

Draft Report | February 2024

City of Brea, CA

Water and Sewer Impact Fee Study

Prepared by:



February 8, 2024

Kristin Griffith
Administrative Services Director
City of Brea
1 Civic Center Circle
Brea, CA 92821

Subject: Water and Sewer Impact Fee Study Draft Report

Dear Ms. Griffith:

NewGen Strategies and Solutions, LLC (NewGen) is pleased to submit to the City of Brea this draft report detailing our completed Water and Sewer Impact Fee Study. This report details the results of our calculation of cost based Impact Fees for the City's water and sewer systems.

We appreciate the opportunity to provide our professional services to the City and would like to express our sincere appreciation to City staff. The dedication and assistance provided by City staff was essential to the completion of this study. It has been a distinct pleasure to work with the City of Brea.

Very truly yours,

Eric Callocchia
Principal
NewGen Strategies and Solutions, LLC

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Senior Consultant
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Section 1

PROJECT BACKGROUND AND SCOPE

Study Background

The City of Brea (City) operates a water distribution system with over 13,000 customer connections, over 100 miles of pipes, and various pumps and reservoirs. Due to the lack of potable groundwater in the City, the City's main water supply comes from two wholesale water producers, the California Domestic Water Company (CDWC or CalDomestic) and Municipal Water District of Orange County (MWDOC).

The City's Sewer System is made up of a network of gravity sewers, pump stations, and force mains. The sewer collection system generally ties into Orange County Sanitation District (OCSD). Most of the gravity system is comprised of 8-inch diameter vitrified clay pipe. Some of the collection system was constructed as early as 1925.

In 2021, the City completed both a Water System Master Plan (May 2021) and Sewer System Master Plan (November 2021). These plans detail the infrastructure improvements necessary to meet current system deficiencies, enhance system reliability, and increase capacity to provide service to the City's customers as the water and sewer systems grow into the future. Therefore, the City desired to update its Water Impact Fees given the new cost and demand information provided by the 2021 Water Master Plan. Also, the City wanted to evaluate the possibility of implementing a Sewer Impact Fee to fund sewer projects recommended by the 2020 Sewer Master Plan.

The City engaged NewGen Strategies and Solutions, LLC (NewGen) to conduct a Water and Sewer Impact Fee Study.

Impact Fee Definition

In general, a development impact fee is a fee rather than a tax or special assessment that is charged by a local governmental agency to an applicant in connection with approval of a development project for the purpose of defraying all or a portion of the cost of public facilities related to the development project. A development impact fee is not a tax or special assessment; by its definition, a fee is voluntary and must be reasonably related to the cost of the service provided by the local agency.

California Government Code

The legal requirements for enactment of development impact fee program are set forth in California Government Code §§ 66000-66025 (the "Mitigation Fee Act"), the bulk of which were adopted as 1987's AB 1600 and thus are commonly referred to as "AB 1600 requirements." The Code refers to water and sewer 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.*" If a development impact fee does not relate to the impact created by development or exceeds the reasonable cost of providing the public service, then the fee may be declared a special tax and must then be subject to a two-thirds voter approval. (Cal. Const., Art. XIII A, § 4.)

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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, however the reference to existing facilities or new facilities is consistent with industry standard approaches.

The City's Water Impact Fees are designed to ensure that the City's ongoing ratepayers are not required to subsidize the costs of facilities benefiting new development and that both ratepayers and new connections each pay their proportionate share of costs for water system infrastructure and assets. This approach complies with the Government Code and Article XIII, D, Section 6 of the California Constitution, commonly referred to as Proposition 218. If adopted, the City's Sewer Impact Fee would be designed similarly.

In addition to AB 1600 requirements, AB 602, effective January 1, 2022, enacted GC s66016.5 and establishes new, substantive procedures relating to development impact fees. These requirements will be discussed in this report where relevant.

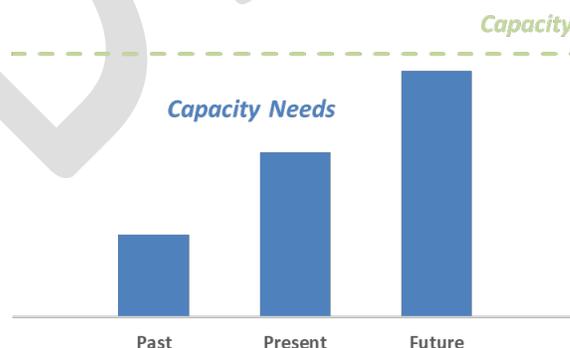
Study Methodology

The calculation process for development impact fees for water and sewer systems is outlined in the two industry manuals: the American Water Work Association (AWWA) Manual M1 – Principles of Water Rates, Fees, and Charges and the Water Environment Federation (WEF) Manual of Practice 27 – Financing and Charges for Wastewater Systems.

There are three methods that may be used to calculate cost-based Development Impact Fees:

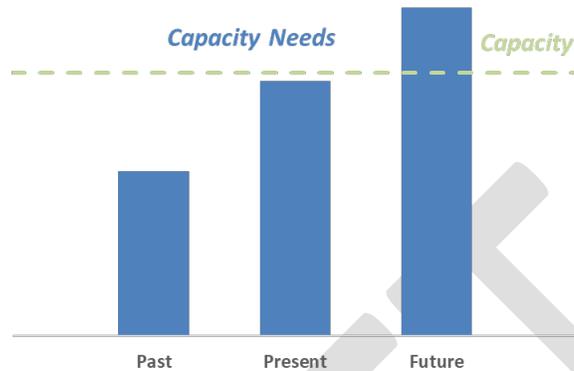
1. The system buy-in method is based on the value of the existing system's capacity, calculated either on an Original Cost Less Depreciation (OCLD) or Replacement Cost New Less Depreciation (RCNLD) basis. This method is typically used when the existing system has sufficient capacity to serve new development now and into the future.

Figure 1-1 Representation of the System Buy-In Cost Approach



2. The incremental cost method is based on the cost to expand the existing system's capacity, usually defined by a specific list of capital projects or a system master plan. This method is typically used when the existing system has limited or no capacity to serve new development and new facilities are needed to serve the next increment of new development.

Figure 1-2 – Representation of the Incremental Cost Approach



3. The combined or hybrid approach is based on a blended value of both the existing and expanded system’s capacity. This method is typically used where some capacity is available in parts of the existing system, but new or incremental capacity will need to be built in other parts to serve new development.

The City’s Various Water and Sewer Connection and Impact Fees

The City currently charges two fees to new customers at the time of connection to the City’s water system: a Water Connection Fee and a Water Impact Fee. The City only charges one fee to new sewer customers at the time of connection, namely a Sewer Connection Fee.

Water Connection Fees

The City’s current Water Connection fees are based on the system buy-in approach and are designed to recover the replacement cost less depreciation (RCLD) of the City’s existing investments in water system assets, as per a February 2006 report.¹ Water Connection Fees are adjusted on July 1 of each year based on Construction Cost Index increase as measured by Engineering News Record (ENR). The City’s currently effective Water Connection Fees are \$3,568 for 1” meters and \$11,908 for 2” meters. Where a single meter is to serve more than one water user (residential, commercial, or industrial) an additional \$1,350 is added to the Water Connection Fee for each dwelling unit, apartment, mobile home, or trailer space or commercial or industrial water user to be served from the same water meter whether constructed at the same time or added on the existing property.

