



# SEWER MASTER PLAN

## November 2021

City of Brea  
1 Civic and Cultural Center  
Brea, CA 92821



# CITY OF BREA

## SEWER MASTER PLAN



# City of **BREA**

**Prepared For:**

CITY OF BREA  
1 Civic and Cultural Center  
Brea, CA 92821

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**November 2021**

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- 2-2 Population Data
- 3-1 ADS Flow Monitoring Report
- 4-1 Sewershed Maps
- 7-1 Inflow Model Results
- 7-2 Siphon Analysis
- 8-1 CCTV Summary

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## SECTION ES EXECUTIVE SUMMARY

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### ES-1 General

The City's previous Sewer Master Plan was completed in 2005. The intent of the 2020 Sewer Master Plan was to update the City's sewer model, hydraulic analysis, condition assessment, and capital improvement project recommendations based on the latest available information. The sewer model geometry was updated with facilities constructed since 2005, when the model was last updated. The sewer load factors were reevaluated and refined. The sewer loads were reallocated based upon recent water use data and applied sewer return factors. Updated future planning data was utilized to estimate future sewer loads and size future sewer facilities. Existing and future capacity deficiencies were identified and improvement projects were recommended.

### ES-2 Study Area

The City of Brea (City) is located in the northeast corner of Orange County, adjacent Los Angeles and San Bernardino Counties. The City proper encompasses 12.4 square miles of residential, commercial, industrial, as well as some agricultural and oil producing land.

The study area includes the City proper, as well as the City's Sphere of Influence (SOI). The City's Sphere of Influence encompasses 5.7 square miles of unincorporated land in the hills to the north and southeast of the existing City boundary.

According to Table E-5 of the California Department of Finance (Appendix 2-2), the City's residential population was approximately 45,629 in 2020. As the City's residential population fluctuates near 45,000. Under normal conditions, the daytime population increases to nearly 100,000 as people come into the City to work and shop.

### ES-3 Performance Evaluation and Design Criteria

Establishing performance standards is an important part of evaluating existing wastewater collection systems, as it forms the basis for system analysis and system improvement recommendations. These standards include methodology for estimating sewage flows and minimum design standards for the collection system pipes, lift stations, and force mains.

#### ES-3.1 COVID-19 Stay-at-Home Orders

The development of this Sewer Master Plan occurred during the COVID-19 global pandemic. The City was subjected to the California and Orange County stay-at-home orders, which resulted in the temporary closure of many commercial, industrial, and office buildings beginning in March of 2020. This resulted in lower water use and sewage generation in non-residential areas. During this period, many non-essential workers spent their time at their place of residence rather than their typical place of employment, resulting in higher water use and sewage generation in residential areas.

The change in water use consumption while the stay-at-home orders were in place, affected the sewage generation and the flows captured from the flow monitoring effort performed in July 2020 and August 2020. The model calibration scenario is based on this recent collected flow data. The existing sewer loads, sewer return factors, and unit flow factors were adjusted to represent more normal operating conditions when developing the existing system hydraulic model scenario.

### ES-3.2 Existing Wastewater Flows and Peaking Factors

Peaking factors are needed for estimating peak dry weather flows (PDWF) and peak wet weather flows (PWWF). These relationships are based on the average dry weather flows (ADWF). PWWF flows include an allowance for inflow and infiltration (I/I).

The following dry weather peaking relationship was selected for this study:

$$\text{PDWF} = 1.777 \times \text{ADWF}^{0.92}$$

*Note: Above peaking factor formula is used for 2021 Sewer Master Plan analysis and is based on 2005 Sewer Master Plan Study*

Peak wet weather flow estimates were based on the following relationship:

$$\text{PWWF} = 1.25 \times \text{PDWF}$$

Although the PWWF/PDWF factor of 1.25 may not cover all situations, it is not reasonable or feasible to design the sewer system to carry the flows that would result from the use of a larger ratio. Instead, it is recommended that the City concentrate on projects such as replacing manhole covers, installing plugs in manhole covers, and replacing or relining cracked pipes to reduce inflow and infiltration.

### ES-3.3 Sewer Unit Flow Factors

Non-residential land uses typically include a wide variety of businesses and manufacturing processes that cause sewage generation to vary significantly from one customer to another. This is evident in the wide range of water use for different non-residential businesses. For example, warehouses typically use a low amount of water and generate low amounts of sewage. On the other hand, some manufacturing businesses can use large amounts of water and contribute large amounts of sewage to the sewer system.

In addition, the flow monitoring conducted in 2020 was subjected to California and Orange County stay-at-home orders, which affected the estimated unit flow factors. For these reasons, the unit flow factors were primarily based on the City's 2005 Sewer Master Plan. The unit flow factors developed in 2005 were based on flow monitoring completed under more normal conditions. The sewer unit flow factors are detailed in Table ES-1.

Moving forward, the City will require that potential developers perform a sewage generation analysis on a case by case basis, as details regarding the proposed development or redevelopment area becomes available. Specific data regarding the proposed dwelling units, gross building floor area, and floor to area ratios is to be used to develop the sewage flow estimate. Hydraulic analyses are to be conducted to verify available downstream system capacity and ensure that the system can convey the proposed sewage generation.

### ES-3.4 Sewer System Performance Evaluation Criteria

Collection system design standards include minimum pipe size, minimum flow velocity, and depth of flow to pipe diameter ratio (d/D). Lift station criteria includes but is not limited to: the capacity and number of pumps, wet well and force main sizes, redundancy, and emergency power.

A summary of sewer system performance evaluation criteria used for this study is listed in Table ES-2.

**Table ES-1  
Sewer Unit Flow Factors**

Land Use Type	Land Use	Land Use Code	Unit Density/ Maximum (FAR) <sup>1</sup>	Unit Flow Factor <sup>2</sup>	Units	Unit Flow Factor <sup>3</sup>	Units
Single-Family Residential	Hillside Residential	HR, R1-H	0.05 -2.2 DU/AC	385	gpd/DU	20 - 847	gpd/AC
	Single Family Residential	R-1	1.0-6.0 DU/AC	270	gpd/DU	270 - 1,620	gpd/AC
	Single Family Residential 5000 <sup>4</sup>	R-1(5000)	1.0-6.0 DU/AC	270	gpd/DU	270 - 1,620	gpd/AC
Multi-Family Residential	Multiple Family: Medium Density	R-2	6.1 - 12.0 DU/AC	248	gpd/DU	1,515 - 2,980	gpd/AC
	Planned Community <sup>5</sup>	P-C	6.1 - 12.0 DU/AC	248	gpd/DU	1,515 - 2,980	gpd/AC
High Density Residential	Multiple Family: High Density	R-3	12.1 -24.89 DU/AC	210	gpd/DU	2,545 - 5,230	gpd/AC
Business/ Commercial <sup>6</sup>	General Commercial	C-G	0.5	73.5	gpd/TSF	1,605	gpd/AC
	Major Shopping Center	C-C	0.65	73.5	gpd/TSF	2,085	gpd/AC
	Administrative and Professional Office	C-P	1.5	73.5	gpd/TSF	4,805	gpd/AC
	Neighborhood Commercial	C-N	0.35	73.5	gpd/TSF	1,125	gpd/AC
Industrial <sup>6</sup>	Industrial Commercial	C-M	1.5	73.5	gpd/TSF	4,805	gpd/AC
	Light Industrial	M-1	0.75	73.5	gpd/TSF	2,405	gpd/AC
	General Industrial	M-2	0.75	73.5	gpd/TSF	2,405	gpd/AC
	Planned Industrial <sup>6</sup>	M-P	1.5	73.5	gpd/TSF	4,805	gpd/AC
	Brea Industrial Specific Plan <sup>6</sup>	BISP	1.5	73.5	gpd/TSF	4,805	gpd/AC
Restaurant	Restaurant			1,575	gpd/TSF		
Car Wash	Car wash			21,000	gpd/Location		
Commercial Recreational	Commercial Recreational	C-RC		3.15	gpd/AC		
Motel/Hotel	Motel/ Hotel			173.25	gpd/Room		
Parks	Parks/ Recreation/ Open Space - Parks and Recreation	P/R/OS- NOS P/R/OS-PR		10.5	gpd/AC		
Schools	High School			21	gpd/Student		
Schools	School			10.5	gpd/Student		
Theater	Theater			8.4	gpd/Seat		

<sup>1</sup> Unit Density and FAR are based on values included in the City's 2003 General Plan

<sup>2</sup> Unit flow factors are based on values from the City's 2005 Sewer Master Plan

<sup>3</sup> Unit flow factors by acreage were calculated from Unit Density/FAR and unit flow factors from the 2005 Sewer Master Plan. For planning purposes the maximum unit flow factors were used for this planning study. As the development plans are updated, the more detailed planning data should be used to estimate the future sewer loads.

<sup>4</sup> Unit Density for R-1-5000 is assumed to be the same as R-1

<sup>5</sup> Unit Density for P-C is assumed to be the same as R-2

<sup>6</sup> FAR for Planned Industrial (M-P) is assumed to be the same as Industrial Commercial (C-M)

**Table ES-2  
Sewer System Criteria**

<b>Collection System</b>	
Minimum Pipe Size	8-inch
Minimum Velocity	2.0 fps at average dry weather flow 3.0 fps at peak dry weather flow
Maximum Velocity	6.0 fps at peak dry weather flow for VCP 5.0 fps at peak dry weather flow for PVC
Minimum Slope	Refer to Table 3-3
Maximum Slope	Slope that generates the maximum flow velocity.
Pipe Depth to Diameter Ratio	0.64 at peak dry weather flows for all pipes existing prior to the Sewer Master Plan hydraulic analysis 0.50 at peak dry weather flows for all newly constructed pipes 15-inches and smaller 0.64 at peak dry weather flows for all newly constructed pipes 18-inches and larger 0.75 at peak wet weather flows for all pipes
<b>Lift Station</b>	
Pumps	<ul style="list-style-type: none"> <li>• Minimum 2 each sized at peak wet weather flow</li> <li>• Minimum solids handling capacity 3"</li> </ul>
Wet Wells	<ul style="list-style-type: none"> <li>• Sized to limit pump cycling to less than 6 times/hr for motor HP up to 20; 4 times/hr up to 50 HP; 3 times/hr up to 75 HP; 2 times/hr 100 HP and above</li> <li>• Provide 30 minutes of storage at peak flow to allow response to a failure</li> <li>• Equipment to be maintained must be accessible without entering the structure</li> </ul>
Ventilation	<ul style="list-style-type: none"> <li>• 15-air change/hour minimum in wet wells operated continuously</li> <li>• 30-air change/hour minimum in wet wells not operated continuously</li> <li>• 15-air changes/hour minimum in dry well</li> </ul>
Controls	Redundant system. Ultrasonic level sensor for primary level controls. Float operated back-up controls.
Emergency Power	Stationary source with automatic transfer switch
Telemetry	Dialer system at all pump stations to alert personnel in the event of a station failure
Force Mains	<ul style="list-style-type: none"> <li>• Minimum velocity 3 fps</li> <li>• Maximum velocity 5 fps</li> <li>• Minimum size 4"</li> <li>• Air/Vacs installed in vaults</li> </ul>
<b>Inverted Siphons</b>	
Siphon Barrels	<ul style="list-style-type: none"> <li>• Dual or multiple</li> <li>• Minimum diameters of 8-inches</li> <li>• Minimum velocity of 3 fps ADWF and 4 fps PDWF</li> <li>• Vertical curves, with no sharp horizontal angles or changes of grade</li> <li>• If crossing a waterway, minimum 5 ft between the top of the siphon and the level of possible scour in the waterway</li> <li>• Location away from an outlet of a lateral or a drop manhole</li> <li>• Invert at the outlet structure at least 0.1 ft lower than invert of inlet structure</li> <li>• Material is HDPE or PVC</li> <li>• Maximum angle of downstream leg no more than 15 degrees from horizontal</li> <li>• Maximum angle of upstream leg no more than 30 degrees from horizontal</li> </ul>

**Table ES-2 (Continued)  
Sewer System Criteria**

<b><i>Inverted Siphons</i></b>	
Access Structures	<ul style="list-style-type: none"> <li>• Located at each end of siphon, rectangular preferred</li> <li>• Sized to allow for any O&amp;M procedure</li> <li>• Lined, coated, or protected with a suitable corrosion resistant material</li> <li>• Steps, ladders, access frames and covers, gratings and other appurtenances fabricated of 316 stainless steel</li> <li>• Ability to install temporary guard rails</li> </ul>
Slide Gates, Stoplogs, Wiers	<ul style="list-style-type: none"> <li>• Fabricated of 316 stainless steel</li> </ul>
Valves	<ul style="list-style-type: none"> <li>• No valves allowed</li> </ul>
Air Jumpers	<ul style="list-style-type: none"> <li>• Adequately sized between access structures</li> <li>• Minimum 6-inches in diameter</li> <li>• Material is HDPE or PVC</li> <li>• Designed to remove condensate with a minimum slope for drainage; overhead air jumpers that are self-draining to the access structures are preferred</li> <li>• Ability to accommodate City inspection and cleaning methods</li> </ul>

#### **ES-4 Existing Sewer System**

The existing sewer system is made up of a network of gravity sewers, pump stations, and force mains made up of the following:

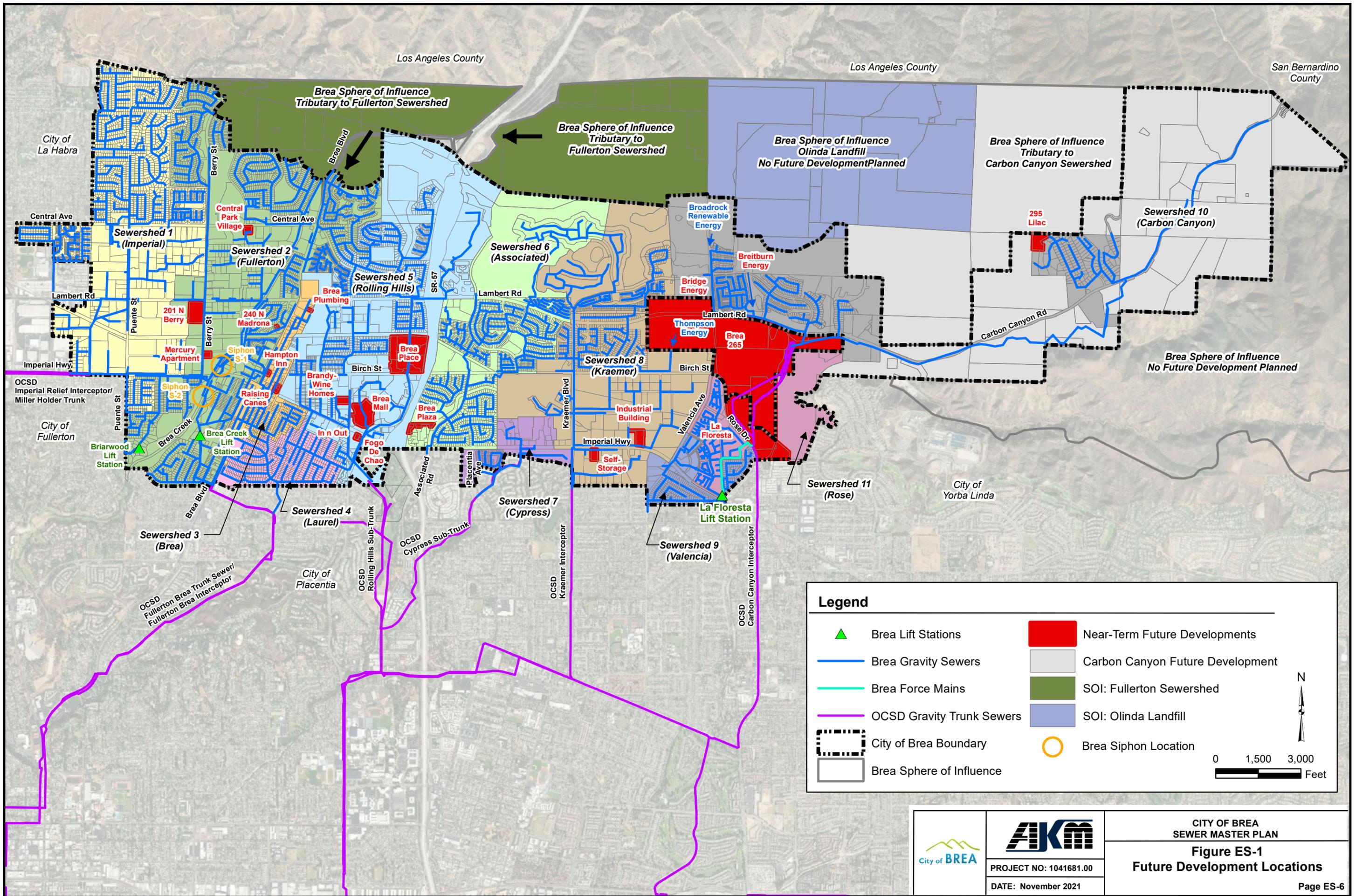
- 134 miles (708,750 feet) of gravity sewer pipe, ranging from 4-inches to 27-inches in diameter
- Three (3) sewer lift stations
- Two (2) inverted siphons
- 11 sewersheds
- 12.4 square mile service area
- Total existing average sewer load of 4.8845 mgd

The sewer collection system generally ties into Orange County Sanitation District (OCSD). The majority of the gravity system is 8-inch diameter vitrified clay pipe. Some of the collection system was constructed as early as 1925.

