upsize 1393 lf with 16-inch pipe.	WM-11	Existing Need						1,680,000							1,680,000	0	1,680,000
Install 813 lf of new 10-inch pipe and 7735 lf of new 12-inch pipe	WM-12	5-year			4,559,000										4,559,000	0	4,559,000
Install 5247 lf of new 12-inch pipe.	WM-13	5-year		1,672,000											1,672,000	0	1,672,000
Install 2713 lf of new 12-inch pipe	WM-14	5-year			2,578,000										2,578,000	0	2,578,000
Install 5540 lf of new 8-inch and 10500 lf of new 12-inch pipe	WM-15	5-year	4,952,000												4,952,000	0	4,952,000
Install 4440 lf of new 8-inch pipe, 7040 lf of new 12-inch pipe and 2350 lf of new 16-inch pipe.	WM-16	5-year		4,074,000											4,074,000	0	4,074,000
Install 1459 lf of new 10-inch pipe	WM-17	10-year						414,000							414,000	0	414,000
Install 8080 lf of new 12-inch pipe	WM-18	10-year							3,228,000						3,228,000	0	3,228,000
Install 6870 lf of new 12-inch pipe	WM-19	10-year							5,015,000						5,015,000	0	5,015,000
Install 9139 lf of new 16-inch pipe	WM-20	10-year								4,899,000					4,899,000	0	4,899,000
Install 9450 lf of new 12-inch pipe and 670 lf of new 16-inch pipe.	WM-21	10-year								5,946,000					5,946,000	0	5,946,000
Construct a new well serving Zone 1.	WL-2	Buildout										4,431,000			4,431,000	0	4,431,000
Construct 4 new wells in the northwest portion of the City serving Zone 2.	WL-3	Buildout										4,160,000	4,479,000	10,384,000	19,023,000	0	19,023,000
New 3.0 MG Storage Tank (Zone 1)	ST-BO1	Buildout													7,389,000	0	7,389,000
New 2.0 MG Storage Tank (Zone 2)	ST-BO2	Buildout													4,651,000	0	4,651,000
New 2.25 MG Storage Tank (Zone 4)	ST-BO3	Buildout													5,333,000	0	5,333,000
Add a pump to serve the tank in the new pressure zone (Zone 4) in the western hills.	PS-BO-1	Buildout												2,231,000	2,231,000	0	2,231,000
Install 234,384 lf of new pipe	WM-BO	Buildout										33,389,000	35,950,000	41,676,000	111,015,000	0	111,015,000
Construct a new tertiary filtration system at the WQCF to produce Title 22 compliant recycled water.	TT-1	10-year						2,330,000							2,330,000	0	2,330,000
Install 300 lf of new 6-inch 2500 lf of new 10-inch non-potable pipe	NP-1	5-year	832,000												832,000	0	832,000
Install 1060 lf of new 4-inch and 5900 lf of new 12-inch nonpotable pipe	NP-2	5-year		2,655,000											2,655,000	0	2,655,000
Install 7550 lf of new 4-inch and 6770 lf of new 8-inch non-potable pipe	NP-3A	Buildout											4,819,000		4,819,000	0	4,819,000
Install 2600 lf of new 4-inch nonpotable pipe	NP-3B	Buildout											809,000		809,000	0	809,000
Install 7590 lf of new 8-inch and 2630 lf of new 10-inch and 1200 lf of new 12-inch non-potable pipe.	NP-4	5-year				5,147,000									5,147,000	0	5,147,000
Install 11292 lf of new 12-inch nonpotable pipe	NP-5	10-year					4,750,000								4,750,000	0	4,750,000
Install 7910 lf of new 12-inch nonpotable pipe to connect nonpotable system to the WQCF.	NP-6	10-year							3,476,000						3,476,000	0	3,476,000
Total Projects			8,483,000	8,501,000	11,499,000	13,763,000	7,539,000	10,364,000	6,409,000	8,243,000	10,845,000	41,980,000	46,057,000	71,664,000	245,347,000	6,578,000	238,769,000
Deficiency/Maintenance Total			0	0	1,068,000	5,510,000	0	0	0	0	0	0	0	0	6,578,000		