NewGen is not recommending an alternative approach to the City’s Water Connection Fees.

¹ City of Brea, California Water Rate Study prepared by Raftelis Financial Consultants, Inc., February 2006, p. 29.

Water Impact Fees

The City's current Water Impact Fees are based on the incremental method, with the cost basis being defined as the results of the 2002 Water Master Plan, indexed to future costs based on increases in the Engineering News Record (ENR) 20 City average Construction Cost Index (CCI). NewGen is recommending the City update its Water Impact Fees based on updated cost information from the most recent 2021 Water Master Plan. NewGen is not, however, recommending the City change the way it calculates and applies Water Impact Fees, specifically the various Districts and Pressure Zones used to calculate these fees.

Sewer Connection Fees

The City currently charges a Sewer Connection Fee for new sewer connections. The Sewer Connection Fee is based on a calculation of the number of certain types of fixtures (i.e., sinks, toilets, faucets, etc.) with a fee per fixture that varies by fixture type. The City's Sewer Connection Fees have not been updated since 1975. NewGen is recommending a new basis for the Sewer Connection fees that is like the basis used for Water Connection Fees.

Sewer Impact Fees

The City currently does not charge a Sewer Impact fee for new sewer connections. Based on discussions with the City regarding the intent of the Sewer Impact Fee, NewGen calculated a cost based sewer Impact Fee using the incremental approach based on costs defined in the City's 2020 Sewer Master Plan, similar to the way in which the City currently calculates Water Impact Fees.

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WATER IMPACT FEES

In July 1995, the Brea City Council adopted Ordinance 967, establishing Water Impact Fees for certain new development projects in Brea and its sphere-of-influence. In March 2003, the Brea City Council adopted an updated Water Master Plan, and at that time Water Impact Fees were modified according to the updated plan. Since 2003, the City's Water Impact Fees have increased based on increases in the Engineering News Record (ENR) 20 City average Construction Cost Index (CCI).

The City updated its 2003 Water Master Plan in 2009. The City's 2009 Water Master Plan Update (WMPU) was limited to the existing City water distribution system, its Sphere of Influence (SOI), and existing water demands.

The City's 2021 Water Master Plan (WMP) addressed planned developments and associated demands defined by zoning, the General Plan, and Traffic Analysis Zone (TAZ) areas. The 2021 WMP completed a supply analysis, demand analysis, and updated the City's hydraulic model. The impact fees calculated as a part of this study are based on the recommendations resulting from the 2021 WMP.

Application of Water Impact Fees

All new development projects are subject to the Water Impact Fees, except:

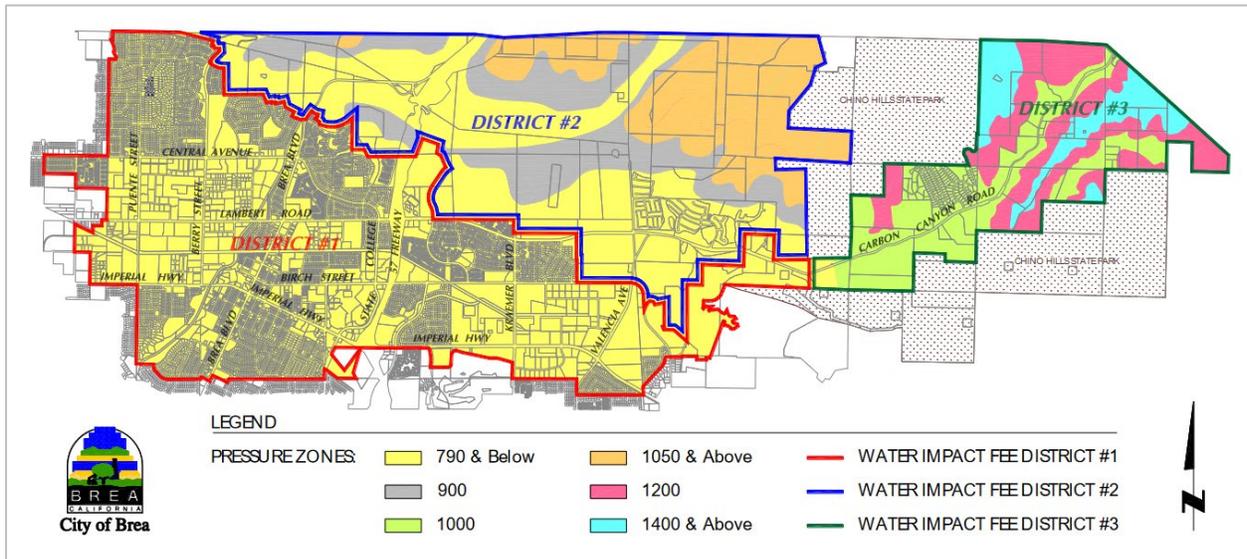
- Alterations to an existing building;
- Reconstruction (within two years), when a building has been destroyed by fire, wind, earthquakes, vandalism, or other natural or man-made disasters; and
- Additions to a single-family or multiple-family residence and construction of public schools.

With Assembly Bill AB 68 in 2020, the California State Legislature amended requirements for the imposition of development impact fees by local agencies on accessory dwelling units (ADU). The amendment to California Government Code §65852.2(f)(2) stipulates that local agencies may not impose any impact fees on ADU less than 750 square feet. ADU greater than 750 square feet can be charged impact fees in proportion to the size of the primary dwelling unit. In the case of Water Impact Fees, the basis for application of the fee is the size of the new water meter connected to the system. In the case of an ADU, the only time this would be applicable is if a property is subdivided and a new address established, in which case the City's Planning Division can order the homeowner to add a separate water meter. ADUs that do not necessitate the addition of a water meter would not be subject to a Water Impact Fee.

Current Pressure Zones and Fee Districts

The fee per 1" meter equivalent varies depending upon a project's geographical location and elevation. In some instances, the exact fee amount will only be able to be determined when the actual elevation or pressure service zone is precisely defined by the proposed development improvement plans. Figure 2-1 shows the City's current water Impact Fee Districts and pressure zones.

Figure 2-1 – Brea Water Impact Fee District Map



Based on the pressure zone information in the 2021 WMP, NewGen is not recommending changes to the City’s fee districts.

Water Master Plan Recommended Capital

There are three categories of capital improvements to the City’s water system recommended by the 2021 WMP. The three categories are projects to:

- Meet Existing Deficiencies
- Improve System Reliability
- Meet Build-out Demand

Each project is also identified by district and pressure zone. The district designation is based on the City’s current Water Impact Fee districts. The following tables detail the projects recommended by the 2021 WMP.

**Table 2-1
WMP Projects to Meet Existing Deficiencies**

District	Recommended Improvement	Project #	Cost
1	Berry Street High Pressure Pump	1	\$350,000
1	Valencia Ave Transmission Improvement	2	\$2,162,000
1	Puente Street, Site Drive, and State College Boulevard Replacements	3	\$4,738,000
1	Valencia Pipeline Replacement	4	\$4,111,000
1	Decommission Puente Pump Station	5	\$200,000
1	Lotus Place Pipe Improvements	6	\$2,947,000
1	Roscoe St Pipe Improvements	7	\$416,000
1	Brea Corsica Villas Improvement	8	\$2,867,000
1	Olinda Village Pipe Improvements	9	\$1,027,000
Total Cost			\$18,818,000

Recommended Projects to meet existing deficiencies are projects that address current issues in the system and are recommended to be completed when funding is available.