#### **ES-5 Future Sewer System**

The City identified the near-term future developments that are currently under various planning stages. The “Near-Term Future” model scenario was developed to evaluate the sewer system with sewer loading from the near-term future developments. The future model loads were estimated from unit flow factors included in Table ES-1 and corresponding planning data from specific plans, developer studies, or the City’s General Plan.

The majority of the undeveloped land that could be developed in the future and contribute sewage to the existing system is located within the Sphere of Influence (SOI) outside the City boundary and within the Carbon Canyon Sewershed. The “Future” model scenario was developed to include the near-term future, SOI, and Carbon Canyon developments. The locations of the near term future developments, SOI areas, and Carbon Canyon area is shown on Figure ES-1.



**Legend**

	Brea Lift Stations		Near-Term Future Developments
	Brea Gravity Sewers		Carbon Canyon Future Development
	Brea Force Mains		SOI: Fullerton Sewershed
	OCSD Gravity Trunk Sewers		SOI: Olinda Landfill
	City of Brea Boundary		Brea Siphon Location
	Brea Sphere of Influence		



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**Figure ES-1**  
**Future Development Locations**  
 Page ES-6

The Olinda Landfill is located within the SOI, but there are no plans for development on this property. It is currently anticipated that the sewage generated by the future developments in the SOI area, west of the Olinda Landfill, will be tributary to the sewer in Brea Boulevard (Fullerton Sewershed). The sewage generated by the future developments, east of the Olinda Landfill, will be tributary to the sewer in Carbon Canyon Road (Carbon Canyon Sewershed). As plans for developments are solidified or as existing plans are updated, the future sewer loads and their effects on the capacity within the downstream sewers should be reevaluated.

## ES-6 Hydraulic Sewer Model

To perform a detailed analysis of the sewer collection system, it is essential to create a mathematical model that is capable of simulating the operating and flow characteristics of the system. The simulations for this study were performed utilizing InfoSewer, which is a GIS based computer modeling program with the ability to perform steady state analyses of the flows in sanitary sewer systems. The program also manages and maintains the database that stores the sewer analysis input and output results. Manning's Equation is used for depth of flow calculations in the gravity sewer pipes.

The sewer system is modeled by entering all information for existing pipes, manholes, lift stations, and connection points to regional facilities owned and operated by the Orange County Sanitation District (OCSD) or other adjacent agency sewer systems. The sewer laterals, private sewers, and sewers belonging to other agencies are excluded from the model. Generally, the following parameters are input into the model:

- Pipes: diameter, upstream invert elevation, downstream invert elevation, length, roughness coefficient
- Manholes: diameter, rim elevation, invert elevation

The hydraulic model was created utilizing the following main steps:

1. The latest Sewer GIS and as-built drawings of recent improvement projects were used as the basis of the model geometry (i.e. location and sizes of manholes and pipes, pipe inverts and slopes)
2. Existing sewer loads were generated by allocating water billing data to the sewer manholes and applying sewer return ratios. The sewer return ratios were adjusted by land use type to match the collected flow monitoring data. Adjustments were made to account for the changes in sewage generation due to the COVID-19 stay-at-home orders.
3. Future sewer loads were developed using the unit flow factors shown in Table ES-1 and detailed specific plans, developer studies, or the City's General Plan

The total existing ADWF is estimated at 4.8845 MGD. The total future ADWF with near-term developments is estimated at 5.9222 MGD. The total future ADWF with the near-term developments, the sphere of influence area, and the Carbon Canyon developments is estimated at 8.7407 MGD.

The model calculates peak flows based upon the relationships specified by the user (see Section ES-3.2 and Section 3-5). At the completion of a model run, output data is generated. The output data includes average and peak flow rate, velocity, pipe capacity, and ratio of flow depth to pipe diameter (d/D).

## ES-7 Capacity Analysis

The analysis of the sewer collection system was based upon the calculated peak dry weather flows. Pipes that exceed the following criteria are considered hydraulically deficient: Peak Dry Weather Flow  $d/D > 0.64$ .

A total length of 749 feet of sewers was identified to be capacity deficient under existing conditions per the hydraulic model. This is 0.11 percent (749 / 708,750) of the total existing system length. This percentage is quite minimal, in part because the City has completed several capital improvement projects since the last Sewer

Master Plan was completed in 2005 and, in part because sewage generation has decreased in recent years due to water conservation efforts.

An additional 1,487 feet of sewers was identified as capacity deficient when the near-term future development loads were applied in the hydraulic model. This is 0.21 percent (1,487 / 708,750) of the total existing system length. The near-term future capacity deficiencies are attributed to the increased sewer loads from future planned developments. It is recommended that project specific studies be performed using detailed development projections to accurately develop future loads and to identify the necessary sewer improvements to the existing system.

An additional 19,985 feet of sewer pipe was identified as capacity deficient when the future loads for the sphere of influence (SOI) and the future Carbon Canyon development were added to the hydraulic model. This is 2.82 percent (19,985 / 708,750) of the total existing system length. As detailed development plans become available or when the City General Plan is updated, the future sewer loads and the effect on the capacity of the downstream sewer system should be re-evaluated. At that time, sewage flows should also be verified through flow monitoring.

The capacity of the existing three (3) lift stations are sufficient to convey the PWWF for the existing and future conditions.

There has been a history of debris build-up upstream of Siphon S-2 which is located across Brea Creek Channel, south of Imperial Highway. A hydraulic analysis of the 15-inch single barrel siphon was included as a part of this master plan study. It was determined that the siphon should have adequate capacity for the existing and near-term future sewage flows if it were clear of debris. If the SOI becomes fully developed, the capacity of Siphon S-2 may not be sufficient. For this master plan study, assumptions were made on how the SOI area would develop and be provided with sewer service. Since the exact details of the development of the SOI is relatively unknown, it is recommended that the capacity of the siphon be re-evaluated at a later date when more information is available.

## **ES-8 Condition Assessment**

Thorough knowledge of the sewer system's condition is essential in maximizing the useful life of this very important and significant asset in a cost effective manner. Additionally, the Statewide General Waste Discharge Requirements (WDR) for sanitary sewer systems requires the development of a rehabilitation and replacement plan to address condition deficiencies.

Pipe Tec Incorporated (Pipe Tec) conducted CCTV inspections of the City's gravity sewers between April 7, 2020 and February 12, 2021. During this time, approximately 574,744 feet of sewers (2,557 pipes) was cleaned and inspected by closed circuit television. The National Association of Sewer Service Companies (NASSCO) Pipeline Assessment and Certification Program (PACP) coding procedures formed the basis of the gravity sewer inspections.

Condition assessment was conducted on approximately 81% of the entire system (574,744 feet of 708,750 feet). CCTV inspections were not conducted for sewers constructed after 2010 and for some sewers in Carbon Canyon Sewershed that are located in easements that currently inaccessible to CCTV inspection trucks. Other sewers that were not evaluated include sewer lines located upstream of Siphon S-2 in Arovista Park where the flow backs up into the sewers and manholes.

The National Association of Sewer Service Companies (NASSCO) Pipeline Assessment and Certification Program (PACP) coding procedures formed the basis of the gravity sewer inspections. The PACP Condition grading system Version 7 was used to assign condition ratings for structural defects and operation and

maintenance defects for each sewer pipe. The rating provides the ability to quantitatively measure the difference in pipe condition between one inspection and subsequent inspections, and to prioritize among different pipe segments. Grades are assigned based on the significance of the defect, extent of damage, percentage of restriction of flow capacity or the amount of wall loss due to deterioration. A grade of 1 to 5 is assigned to each defect based on potential for further deterioration or pipe failure. Pipe failure is defined as when it can no longer convey the design capacity. The grades are as follows:

- 5 – Most significant defect grade
- 4 – Significant defect grade
- 3 – Moderate defect grade
- 2 – Minor to moderate defect grade
- 1 – Minor defect grade

Improvement projects are recommended for all gravity sewers (102 pipes; 4.3% of total length inspected) that were identified to have at least one structural grade 5 defect. Structural grade 5 defects are of the highest concern because they have the highest probability of pipe failure and causing a sewer spill.

It is recommended that the City investigate the pipes with an O&M or construction grade 4 or 5 defect by reviewing the CCTV inspection data in detail. Some of these pipes may require immediate action or need to be moved onto the City's hotspot list.

Prior to implementing improvement projects, CCTV inspection recordings and reports need to be reviewed in detail. Specific improvement projects should then be developed for pipe removal and replacement, spot repair, pipe lining, increased maintenance, and/or other methods shall be developed based a detailed review of the inspection data.

Approximately 35,690 feet of sewer pipe was not CCTV inspected in 2020-2021. It is assumed that the condition of these remaining sewers will be similar to those that were inspected. Therefore, the capital improvement program (see Section 9) includes the cost to replace and/or rehabilitate an additional 1,535 feet of pipe (4.3% of the 35,690 feet of remaining sewer pipe).

## **ES-9 Capital Improvement Program**

The primary goal of the development of the Capital Improvement Program (CIP) is to provide the City of Brea with a long-range planning tool for implementing its sewer capacity improvements in an orderly manner and a basis for financing of these improvements.

The sewer improvement projects were selected primarily based upon health and safety concerns and minimizing the possibility of overflows. The recommended CIP projects have been based upon the best information currently available. It should be updated as new information becomes available. The projects were developed upon performing a hydraulic analysis of the gravity system, conducting field visits of the pump stations and siphons, and conducting a condition assessment of the gravity sewers.

All CIP projects are detailed in Table ES-3. The project locations are shown on Plate 2.

### **ES-9.1 Cost Estimates**

The cost estimates presented in Table ES-3 reflect replacement of the existing facilities. Replacement costs are generally more conservative and will therefore allow the City more flexibility for each project.

The construction costs to replace gravity pipes are generally based upon \$40 per diameter inch-foot of pipe. A contingency of 50 percent has been added to the gravity sewer pipeline projects to account for construction contingencies, engineering design, administration, and construction management.

## ES-10 Future Action Items

In addition to the projects included in the CIP, the Sewer Master Plan study resulted in the development of several recommendations for additional studies, changes to system maintenance, and further inspections. These recommendations are summarized as follows:

- Install a Smart Cover at Manhole FB59D at the existing capacity deficiency location EX1 until the pipe is upsized, so that the City will be notified of high water levels and can prevent a potential overflow event. (Section 7-1.1)
- Install a Smart Cover at Manhole IC32 at the existing capacity deficiency location EX2 until the pipe is upsized, so that the City will be notified of high water levels and can prevent a potential overflow event. (Section 7-1.1)
- Conduct project specific studies for the near-term future developments identified using detailed development projections to accurately develop future loads and to identify the necessary sewer improvements to the existing system. (Section 7-1.2)
- Conduct project specific studies for the sphere of influence (SOI) developments, as more detailed development data becomes available or when the City General Plan is updated. The future sewer load and the capacity of the existing downstream sewer system should be re-evaluated. At that time the sewer flows should also be flow monitored. (Section 7-1.3)
- Monitor the operation of the Brea Creek Lift Station in the future and be aware of how often it operates. If the Brea Creek Lift Station is consistently operating, it means the flows have increased significantly in the upstream system or there may be an issue in the original gravity system. The flows in the system should be re-evaluated at that time. Evaluate the pumping capacity as more details become available for the SOI area that is potentially tributary to this lift station to ensure there is sufficient capacity for future development loads. (Section 7-1.4)
- Install Smart Covers downstream of Manhole FB56 and the Brea Creek Lift Station, so that the City will be notified of high water levels and can prevent a potential overflow event. These sewers are in excess of 20 feet deep, but have experienced high water levels based on review of recent CCTV inspections. (Section 7-1.4)
- Reevaluate the capacity of Siphon S-2 as more information becomes available in regards to how the SOI area will be developed and provided sewer service. Ensure that the siphon and the bypass line/pumping system will have enough capacity for the future development flows. (Section 7-3)
- Conduct CCTV inspections of the sewers (35,690 feet, 5% of the total system) without current inspection data when improvement projects are being implemented near these sewers. This does not include the sewers that were constructed after 2010, the sewers in the Carbon Canyon Sewershed, or the sewers upstream of Siphon S-2 in Arovista Park. (Section 8-2)
- Investigate the pipes with an O&M or construction grade 4 or 5 defect by reviewing the CCTV inspection data in detail. Some of these pipe may require immediate action or need to be moved onto the City's hotspot list. (Section 8-6)

- Prior to implementing improvement projects, review CCTV inspection recordings and reports in detail. Develop specific improvement projects for pipe removal and replacement, spot repair, pipe lining, increased maintenance, and/or other methods shall be developed based on the CCTV detailed review of the inspection data. (Section 8-7)
- Conduct detailed utility study of capacity deficient location EX1 to identify an appropriate sewer alignment and to evaluate the best construction method for the replacement sewer in Randolph Avenue, crossing Imperial Highway. (Section 9-2)
- During the planning stages of the Carbon Canyon area, it is recommended that the City reevaluate the available capacity of the existing sewers and consider the possibility of relocating the sewers to Carbon Canyon Road. This would likely require a new sewer lift station to pump flow from a low point over a high point in Carbon Canyon Road. Another lift station may be needed on the south end of the mobile home area to pump flow collected up to Carbon Canyon Road. (Section 9-3.3)

**Table ES-3  
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 <sup>1</sup>	Construction Cost	Total Cost <sup>2</sup>	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 <sup>3</sup>	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 <sup>3</sup>	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)
<b>Total</b>								<b>861</b>	<b>Existing Capacity Deficiency Projects Total</b>							<b>\$909,600</b>	<b>\$1,364,400</b>		
CIP Project ID	Lift Station, Siphons, and Carbon Canyon Sewers																Construction Cost	Total Cost <sup>2</sup>	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 <sup>4</sup>																\$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 <sup>4</sup>																\$460,000	\$690,000	22,500 feet of pipe
<b>Lift Station, Siphons, and Carbon Canyon Sewers Total</b>																<b>\$3,319,200</b>	<b>\$4,978,800</b>		

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

<sup>2</sup> Total costs include 50% contingencies for design, engineering, administration, and construction management

<sup>3</sup> Unit cost is based on jack-and-bore operation

<sup>4</sup> Contingency added for administration and project management

**Table ES-3 (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 <sup>1</sup>	Construction Cost	Total Cost <sup>2</sup>	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, BWV	\$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 ES-3 (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 <sup>1</sup>	Construction Cost	Total Cost <sup>2</sup>	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	\$50,240	\$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	BVW	\$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	BVW	\$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	BVW	\$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	BVW	\$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 ES-3 (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 <sup>1</sup>	Construction Cost	Total Cost <sup>2</sup>	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	
<b>Total</b>								<b>26,026</b>	<b>Existing Condition Deficiency Projects Total</b>			<b>\$8,441,120</b>	<b>\$12,661,680</b>	
<b>Grand Total</b>											<b>\$12,669,920</b>	<b>\$19,004,880</b>		

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

<sup>2</sup> Total costs include 50% contingencies for design, engineering, administration, and construction management

<sup>3</sup> Unit cost is based on jack-and-bore operation

<sup>4</sup> Contingency added for administration and project management

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## SECTION 1 INTRODUCTION

---

This section provides an overview and outline for the City of Brea's (City) Sewer Master Plan. A brief background description, objectives and scope of work, acknowledgments, and a list of abbreviations used throughout the report are provided.