Table 2
City of Patterson
Sewer Capital Improvement Program

Project	Project Number	Near Term	Buildout	Estimated Project Cost
Collection System Buildout Improvements - Alternative 2 - NPTS/SPTS Force Mains to IPS				
Construct North Patterson Trunk Sewer (Segments N1-N7.2A)	CS-NPTS		5,699,484	5,699,484
Construct North Patterson Pump Station	CS-NPLS		1,230,390	1,230,390
Construct North Patterson Force Main	CS-NPFM		908,901	908,901
Construct South Patterson Trunk Sewer (Segments S1-S10.2A)	CS-SPTS		7,733,597	7,733,597
Construct South Patterson Pump Station	CS-SPLS		1,270,080	1,270,080
Construct South Patterson Force Main	CS-SPFM		1,260,158	1,260,158
Construct Orange Avenue Extension and abandon FLS	CS-OAE		206,388	206,388
Relocate Diablo Grande sewer to SPTS	CS-DG		99,225	99,225
Construct Junction Structure at NPLS/SPLS confluence	CS-JCT		<u>1,964,655</u>	<u>1,964,655</u>
			20,372,878	20,372,878
WQCF Near-Term Improvements				
Flow Splitter / IPS Improvements (2014/15 CIP)		-	-	-
WQCF Phase III Expansion		16,777,100		16,777,100
WQCF Security and Access Improvements		125,000		125,000
SCADA Computer System Improvements (2014/15 CIP)		-	-	-
Expand Maintenance Building		250,000		250,000
Percolation Pond Hydraulic Improvements		316,800		316,800
Solids Dewatering Improvements		1,476,000		1,476,000
Construct Equalization Basin and Automatic High Flow Diversion		421,875		421,875
Wastewater Master Plan		125,000		125,000
Grit Removal Facilities		1,125,000		1,125,000
South Ditch Clarifier		500,000		500,000
Construct Tertiary Filters		2,952,000		2,952,000
Disinfection Facilities		<u>1,728,000</u>		<u>1,728,000</u>
		25,796,775		25,796,775
WQCF Buildout Improvements				
Phase IV WQCF Improvement Project			22,200,881	22,200,881
Phase V WQCF Improvement Project			16,688,191	16,688,191
Tertiary Filtration (2 phases)			6,912,000	6,912,000
Disinfection Facilities (2 phases)			<u>6,984,000</u>	<u>6,984,000</u>
			52,785,072	52,785,072
Total Projects		25,796,775	73,157,950	98,954,725

Source: City of Patterson Wastewater Master Plan 2016 & Project Estimated Costs Revised October & November 2018