**Table 2-2
WMP Projects to Improve System Reliability**

District	Recommended Improvement	Project #	Cost
1	Carbon Canyon Reservoir Disinfection System	SR #1	\$350,000
1	Replace Generator at Berry Street Booster Pump Station	SR #2	\$300,000
1	Berry Street Low Pressure Pump	SR #3	\$350,000
1	790 Zone Loop Completion	SR #4	\$1,688,000
Total Cost			\$2,688,000

Recommended projects to improve system reliability are optional projects that do not address a deficiency, but will improve the system, reduce operations costs, or provide other system benefits. Therefore, the Water Impact Fees calculated in this report reflect a change in the level of service provided by the City's water infrastructure.

Table 2-3
WMP Projects to Meet Build-Out Demand

District	Recommended Improvement	Project #	Cost
2		1A	\$15,114,000
2	Expand 790 Zone Transmission/Distribution Piping	1B	\$200,000
2		1C	\$1,700,000
2		2A	\$18,804,000
2	Eastside 900 Zone Transmission Pipelines	2B	\$1,300,000
2		2C	\$1,300,000
2		2D	\$6,000,000
2		2E	\$6,750,000
2		2F	\$400,000
2		1050 Zone Improvements	3A
2	3B		\$5,100,000
3	Expansion of CC 1000 Zone System	4A	\$7,312,000
3		4B	\$2,550,000
3		4C	\$11,250,000
3	CC 1200 Zone Improvements	5A	\$825,000
3		5B	\$1,500,000
3	CC 1400 Zone Improvements	6A	\$8,895,000
3		6B	\$450,000
3		6C	\$1,500,000
3		6D	\$10,700,000
3		6E	\$800,000
		Total Cost	\$103,833,000

Recommended projects to meet build-out demand of potential development are projects that will be necessary to provide water to undeveloped areas of the City and its SOI. These projects should be implemented as the areas are developed.

Water Master Plan Estimated Build-Out Demand

To determine the appropriate cost allocation to the various districts and pressure zones, the future increased demand for each zone and pressure zone must be determined. Table 2-4 shows the estimated future demand in gallons per day that would result from the build-out development of each district and zone.

**Table 2-4
Future Increased Water Demand of
System Build-Out**

District	Zone	Future Increased Demand (gpd)
1	All	1,275,708
2	790	3,169,859
	900	1,143,605
	1,050	41,008
3	790	-
	1,000	637,853
	1,200	-
	1,400	1,386,401

Water Impact Fees are levied based on the number of equivalent one-inch meters added to the system by a new connection or group of connections. The City’s most recent fee calculation assumed a one-inch meter would demand 1,000 gallons per day (gpd) from the system. Based on historical demand trends and the overall reduction in per capita water use since the previous study in 2002, NewGen recommends that the City assume 500 gallons per day (gpd) of demand per one-inch equivalent connection. This increases the number of connections able to be served by the estimated future capacity, and reduces the cost allocated to each one-inch connection.

AB 602 Fee Basis

AB 602 requires² that an impact fee nexus report adopted on or after July 1, 2022 must “calculate a fee imposed on a housing development project proportionately to the square footage of proposed units of the development.” However, a jurisdiction does not need to charge residential fees by square footage if it makes all the following findings:

- (i) An explanation as to why square footage is not appropriate metric to calculate fees imposed on housing development project.
- (ii) An explanation that an alternative basis of calculating the fee bears a reasonable relationship between the fee charged and the burden posed by the development.
- (iii) That other policies in the fee structure support smaller developments, or otherwise ensure that smaller developments are not charged disproportionate fees.

Based on our professional judgement as utility rate experts, we believe that the square footage of a residential water customer is not an appropriate metric to calculate water impact fees. The square footage of a given residential water customer is not directly related to the amount of water capacity that property is capable of demanding from the City’s system at a given moment. The alternative basis the City currently

² Sec. 66016.5(a)(5)

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uses, and we are recommending they continue to use, reflects a reasonable relationship between the demand a residential customer (or any customer) will place on the City's water system, and therefore the cost burden and fee allocation of that customer. We also believe, based on our professional judgement, that the proposed fees do not result in disproportionate fees to smaller developments.

Water Impact Fee Calculation

Based on the total cost of recommended WMP projects by district and pressure zone and the assumption that a one-inch meter flow requirement is 500 gpd, Table 2-5 shows the calculation of cost-based water Impact Fees for the City's system.

**Table 2-5
Updated Water Impact Fee Calculation**

District	Zone	Future Increased Demand (gpd)	# of Equivalent 1" Meters in Zone	# of Equivalent 1" Meters for Cost Spreading	Cost of Improvements	Sub-Area Fee (1" Meter)	Calculated Fee (1" Meter)	Current Fee (1" Meter)
1	All	1,275,708	2,551	15,309	\$21,156,000	1,382	\$1,382	\$608
2	790	3,169,859	6,340	8,709	\$17,014,000	1,954	\$3,336	\$4,668
	900	1,143,605	2,287	2,369	\$34,554,000	14,585	\$17,920	\$34,729
	1,050	41,008	82	82	\$6,483,000	79,045	\$96,965	\$126,315
3	790	-	-	4,049	-	-	\$1,382	\$608
	1,000	637,853	1,276	4,049	\$21,112,000	5,215	\$6,597	\$25,408
	1,200	-	-	2,773	\$2,675,000	965	\$7,561	\$27,561
	1,400	1,386,401	2,773	2,773	\$22,345,000	8,059	\$15,620	\$27,561

The fee for each pressure zone is based on the cumulative number of one-inch equivalent meters in the zone and all zones of higher elevation. Therefore, because District 1 is comprised entirely of pressure zone 790 and below, the District 1 fee is based on District 1 costs divided by the total estimated build-out demand stated in one-inch meter equivalents. The fee for District 3, pressure zone 1,400 is based on project costs in that zone divided by only the meter equivalents in that zone, as it is the higher pressure zone. Accordingly, the fee for each zone is the sum of the fees for that zone and all lower pressure zones.

The difference between the calculated fees and existing fees varies due the differences in project costs and the number of equivalent one-inch meters in each zone when compared to the previous fee calculation.

The fees calculated in Table 2-5 are stated in 2023 dollars. The City should adjust Water Impact Fees annually based on increases in the Engineering News Record (ENR) 20 City average Construction Cost Index (CCI) until the time a new water master plan is completed, at which time the City should re-calculate Water Impact Fees based on the new master plan.

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SEWER CONNECTION AND IMPACT FEES

The City's previous Sewer Master Plan was completed in 2005. The intent of the 2020 Sewer Master Plan, which was completed in November 2021, was to update the City's sewer model, hydraulic analysis, condition assessment, and capital improvement project recommendations based on the latest available information.