### **1-1 Previous Work and Studies Completed**

The City's last sewer master plan was completed in 2005. The current hydraulic model was developed at that time and was calibrated to flow monitoring data collected in December 1999. This information is outdated considering the changes in water use that Southern California communities have experienced during the recent drought periods. The City has also completed most of the recommended improvements outlined in the 2005 Sewer Master Plan. The model is therefore in need of an update to reflect the sewers constructed since 2005 as well as the change in sewage loads.

The City's latest Sewer System Management Plan (SSMP) was completed in 2016. The plan ensured compliance with current Waste Discharge Requirements (WDR) and NPDES orders. A bi-annual audit is required to evaluate the City's performance in operating and maintaining its sewer system.

Concurrent with this Sewer Master Plan effort, the City hired a contractor to conduct closed circuit television (CCTV) inspections of its entire gravity sewer system. These inspections will be evaluated to formulate rehabilitation and replacement project recommendations.

### **1-2 Objectives of Sewer Master Plan**

The objective of this Sewer Master Plan is to evaluate the City's sewer collection system under the existing and future development conditions to provide a framework for undertaking the construction of new and replacement facilities for serving the service area in an efficient manner. The City has requested a Sewer Master Plan that accomplishes the following:

- Evaluation of the capacity of its system and the ability of the system to handle the existing and future peak flows from the service area, through a well calibrated hydraulic model.
- Identification of existing hydraulic deficiencies
- Providing recommendations for upgrades to the system to allow for the conveyance of future flows
- Assessment of the condition of the sewer lift stations
- Providing potential solutions of localized siphons and other maintenance issue areas
- Developing a comprehensive prioritized Capital Improvement Program with cost estimates

As a planning document, it is general in nature and is predicated upon the best information available at this time. The primary sources of information used during the course of this study are as follows:

- The City's Geographical Information System (GIS) data for parcels, land use, sewer system, water meters, etc.
- The City's Sewer Atlas Maps
- The City's Sewer System Management Plan, dated November 2016

- The City's General Plan, dated August 2003
- Temporary flow monitoring data compiled by ADS Environmental Services, provided July/August 2020
- Data collected by AKM Consulting Engineers and City staff from sewer construction plans
- Specific Plans – Birch Hills, Tonner Hills, Tomlinson Park, Olinda Ranch

### 1-3 Statewide General Waste Discharge Requirements

The State Water Resources Control Board (SWRCB), which oversees all wastewater permitting and enforcement, adopted Resolution 2004-80 requiring staff to work with stakeholders in developing a regulatory program that would provide a consistent approach for reducing Sanitary Sewer Overflows (SSOs). To assist in the development of the regulatory program, a statewide SSO Guidance Committee composed of representatives from the Regional Water Quality Control Boards, county environmental health departments, environmental groups, U.S. EPA, local public collection system owners and other collection system experts was formed. SWRCB staff and the SSO Guidance Committee drafted Statewide General Waste Discharge Requirements (WDR) for Sewage Collection System Agencies.

The SWRCB adopted the Statewide General Waste Discharge Requirements (WDR) for sanitary sewer systems and the associated monitoring and reporting program by issuing Order No. 2006-0003 on May 2, 2006.

The WDR and reporting program addresses SSO reporting and proper collection system management and operation necessary to protect the public health, water quality, the environment, and the public's investment in the sewer system infrastructure.

The fifth paragraph of the preamble to the Waste Discharge Requirements is:

*“To facilitate proper funding and management of sanitary sewer systems, each Enrollee must develop and implement a system-specific Sewer System Management Plan (SSMP). To be effective, SSMPs must include provisions to provide proper and efficient management, operation, and maintenance of sanitary sewer systems, while taking into consideration risk management and cost benefit analysis. Additionally, an SSMP must contain a spill response plan that establishes standard procedures for immediate response to an SSO in a manner designed to minimize water quality impacts and potential nuisance conditions.”*

The Sewer System Management Plan (SSMP) must address the following elements:

1. Goals
2. Organization Structure
3. Legal Authority
4. Operation and Maintenance Program, including a Preventive Maintenance Program and a Rehabilitation and Replacement Program
5. Design and Performance Provisions
6. Overflow Emergency Response Plan
7. Fats, Oils, and Grease (FOG) Control Program
8. System Evaluation and Capacity Assurance Plan (SECAP)
9. Monitoring, Measurement, and Program Modifications

## 10. Sewer System Management Plan Program Audits

## 11. Communication Program

The Waste Discharge Requirements define a sanitary sewer system as, “Any system of pipes, pump stations, sewer lines, or other conveyances, upstream of a Wastewater Treatment Plant headworks used to collect and convey wastewater to the publicly owned treatment facility. Temporary storage and conveyance facilities (such as vaults, temporary piping, construction trenches, wet wells, impoundments, tanks, etc.) are considered to be part of the sanitary sewer system, and discharges into these temporary storage facilities are not considered to be SSOs”

Enrollees are required to certify that the final SSMP and its constituent subparts are in compliance with the Sanitary Sewer Order. Enrollees are also required to obtain their governing board's approval of the final SSMP at a public hearing prior to certification as complete and in compliance. Enrollees do not send their SSMP to the State or Regional Water Boards for review or approval, but need to make them available upon request. The City of Brea updated its SSMP document in November 2016, and it is available for public review on their website and in their office at any time.

### 1-4 Report Organization

The Sewer Master Plan presents the documents and information collected and developed, methodology for preparing the hydraulic model, analyses of the existing and future system, and improvement recommendations. A brief outline of the report is as follows:

- Section ES: Executive Summary*
- Section 1: Introduction*
- Section 2: Study Area*
- Section 3: Performance Evaluation & Design Criteria*
- Section 4: Existing System*
- Section 5: Future System*
- Section 6: Hydraulic Sewer Model*
- Section 7: Capacity Analysis*
- Section 8: Gravity Sewer Condition Assessment*
- Section 9: Capital Improvement Program*

### 1-5 Abbreviations

To conserve space and improve readability, abbreviations have been used in this report. Each term abbreviated has been spelled out in the text the first time it is used. Subsequent usage of the term is usually by its abbreviation. The abbreviations utilized in this report are contained in Table 1-1.

**Table 1-1  
Abbreviations**

<b>Abbreviation</b>	<b>Explanation</b>
AC, Ac	Acres
ACP, acp	Asbestos Cement Pipe
ADU	Accessory Dwelling Unit
ADWF	Average Dry Weather Flow
Ave	Average
CCTV	Closed Circuit Television
cfs	Cubic Feet per Second
CI, cip	Cast Iron Pipe
CIP	Capital Improvement Program
City	City of Brea
d/D	Depth to Diameter Ratio
DIP, dip	Ductile Iron Pipe
DU, du	Dwelling Unit
D/S	Downstream
ENR	Engineering News-Record
FAR	Floor Area Ratio
fps, ft/s	Feet per Second
ft	Feet
GIS	Geographic Information System
gpcd	Gallons per Capita per Day
GPD, gpd	Gallons per Day
gpm	Gallons per Minute
HDPE	High Density Poly Ethylene
HGL	Hydraulic Grade Line
HP	Horsepower
in	Inch
ID	Identification
I/I	Inflow and Infiltration
LF	Lineal Feet
Max	Maximum
mg	Million Gallons
MGD, mgd	Million Gallons per Day
MH	Manhole
Min	Minimum
MWD	Metropolitan Water District
NASSCO	National Association of Sewer Service Companies
O&M	Operations and Maintenance
OCSD	Orange County Sanitation District
OSHA	Occupational Safety & Health Administration

**Table 1-1 (Continued)  
Abbreviations**

<b>Abbreviation</b>	<b>Explanation</b>
PACP	Pipeline Assessment and Certification Program
PDWF	Peak Dry Weather Flow
PVC	Polyvinyl Chloride or Plastic Pipe
PWWF	Peak Wet Weather Flow
RPM	Revolutions per Minute
SAMP	Subarea Master Plan
SCADA	Supervisory Control and Data Acquisition
SMP	Sewer Master Plan
SOI	Sphere of Influence
SRF	Sewer Return Factor
SSMP	Sewer System Management Plan
SSO	Sanitary Sewer Overflow
SSOERP	Sanitary Sewer Overflow Emergency Response Plan
SWRCB	State Water Resources Control Board
TDH	Total Dynamic Head
TSF	Thousand Square Feet
U/S	Upstream
UFF	Unit Flow Factor
VCP	Vitrified Clay Pipe
WDR	Waste Discharge Requirements
WSPG	Water Surface Pressure Gradient

## **1-6 Acknowledgements**

AKM Consulting Engineers would like to express their sincere appreciation to the following individuals for their valuable assistance and support throughout the preparation of this study:

- Michael Ho, Deputy Director of Public Works/ City Engineer
- Ryan Chapman, Principal Civil Engineer
- Will Wenz, Streets Superintendent
- Jerry Mestas, Streets Supervisor

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## SECTION 2 STUDY AREA

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### 2-1 Location

The City of Brea (City) is located in the northeast corner of Orange County, adjacent Los Angeles and San Bernardino Counties. The City's regional location is depicted on Figure 2-1. The City proper encompasses 12.4 square miles of residential, commercial, industrial, as well as some agricultural and oil producing land. The City is situated at the foot of the Puente Hills to the north, which form a physical barrier between Orange County and Los Angeles County. Neighboring cities include La Habra and Fullerton to the west, Fullerton and Placentia to the south, and Yorba Linda to the southeast.

The Orange Freeway (SR-57) bisects the City north to south, providing easy access to the Riverside Freeway (SR-91) to the south, and the Pomona Freeway (SR-60) and San Bernardino Freeway (I-10) to the north. The major roads within the City include Imperial Highway (SR-90), Central Avenue/State College Boulevard, Brea Boulevard, and Carbon Canyon Road (SR-142).

The study area includes the City proper, as well as the City's Sphere of Influence (SOI). The City's Sphere of Influence encompasses 5.7 square miles of unincorporated land in the hills to the north and southeast of the existing City boundary. The sewer service area, which includes the City and Sphere of Influence is shown on Figure 2-1.

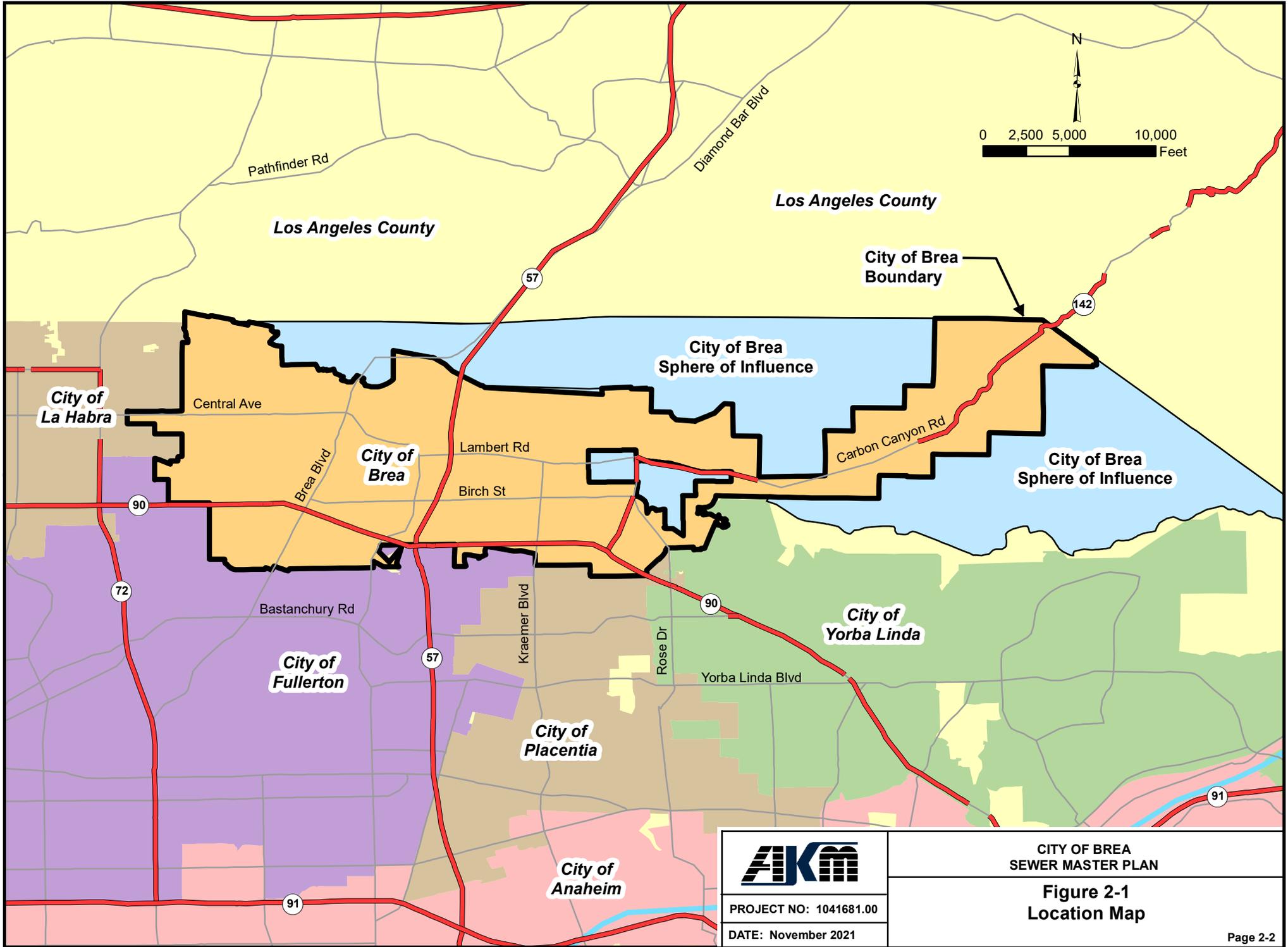
### 2-2 Topographical Description

The City of Brea straddles the junction of the Puente Hills and the La Habra syncline and thus includes distinctly varied topographic and geologic features. West of Carbon Canyon Dam, Brea occupies the eastern end of the La Habra Basin, an undulating alluvial plain sloping gently to the southwest. East of the dam, Brea includes Carbon Canyon Creek and adjacent large portions of steep upslope terrain carved out of the Puente Hills. Major ridgelines form the Telegraph, Soquel, Tonner, and Carbon Canyons. The highest point within the project area is Gilman Peak, north of Telegraph Canyon, at an elevation of 1,685 feet above mean sea level (amsl). The lowest ground surface elevation is located in the southwest corner of the City at approximately 300 feet amsl.

### 2-3 Geotechnical Information

The soil type varies throughout the study area. Four soil classifications exist in the study area, as seen on the Hydrologic Classification of Soils, Plate A of the Orange County Hydrology Manual, which is included in Appendix 2-1. The descriptions of each soil type are as follows:

- Group A soils have high infiltration rates even when thoroughly wetted and consist mainly of deep, well-drained sands or gravels. These soils have low runoff potential and high water transmission rates.
- Group B soils have moderate infiltration rates when thoroughly wetted and consist of moderately deep to deep, moderately well to well drained sandy-loam soils with moderately fine to moderately coarse textures. These soils have a moderate rate of water transmission.
- Group C soils have slow infiltration rates when thoroughly wetted and consist chiefly of silty-loam soils with a layer that impedes downward movement of water, or soils with moderately fine to fine texture. These soils have a slow rate of water transmission.



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Figure 2-1  
Location Map

- Group D soils have very slow infiltration rates when thoroughly wetted and primarily consist of clay soils with a high swelling potential, soils with a permanent high water table, soils with a claypan or clay layer at or near the surface, and shallow soils over nearly impervious material. These soils have a high runoff potential and a very slow rate of water transmission.

The soils with higher infiltration rates permit better passage of water through them to the groundwater table. Sewer lines constructed in Group A and B soils would therefore be more susceptible to infiltration through defective pipe joints and manholes than Group C and D soils.