Table 3
City of Patterson
Storm Drainage Capital Improvement Program

FACILITIES NEEDED TO SERVE NEW DEVELOPMENT	QTY	UNIT	UNIT COST	TOTAL COST
Construction of Detention Basins and Percolation Basins				
DET 01A (28.8 AF, plus 6.0 AF add'l excavation)	34.8	AF	\$10,000	\$348,000
DET 02 (2.1 AF, plus 6.0 AF add'l excavation)	2.9	AF	\$10,000	\$29,000
DET 06 (12.0 AF, plus 2.8 AF add'l excavation)	14.8	AF	\$10,000	\$148,000
DET 08 (5.9 AF, plus 1.6 AF add'l excavation)	7.5	AF	\$10,000	\$75,000
DET 09 (15.7 AF, plus 3.6 AF add'l excavation)	19.3	AF	\$10,000	\$193,000
DET 10A (30.4 AF, plus 6.4 AF add'l excavation)	36.8	AF	\$10,000	\$368,000
DET 11 (33.2 AF, plus 6.8 AF add'l excavation)	40	AF	\$10,000	\$400,000
DET 12 (19.4 AF, plus 4.4 AF add'l excavation)	23.8	AF	\$10,000	\$238,000
DET 13 (28.4 AF, plus 6.0 AF add'l excavation)	34.4	AF	\$10,000	\$344,000
DET 14 (10.9 AF, plus 2.8 AF add'l excavation)	13.7	AF	\$10,000	\$137,000
DET 15 (14.1 AF, plus 3.2 AF add'l excavation)	17.3	AF	\$10,000	\$173,000
DET 26 (16.1 AF, plus 3.6 AF add'l excavation)	19.7	AF	\$10,000	\$197,000
DET 27 (20.4 AF, plus 4.8 AF add'l excavation)	25.2	AF	\$10,000	\$252,000
DET 29C (4.4 AF, plus 1.6 AF add'l excavation)	6	AF	\$10,000	\$60,000
DET 33A (39.5 AF, plus 11.6 AF add'l excavation)	51.1	AF	\$10,000	\$511,000
DET 39A (16.5 AF, plus 4.8 AF add'l excavation)	10.65	AF	\$10,000	\$106,500
DET 39B (17.3 AF, plus 4.8 AF add'l excavation)	22.1	AF	\$10,000	\$221,000
DET 40 (28.8 AF, plus 8.4 AF add'l excavation)	37.2	AF	\$10,000	\$372,000
DET 43 (6.8 AF, plus 2.4 AF add'l excavation)	9.2	AF	\$10,000	\$92,000
DET 44 (58.0 AF, plus 16.0 AF add'l excavation)	74	AF	\$10,000	\$740,000
DET 45 (17.9 AF, plus 5.6 AF add'l excavation)	23.5	AF	\$10,000	\$235,000
DET 46 (17.1 AF, plus 5.6 AF add'l excavation)	22.7	AF	\$10,000	\$227,000
DET 47 (12.9 AF, plus 4.4 AF add'l excavation)	17.3	AF	\$10,000	\$173,000
DET 48 (18.5 AF, plus 5.6 AF add'l excavation)	24.1	AF	\$10,000	\$241,000
DET 01A Pump Station (9.0 cfs capacity)	1	LS	\$900,000	\$900,000
DET 08 Pump Station (2.3 cfs capacity)	1	LS	\$350,000	\$350,000
DET 14 Pump Station (3.1 cfs capacity)	1	LS	\$350,000	\$350,000
DET 15 Pump Station (3.8 cfs capacity)	1	LS	\$500,000	\$500,000
DET 46 Pump Station (2.7 cfs capacity)	1	LS	\$350,000	\$350,000
DET 47 Pump Station (1.9 cfs capacity)	1	LS	\$350,000	\$350,000
Construction of Storm Drains (SDs) and Storm Drain Outfalls (SDOs)				
18" SD (RCP)	11,475	LF	\$100	\$1,147,500
24" SD (CIPCP)	33,925	LF	\$110	\$3,731,750
30" SD (CIPCP)	22,850	LF	\$150	\$3,427,500
36" SD (CIPCP)	9,925	LF	\$180	\$1,786,500
42 SD (CIPCP)	1,425	LF	\$210	\$299,250
42" SD (RCP, Bore & Jack)	100	LF	\$800	\$80,000
60" SD (CIPCP)	1,500	LF	\$300	\$450,000
15" SDO (RCP)	4,850	LF	\$75	\$363,750
18" SDO (RCP)	11,050	LF	\$100	\$1,105,000
24" SDO (CIPCP)	23,200	LF	\$110	\$2,552,000
24" SDO (RCP, Bore & Jack)	200	LF	\$650	\$130,000
30" SDO (CIPCP)	7,350	LF	\$150	\$1,102,500
36" SDO (CIPCP)	8,750	LF	\$180	\$1,575,000
36" SDO (RCP, Bore & Jack)	200	LF	\$750	\$150,000
48" SDO (CIPCP)	500	LF	\$240	\$120,000

Table 3
City of Patterson
Storm Drainage Capital Improvement Program (Continued)