Sewer Connection Fees

It is important to make a distinction between the City's current "Sewer Connection Fees" and NewGen's calculated "Sewer Impact Fees". City Ordinance No. 578, titled AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF BREA AMENDING THE BREA CITY CODE AS HERETOFORE AMENDED, BY ADDING ARTICLE V TO CHAPTER 19 THEREOF, TO BE ENTITLED "SEWER CONNECTION FEES" was adopted in 1975, and defines the purpose of the Sewer Connection Fees as:

*"The development of buildings and other facilities for human habitation in the City of Brea has created a need for the expansion of City sewer facilities and has increased the cost of maintaining said city's sewerage system. Accordingly, it is the intent of this Council that any person constructing a new building, or such facility shall pay the fees prescribed in this Article prior to connecting the same to said City's sewerage system. The payment of the fees prescribed in this Article V is required and assessed pursuant to the taxing power of the City of Brea in order to produce revenues to be utilized solely for **the maintenance and repair of the sewerage system of the City of Brea** and to provide new facilities of, general benefit to that system and those persons utilizing it such as, but not limited to, trunk lines."* (emphasis added)

Application of Sewer Connection Fees

All new development projects are subject to the Sewer Connection Fees, except:

- Alterations to an existing building;
- Reconstruction (within two years), when a building has been destroyed by fire, wind, earthquakes, vandalism, or other natural or man-made disasters; and
- Additions to a single-family or multiple-family residence and construction of public schools.

The City currently allocates revenue generated by Sewer Connection Fees to the Sewer Operating Fund in support of the maintenance and repair of the City's sewerage system, consistent with Ordinance No. 578.

The City's current Sewer Connection Fees are levied based on the type of fixture being connected to the sewer system, and ADUs that add water fixtures would be subject to the Sewer Connection fee for those additional fixtures. The City's current Sewer Connection Fees are shown in Table 3-1.

**Table 3-1
Current Sewer Connection Fees**

Fixture Type	Fee per Fixture
Bathtub	\$10.00
Bidet	\$5.00
Dental Units	\$5.00
Drinking Fountain	\$5.00
Floor Drain	\$10.00
Interceptors for grease, oil and solids	\$15.00
Interceptors for sand, auto wash, etc.	\$15.00
Laundry Tub or Washer (self-service)	\$15.00
Laundry Tub or Washer	\$10.00
Mobile Home Park (each pad)	\$90.00
Receptors	\$15.00
Shower	\$10.00
Showers gang, per head	\$5.00
Sink, Bar	\$5.00
Sink, Bar Commercial	\$10.00
Sink, Kitchen	\$10.00
Sink, Floor	\$5.00
Sinks, Flushing Rim	\$15.00
Sink, Service	\$10.00
Swimming Pool	\$15.00
Urinal, Pedestal	\$10.00
Urinal, Stall	\$10.00
Urinal, Wall Trough	\$20.00
Wash Basin (lavatory)	\$5.00
Wash Basin (set) (double lavatory)	\$10.00
Water Closet (toilet)	\$20.00

The Sewer Connection Fees for the City have not increased since 1975. Given that so much time has passed since the adoption of these fees, NewGen recommends that the City re-establish the basis for these fees based on the most recently calculated Original Cost Less Depreciation

NewGen Calculated Sewer Connection Fees

On August 1, 2023, the California Building Standards Commission approved the adoption of Uniform Plumbing Code (UPC) Appendix M into the California Plumbing Code (CPC). UPC Appendix M is an alternative methodology to the CPC Appendix A for sizing water pipes in new single family and multifamily buildings. NewGen used guidance from both Appendix M and the 2023 California Green Building Standards Code, Title 24, Part 11 (CALGreen) to develop standardized sewer flow calculations for the fixtures used in Brea’s current Sewer Connection Fee structure. The calculation involves two components: flow (stated in gallons per minute, or gpm) and probability of use.

The probability of use (p) that a fixture is on is determined by t/T , where t is the duration of time that water is flowing through the fixture when it is on, and T is the time in between the use of the fixture when the fixture is off. For example, take a tank-type toilet that takes five seconds to fill after a flush and is used every 300 seconds (five minutes) during a busy time. The probability of use for that toilet fixture is 2.0% (5/300).

For each fixture in Brea’s Sewer Connection Fee structure that was defined in CPC Appendix M, Table M 102.3, NewGen used the stated gpm and probability of use information therein. As per CA Plumbing Code Appendix M §102.6, when fixtures in Brea’s structure were not explicitly stated in Table M 102.3, NewGen selected probability of use and flow rates for Other Fixtures not defined in Table M 102.3 based on “comparable probability of use and flow rates” of defined fixtures.

The first step of the calculation of the Sewer Connection Fee is to define the cost basis of the fee. NewGen relied upon sewer system asset data provided by the City to determine that the Net Book Value (NBV) of the City’s sewer assets at the time of the study was \$17,162,926. This represents the depreciated cost of the sewer system, also known as the Original Cost Less Depreciation, or OCLD. This is the lowest value NewGen would recommend as the basis for the fee.

The second step is to determine the unit cost in GPD of Brea’s sewer system. A key assumption is that since the City’s system is not limited in its treatment capacity due to being a wholesale treatment customer of the OCLD. Therefore, NewGen used the daily water production capacity of the City’s water system as the basis for the City’s capacity to transmit flow through its sewer system. The City’s current average water production capacity is 12.40 million gallons per day (MGD).

Based on a discharge capacity of 12.40 million gallons per day (MGD), the unit cost of one GPD of Brea’s OCLD is \$1.38 ($\$17,162,926 / 12,400,000$).

**Table 3-3
Calculated GPD Unit Cost –
System Buy-In (OCLD) Approach**

Item	Value
NBV of Sewer Assets	\$17,162,926
Capacity Available (MGD)	12.40
Unit Cost (GPD; in \$)	\$1.38

The final step is to assign the unit cost per GPD to Brea’s Sewer Connection Fee fixtures on a fixture by fixture basis using the flow and probability of use data provided by CPC Appendix M and CALGreen Title 24, Part 11. Table 3-2 shows this calculation for each of Brea’s fixtures. Table 3-2 shows this calculation for each fixture, with the calculated capacity cost being the GPM times the probability of use, then

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multiplied by 1,440 (minutes in a day) to arrive at the GPD per Fixture. The GPD per fixture is then multiplied by \$1.38, which is the calculated unit cost per GPD of capacity on the OCLD basis.

**Table 3-2
Assignment of Unit Costs to Fixtures**

Fixture Type	GPM	Probability of Use	GPD per Fixture	Calculated Cost of Fixture Capacity
Bathtub	5.5	1.0%	\$79.20	\$109.62
Laundry, tub or washer	3.5	5.5%	\$277.20	\$383.67
Shower	2.0	4.5%	\$129.60	\$179.38
Sink-kitchen	2.2	2.0%	\$63.36	\$87.70
Sink-bar	1.5	2.0%	\$43.20	\$59.79
Wash basin (lavatory)	3.0	1.0%	\$43.20	\$59.79
Wash basin (set) (double lavatory)	3.0	1.0%	\$43.20	\$59.79
Water closet (toilet)	3.0	1.0%	\$43.20	\$59.79
Bidet	2.0	1.0%	\$28.80	\$39.86
Dental units	2.0	1.0%	\$28.80	\$39.86
Drinking fountain	0.5	2.0%	\$14.40	\$19.93
Floor drain	3.0	1.0%	\$43.20	\$59.79
Interceptors for grease, oil and solids	1.0	2.0%	\$28.80	\$39.86
Interceptors for sand, auto wash,	1.0	2.0%	\$28.80	\$39.86
Laundry tub or washer (self service)	3.5	5.5%	\$277.20	\$383.67
Receptors	1.0	2.0%	\$28.80	\$39.86
Showers gang-per head	2.0	4.5%	\$129.60	\$179.38
Sink, bar commercial	1.5	2.0%	\$43.20	\$59.79
Sinks, commercial or industrial	1.2	2.0%	\$34.56	\$47.83
Sinks, floor	1.2	2.0%	\$34.56	\$47.83
Sinks, flushing rim	1.2	2.0%	\$34.56	\$47.83
Sinks, service	1.2	2.0%	\$34.56	\$47.83
Swimming pool	1.0	2.0%	\$28.80	\$39.86
Urinal, pedestal	0.5	1.0%	\$7.20	\$9.97
Urinal, stall	0.5	1.0%	\$7.20	\$9.97

Based on this calculation, some of Brea's Sewer Connection Fees would need to be increased by over 3,000%. NewGen understands that this maximum increase would be untenable for the City's new sewer customers. Therefore, our recommendation is to apply an across-the-board increase based on the average calculated increase shown in Table 3-2, ignoring any calculated increase above 1,000%. This results in a recommended across-the-board increase of 370% to each of Brea's fixture fees.