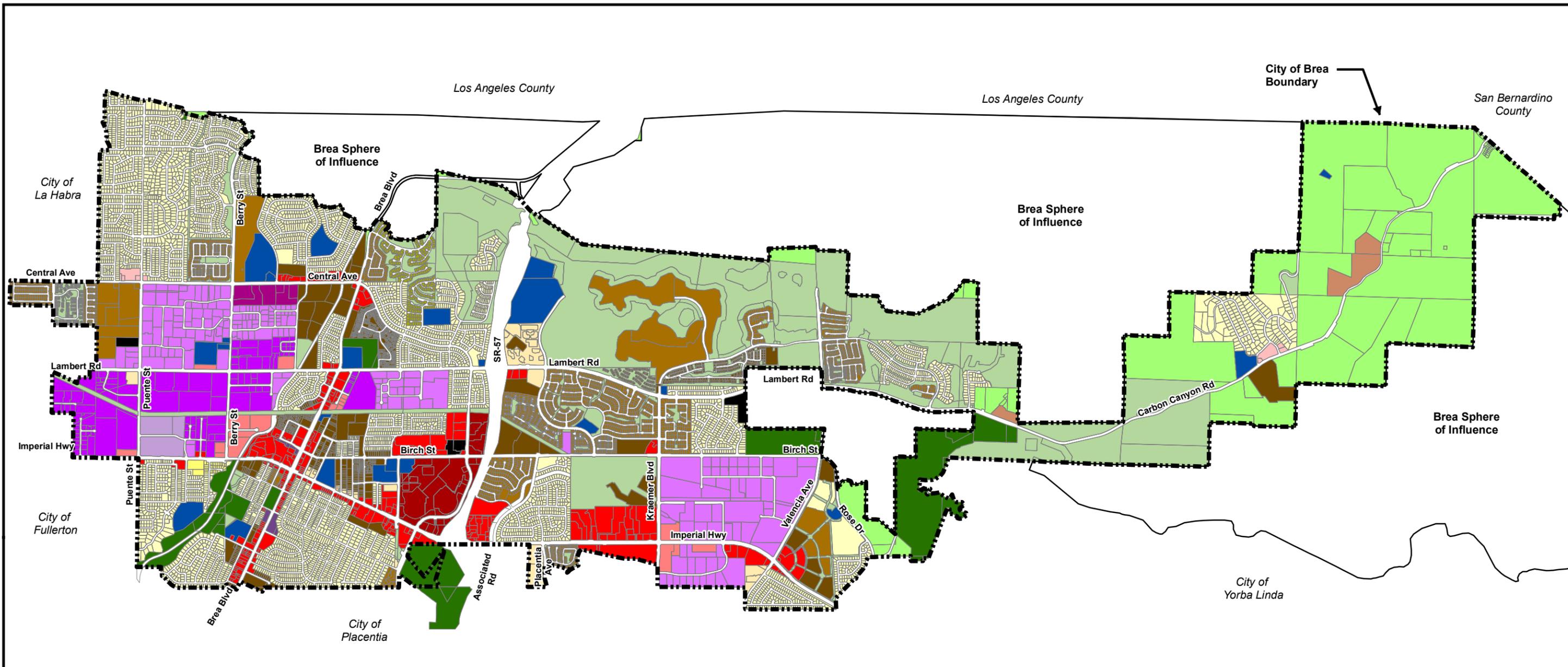
Within the corporate boundaries of the City, the majority of the soils are Group B and Group D. Group B soils dominate the Brea Canyon area, on the west side of the City. Group A soils are found along the banks of the natural channels of Tonner Canyon (northwestern portion of the Sphere of Influence) and Carbon Canyon (northeastern side of City) and a small patch of land southeast of the Carbon Canyon Dam. The majority of the soils within the City's Sphere of Influence and the Carbon Canyon area are Group C and Group D. Patches of Group B soils are also scattered throughout the area.

## 2-4 Climate

The climate in the area is typical of Southern California with generally mild temperatures, virtually no days below freezing, and plenty of sunshine throughout the year. The warmest months are typically experienced in August with an average maximum temperature of 77° F. The coolest months are typically experienced in January with an average minimum temperature of 50° F. (Western Regional Climate Center, Yorba Linda California monthly climate summary, between 1912 and 2016). The average annual rainfall of about 12 inches occurs primarily during the winter months, between November and March (Western Regional Climate Center, Brea Dam California monthly climate summary, between 1948 and 2013).

## 2-5 Existing Land Use

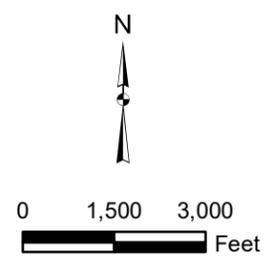
The existing land use map was generally based on the City's current land use GIS shapefile. The land use designations were updated, as needed, after reviewing the 2003 General plan, specific plans, and aerial photographs. The existing GIS shapefile was updated. The predominant land use in the service area is residential, which makes up about 43.3 percent of the total City. Commercial and industrial uses make up about 18.4 percent of the total City. The commercial areas are primarily located along major streets in the City such as Brea Boulevard, Imperial Highway, and State College Boulevard. The remaining land use is mostly natural open space. The locations of the various land uses throughout the City are shown on Figure 2-2 and the total acreage of each land use type is shown in Table 2-1.



**Legend**

**Land Use**

	(C-C) Major Shopping Center		(M-2) General Industrial		(HR) Hillside Residential
	(C-G) General Commercial		(M-P) Planned Industrial		(R-1) Single Family Residential
	(C-M) Industrial Commercial		(BISP) Brea Industrial Specific Plan		(R-1 5000) Single Family Residential 5000
	(C-N) Neighborhood Commercial		(MU) Mixed Use		(R-1-H) Single Family Residential-Hillside
	(C-P) Administrative and Professional Office		(PF) Public Facilities		(R-2) Multiple Family Residential - Medium Density
	(C-RC) Recreational Commercial		(P/R/OS-NOS) Parks/Recreation/Open Space-Natural Open Space		(R-3) Multiple Family Residential - High Density
	(M-1) Light Industrial		(P/R/OS-PR) Parks/Recreation/Open Space-Parks/Recreation		Vacant



Source: City's GIS Landuse, 2003 General Plan, Specific Plans, and Aerial Photography



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**Figure 2-2**  
**Existing Land Use**

**Table 2-1  
Existing Land Use**

Land Use		Density (du/ac)	Maximum Floor Area Ratio	Acres (Ac)	%
<b>Residential</b>					
Hillside Residential	HR	0.05-2.2		1,263	15.9
Single Family Residential - Hillside	R1-H	0.05-2.2		35	0.4
Single Family Residential	R-1	1-6		1,269	15.9
Single Family Residential 5000	R-1 (5000)	1-6		9	0.1
Multiple Family Residential - Medium Density	R-2	6.1-12.0		529	6.6
Multiple Family Residential - High Density	R-3	12.1-24.89		342	4.3
			<b>Subtotal</b>	<b>3,447</b>	<b>43.3</b>
<b>Commercial / Industrial</b>					
Major Shopping Center	C-C		0.65	104	1.3
General Commercial	C-G		0.5	298	3.8
Industrial Commercial	C-M		1.5	57	0.7
Neighborhood Commercial	C-N		0.35	12	0.1
Administrative and Professional Office	C-P		1.5	63	0.8
Recreational Commercial	C-RC		0.4	39	0.5
Light Industrial	M-1		0.75	538	6.8
General Industrial	M-2		0.75	291	3.7
Planned Industrial	M-P		1.5	27	0.3
Brea Industrial Specific Plan	BISP		1.5	35	0.4
				<b>Subtotal</b>	<b>1,464</b>
				<b>1,464</b>	<b>18.4</b>
<b>Other</b>					
Mixed Use	MU	Varies	Varies	6	0.1
Public Facilities	PF		1.0	179	2.3
Parks/Recreation/Open Space - Natural Open Space	P/R/OS-NOS			1,445	18.2
Parks/Recreation/Open Space - Parks/Recreation	P/R/OS-PR			264	3.3
Flood Plain	FP-1			33	0.4
Vacant	Vacant			17	0.2
Roadways	Vacant			1,100	13.8
				<b>Subtotal</b>	<b>3,044</b>
				<b>3,044</b>	<b>38.3</b>
				<b>Total City</b>	<b>7,955</b>
				<b>7,955</b>	<b>100.0</b>

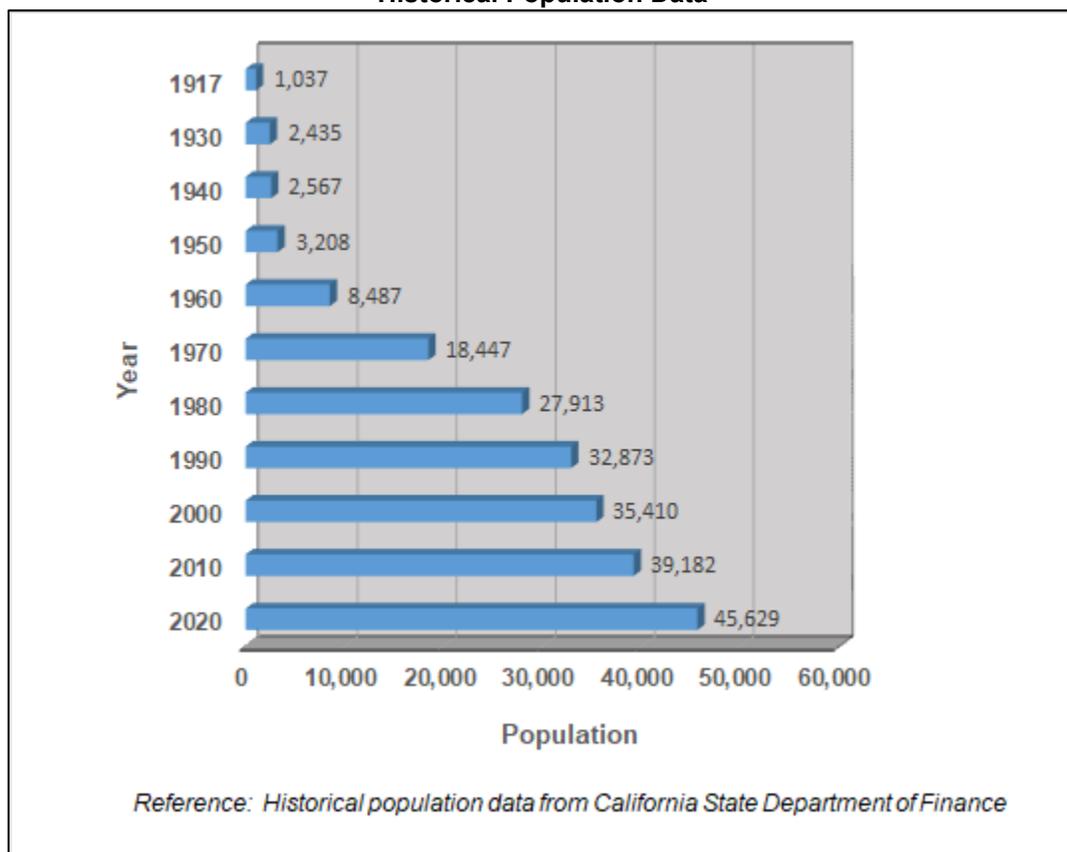
\*\*Land use provided does not include the Sphere of Influence area

## 2-6 Population

Since its incorporation in 1917, the City of Brea has grown from a population of 1,037 to one of approximately 45,629 in 2020 (See Appendix 2-2: California Department of Finance, Table E-5). The estimated 2020 population is 16.7 percent higher than the 2010 Census Count of 39,113 indicating an increase of approximately 1.7 percent per year. The current total number of households is 16,911. The average number of persons per household is currently estimated at 2.79 with a vacancy rate of 3.6 percent. The historical population increase is depicted on Figure 2-3.

As the City's residential population fluctuates near 45,000. Under normal conditions, the daytime population increases to nearly 100,000 as people come into the City to work and shop.

**Figure 2-3  
Historical Population Data**



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## SECTION 3 PERFORMANCE EVALUATION & DESIGN CRITERIA

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### 3-1 General

Establishing performance standards is an important part of evaluating the existing sewer collection system, as it forms the basis for most of the system improvement recommendations. These standards include methodology for estimating sewage flows, and minimum design standards for the collection system pipes, lift stations, and force mains.

Existing average sewage flows can be reasonably estimated from water billing data, zoning class and their corresponding sewer return ratios. The results are then compared to measured flows. Peaking factors are needed for estimating peak dry weather and peak wet weather flows. Peak wet weather flows include an allowance for inflow and infiltration (I/I).

Future average sewage flows for new development and redevelopment areas can be reasonably estimated from land use and corresponding unit flow factors.

Collection system design standards include minimum pipe size, minimum flow velocity, and depth of flow to pipe diameter ratio (d/D). Lift station criteria includes the capacity and number of pumps, wet well and force main sizes, redundancy, emergency power, remote monitoring capabilities, as well as safety and regulatory agency requirements. Finally, facility useful lives are needed for adequately scheduling replacement of the aging infrastructure.

### 3-2 Flow Monitoring Data

Data collection and review is essential in developing sewer return ratios, unit flow factors, calibrating the system model, and estimating the ultimate average day and peak flows.

Fifteen (15) sites were selected for collecting flow data as shown on Plate 1. Each site was monitored for a period of two weeks, between July 23, 2020 and August 5, 2020. The flow monitoring results are shown in Table 3-1. It includes the average, maximum, and minimum depth, velocity, and flow observed at each site. The final flow monitoring report prepared by ADS Environmental Services is included in Appendix 3-1. The measured flows are graphically depicted on Figure 3-1.

The flow monitoring equipment used was the ADS FlowShark Triton. This flow monitor is an area velocity flow monitor that uses the continuity equation to measure flow. It includes data acquisition sensors and a battery powered microcomputer. The microcomputer has a processor unit, data storage, and a clock to control and synchronize the sensor recordings. For this study, the monitor was programmed to acquire and store depth of flow and velocity readings at 5-minute intervals.

The sensor used in this study is the Peak Combo Sensor, which is installed at the bottom of the pipe. It uses three (3) types of data acquisition technologies: up-looking ultrasonic depth sensor using sound waves from two independent transceivers to measure depth of flow; a piezo-resistive crystal to determine the difference between the hydrostatic and atmospheric pressures to calculate pressure depth; and peak velocity sensor which uses ultrasonic signals to measure the peak flow velocity, which is used to calculate the average velocity and the flow area to calculate the rate of flow.

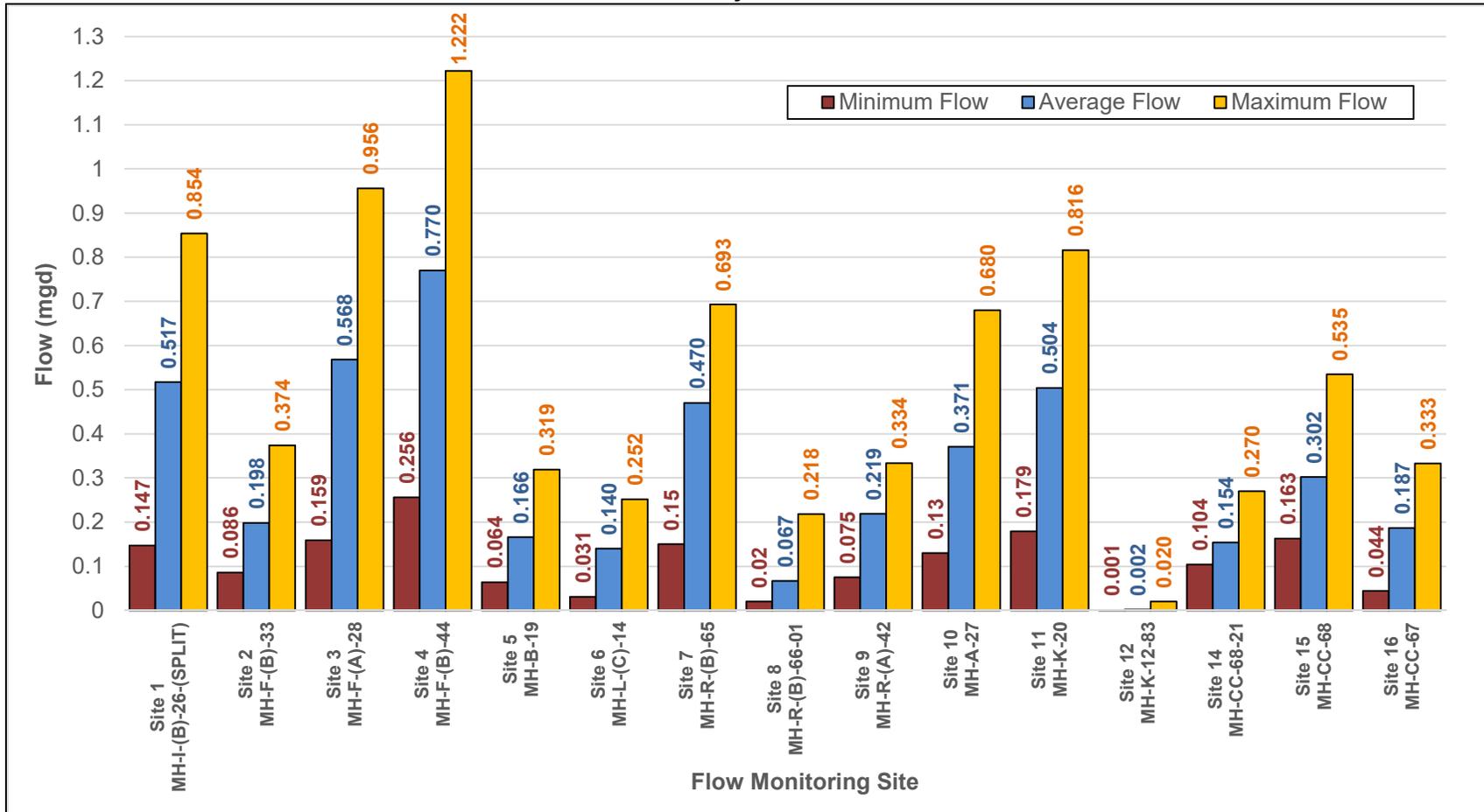
**Table 3-1  
Dry Weather Flow Monitoring Results**