FACILITIES NEEDED TO SERVE NEW DEVELOPMENT	QTY	UNIT	UNIT COST	TOTAL COST
Other Items				
Dewatering	1	LS	\$3,500,000	\$3,500,000
CNRR Crossing Agreements	4	EA	\$5,000	\$20,000
Delta Mendota Canal Crossing Agreements	3	EA	\$5,000	\$15,000
Future SDMP's/Updates	1	LS	\$200,000	\$200,000
3-72" RCP Crossing of CNRR (Bore & Jack, Salado Creek)	60	LF	\$1,200	\$72,000
Concrete Lined Channel at CNRR (Salado Creek)	90	CY	\$1,500	\$135,000
Enlarge Collection Area & Trash Grate @ 96" SD Inlet CNRR (Salado Creek)	1	LS	\$200,000	\$200,000
Open Channel (Salado Creek, DMC to Existing Open Channel)	4,500	LF	\$100	\$450,000
Bolt Down Manhole Covers Existing 96" SD	1	LS	\$25,000	\$25,000
Subtotal of Construction Items				\$31,318,250
Mobilization and Demobilization @ 3% of Subtotal of Construction Items				\$939,548
Construction Cost Subtotal				\$32,257,798
Contingencies @ 30% of Construction Cost Subtotal				\$9,677,339
Construction Cost Total				\$41,935,137
Engineering, Administration & Legal Costs @ 27% of Construction Cost				\$11,322,487
Capital Improvement Cost Total				\$53,257,624
Land Acquisition				
DET 01A	7.5	AC	\$125,000	\$937,500
DET 02	1.0	AC	\$125,000	\$125,000
DET 06	4.0	AC	\$125,000	\$500,000
DET 08	2.0	AC	\$125,000	\$250,000
DET 09	4.5	AC	\$125,000	\$562,500
DET 10A	8.0	AC	\$125,000	\$1,000,000
DET 11	8.5	AC	\$125,000	\$1,062,500
DET 12	5.5	AC	\$125,000	\$687,500
DET 13	7.5	AC	\$125,000	\$937,500
DET 14	3.5	AC	\$125,000	\$437,500
DET 15	4.0	AC	\$125,000	\$500,000
DET 26	4.5	AC	\$125,000	\$562,500
DET 27	6.0	AC	\$125,000	\$750,000
DET 29C	2.0	AC	\$125,000	\$250,000
DET 33A	14.5	AC	\$125,000	\$1,812,500
DET 39A	3.0	AC	\$125,000	\$375,000
DET 39B	6.0	AC	\$125,000	\$750,000
DET 40	10.5	AC	\$125,000	\$1,312,500
DET 43	3.0	AC	\$125,000	\$375,000
DET 44 Expansion	20.0	AC	\$125,000	\$2,500,000
DET 45	7.0	AC	\$125,000	\$875,000
DET 46	7.0	AC	\$125,000	\$875,000
DET 47	5.5	AC	\$125,000	\$687,500
DET 48	7.0	AC	\$125,000	\$875,000
Open Channel (Salado Creek, DMC to Existing Open Channel)	6.7	AC	\$125,000	\$839,360
Subtotal, Land Acquisition				\$19,839,360
Capital Improvement Cost Total Including Land Acquisition				\$73,096,984

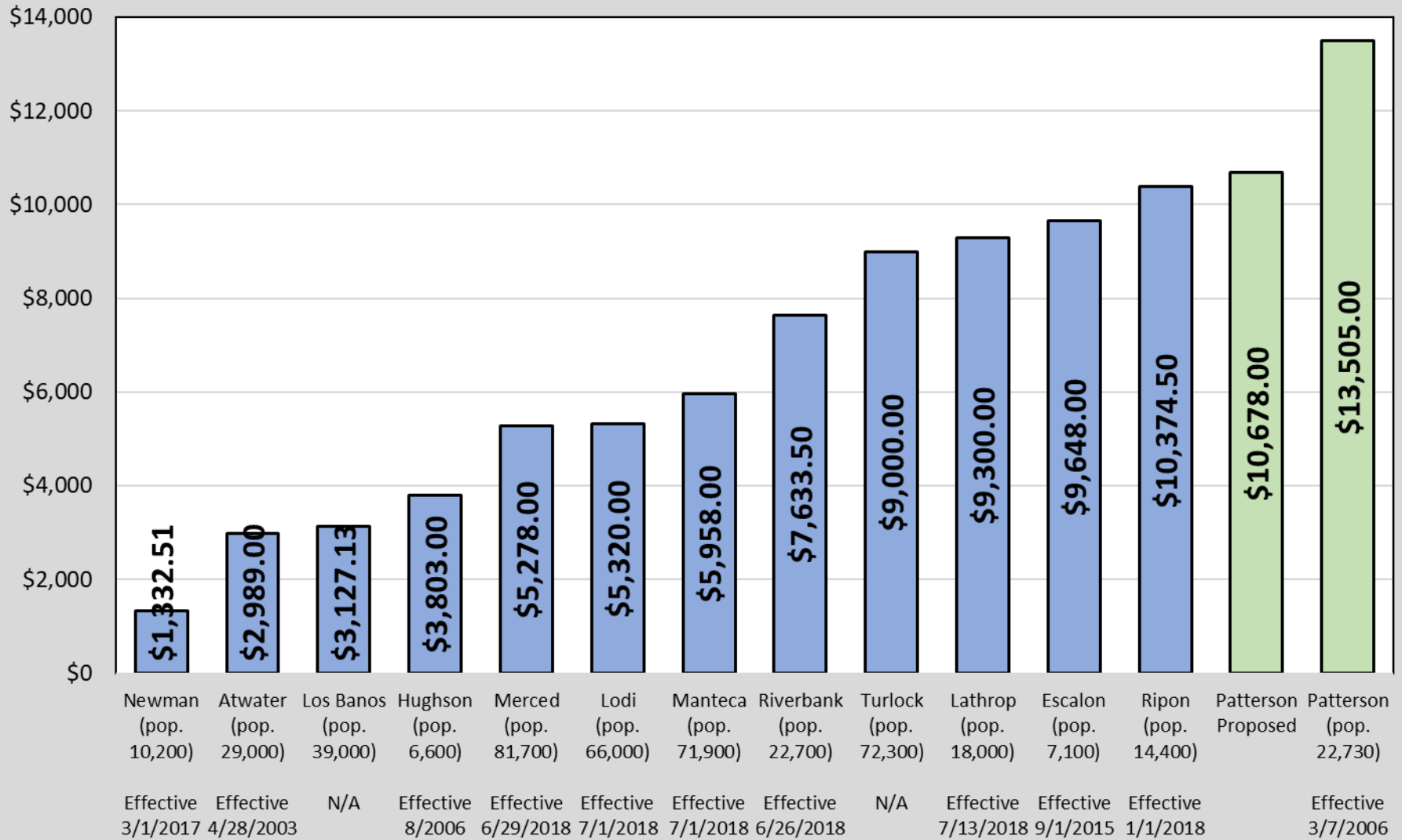
Source: Storm Drainage Master Plan, Table 5-4