Table 3-3 shows the recommended Sewer Connection Fees resulting from NewGen's analysis.

**Table 3-3
Recommended Sewer Connection Fees**

Fixture Type	Current Fee per Fixture	Recommended Fee per Fixture
Bathtub	\$10.00	\$47.00
Laundry, tub or washer	\$10.00	\$47.00
Shower	\$10.00	\$47.00
Sink-kitchen	\$10.00	\$47.00
Sink-bar	\$5.00	\$24.00
Wash basin (lavatory)	\$5.00	\$24.00
Wash basin (set) (double lavatory)	\$10.00	\$47.00
Water closet (toilet)	\$20.00	\$94.00
Bidet	\$5.00	\$24.00
Dental units	\$5.00	\$24.00
Drinking fountain	\$5.00	\$24.00
Floor drain	\$10.00	\$47.00
Interceptors for grease, oil and solids	\$15.00	\$71.00
Interceptors for sand, auto wash, and the like	\$15.00	\$71.00
Laundry tub or washer (self service)	\$15.00	\$71.00
Receptors	\$15.00	\$71.00
Showers gang-per head	\$5.00	\$24.00
Sink, bar commercial	\$10.00	\$47.00
Sinks, commercial or industrial	\$15.00	\$71.00
Sinks, floor	\$5.00	\$24.00
Sinks, flushing rim	\$15.00	\$71.00
Sinks, service	\$10.00	\$47.00
Swimming pool	\$15.00	\$71.00
Urinal, pedestal	\$10.00	\$47.00
Urinal, stall	\$10.00	\$47.00
Urinal, wall trough	\$20.00	\$94.00

It should be recognized that these fees have not been updated since 1975. Based on NewGen’s recommendation, the application of a 370% increase on these fees is the equivalent of a 3.3% compounding annual increase from 1975 to 2023, which is a reasonable reflection of the City’s costs of investments since that time. If adopted, we recommend the City adjust Sewer Connection Fees annually based on the flow capacity calculations contained herein and an updated NBV of sewer assets at the close of each City fiscal year. We recognize that it may take several years of adjusting fees before outliers above 1,000% are no longer present in the connection fee calculation process. Eventually, the City’s sewer connection fees will reflect the true historical cost of building sewer flow capacity in its system.

Sewer Impact Fees

Based on discussions with City staff, NewGen was tasked with calculating a cost-based sewer Impact Fee that the City could charge to recover the costs of future necessary investments in the City’s sewer system that would result from expanding the system to serve new customers. These costs are based on the information in the City’s 2020 Sewer Master Plan. See Appendix A of this report for a detailed list of Sewer Master Plan projects.

To be consistent with the City’s Water Impact Fees, NewGen calculated a Sewer Impact Fee based on a 500 GPD demand equivalent for a 1” meter. Table 3-4 shows the calculated Sewer Impact Fee using the average cost method. The fee is based on the additional cost of sewer assets spread over the basis of current sewer flow capacity. In this manner, the fee is calculated as the average cost impact of the improvements on the existing flow capacity, which results in a lower fee than if the cost was spread over the incremental capacity above current flows, which is 3.86 MGD.³

**Table 3-4
Sewer Impact Fee Calculation – Average Cost Method**

Item	Value	Note
Total Costs of Additional Capacity (2020 Master Plan)	\$19,004,880	(a)
Capacity Available (GPD)	12,400,000	(b)
Unit Cost (GPD; in \$)	\$1.53	(a) / (b)
Impact Fee per Equivalent 1” Meter (500 GPD)	\$766	Unit Cost x 500

NewGen recommends that the \$766 Sewer Impact Fee apply to all new connections in any Impact Fee District or water pressure zone.

Application of Sewer Impact Fees

All new development projects are subject to the Sewer Impact Fees, except:

- Alterations to an existing building;
- Reconstruction (within two years), when a building has been destroyed by fire, wind, earthquakes, vandalism, or other natural or man-made disasters; and
- Additions to a single-family or multiple-family residence and construction of public schools.

As stated previously, Assembly Bill AB 68 amended requirements for the imposition of development impact fees by local agencies on ADUs. In the case of Sewer Impact Fees, the basis for application of the fee is the new water meter connected to the system. In the case of an ADU, the only time this would be applicable is if a property is subdivided and a new address established, in which case the City’s Planning Division can order the homeowner to add a separate water meter. ADUs that do not necessitate the addition of a water meter would not be subject to a Sewer Impact Fee.

³ 2020 Sewer Master Plan, Table 5-3, Future Condition less Existing Condition

AB 602 Fee Basis

Similar to the City's Water Impact Fee, based on our professional judgement as utility rate experts, we believe that the square footage of a residential water customer is not an appropriate metric to calculate Sewer Impact Fees. The square footage of a given residential water customer is not directly related to the amount of water capacity (and therefore sewer capacity) that property is capable of producing at a given moment. The alternative basis we are recommending the City use reflects a reasonable relationship between the demand a residential customer (or any customer) will place on the City's sewer system, and therefore the cost burden and fee allocation of that customer. We also believe, based on our professional judgement, that the proposed fees do not result in disproportionate fees to smaller developments.

The fees calculated in Table 3-4 are stated in 2023 dollars. If adopted, we recommend the City adjust Sewer Impact Fees annually based on increases in the Engineering News Record (ENR) 20 City average Construction Cost Index (CCI) until the time a new sewer master plan is completed, at which time the City should re-calculate Sewer Impact Fees based on the new master plan.