Site ID	Dates	Location	Manhole ID	U/S Pipe Size (in)	Area (Ac)	Depth (in)			Velocity (ft/s)			Flow (mgd)			d/D		
						Min	Ave	Max	Min	Ave	Max	Min	Ave	Max	Min	Ave	Max
1	July 23, 2020 - August 5, 2020	North of Imperial Hwy; West of Puente St (Parking Lot)	IB26S	15	811	2.62	4.23	5.54	1.62	2.79	3.45	0.147	0.517	0.854	0.175	0.282	0.369
2	July 23, 2020 - August 5, 2020	Berry St, north of Imperial Hwy	FB33	12	291	1.45	1.89	2.58	2.35	3.78	4.9	0.086	0.198	0.374	0.121	0.158	0.215
3	July 23, 2020 - August 5, 2020	West side of channel; North of Brea Trail	FA28	15	514	3.11	5.39	7.17	1.36	2.17	2.69	0.159	0.568	0.956	0.207	0.359	0.478
4	July 23, 2020 - August 5, 2020	South of Elm St; East of channel	FB44	27	1,039	3.66	5.85	7.39	1.25	1.84	2.2	0.256	0.770	1.222	0.136	0.217	0.274
5	July 23, 2020 - August 5, 2020	Brea Blvd, north of Acacia St	B19	10	146	1.46	2.14	2.97	1.9	2.95	3.63	0.064	0.166	0.319	0.146	0.214	0.297
6	July 23, 2020 - August 5, 2020	Laurel Ave, south of Alder St	LC14	12	159	1.93	3.38	4.68	0.72	1.24	1.52	0.031	0.140	0.252	0.161	0.282	0.390
7	October 3, 2020 - October 16, 2020	Randolph Ave extension (open space)	RB65	12	408	3.23	4.71	5.78	1.41	2.6	3.2	0.150	0.470	0.693	0.269	0.393	0.482
8	July 23, 2020 - August 5, 2020	State College Blvd, south of Imperial Hwy	RB6601	8	75	0.85	1.09	1.79	1.24	3.49	5.68	0.020	0.067	0.218	0.106	0.136	0.224
9	July 23, 2020 - August 5, 2020	State College Blvd, south of Imperial Hwy	RA42	12	602	1.50	1.93	2.28	1.9	4	5.21	0.075	0.219	0.334	0.125	0.161	0.190
10 <sup>1</sup>	July 29, 2020 - August 5, 2020	SW corner of Associated Rd and Imperial Hwy (behind gas station)	A27	12	684	2.54	5.79	4.3875	1.24	2.97	2.1125	0.130	0.371	0.680	0.212	0.483	0.366
11	July 23, 2020 - August 5, 2020	Kraemer Blvd, south of Saturn St	K20	21	910	2.56	3.24	4.03	1.65	3.21	4.18	0.179	0.504	0.816	0.122	0.154	0.192
12	July 23, 2020 - August 5, 2020	Thompson Energy flow going into Brea Sports Park sewer; See 2010 flow monitoring report by ADS	K1283	8	41	0.45	0.72	1.57	0.14	0.16	1.17	0.001	0.002	0.020	0.056	0.090	0.196
13 <sup>2</sup>	N/A	Just upstream of La Floresta Lift Station in parking area; manhole not shown on street atlas	Not Used														
14	July 23, 2020 - August 5, 2020	Valencia Ave south of Sand Pipe Way; Broadrock Renewables flow	CC6821	8	113	1.33	1.56	2.01	4.03	5.15	7.18	0.104	0.154	0.270	0.166	0.195	0.251
15	July 23, 2020 - August 5, 2020	Carbon Canyon Rd at Santa Fe Rd	CC68	15	443	2.21	2.85	3.59	1.83	3.06	4.49	0.163	0.302	0.535	0.147	0.190	0.239
16	July 23, 2020 - August 5, 2020	Carbon Canyon Regional Park	CC67	24	1,774	1.55	2.38	3.58	0.53	1.78	2.37	0.044	0.187	0.333	0.065	0.099	0.149

<sup>1</sup> Hydraulic jumps affected flow monitoring during the first week, which was discarded for this master plan.

<sup>2</sup> The proposed flow monitoring location (MH CC71) could not be located in the field. La Floresta Pump Station tributary flows were estimated from pump start and stop data.

**Figure 3-1  
Measured Dry Weather Flow**



The flow monitoring sites were strategically selected to assist with the model calibration. Sites were selected in an attempt to get a good sampling of data across the study area. At the same time, the tributary areas must generate enough flow so that the field equipment can measure the depths of flow accurately (typically a minimum depth of 2-inches is preferred).

The average dry weather flows (ADWF) in the existing condition model scenario were allocated using water billing data, adjusted to represent sewage flows recorded at the flow monitoring locations. The sewage allocation methodology is further described in Section 6, Hydraulic Sewer Model.

### **3-3 Sewer Loads**

#### **3-3.1 Existing Sewer Loads**

Existing average sewage flows can be reasonably estimated from water billing data, land use and corresponding sewer return ratios.

Concurrent to the development of this Sewer Master Plan, Civiltec developed the City's Water Master Plan. As part of the Water Master Plan effort, water billing data for the 2019 calendar year was spatially allocated to a GIS point shapefile. The meter billing data joined to the GIS meter shapefile provides the most accurate spatial distribution of the water use and subsequently sewage generation.

Sewer return ratios were developed to adjust the water use to equal the average sewage flows recorded at the flow monitoring sites. The sewer return factors were developed using the spatial distribution of the water meter data to the flow monitoring locations and the City's zoning GIS shapefile.

#### **3-3.2 Effect of 2020 Stay-at-Home Orders**

The development of this Sewer Master Plan occurred during the COVID-19 global pandemic. The City was subjected to the California and Orange County stay-at-home orders, which resulted in the temporary closure of many commercial, industrial, and office buildings beginning in March of 2020. During this period, many non-essential workers spent their time at their place of residence rather than their typical place of employment.

Historical water use from July 2019 and August 2019 was compared to the water use from July 2020 and August 2020. Some effects of the stay-at-home orders on the City's water consumption include, but are not limited to:

- Increased residential water consumption (+10%)
- Decreased non-residential water consumption (-10%)
- Changes to the water use diurnal patterns. While water diurnal patterns were not specifically evaluated for this study, it is anticipated that the peak hour demands were lower during the stay-at-home orders. Typically a system with heavy residential customers will see a daily water demand in the morning hours between 6:00 a.m. and 9:00 a.m. Sewage flow monitoring data collected during the stay-at-home orders indicated that the peak sewage generation occurred between 8:00 a.m. and 12 a.m., and reflected lower peak sewage generation, which is indicative of lower peak hour water demands as well.

The change in water use consumption while the stay-at-home orders were in place, affected the sewage generation and the flows captured from the flow monitoring effort performed in July 2020 and August 2020. The model calibration scenario is based on this 2020 flow monitoring data.

The non-residential sewage loads were increased by 10% for the existing condition model scenario, assuming that loads would increase when the global pandemic subsided. The residential sewage loads were not changed in the event that people continued to work from home in the future. These two assumptions resulted in an

existing condition scenario with conservative sewage loads, which is considered appropriate for planning purposes.

**3-3.3 Future Sewer Loads**

Future sewage flows may be affected by regulations related to accessory dwelling units and water regulations regarding indoor water conservation efforts.

**3-3.3a Accessory Dwelling Units**

Senate Bill No. 13 addresses accessory dwelling units (ADUs). It was amended in the State Assembly on August 12, 2019. It helps facilitate the development of ADUs and provides amnesty for unpermitted ADUs to become compliant. This bill revises the requirements for an ADU, by providing that the ADU may be “attached to, or located within, an attached garage, storage area, or other structure, and that it does not exceed a specified amount of total floor area.”

The sewage loads for ADU's were estimated assuming ADU's were constructed for each single family residential property. According to the City's water billing data there are approximately 6,000 single family residential parcels within the City. Assuming 1.2 people per ADU and sewage generation of 50 gpd/person, the average additional demand due to ADU's is estimated as 0.36 MGD (6,000 ADU x 1.2 persons/ADU x 50 gpd/person).

**3-3.3b Water Conservation**

As water conservation measures are implemented, the water use is reduced and in turn, the sewage generation has declined. Despite the significant reduction in water use in recent years, Senate Bill 606 (SB 606) and Assembly Bill 1668 (AB 1668) are targeting further reductions in inside water use with limits of 55 gallons per capita per day (gpcd) by 2025, and 50 gpcd by 2030.

Residential indoor usage (sewage generation) was estimated to be approximately 73 gpd/person, based on the flow monitoring that was conducted in July 2020 and August of 2020. According to the California Department of Finance (Table E-5), the City's population is estimated at 45,629 in 2020. Assuming that the City's indoor use decreases to the 2030 targets (50 gpd/person) SB606 and AB1668, the total reduction in sewage flows is estimated as 1.05 MGD.

Existing indoor usage: 45,629 people x 73 gpd/person = 3,330,917 gpd (3.33 MGD)

Recommended indoor usage: 45,629 people x 50 gpd/person = 2,281,450 gpd (2.28 MGD)

**Reduction in flow due to conservation 1,049,467 gpd (1.05 MGD)**

As discussed in Section 3-3.3a, the increased sewage generation due to future potential ADUs is estimated at about 0.36 MGD. The reduction due to water conservation is estimated at 1.05 MGD. Therefore, it is assumed that the increase due to construction of future potential ADUs will be offset by the decrease from future indoor water conservation.

**3-4 Unit Flow Factors**

Sewage load estimates for future development and redevelopment areas were estimated using unit flow factors, as shown in Table 3-2.

As previously discussed, the flow monitoring effort occurred during the stay-at-home orders, which affected the water use and sewage generation. Many people were working from their private residences which resulted in an increase of sewage generation in residential areas. Many commercial, industrial, and office buildings were

temporarily closed during the flow monitoring effort, which resulted in the decrease of sewage generation for non-residential areas.

**Table 3-2  
Sewer Unit Flow Factors**

Land Use Type	Land Use	Land Use Code	Unit Density/ Maximum (FAR) <sup>1</sup>	Unit Flow Factor <sup>2</sup>	Units	Unit Flow Factor <sup>3</sup>	Units
Single-Family Residential	Hillside Residential	HR, R1-H	0.05 -2.2 DU/AC	385	gpd/DU	20 - 847	gpd/AC
	Single Family Residential	R-1	1.0-6.0 DU/AC	270	gpd/DU	270 - 1,620	gpd/AC
	Single Family Residential 5000 <sup>4</sup>	R-1(5000)	1.0-6.0 DU/AC	270	gpd/DU	270 - 1,620	gpd/AC
Multi-Family Residential	Multiple Family: Medium Density	R-2	6.1 - 12.0 DU/AC	248	gpd/DU	1,515 - 2,980	gpd/AC
	Planned Community <sup>5</sup>	P-C	6.1 - 12.0 DU/AC	248	gpd/DU	1,515 - 2,980	gpd/AC
High Density Residential	Multiple Family: High Density	R-3	12.1 -24.89 DU/AC	210	gpd/DU	2,545 - 5,230	gpd/AC
Business/ Commercial <sup>6</sup>	General Commercial	C-G	0.5	73.5	gpd/TSF	1,605	gpd/AC
	Major Shopping Center	C-C	0.65	73.5	gpd/TSF	2,085	gpd/AC
	Administrative and Professional Office	C-P	1.5	73.5	gpd/TSF	4,805	gpd/AC
	Neighborhood Commercial	C-N	0.35	73.5	gpd/TSF	1,125	gpd/AC
Industrial <sup>6</sup>	Industrial Commercial	C-M	1.5	73.5	gpd/TSF	4,805	gpd/AC
	Light Industrial	M-1	0.75	73.5	gpd/TSF	2,405	gpd/AC
	General Industrial	M-2	0.75	73.5	gpd/TSF	2,405	gpd/AC
	Planned Industrial <sup>6</sup>	M-P	1.5	73.5	gpd/TSF	4,805	gpd/AC
	Brea Industrial Specific Plan <sup>6</sup>	BISP	1.5	73.5	gpd/TSF	4,805	gpd/AC
Restaurant	Restaurant			1,575	gpd/TSF		
Car Wash	Car wash			21,000	gpd/Location		
Commercial Recreational	Commercial Recreational	C-RC		3.15	gpd/AC		
Motel/Hotel	Motel/ Hotel			173.25	gpd/Room		
Parks	Parks/ Recreation/ Open Space - Parks and Recreation	P/R/OS-NOS P/R/OS-PR		10.5	gpd/AC		
Schools	High School			21	gpd/Student		
Schools	School			10.5	gpd/Student		
Theater	Theater			8.4	gpd/Seat		

<sup>1</sup> Unit Density and FAR are based on values included in the City's 2003 General Plan

<sup>2</sup> Unit flow factors are based on values from the City's 2005 Sewer Master Plan

<sup>3</sup> Unit flow factors by acreage were calculated from Unit Density/FAR and unit flow factors from the 2005 Sewer Master Plan. For planning purposes the maximum unit flow factors were used for this planning study . As the development plans are updated, the more detailed planning data should be used to estimate the future sewer loads.

<sup>4</sup> Unit Density for R-1-5000 is assumed to be the same as R-1

<sup>5</sup> Unit Density for P-C is assumed to be the same as R-2

<sup>6</sup> FAR for Planned Industrial (M-P) is assumed to be the same as Industrial Commercial (C-M)

In addition, non-residential land uses typically include a wide variety of businesses and manufacturing processes that cause sewage generation to vary significantly from one customer to another. This is evident in the wide range of water use for different non-residential businesses. For example, warehouses typically use a low amount of water and generate low amounts of sewage. On the other hand, some manufacturing businesses can use large amounts of water and contribute large amounts of sewage to the sewer system.

Due to the fact that flow monitoring for this study was completed during the time when stay-at-home orders were in effect, the unit flow factors were primarily based on the City's 2005 Sewer Master Plan. The unit flow factors developed in 2005 were based on flow monitoring completed under more normal conditions.

Moving forward, the City is requiring that potential developers perform a sewage generation analysis on a case by case basis, as details regarding the proposed development or redevelopment area becomes available. Specific data regarding the proposed dwelling units, gross building floor area, and floor to area ratios is to be used to develop the sewage flow estimate. Hydraulic analyses are to be conducted to verify available downstream system capacity and ensure that the system can convey the proposed sewage generation.

### 3-5 Peaking Factors

#### 3-5.1 Peak Dry Weather

Sewer return factors are used to generate average dry weather flows (ADWF) entering the collection system. However, the adequacy of a sewage collection system is evaluated based upon its ability to convey the peak flows. At any individual point in the system, peak dry weather flow (PDWF) is estimated by converting the total average tributary flow to peak dry weather flow by an empirical peak-to-average relationship.