APPENDIX B

Regional Impact Fee Surveys

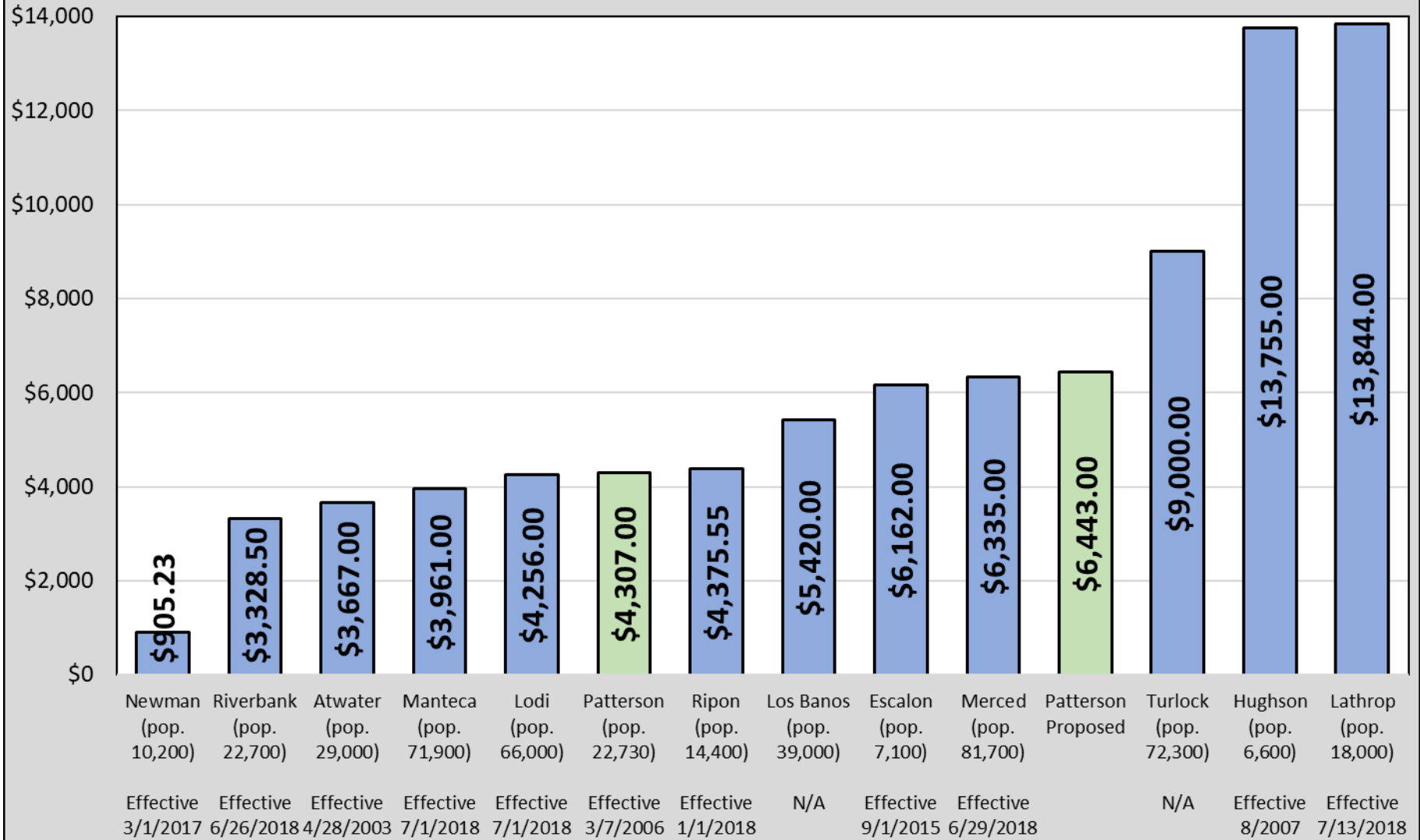
Water Impact Fee Survey - 12/2018

Assumes one single family dwelling unit or 1 inch residential meter



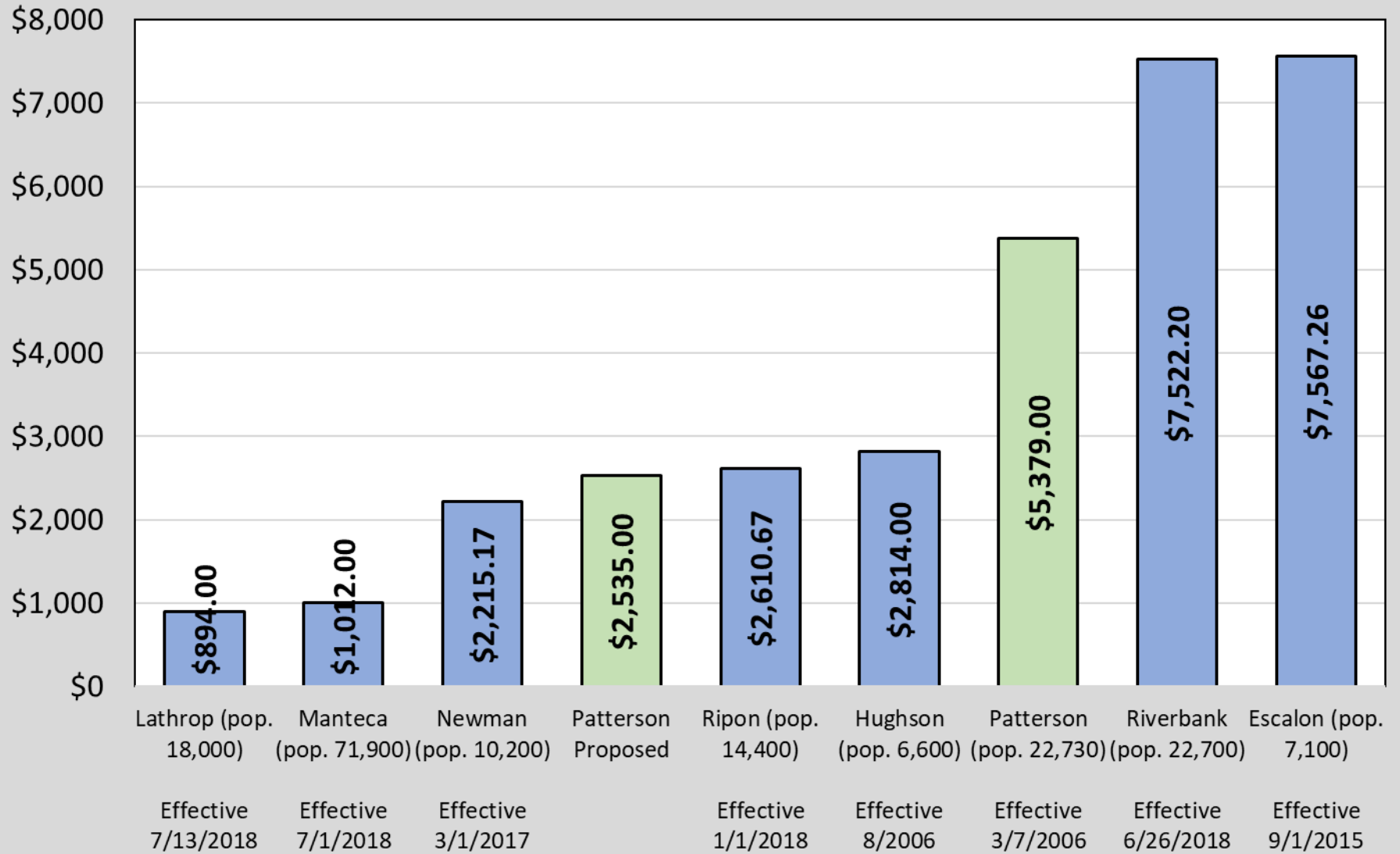
Sewer Impact Fee Survey - 12/2018

Assumes one single family dwelling unit or 1 inch residential meter



Storm Drainage Impact Fee Survey - 12/2018

Assumes one single family dwelling unit



APPENDIX C

Accessory Dwelling Units

Proposed Accessory Dwelling Unit (ADU) Fees: Recently enacted state law, Government Code Section 65852.2 (SB 1069) effective January 1, 2018, requires that the fees charged to ADUs must proportionately account for impact on services based on the ADU’s size or number of plumbing fixtures. The proposed fee would apportion the ADU fees based on the number of plumbing fixtures in the ADU as compared with the number of plumbing fixtures in a typical single-family home.

Plumbing fixtures for sanitary sewer are described in Chapter 7 of the CA Plumbing Code (Appendix D) using the terminology Drainage Fixture Units (DFUs). The DFU ratings for common plumbing devices (e.g., sinks, toilets, etc.) are listed in Table 702.1 in the California Plumbing Code. For example, a kitchen sink is rated 2 DFUs while a 1.6 gallon per flush (gpf) toilet is rated 3 DFUs. Table 1 summarizes the DFU calculation for a typical 3-bedroom, 2-bath house. The calculation of 19 DFUs includes two bathroom (lavatory) sinks, two toilets, a kitchen sink, a dish washer and a clothes washer.

Table 2 summarizes an example calculation for a hypothetical ADU containing a kitchen sink, bathroom (lavatory) sink, 1.6 gpf toilet and a shower. The ADU in this example would have a rating of 8 DFUs. The capacity and connection fees assigned the ADU in this example would be 8/19 times (or 42% of) the single-family residential fees.

Table 1
 City of Patterson
 Calculation of Typical Single Family Residence (2 bathroom) Drainage Fixture Unit (DFU) Value

Fixture Type	Quantity	DFU (1)	Total DFU
Bathtub(with or without shower)	1	2	2
Clothes Washer	1	3	3
Dishwasher	1	2	2
Lavatory	2	1	2
Shower (single)	1	2	2
Kitchen Sink	1	2	2
Toilet (1.6 gal per flush)	2	3	6
DFU's in a Typical Single Family Residence			19

1. DFU=Drainage Fixture Units as defined in Chapter 7 of the CA Plumbing Code