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Table 9-1
Capital Improvement Program Projects

Capacity Deficiencies																			
CIP Project ID	Deficiency Description	Location Description	Pipe ID	U/S MH ID	D/S MH ID	Existing Pipe Diam. (in)	Proposed Pipe Diam. (in)	Length (ft)	Slope	Existing Conditions		Near-Term Future Conditions (without SOI)		Future Conditions (with SOI Loads)		Unit Cost ¹	Construction Cost	Total Cost ²	Comment
										Total Flow (MGD)	d/D	Total Flow (MGD)	d/D	Total Flow (MGD)	d/D				
EX1	Existing Capacity Deficiency	Randolph Ave and Imperial Hwy	RB59D-RB60D ³	RB59D	RB60D	10	15	215	0.0044	0.7753	0.69	0.8031	0.71	0.8031	0.71	\$2,000	\$430,000	\$645,000	Major sag with grease and water levels on top of pipe per CCTV inspection
			RB60D-RB61 ³	RB60D	RB61	10	15	118	0.0051	0.8500	0.70	0.8775	0.72	0.8775	0.72	\$2,000	\$236,000	\$354,000	Large offset joint per CCTV inspection (Structural Condition Grade =5)
			RB61-RB62	RB61	RB62	10	15	80	0.0113	0.8518	0.54	0.8793	0.55	0.8793	0.55	\$600	\$48,000	\$72,000	Updated to prevent bottleneck situation
			RB62-RB63D	RB62	RB63D	10	15	50	0.0080	0.8518	0.66	0.8793	0.68	0.8793	0.68	\$600	\$30,000	\$45,000	Updated to prevent bottleneck situation
			RB63D-RB64	RB63D	RB64	10	15	32	0.0131	0.9087	0.58	0.9361	0.59	0.9361	0.59	\$600	\$19,200	\$28,800	Updated to prevent bottleneck situation
EX2	Existing Capacity Deficiency	Walling Ave, between De Jur St and Delay St	IC32-IC33D	IC32	IC33D	8	10	366	0.0030	0.3225	0.65	0.3225	0.65	0.3225	0.65	\$400	\$146,400	\$219,600	Major sag with inspection report water level as high as 80%. (Structural Condition Grade =5)
Total								861	Existing Capacity Deficiency Projects Total							\$909,600	\$1,364,400		
CIP Project ID	Lift Station, Siphons, and Carbon Canyon Sewers																Construction Cost	Total Cost ²	Comment
BRIAR-LS	Briarwood LS Replacement																\$670,000	\$1,005,000	LS has reached the end of its useful life.
S-2-1	Bypass Line for Siphon S-2 (across Brea Creek)																\$500,000	\$750,000	Bypass needed to enable regular flushing of siphon
S-2-2	Cleaning and CCTV Inspection for sewers upstream of Siphon S-2 ⁴																\$18,700	\$28,050	1,700 feet of pipe
CC-1	Carbon Canyon Access Road (Right-of-way Acquisition)																\$470,500	\$705,750	Access road needed to allow for cleaning of sewers in area
CC-2	Carbon Canyon Access Road (Construct approximately 1.5 miles of 25-ft wide access road with two 96-ft diameter turnarounds)																\$1,200,000	\$1,800,000	
CC-3	Cleaning and CCTV Inspection for Carbon Canyon Sewers ⁴																\$460,000	\$690,000	22,500 feet of pipe
Lift Station, Siphons, and Carbon Canyon Sewers Total																\$3,319,200	\$4,978,800		

¹ Unit costs for construction are based on \$40/diam inch

² Total costs include 50% contingencies for design, engineering, administration, and construction management

³ Unit cost is based on jack-and-bore operation

⁴ Contingency added for administration and project management

Table 9-1 (Continued)
Capital Improvement Program Projects
Condition Deficiencies

CIP Project ID	Deficiency Description	Location Description	Pipe ID	U/S MH ID	D/S MH ID	Existing Pipe Diam. (in)	Proposed Pipe Diam. (in)	Length (ft)	Slope	Structural Deficiencies Grade 5	Unit Cost ¹	Construction Cost	Total Cost ²	Comment
ST-1	Structural 5	Woodhill Ln	A0813-A0812	A0813	A0812	8	8	55	0.1189	JOL	\$320	\$17,600	\$26,400	
ST-2	Structural 5	Cloverdale Dr	A1113-A1112	A1113	A1112	8	8	152	0.0175	JOL	\$320	\$48,640	\$72,960	
ST-3	Structural 5	Waterfall Ln Extension	A14-A15	A14	A15	10	10	105	0.0219	MWLS	\$400	\$42,000	\$63,000	
ST-4	Structural 5	Birch St	A2109D-A2108	A2109D	A2108	10	10	200	0.0170	JOL	\$400	\$80,000	\$120,000	
ST-5	Structural 5	Birch St	A2110-A2109D	A2110	A2109D	10	10	322	0.0272	JOL	\$400	\$128,800	\$193,200	
ST-6	Structural 5	Imperial Hwy	B07-B08	B07	B08	8	8	148	0.0032	JOL	\$320	\$47,360	\$71,040	
ST-7	Structural 5	Ash St	B0906-B0905	B0906	B0905	8	8	179	0.0063	BSV	\$320	\$57,280	\$85,920	