The peaking formula commonly used in sewerage studies is of the following form:

$$\text{PDWF} = a \times \text{ADWF}^b$$

where PDWF = Peak Dry Weather Flow [mgd]  
ADWF = Average Dry Weather Flow [mgd]  
a, b = Peaking Formula Coefficients

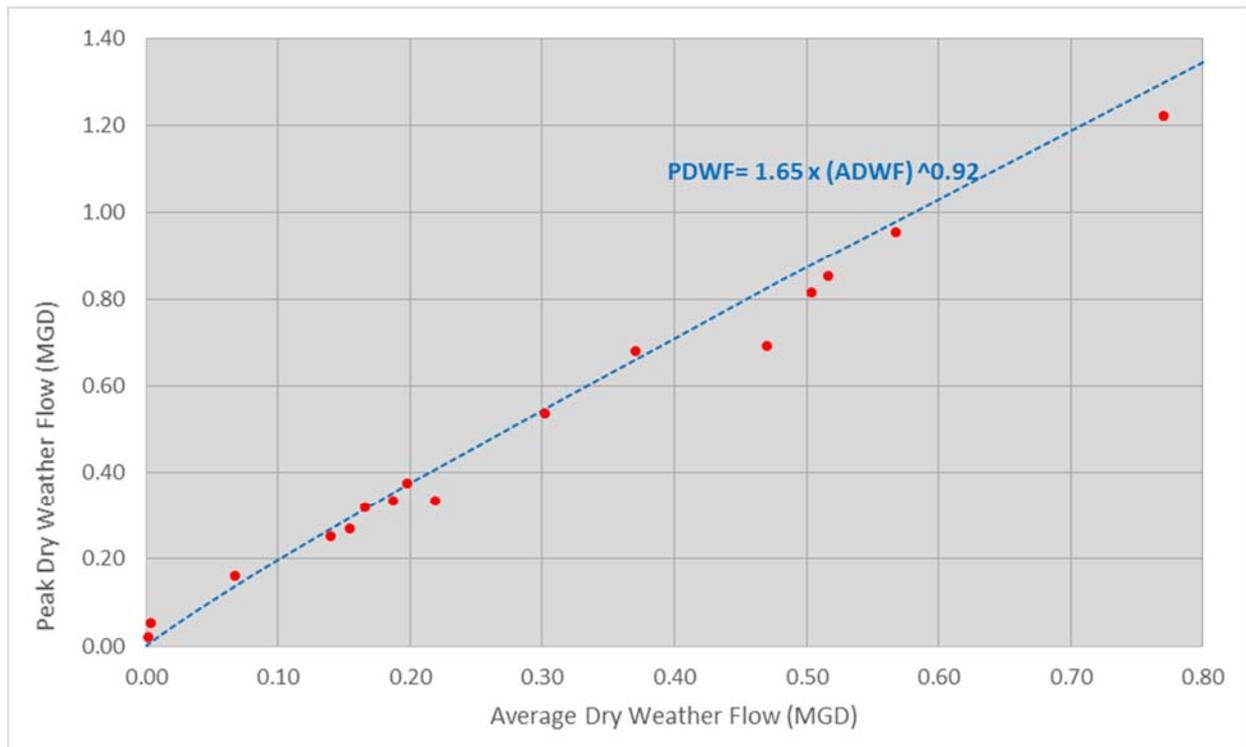
The coefficient “b” factor accounts for smaller tributary areas with smaller ADWF, which generally experience greater PDWF. The change in usage of one customer in a very small tributary area will have a greater effect on its corresponding PDWF than a change in usage of one customer in a very large tributary area. Note that the units of the selected peaking formula are in million gallons per day (mgd).

In order to develop the peaking formula and establish coefficient “a” and “b”, the maximum versus average flow measured from the flow monitoring effort was plotted for each flow monitoring site as shown in Figure 3-2. To calibrate the sewer hydraulic model, the peaking relationship was based on the best fit line through the data points, as shown on Figure 3-2. The following relationship was developed from the 2020 flow monitoring data:

$$\text{PDWF} = 1.65 \times \text{ADWF}^{0.92}$$

**Note: Above peaking formula was used for the model calibration effort which was based on flow monitoring data collected during a period when stay-at-home orders were in affect**

**Figure 3-2**  
**Peaking Coefficients Developed with 2020 Flow Monitoring Data**



As aforementioned, the flow monitoring effort occurred during the California and Orange County stay-at-home orders, in response to the Covid-19 pandemic, which affected the water use and sewage generation patterns. It was observed that the peak sewage generation occurred between 9:00 a.m. and 12:00 p.m. During periods without stay-at-home orders in effect, peaks are generally observed between the hours of 6:00 a.m. and 9:00 a.m. on weekdays. The peaking coefficient “a” is also typically higher. The City’s 2005 Sewer Master Plan includes a peaking relationship that was based on data developed under normal conditions when stay-at-home orders were not in effect. This peaking relationship is more conservative and was used for estimating peak dry weather flows for this study, as follows:

$$\text{PDWF} = 1.777 \times \text{ADWF}^{0.92}$$

*Note: Above peaking formula was used for 2021 Sewer Master Plan analysis and is based on 2005 Sewer Master Plan Study*

### 3-5.2 Peak Wet Weather

The peak wet weather flow (PWWF) has two components: peak dry weather flow (PDWF) and rainfall dependent inflow/infiltration (I/I) as expressed by the following equation. Inflow and infiltration is discussed further in Section 3-6.

$$\text{PWWF} = \text{PDWF} + \text{I/I}$$

The flow monitoring effort for this study did not cover a wet weather period. Until wet weather flow data can be collected, it is recommended that the peak wet weather flow be estimated utilizing the following equation:

$$\text{PWWF} = 1.25 \times \text{PDWF}$$

This equation is based on previous experience in evaluating wet weather flow monitoring data in the Orange County area. Although the PWWF/PDWF factor of 1.25 may not cover all situations, it is not reasonable or feasible to design the sewer system to carry the flows that would result from the use of a larger ratio. Instead, it is recommended that the City concentrate on projects such as replacing manhole covers with new ones with a single vent hole and/or installing sufficient plugs in manhole covers (adequate venting of the collection system must be provided through the manhole covers) to minimize inflow from surface flooding in areas where it is known to occur. Replacing or relining cracked pipes to reduce infiltration will also be beneficial.

### 3-6 Inflow and Infiltration

Inflow is the surface water that typically gains entry to the sewer system through perforated or unsealed manhole covers during rainfall events that can cause covers to become flooded. Infiltration is defined as water entering the collection system from the ground through defective pipes, pipe joint connections, or manhole walls. The sewer system design capacity must include allowances for these extraneous water components, which inevitably become a part of the total flow. The amount of inflow and infiltration (I/I) that enters the system typically depends upon the availability and location of the storm water drainage facilities, age of structures, materials and methods of construction, manhole cover openings, location of manhole, the elevation of the groundwater table, and the characteristics of the soil. In absence of flow monitoring data, many regulating agencies implement commonly accepted practices for estimating I/I. For example, I/I is often estimated based on the diameter and length of pipeline (100 to 400 gpd/ in. dia/ mile) or as a percentage of the peak dry weather flow or pipeline capacity.

The flow monitoring effort for this study did not cover a wet weather period. For this study, extraneous flow due to inflow and infiltration is included in the peak wet weather flow formula described above, by adding 25% to the PDWF to derive the PWWF. When better data is developed through future wet weather flow monitoring, the analysis shall be updated based upon that information.

### 3-7 Sewer System Performance Evaluation Criteria

Sewer system performance evaluation criteria are established to ensure that the sewer collection system can operate effectively. Each pipe segment must be capable of carrying peak flows without surcharging the system. Low flows must be conveyed at a velocity that will prevent solids from settling and blocking the system.

#### 3-7.1 Flow Depth to Diameter Ratio

The design capacity of a gravity pipeline is the calculated capacity of the pipeline based on the Manning formula:

$$Q = 1.486 * A * R^{\frac{2}{3}} \frac{S^{\frac{1}{2}}}{n}$$

where, **Q** = flow in cubic feet per second  
**R** = hydraulic radius in feet = A / P  
**A** = cross-sectional area of the pipe in square feet  
**P** = wetted perimeter in feet  
**S** = slope of pipe in feet of rise per foot of length  
**n** = Manning's friction factor

Sewer system capacity is established using a Manning's friction factor of 0.013 for vitrified clay pipe (VCP).

The design and analysis of sewer pipes is typically based upon the depth to diameter ratio (d/D). In this study, **existing** pipes are considered capacity deficient if the d/D is above 0.64 at peak dry weather flows or if the d/D is above 0.75 at peak wet weather flows, for pipes of all sizes. The capacity available between the d/D ratio of 0.64 and 0.75 are reserved for wet weather flows.

For **new or future construction**, the design and analysis of gravity sewer pipes shall be based on the following depth to diameter ratios:

- Pipes **15-inches and smaller** in diameter shall be designed to flow at a maximum **d/D of 0.50** under peak dry weather flows
- Pipes **18-inches and greater** in diameter shall be designed to flow at a maximum **d/D of 0.64** under peak dry weather flows
- For either group, the depth of flow to diameter ratio shall not exceed **0.75 with peak wet weather flows**

Although this Sewer Master Plan study defined existing pipes as deficient when the d/D ratio exceeded 0.64 under peak dry weather flows, for all practical purposes the aforementioned design criteria must be adhered to. For instance, if the sewer pipe is 15-inches and smaller and was designed to flow at a maximum PDWF d/D of 0.50 and is now constructed, the maximum PDWF d/D must be maintained at 0.50. Additional future development flow shall not be allowed to contribute to this sewer pipe if the maximum PDWF d/D ratio is going to exceed 0.50.

**3-7.2 Pipe Sizes and Velocities**

Design criteria are established to ensure that the sewer collection system can operate effectively under all flow conditions. Each pipe segment must be capable of carrying peak flows without surcharging the system. Low flows must be conveyed at a velocity that will prevent solids from settling and blocking the system.

At a minimum, all pipe shall be 8 inches or larger in diameter and the velocity of flow in the pipe shall be greater than 2 ft/s during average flow conditions. This velocity will prevent deposition of solids in the sewer. A velocity of 3 ft/s is recommended during peak dry weather flow conditions, to resuspend any materials which may have already settled in the pipe. The minimum corresponding slope for various pipe sizes is presented in Table 3-3.

**Table 3-3  
Minimum Sewer Slopes**

Pipe Size (in)	Minimum Slope (2 ft/s Velocity)	Minimum Slope (3 ft/s Velocity)
<sup>1</sup> 8"	0.0034	0.0076
<sup>1</sup> 10"	0.0025	0.0056
<sup>1</sup> 12"	0.0020	0.0044
<sup>1</sup> 15"	0.0015	0.0033
<sup>2</sup> 18"	0.0010	0.0022
<sup>2</sup> 21"	0.0008	0.0018
<sup>2</sup> 24"	0.0007	0.0015

<sup>1</sup> 15" and smaller based on d/D=0.50

<sup>2</sup> 18" and larger based on d/D=0.64

It is important to note that the slopes listed in Table 3-3 assume the depth of flow to pipe diameter ratio to be 0.50 or 0.64. If there is insufficient flow to create this condition, greater slopes than those shown may be required. The peak flow velocity shall be less than 6 feet per second in vitrified clay pipe (VCP) and 5 feet per second in polyvinyl chloride pipe (PVC). The maximum allowable slope shall be the slope which generates these maximum flow velocities.

It is recognized that the desired minimum slopes and velocities are sometimes not achievable under certain circumstances. On a case by case basis, the City may approve sewer designs that do not meet these criteria. More frequent pipe cleaning may be needed in areas with less than the minimum slopes shown in Table 3-3, where velocities are less than the minimums recommended, and/or further reduction in inside water use results in increased solids deposition in the pipelines.

### 3-8 Sewer Lift Station Performance Evaluation Criteria

It is desirable to develop a sewer collection system with as few lift stations as possible due to the associated cost and maintenance required. The Sewer Master Plan does not recommend any new sewer lift stations. However, in the case that a lift station is necessary, it must be designed to be reliable and sized with sufficient capacity. It must contain redundant equipment, an emergency power supply, sufficient storage, and be able to notify the appropriate personnel in the event of failure.

The performance of a sewer lift station is of particular importance since a failure could have far reaching ramifications. It must therefore be reliable, sized with sufficient capacity, and contain redundant and/or backup equipment. A plan must also be in place so that appropriate staff can be notified in the event of a failure. The primary components of a sewer lift station are the wet well, pumps, dry well, force main, and electrical controls.

#### 3-8.1 Wet Well

The wet well stores the incoming sewage until a pump is activated to discharge it. It shall be designed with sufficient capacity to prevent short cycles whereby the pumps continually start and stop, yet small enough that it will be regularly evacuated to prevent the sewage from becoming septic.

Generally, the desired number of pump cycles shall be limited to no more than 6 per hour for motors up to 20 horsepower. Motors up to 75 horsepower shall start no more than 4 times per hour. Larger motors shall cycle less frequently. Lift stations that are distant from the City's maintenance yard shall also have sufficient volume to store sewage in the event of failures. The wet well shall have sufficient storage for City staff to connect a portable generator in case of commercial power failure where a dedicated standby driver of generator is not provided, or to place a portable pump in operation.

Wet wells of sewer lift stations must be ventilated at a minimum of 15 air changes per hour, when provided with continuous ventilation. Where continuous ventilation is not available, the wet well must be ventilated at a minimum of 30 air changes per hour.

#### 3-8.2 Pumps

The pumps shall be sized to efficiently handle peak flows. A minimum of two pumps sized at the peak wet weather flow to the station shall be provided so that sufficient standby capacity is available when one pump is removed for repairs. The pumps shall be able to pass a minimum solid size of 3 inches without clogging. The shafts, seals and impellers shall be constructed of wear resistant material to provide long life. Tungsten Carbide seals, Ni-Hard impellers, and 316 stainless steel pump shafts are recommended. For services where aggressive agents may be found in the sewage, such as at golf courses, complete stainless steel construction is recommended. This includes the pump bowl, shaft, impeller, and motor housing.

#### 3-8.3 Dry Well

The dry well houses the valves, pumps, motors and electrical controls. It must be well ventilated and provide unobstructed access to all equipment. A minimum 3.5-foot clearance from all obstructions shall be provided. Greater clearances may be required for equipment with special maintenance needs. Facilities for equipment removal, including hatches, large door openings, and hoists, shall also be provided.

While submersible lift stations may be utilized for the small flows, the larger lift stations shall be the wet well/dry well type. They shall be designed with easy access to all equipment. The dry well and equipment rooms shall be designed for a ventilation rate of at least 15 air changes per hour. Wet wells and under certain circumstances dry wells, shall be considered confined spaces and shall be entered in accordance with the corresponding requirements of Occupational Safety and Health Administration (OSHA).

### 3-8.4 Force Mains

Force mains shall be selected to operate within a 3 ft/s to 5 ft/s velocity range, but shall not be smaller than 4-inches in diameter.

### 3-8.5 Telemetry Equipment

All lift stations shall incorporate redundant control systems for operation of the pumps. A float system shall be used as a backup for a primary control system that utilizes an ultrasonic level sensor device.

Full supervisory control and data acquisition (SCADA) telemetry equipment which includes a telephone dialer as a backup, must be provided at all lift stations. When an alarm or failed condition occurs, the dialer calls pre-programmed telephone numbers in sequence until the call is acknowledged, indicating response will be provided by City staff. If the alarm or failed condition is not corrected within a set time, the dialer will call the pre-programmed numbers again. The dialer can also be used to remotely check the status of the station if desired.

### 3-8.6 Emergency Power Source

An emergency power source shall be provided to operate the lift station during outages of the primary power source. A standby generator with an automatic transfer switch is the preferred type of emergency power source.

While lift stations may be necessary to serve portions of the City's service area because of topographic requirements, all feasible efforts shall be made to limit the number of lift stations. In evaluating the feasibility of constructing a lift station, a detailed comparison with a gravity alternative shall be made. The service life of each facility, the cost of operation and maintenance, as well as the many problems associated with the development of flows during the first several years shall be carefully considered.

## 3-9 Inverted Siphons Performance Evaluation Criteria

In general, siphons should be avoided when possible. This section describes recommended performance criteria for the design of any future siphons.

### General

1. Accessibility of the inlet and outlet structures to minimize traffic control setup.
2. Adequate space for equipment setup and vehicle parking, including a buffer for safety.

### Siphon Barrels

1. Dual (or multiple) barrels so that normal flow can be diverted to either barrel when the other barrel is cleaned.
2. Minimum barrel diameters of 8-inches.
3. Minimum barrel velocity of 3 feet per second at average dry weather flow and 4 feet per second at peak dry weather flow.
4. Barrels with vertical curves and with no sharp horizontal angles or changes of grade.
5. For an inverted siphon crossing a stream waterway, a minimum of 5 feet between the top of the siphon and the level of possible scour in the stream or waterway.
6. Location away from an outlet of a lateral or a drop manhole

7. Invert of the barrels at the outlet structure at least 0.1 feet lower than the invert at the inlet structure.
8. Siphon materials constructed of pressure rated HDPE or PVC.
9. The maximum angle of the downstream (rising) leg approaching the outlet structure should be no more than 15 degrees from horizontal. The maximum angle of the upstream leg should be no more than 30 degrees from horizontal.