Table 2

City of Patterson

Example Calculation of ADU (1 bathroom) Drainage Fixture Unit (DFU) Value

Fixture Type	Quantity	DFU (1)	Total DFU
Bathtub(with or without shower)	0	2	0
Clothes Washer	0	3	0
Dishwasher	0	2	0
Lavatory	1	1	1
Shower (single)	1	2	2
Kitchen Sink	1	2	2
Toilet (1.6 gal per flush)	1	3	3
DFU's in Example ADU			8

1. DFU=Drainage Fixture Units as defined in Chapter 7 of the CA Plumbing Code

ADU Capacity and Connection Fees per DFU: Dividing the current SFR capacity and connection fees by the typical 19 DFUs yields the following fees on a DFU basis (Table3):

Table 3

City of Patterson

Calculation of Fixture Units & Square Footage Costs for ADUs

Customer Category	Proposed \$/EDU	\$/Fixture Unit	Example (8 Fixture Units)
SFR Water	\$10,678	\$562	\$4,496
SFR Sewer Collection System	\$1,326	\$70	\$559
SFR Sewer Treatment	\$5,116	\$269	\$2,154
	Proposed \$/EDU	\$/Square Foot of Impervious Area*	Example (800 Square Feet)
SFR Storm Drain	\$2,535	\$1.05	\$839

*Calculated by dividing storm drain costs allocated to residential customers by future impervious area in Table 5