ST-8	Structural 5	Brea Blvd	B0907-B0906A	B0907	B0906A	8	8	222	0.0044	BSV	\$320	\$71,040	\$106,560	
ST-9	Structural 5	Cypress St	B0914-B0913	B0914	B0913	8	8	6	0.0667	SMW	\$320	\$1,920	\$2,880	
ST-10	Structural 5	Orange Ave	B1103-B1102	B1103	B1102	8	8	650	0.0072	BSV	\$320	\$208,000	\$312,000	
ST-11	Structural 5	Brea Blvd	B12-B13	B12	B13	8	8	332	0.0063	JOL	\$320	\$106,240	\$159,360	
ST-12	Structural 5	Brea Blvd	B1502-B1501A	B1502	B1501A	6	6	545	0.0144	BSV	\$240	\$130,800	\$196,200	
ST-13	Structural 5	Elm St	B1508-B1507	B1508	B1507	8	8	183	0.0033	HSV	\$320	\$58,560	\$87,840	
ST-14	Structural 5	Flower Ave	B1511-B1510	B1511	B1510	8	8	376	0.0186	BSV	\$320	\$120,320	\$180,480	
ST-15	Structural 5	Elm St	B1521-B1521A	B1521	B1521A	8	8	152	0.0035	MWLS	\$320	\$48,640	\$72,960	
ST-16	Structural 5	Imperial Hwy	B1530-B1529	B1530	B1529	8	8	371	0.0198	BSV	\$320	\$118,720	\$178,080	
ST-17	Structural 5	Imperial Hwy	B1535-B1529	B1535	B1529	8	8	311	0.0181	JOL	\$320	\$99,520	\$149,280	
ST-18	Structural 5	Olinda Dr	CC1809-CC1808	CC1809	CC1808	8	8	133	0.1129	JOL	\$320	\$42,560	\$63,840	
ST-19	Structural 5	Dalewood Pl	FA1601-FA16	FA1601	FA16	8	8	200	0.0405	SMV	\$320	\$64,000	\$96,000	
ST-20	Structural 5	East of Brea Creek	FA1994-FA1993	FA1994	FA1993	15	15	370	0.0053	BSV	\$600	\$222,000	\$333,000	
ST-21	Structural 5	Central Ave	FA1997-FA1989D	FA1997	FA1989D	8	8	273	0.0284	JOL	\$320	\$87,360	\$131,040	
ST-22	Structural 5	Brea Blvd	FA1998-FA1997	FA1998	FA1997	6	6	183	0.0670	BSV, HSV, JOL	\$240	\$43,920	\$65,880	
ST-23	Structural 5	Apollo St	FA2315-FA2315A	FA2315	FA2315A	8	8	215	0.0040	SMW	\$320	\$68,800	\$103,200	
ST-24	Structural 5	Apollo St	FA2315A-FA2306	FA2315A	FA2306	8	8	234	0.0040	SMW	\$320	\$74,880	\$112,320	
ST-25	Structural 5	Apollo St	FA2316-FA2315	FA2316	FA2315	8	8	195	0.0060	SMW	\$320	\$62,400	\$93,600	
ST-26	Structural 5	Apollo St	FA2317-FA2316	FA2317	FA2316	8	8	251	0.0055	SMW	\$320	\$80,320	\$120,480	
ST-27	Structural 5	Apollo St	FA2318-FA2317	FA2318	FA2317	8	8	223	0.0091	SMW	\$320	\$71,360	\$107,040	
ST-28	Structural 5	Explorer St	FA2319-FA2318	FA2319	FA2318	8	8	373	0.0276	SMW	\$320	\$119,360	\$179,040	
ST-29	Structural 5	Apollo St	FA2328-FA2318	FA2328	FA2318	8	8	354	0.0138	SMW	\$320	\$113,280	\$169,920	
ST-30	Structural 5	Apollo St	FA2329-FA2328	FA2329	FA2328	8	8	270	0.0142	SMW	\$320	\$86,400	\$129,600	
ST-31	Structural 5	Lambert Rd	FA2409-FA2408	FA2409	FA2408	6	6	198	0.0040	JOL	\$240	\$47,520	\$71,280	
ST-32	Structural 5	East of Brea Creek	FA3412-FA3411	FA3412	FA3411	8	8	68	0.0070	MWLS	\$320	\$21,760	\$32,640	
ST-33	Structural 5	Walnut Way	FA3436-FA3435	FA3436	FA3435	8	8	322	0.0154	BSV	\$320	\$103,040	\$154,560	
ST-34	Structural 5	Walnut Way	FA3437-FA3436	FA3437	FA3436	8	8	360	0.0022	JOL	\$320	\$115,200	\$172,800	
ST-35	Structural 5	Bracken St	FA3441-FA3438	FA3441	FA3438	8	8	200	0.0208	JOL	\$320	\$64,000	\$96,000	
ST-36	Structural 5	Honeysuckle Ln	FA3447-FA3446	FA3447	FA3446	8	8	127	0.0068	HWV, JOL	\$320	\$40,640	\$60,960	
ST-37	Structural 5	Berry St	FB09-FB10D	FB09	FB10D	8	8	346	0.0290	JOL	\$320	\$110,720	\$166,080	
ST-38	Structural 5	Berry St	FB20-FB21	FB20	FB21	8	8	327	0.0361	JOL	\$320	\$104,640	\$156,960	
ST-39	Structural 5	Berry St	FB2406-FB2405	FB2406	FB2405	8	8	56	0.2880	JOL	\$320	\$17,920	\$26,880	
ST-40	Structural 5	East of Brea Creek	FB4103-FB4102	FB4103	FB4102	15	15	160	0.0012	BSV	\$600	\$96,000	\$144,000	
ST-41	Structural 5	Date St	FB4106-FB4105D	FB4106	FB4105D	6	6	280	0.0100	BSV	\$240	\$67,200	\$100,800	
ST-42	Structural 5	Madrona Ave	FB4108-FB4107A	FB4108	FB4107A	6	6	418	0.0142	BSV, BVV	\$240	\$100,320	\$150,480	
ST-43	Structural 5	Madrona Ave	FB4709-FB4708	FB4709	FB4708	6	6	520	0.0396	BSV, HSV	\$240	\$124,800	\$187,200	
ST-44	Structural 5	Madrona Ave	FB4714-FB4713	FB4714	FB4713	6	6	180	0.0939	BSV, HSV	\$240	\$43,200	\$64,800	
ST-45	Structural 5	Madrona Ave	FB4715-FB4714	FB4715	FB4714	6	6	160	0.0124	HWV, JOL	\$240	\$38,400	\$57,600	
ST-46	Structural 5	Madrona Ave	FB4728-FB4727	FB4728	FB4727	8	8	325	0.0185	BSV	\$320	\$104,000	\$156,000	
ST-47	Structural 5	Madrona Ave	FB4729-FB4728	FB4729	FB4728	8	8	330	0.0091	BSV, XP	\$320	\$105,600	\$158,400	