### **Access Structures**

1. Access structure at each end of siphon. Rectangular access structures are preferred.
2. Access structures sized to allow for any maintenance and operation procedure.
3. The interior surface of the access structures are lined, coated or otherwise protected with a suitable corrosion resistant material.
4. Steps, ladders, access frames and covers, gratings and other appurtenances fabricated of 316 stainless steel.
5. Ability to install temporary guard rails while maintenance work is being conducted.

### **Slide Gates, Stoplogs, Weirs**

1. Slide gates, stoplogs, weirs, and similar devices fabricated of 316 stainless steel.

### **Valves**

1. No valves shall be used for siphons.

### **Air Jumper**

1. Adequately sized air jumper line between access structures
2. Minimum air jumper size of 6-inches in diameter.

The empirical method for determining the cross sectional area of the conduit allocated for gas flow approaching the inverted siphon is as follows:

$$A_A = 2A_S$$

Where,  $A_A$  = Cross sectional area of airline

$A_S$  = Flow cross sectional area allocated for gas flow of the approaching conduit

3. Air jumpers made of pressure rated HDPE or PVC.
4. Air jumpers designed to remove condensate with a minimum slope for drainage. Where practical, overhead air jumpers that are self-draining to the access structures are preferred.
5. Air jumpers designed to accommodate the City's inspection and cleaning methods.

A summary of performance evaluation, design, and service criteria is provided in Table 3-4.

**Table 3-4  
Sewer System Criteria**

<b>Collection System</b>	
Minimum Pipe Size	8-inch
Minimum Velocity	2.0 fps at average dry weather flow 3.0 fps at peak dry weather flow
Maximum Velocity	6.0 fps at peak dry weather flow for VCP 5.0 fps at peak dry weather flow for PVC
Minimum Slope	Refer to Table 3-3
Maximum Slope	Slope that generates the maximum flow velocity.
Pipe Depth to Diameter Ratio	0.64 at peak dry weather flows for all pipes existing prior to the Sewer Master Plan hydraulic analysis 0.50 at peak dry weather flows for all newly constructed pipes 15-inches and smaller 0.64 at peak dry weather flows for all newly constructed pipes 18-inches and larger 0.75 at peak wet weather flows for all pipes
<b>Lift Station</b>	
Pumps	<ul style="list-style-type: none"> <li>• Minimum 2 each sized at peak wet weather flow</li> <li>• Minimum solids handling capacity 3"</li> </ul>
Wet Wells	<ul style="list-style-type: none"> <li>• Sized to limit pump cycling to less than 6 times/hr for motor HP up to 20; 4 times/hr up to 50 HP; 3 times/hr up to 75 HP; 2 times/hr 100 HP and above</li> <li>• Provide 30 minutes of storage at peak flow to allow response to a failure</li> <li>• Equipment to be maintained must be accessible without entering the structure</li> </ul>
Ventilation	<ul style="list-style-type: none"> <li>• 15-air change/hour minimum in wet wells operated continuously</li> <li>• 30-air change/hour minimum in wet wells not operated continuously</li> <li>• 15-air changes/hour minimum in dry well</li> </ul>
Controls	Redundant system. Ultrasonic level sensor for primary level controls. Float operated back-up controls.
Emergency Power	Stationary source with automatic transfer switch
Telemetry	Dialer system at all pump stations to alert personnel in the event of a station failure
Force Mains	<ul style="list-style-type: none"> <li>• Minimum velocity 3 fps</li> <li>• Maximum velocity 5 fps</li> <li>• Minimum size 4"</li> <li>• Air/Vacs installed in vaults</li> </ul>
<b>Inverted Siphons</b>	
Siphon Barrels	<ul style="list-style-type: none"> <li>• Dual or multiple</li> <li>• Minimum diameters of 8-inches</li> <li>• Minimum velocity of 3 fps ADWF and 4 fps PDWF</li> <li>• Vertical curves, with no sharp horizontal angles or changes of grade</li> <li>• If crossing a waterway, minimum 5 ft between the top of the siphon and the level of possible scour in the waterway</li> <li>• Location away from an outlet of a lateral or a drop manhole</li> <li>• Invert at the outlet structure at least 0.1 ft lower than invert of inlet structure</li> <li>• Material is HDPE or PVC</li> <li>• Maximum angle of downstream leg no more than 15 degrees from horizontal</li> <li>• Maximum angle of upstream leg no more than 30 degrees from horizontal</li> </ul>

**Table 3-4 (Continued)  
Sewer System Criteria**

<b><i>Inverted Siphons</i></b>	
Access Structures	<ul style="list-style-type: none"> <li>• Located at each end of siphon, rectangular preferred</li> <li>• Sized to allow for any O&amp;M procedure</li> <li>• Lined, coated, or protected with a suitable corrosion resistant material</li> <li>• Steps, ladders, access frames and covers, gratings and other appurtenances fabricated of 316 stainless steel</li> <li>• Ability to install temporary guard rails</li> </ul>
Slide Gates, Stoplogs, Wiers	<ul style="list-style-type: none"> <li>• Fabricated of 316 stainless steel</li> </ul>
Valves	<ul style="list-style-type: none"> <li>• No valves allowed</li> </ul>
Air Jumpers	<ul style="list-style-type: none"> <li>• Adequately sized between access structures</li> <li>• Minimum 6-inches in diameter</li> <li>• Material is HDPE or PVC</li> <li>• Designed to remove condensate with a minimum slope for drainage; overhead air jumpers that are self-draining to the access structures are preferred</li> <li>• Ability to accommodate City inspection and cleaning methods</li> </ul>

**3-10 Criteria for Specific Plans and Development Subareas**

Each party wishing to pursue development or redevelopment of a tract or area within the City or its Sphere of Influence shall develop a Sub-Area Master Plan (SAMP). The developer’s plans for providing adequate sewer service to all users within the proposed development, how the local sewer system will connect to the trunk sewer system, and the impact of the proposed development to the downstream facilities shall be fully described in the SAMP. The local sub-area sewers shall be required to meet the sewer design criteria included in this Performance Evaluation & Design Criteria section and all other applicable construction standards set forth by the City. At a minimum, sewage flow calculations shall be based upon the unit flow factors contained in Table 3-2. The Sub-Area Master Plan Report shall include the following:

- Map showing project boundaries and sewershed areas
- Detailed land use description and map
- Sewage flow calculations for the existing/predeveloped condition
- Sewage flow calculations for proposed development/redevelopment
- Comparison of flows from existing/predeveloped to proposed development/redevelopment conditions
- Exhibit showing all proposed sewer facilities and connections to the trunk sewer system, located within private property or the public right-of-way
- Hydraulic calculations meeting all sewer design criteria, demonstrating impact of the proposed development on the City sewer system.

**3-11 Service Life of Pipe and Lift Station Equipment**

In addition to the design criteria discussed in previous sections, the useful lives for which one can expect relatively trouble-free service is also of great importance when assessing an existing or future sewer system.

Once the service life of a facility is exceeded, it becomes subject to failure and is often more expensive to maintain. The determination of useful life can be difficult and depends on many different considerations including the following:

- Type of materials used and recorded performance of similar installations
- Velocities and flow rates expected in the system
- Chemical and biological conditions of the sewage
- Construction methods and installation

However, the values listed in Table 3-5 are generally accepted as prudent planning criteria and are used as benchmarks for replacement recommendations in this study.

**Table 3-5  
Planning Criteria for Facility Useful Life**

Facility	Description	Useful Life (Yrs.)
Gravity Sewers	Cast Iron Pipe (cip)	20
	Plastic Pipe (PVC)	65
	Vitrified Clay Pipe (VCP)	75
Force Mains	Asbestos-Cement Pipe (acp)	40
	Ductile Iron Pipe (dip)	40
	Plastic Pipe	30
Lift Stations	Structure	60
	Piping	30
	Valving	20
	Mechanical	15
	Electrical	15

## SECTION 4 EXISTING SYSTEM

### 4-1 General Description

The City of Brea provides sewer collection service to the entire area within its corporate boundaries, as well as to portions of unincorporated Orange County. The existing service area consists of approximately 7,952 acres (12.4 sq miles).

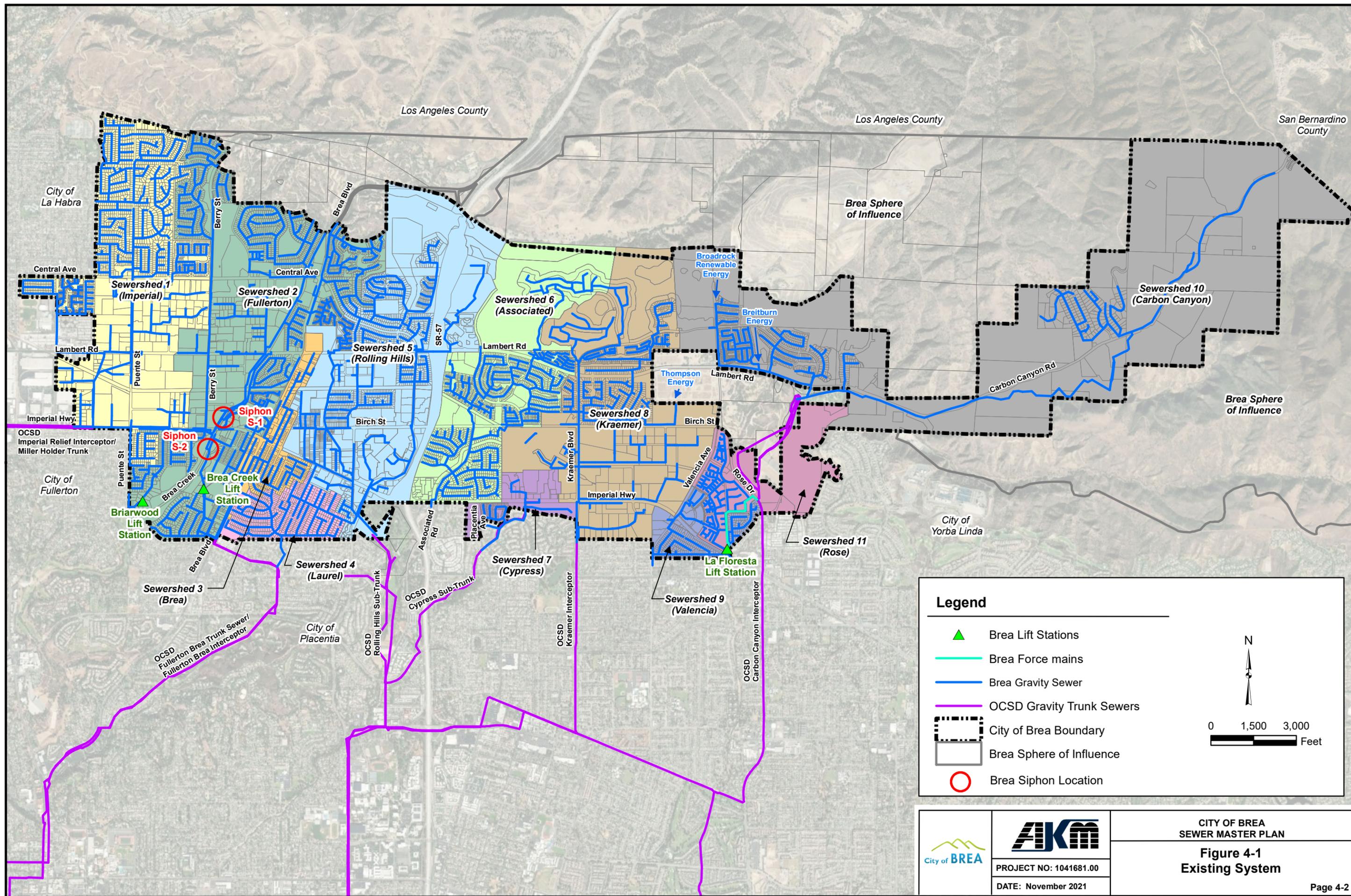
The City's existing sewer collection system is made up of a network of gravity sewers and three (3) sewer lift stations. The gravity system consists of approximately 135 miles of pipe and 3,400 manholes. The majority of the gravity sewers are constructed of vitrified clay pipe with sizes ranging from 4-inch to 27-inch in diameter.

### 4-2 Sewersheds and Points of Connection

The sewer system service area consists of eleven major sewersheds in which City sewers convey sewage generally south and/or west to an Orange County Sanitation District (OCSD) trunk sewer or adjacent agency sewer systems. The boundaries of the eleven sewersheds were delineated from review of the City's sewer GIS, atlas maps, and record drawings. The designated sewershed names, the total areas, and the downstream OCSD facility are summarized in Table 4-1. The sewersheds are shown in relation to the City boundary on Figure 4-1. Detailed maps of the mainline sewers for each of the eleven sewershed are included in Appendix 4-1.

**Table 4-1  
Major Sewersheds**

No.	Designation	Sewershed Name	Area (Ac)	Downstream OCSD Facility
1	I	Imperial	956	Imperial Relief Interceptor/Miller Holder Trunk
2	F	Fullerton	1,213	Fullerton Brea Trunk Sewer/ Fullerton Brea Interceptor
3	B	Brea	146	Fullerton Brea Trunk Sewer/ Fullerton Brea Interceptor
4	L	Laurel	159	Fullerton Brea Trunk Sewer/ Fullerton Brea Interceptor
5	R	Rolling Hills	1,110	Rolling Hills Sub-Trunk/Santa Ana River Interceptor
6	A	Associated	723	Rolling Hills Sub-Trunk/Santa Ana River Interceptor
7	C	Cypress	102	Cypress Sub-Trunk/Santa Ana River Interceptor
8	K	Kraemer	968	Kraemer Blvd. Interceptor/Santa Ana River Interceptor
9	V	Valencia	111	Kraemer Blvd. Interceptor/Santa Ana River Interceptor
10	CC	Carbon Canyon	2,193	Carbon Canyon Interceptor/Santa Ana River Interceptor
11	RO	Rose	271	Carbon Canyon Interceptor/Santa Ana River Interceptor
<b>Total</b>			<b>7,952</b>	



**Legend**

- Brea Lift Stations
- Brea Force mains
- Brea Gravity Sewer
- OCSD Gravity Trunk Sewers
- City of Brea Boundary
- Brea Sphere of Influence
- Brea Siphon Location

0 1,500 3,000 Feet

#### 4-3 Existing Sewage Flows

The InfoSewer (Innovyze) hydraulic modeling program was utilized to develop a model that replicates the existing conditions of the City's sewer system. The base information utilized in modeling each sewershed's sewer system was obtained from the City's sewer GIS and supplemented with as-built plans. Water use data and developed sewer return factors were used in the model to determine average dry weather flows (ADWF). This methodology is described in more detail in Section 6 of this report. The peaking formula, discussed in Section 3-5, was used to convert average flows to peak dry weather flows. Table 4-2 is a summary of the calculated existing sewage flows of each sewershed.

**Table 4-2  
Existing Sewage Flows by Sewershed**

No.	Designation	Sewershed Name	Area (Ac)	Average Dry Weather Flow, ADWF (MGD)	Peak Dry Weather Flow, PDWF (MGD) <sup>1</sup>
1	I	Imperial	956	0.6684	1.2267
2	F	Fullerton	1,213	1.0542	1.8654
3	B	Brea	146	0.1805	0.3679
4	L	Laurel	159	0.1431	0.2971
5	R	Rolling Hills	1,110	0.8595	1.5460
6	A	Associated	723	0.4747	0.8953
7	C	Cypress	102	0.0859	0.1857
8	K	Kraemer <sup>2</sup>	968	0.7331	1.2463
9	V	Valencia	111	0.0862	0.1863
10	CC	Carbon Canyon <sup>2</sup>	2,193	0.5130	0.8159
11	RO	Rose	271	0.0859	0.1857
<b>Total</b>			<b>7,952</b>	<b>4.8845</b>	

<sup>1</sup> PDWF is based on the ADWF that is tributary to each specific site and is not cumulative. The total PDWF for each sewershed is equal to the PDWF calculated using the peaking equation  $PDWF = 1.777 \times ADWF^{0.92}$  for peakable flows plus non-peakable or constant flows.

<sup>2</sup> Sewage loads generated by various energy facilities in the Kraemer Sewershed and Carbon Creek Sewershed are represented in the model as non-peakable flows or constant flows. These loads are discussed in detail in Section 6-3.6 and 6-3.7.