APPENDIX D

Plumbing Code

**TABLE 702.1
DRAINAGE FIXTURE UNIT VALUES (DFU)**

PLUMBING APPLIANCES, APPURTENANCES, OR FIXTURES	MINIMUM SIZE TRAP AND TRAP ARM ⁷ (inches)	PRIVATE	PUBLIC	ASSEMBLY ⁸
Bathtub or Combination Bath/Shower	1½	2.0	2.0	—
Bidet	1¼	1.0	—	—
Bidet	1½	2.0	—	—
Clothes Washer, domestic, standpipe ⁵	2	3.0	3.0	3.0
Dental Unit, cuspidor	1¼	—	1.0	1.0
Dishwasher, domestic, with independent drain ²	1½	2.0	2.0	2.0
Drinking Fountain or Water Cooler	1¼	0.5	0.5	1.0
Food Waste Disposer, commercial	2	—	3.0	3.0
Floor Drain, emergency	2	—	0.0	0.0
Floor Drain (for additional sizes see Section 702.0)	2	2.0	2.0	2.0
Shower, single-head trap	2	2.0	2.0	2.0
Multi-head, each additional	2	1.0	1.0	1.0
Lavatory	1¼	1.0	1.0	1.0
Lavatories in sets	1½	2.0	2.0	2.0
Washfountain	1½	—	2.0	2.0
Washfountain	2	—	3.0	3.0
Mobilehome or Manufactured Home, trap ⁹	3	6.0	—	—
Receptor, indirect waste ^{1,3}	1½	—	See footnote ^{1,3}	—
Receptor, indirect waste ^{1,4}	2	—	See footnote ^{1,4}	—
Receptor, indirect waste ¹	3	—	See footnote ¹	—
Sinks	—	—	—	—
Bar	1½	1.0	—	—
Bar ²	1½	—	2.0	2.0
Clinical	3	—	6.0	6.0
Commercial with food waste ²	1½	—	3.0	3.0
Exam Room	1½	—	1.0	—
Special Purpose ²	1½	2.0	3.0	3.0
Special Purpose	2	3.0	4.0	4.0
Special Purpose	3	—	6.0	6.0
Kitchen, domestic ² (with or without food waste disposer, dishwasher, or both)	1½	2.0	2.0	—
Laundry ² (with or without discharge from a clothes washer)	1½	2.0	2.0	2.0
Service or Mop Basin	2	—	3.0	3.0
Service or Mop Basin	3	—	3.0	3.0
Service, flushing rim	3	—	6.0	6.0
Wash, each set of faucets	—	—	2.0	2.0
Urinal, integral trap 1.0 GPF ²	2	2.0	2.0	5.0
Urinal, integral trap greater than 1.0 GPF	2	2.0	2.0	6.0
Urinal, exposed trap ²	1½	2.0	2.0	5.0
Water Closet, 1.6 GPF Gravity Tank ⁶	3	3.0	4.0	6.0
Water Closet, 1.6 GPF Flushometer Tank ⁶	3	3.0	4.0	6.0
Water Closet, 1.6 GPF Flushometer Valve ⁶	3	3.0	4.0	6.0
Water Closet, greater than 1.6 GPF Gravity Tank ⁶	3	4.0	6.0	8.0
Water Closet, greater than 1.6 GPF Flushometer Valve ⁶	3	4.0	6.0	8.0

For SI units: 1 inch = 25 mm

Notes:

¹ Indirect waste receptors shall be sized based on the total drainage capacity of the fixtures that drain therein to, in accordance with Table 702.2(2).

² Provide a 2 inch (50 mm) minimum drain.

³ For refrigerators, coffee urns, water stations, and similar low demands.

⁴ For commercial sinks, dishwashers, and similar moderate or heavy demands.

⁵ Buildings having a clothes-washing area with clothes washers in a battery of three or more clothes washers shall be rated at 6 fixture units each for purposes of sizing common horizontal and vertical drainage piping.

⁶ Water closets shall be computed as 6 fixture units where determining septic tank sizes based on Appendix H of this code.

⁷ Trap sizes shall not be increased to the point where the fixture discharge is capable of being inadequate to maintain their self-scouring properties.

⁸ Assembly [Public Use (see Table 422.1)].

⁹ For drainage fixture unit values related to lots within mobilehome parks in all parts of the State of California, see California Code of Regulations, Title 25, Division 1, Chapter 2, Article 5, Section 1268. For drainage fixture unit values related to lots within special occupancy parks in all parts of the State of California, see California Code of Regulations, Title 25, Division 1, Chapter 2.2, Article 5, Section 2268.