Table 9-1 (Continued)
Capital Improvement Program Projects

Condition Deficiencies														
CIP Project ID	Deficiency Description	Location Description	Pipe ID	U/S MH ID	D/S MH ID	Existing Pipe Diam. (in)	Proposed Pipe Diam. (in)	Length (ft)	Slope	Structural Deficiencies Grade 5	Unit Cost ¹	Construction Cost	Total Cost ²	Comment
ST-48	Structural 5	Imperial Hwy	FB4735-FB4734	FB4735	FB4734	8	8	108	0.0040	JOL	\$320	\$34,560	\$51,840	
ST-49	Structural 5	Juniper St	FB5209-FB5208	FB5209	FB5208	8	8	189	0.0025	BSV	\$320	\$60,480	\$90,720	
ST-50	Structural 5	Larchwood Dr	FB5217-FB5216	FB5217	FB5216	8	8	157	0.0025	JOL	\$320	\$60,240	\$75,360	
ST-51	Structural 5	Fir St	FB5308-FB5305	FB5308	FB5305	8	8	150	0.0410	BSV	\$320	\$48,000	\$72,000	
ST-52	Structural 5	Brea Blvd	FB5402-FB5401	FB5402	FB5401	8	8	606	0.0109	BSV	\$320	\$193,920	\$290,880	
ST-53	Structural 5	Wardman Dr	IB0508-IB0507	IB0508	IB0507	8	8	290	0.0050	HSV	\$320	\$92,800	\$139,200	
ST-54	Structural 5	Wardman Dr	IB0514-IB0513	IB0514	IB0513	8	8	323	0.0534	BSV	\$320	\$103,360	\$155,040	
ST-55	Structural 5	Harvey Dr	IB0534-IB0533	IB0534	IB0533	8	8	120	0.0149	HSV	\$320	\$38,400	\$57,600	
ST-56	Structural 5	Steele Dr	IB0538-IB0537	IB0538	IB0537	8	8	248	0.0383	HSV	\$320	\$79,360	\$119,040	
ST-57	Structural 5	Puente Dr	IB10-IB11	IB10	IB11	8	8	332	0.0373	JOL	\$320	\$106,240	\$159,360	
ST-58	Structural 5	Gemini Ave	IB2804-IB2803	IB2804	IB2803	10	10	335	0.0053	HSV	\$400	\$134,000	\$201,000	
ST-59	Structural 5	Midbury St	IC2336-IC2335D	IC2336	IC2335D	8	8	280	0.0200	MWLS	\$320	\$89,600	\$134,400	
ST-60	Structural 5	San Juan Dr	IC2353-IC2326	IC2353	IC2326	8	8	201	0.0055	MWLS	\$320	\$64,320	\$96,480	
ST-61	Structural 5	De Jur St	IC33D-IC34D	IC33D	IC34D	8	8	356	0.0043	BSV	\$320	\$113,920	\$170,880	
ST-62	Structural 5	Tanglewood	ID0301-ID03	ID0301	ID03	8	8	204	0.0666	JOL	\$320	\$65,280	\$97,920	
ST-63	Structural 5	Merrywood Ct	ID0311-ID0306	ID0311	ID0306	8	8	155	0.0120	JOL	\$320	\$49,600	\$74,400	
ST-64	Structural 5	Imperial Hwy	IE08-IE09	IE08	IE09	10	10	221	0.0052	BSV	\$400	\$88,400	\$132,600	
ST-65	Structural 5	Birch St	K0802-K0801	K0802	K0801	8	8	277	0.0043	JOL	\$320	\$88,640	\$132,960	
ST-66	Structural 5	Enterprise Extension	K1214-K1213	K1214	K1213	8	8	455	0.0044	BW	\$320	\$145,600	\$218,400	
ST-67	Structural 5	Ranger	K1271-K1206	K1271	K1206	8	8	289	0.0437	SMW	\$320	\$92,480	\$138,720	
ST-68	Structural 5	Poplar Ave	LA0701-LA07D	LA0701	LA07D	8	8	176	0.0159	BSV	\$320	\$56,320	\$84,480	
ST-69	Structural 5	Laurel Ave	LA0803-LA0802	LA0803	LA0802	8	8	250	0.0247	BW	\$320	\$80,000	\$120,000	
ST-70	Structural 5	Laurel Ave	LB0407-LB0406	LB0407	LB0406	8	8	270	0.0037	JOL	\$320	\$86,400	\$129,600	
ST-71	Structural 5	Elm St	LB0601-LB06D	LB0601	LB06D	8	8	21	0.0095	JOL	\$320	\$6,720	\$10,080	
ST-72	Structural 5	Olive Ave Extension	RA2103-RA2102	RA2103	RA2102	8	8	175	0.0677	JOL	\$320	\$56,000	\$84,000	
ST-73	Structural 5	Pointe Dr Extension	RA2417-RA2416	RA2417	RA2416	8	8	332	0.0049	JOL	\$320	\$106,240	\$159,360	
ST-74	Structural 5	Pointe Dr Extension	RA2447D-RA2446	RA2447D	RA2446	8	8	72	0.0599	BSV	\$320	\$23,040	\$34,560	
ST-75	Structural 5	Pomelo Ave	RA2812-RA2811	RA2812	RA2811	8	8	257	0.0052	JOL	\$320	\$82,240	\$123,360	
ST-76	Structural 5	Mountain Ct	RB2414-RB2413	RB2414	RB2413	8	8	227	0.0040	JOL	\$320	\$72,640	\$108,960	
ST-77	Structural 5	Shady Ct	RB2422-RB2401	RB2422	RB2401	8	8	57	0.0072	HSV	\$320	\$18,240	\$27,360	
ST-78	Structural 5	Lambert Rd	RB29-RB30	RB29	RB30	8	8	90	0.0070	JOL	\$320	\$28,800	\$43,200	
ST-79	Structural 5	Eastridge Way	RB4533-RB4524D	RB4533	RB4524D	8	8	136	0.0133	BSV	\$320	\$43,520	\$65,280	
ST-80	Structural 5	Flora Ct	RB46-RB47	RB46	RB47	12	12	175	0.0149	MWLS	\$480	\$84,000	\$126,000	
ST-81	Structural 5	Birch St	RB4602-RB4601D	RB4602	RB4601D	8	8	38	0.0103	JOL	\$320	\$12,160	\$18,240	
ST-82	Structural 5	Laurel Ave	RB4608-RB4607	RB4608	RB4607	8	8	100	0.0466	BW	\$320	\$32,000	\$48,000	
ST-83	Structural 5	Birch St	RB4618-RB4617D	RB4618	RB4617D	8	8	238	0.0521	BSV	\$320	\$76,160	\$114,240	
ST-84	Structural 5	Flower Ave	RB4619-RB4617D	RB4619	RB4617D	8	8	415	0.0425	BSV	\$320	\$132,800	\$199,200	
ST-85	Structural 5	Redwood Ave	RB4620-RB4616	RB4620	RB4616	8	8	270	0.0766	JOL	\$320	\$86,400	\$129,600	
ST-86	Structural 5	Redwood Ave	RB4621-RB4616	RB4621	RB4616	6	6	101	0.0277	JOL	\$240	\$24,240	\$36,360	
ST-87	Structural 5	Laurel Ave	RB4625-RB4625A	RB4625	RB4625A	6	6	284	0.0622	BW	\$240	\$68,160	\$102,240	
ST-88	Structural 5	Laurel Ave	RB4625A-RB4624	RB4625A	RB4624	6	6	137	0.0622	BSV	\$240	\$32,880	\$49,320	
ST-88	Structural 5	Laurel Ave	RB4625A-RB4624	RB4625A	RB4624	6	6	137	0.0622	BSV	\$240	\$32,880	\$49,320	
ST-89	Structural 5	Poplar Ave	RB4628-RB4627	RB4628	RB4627	8	8	151	0.0356	BSV, HSV	\$320	\$48,320	\$72,480	
ST-90	Structural 5	Poplar Ave	RB4629-RB4628	RB4629	RB4628	8	8	498	0.0030	BSV	\$320	\$159,360	\$239,040	
ST-91	Structural 5	Poplar Ave	RB4631-RB4626	RB4631	RB4626	8	8	390	0.0522	BSV	\$320	\$124,800	\$187,200	
ST-92	Structural 5	Pine Ave	RB55-RB56	RB55	RB56	12	12	136	0.0046	BSV	\$480	\$65,280	\$97,920	
ST-93	Structural 5	Randolph Ave	RB5902-RB5901	RB5902	RB5901	8	8	346	0.0416	BSV	\$320	\$110,720	\$166,080	

Table 9-1 (Continued)
Capital Improvement Program Projects

Condition Deficiencies														
CIP Project ID	Deficiency Description	Location Description	Pipe ID	U/S MH ID	D/S MH ID	Existing Pipe Diam. (in)	Proposed Pipe Diam. (in)	Length (ft)	Slope	Structural Deficiencies Grade 5	Unit Cost ¹	Construction Cost	Total Cost ²	Comment
ST-94	Structural 5	Redwood Ave	RB6011-RB6010	RB6011	RB6010	8	8	319	0.0097	BSV	\$320	\$102,080	\$153,120	
ST-95	Structural 5	Laurel Ave	RB6015-RB6014	RB6015	RB6014	6	6	360	0.0326	BSV	\$240	\$86,400	\$129,600	
ST-96	Structural 5	Laurel Ave	RB6016-RB6005	RB6016	RB6005	8	8	305	0.0119	JOL	\$320	\$97,600	\$146,400	
ST-97	Structural 5	Imperial Hwy	RB6301-RB63D	RB6301	RB63D	8	8	92	0.0051	JOL	\$320	\$29,440	\$44,160	
ST-98	Structural 5	Imperial Hwy	RB6304-RB6303D	RB6304	RB6303D	8	8	197	0.0029	JOL	\$320	\$63,040	\$94,560	
ST-99	Structural 5	State College Blvd	RB6601-RB66	RB6601	RB66	15	15	358	0.0544	JOL	\$600	\$214,800	\$322,200	
ST-100	Structural 5	Brea Mall	RB6611-RB6610	RB6611	RB6610	8	8	125	0.0065	BW	\$320	\$40,000	\$60,000	
Projected Structural Grade 5, estimated for sewers without CCTV inspections								1,535	-	-	\$320	\$491,200	\$736,800	
								Total	26,026	Existing Condition Deficiency Projects Total		\$8,441,120	\$12,661,680	
											Grand Total	\$12,669,920	\$19,004,880	

¹ Unit costs for construction are based on \$40/diam inch

² Total costs include 50% contingencies for design, engineering, administration, and construction management

³ Unit cost is based on jack-and-bore operation

⁴ Contingency added for administration and project management