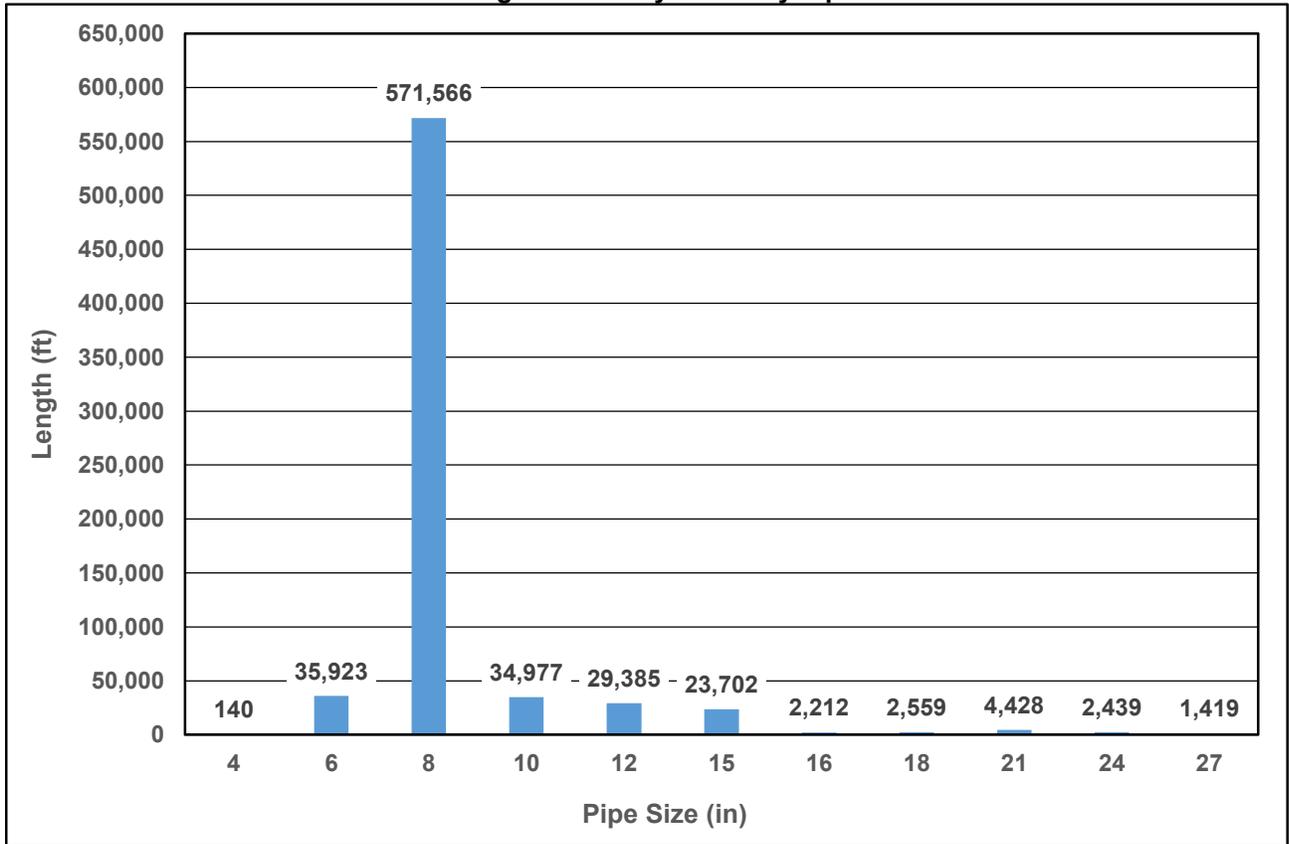
The analysis of the existing gravity sewer system was based upon the calculated peak dry weather flows. Calculated capacity deficiencies shall be verified through flow monitoring prior to replacing or rehabilitating the facilities.

#### 4-4 Gravity Sewers

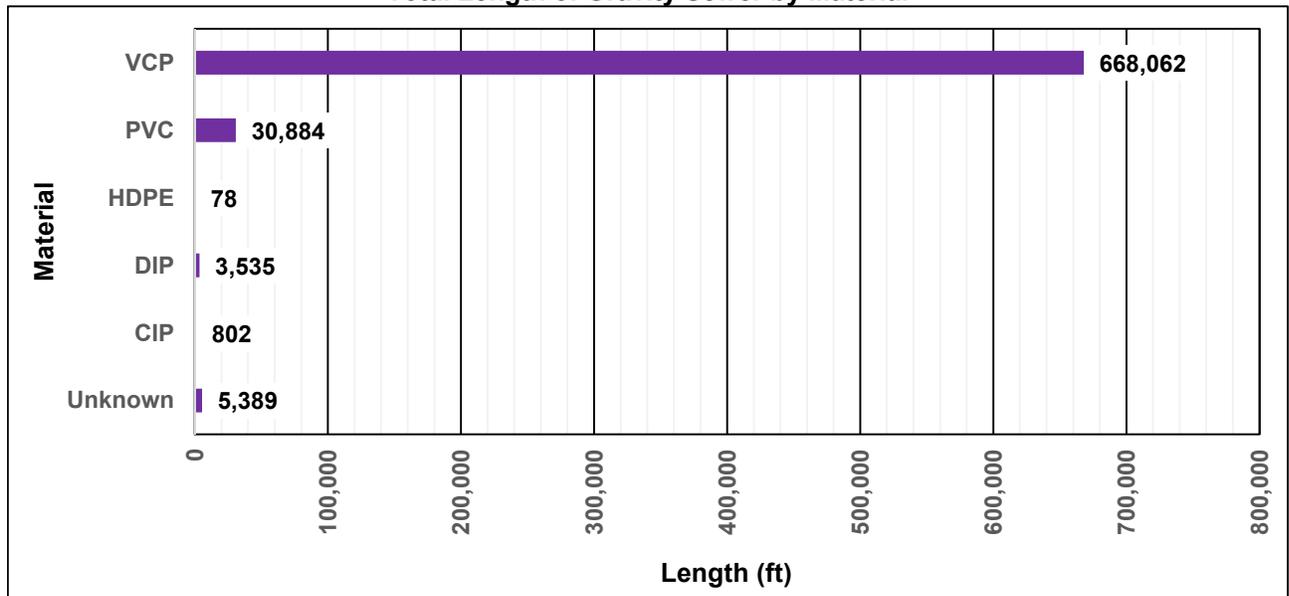
The sewer system consist of 708,750 feet of gravity sewers that are primarily made of vitrified clay pipe with sizes ranging from 4-inches to 27-inches in diameter. Approximately 81 percent of the sewers are 8-inches in diameter. The length of sewer pipe by size is shown on Figure 4-2.

The length of gravity sewer by material is shown on Figure 4-3. The length of gravity sewer by decade constructed is shown on Figure 4-4. The year constructed date was included in the City's existing Sewer GIS information. There were a 244,909 feet of pipe in the Sewer GIS that were not populated with a construction date.

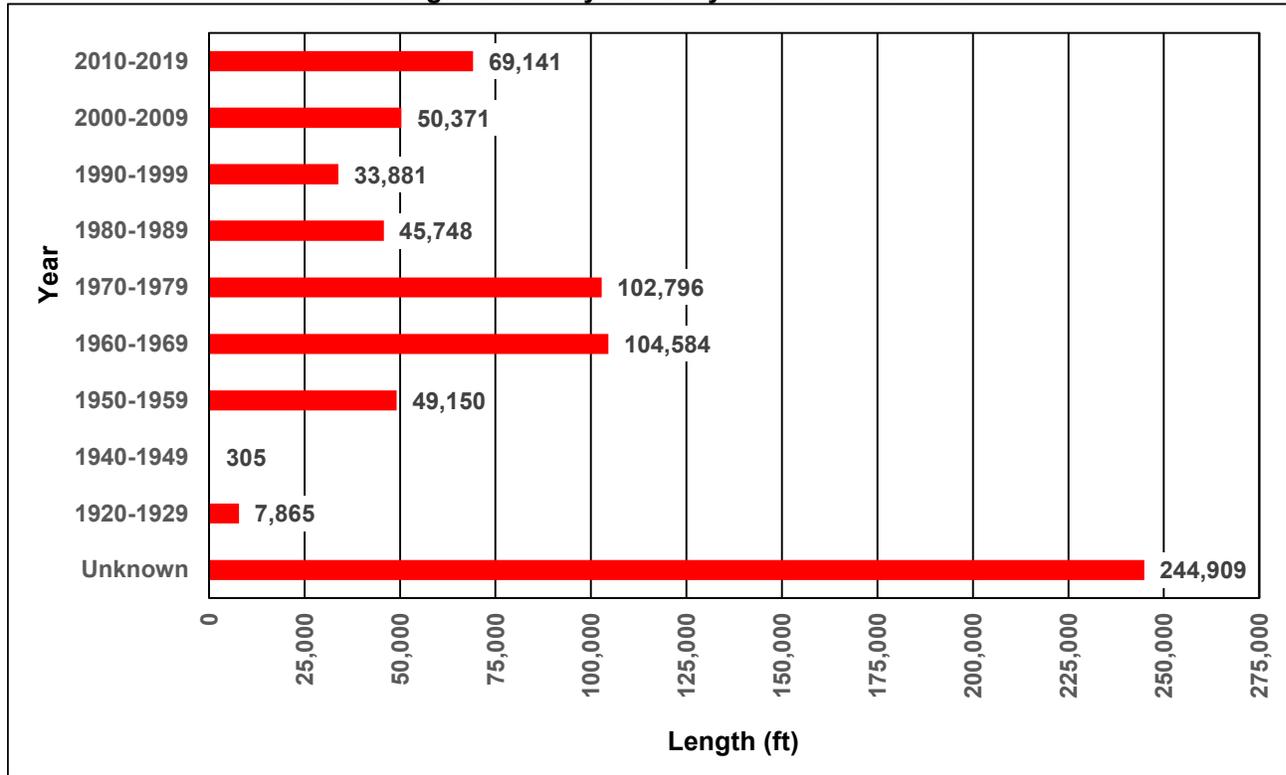
**Figure 4-2**  
**Total Length of Gravity Sewer by Pipe Size**



**Figure 4-3**  
**Total Length of Gravity Sewer by Material**



**Figure 4-4  
Total Length of Gravity Sewer by Decade Constructed**



**4-5 Siphons**

The sewer system includes two inverted siphons. Each was constructed to go beneath Brea Creek Channel. The primary concern with each siphon is the fact that grease and debris can often build up in the siphon requiring frequent maintenance to prevent sewer spills. The existing siphon locations and descriptions are listed in Table 4-3 and shown on Figure 4-1.

**Table 4-3  
Siphon Summary**

Siphon No.	Pipe ID	U/S MH ID	D/S MH ID	Location	City Plan ID	Date of Cons.	Dia-meter (in)	Material	U/S Invert El. (ft)	D/S Invert El. (ft)	Length (ft)
S1	FA34-01-FA34	FA34-01	FA34	Brea Creek North of Imperial	1073-18	1979	10	VCP	318.00	317.38	110
S2	FB40-FB41	FB40	FB41	Brea Creek South of Imperial	A04: Contract No 1-78	1978	15	VCP	315.00	314.85	102

#### 4-5.1 Siphon S-1

Siphon S-1 is a single barrel 10-inch siphon that crosses Brea Creek Channel from the east to the west. It is located north of Imperial Highway and west of the Rite Aid Pharmacy. During the January 26, 2021 facility site visit, the City did not have any capacity, operation or maintenance concerns for this siphon.

The flow in the gravity sewers upstream of Siphon S-1 cannot be diverted to the existing 6-inch gravity sewer in Imperial Highway, east side of Brea Creek Channel because per the City's Sewer GIS, the 6-inch sewer inverts are higher than at the siphon. The only way to divert the flow would be to pump the flow, which is not desirable due to the capital cost to construct a new lift station and the cost to operate and maintain the lift station in the future.

#### 4-5.2 Siphon S-2

Siphon S-2 is a single barrel 15-inch siphon that crosses Brea Creek Channel from the west to the east. It is located south of Imperial Highway and east of the Arovista Park baseball fields. This siphon and its upstream and downstream sewers have been reconstructed over time. The known history of the sewers in the area are as follows:

- 1958: 10-inch siphon constructed to replace original 10-inch siphon (City Plan A04-701-1-A)
- 1978: 15-inch siphon constructed to replace the former 10-inch siphon and upstream sewers upsized to 15-inch (City Plan 1090)
- 1989: Plans for two 18-inch barrel siphons were developed to replace the 15-inch single barrel siphon, however this facility was never constructed (City Plan 2042)
- 1990: Downstream sewers upsized to 27-inch (City Plan 1141)
- 2008: Upstream sewers upsized to 24-inch (City Plan 4038)

During the January 26, 2021 facility site visit, City staff stated that there has been a history of complaints from nearby residents regarding sewage backups. The sewers and manholes upstream of Siphon S-2 are very shallow and consistently fill up with debris. If an overflow were to occur, the sewage could potentially spill into the adjacent Brea Creek Channel. As a result of the complaints and the build-up of debris, the City hires a contractor quarterly to vacuum out the debris from the upstream sewers and manholes.

The siphon itself has not been cleaned due to the difficulty in isolating the siphon. Bypass piping across Brea Creek Channel is necessary. Outside contractors have provided very high cost estimates to perform the siphon cleaning, which includes the contractor's recommendation to construct a temporary bypass line using fused HDPE pipe that would lay across a nearby pedestrian footbridge. Sewage flow would be conveyed from a manhole upstream of the siphon to a manhole downstream of the siphon while the siphon itself is being flushed.

See Section 7-3 for capacity analysis results for Siphon S-2 and improvement recommendations.

### 4-6 Lift Stations

The City of Brea currently owns and operates three (3) sewer lift stations as shown on Figure 4-1. Table 4-4 provides a summary of the City's sewer lift stations. The former Carbon Canyon Lift Station and its associated force main, which used to lie within the City's service area but were owned and operated by OCSD, were eliminated by OCSD with the construction of a new gravity system.

Field investigations of the three lift stations were conducted on January 26, 2021. The following subsections describe each of the existing sewer lift stations in detail.

**Table 4-4  
Sewer Lift Station Summary**

Name	Pump Type	Number of Pumps, Manufacturer, Type	Rated Conditions	Motor HP	Year Constructed	Wet Well Dimensions	Force Main			Existing Condition <sup>1</sup>			Near-Term Future Condition <sup>2</sup>			Future Condition <sup>3</sup>		
							Size (in)	Material	Length (ft)	ADWF <sup>4</sup> (MGD)	PDWF <sup>5</sup> (MGD)	PWWF <sup>6</sup> (MGD)	ADWF <sup>4</sup> (MGD)	PDWF <sup>5</sup> (MGD)	PWWF <sup>6</sup> (MGD)	ADWF <sup>4</sup> (MGD)	PDWF <sup>5</sup> (MGD)	PWWF <sup>6</sup> (MGD)
Briarwood	Submersible	(2) Goulds WS2012D4	205 gpm @ 25 ft TDH 1750 RPM	2	1959	5' Dia x 13.8'H	4"	CI	125	0.0051	0.0139	0.0173	0.0051	0.0139	0.01735	0.0051	0.0139	0.0173
Brea Creek <sup>7</sup>	Submersible	(2) Fairbanks Morse 6" 5433MV	1400 gpm @ 24 ft TDH 1175 RPM	20	2005	8'W x 10'L x 32.2'H	10"	DIP	29	0.0000	0.0000	0.4453	0.0000	0.1102	0.5649	0.3358	1.7225	2.5804
	Sump	(1) ESSCO 4x12xTF	150 gpm @ 24 ft TDH 1170 RPM	5														
La Floresta	Submersible	(2) ESSCO 4x12TF	350 gpm @ 75 ft TDH 1750 RPM	20	2011	8'W x 8'L x 28.3'H	6"	DIP	2,551	0.0859	0.1857	0.2321	0.1915	0.3883	0.48542	0.1915	0.3883	0.4854

<sup>1</sup> "Existing Condition" model scenario is based on existing sewage flows

<sup>2</sup> "Near-Term Future Condition" model scenario includes the sewage flows from existing customers and the near-term future developments

<sup>3</sup> "Future Condition" modeling scenario includes the sewage from the existing customers, the near-term future developments, and the future SOI and Carbon Canyon developments

<sup>4</sup> ADWF = Average Dry Weather Flow

<sup>5</sup> PDWF = Peak Dry Weather Flow

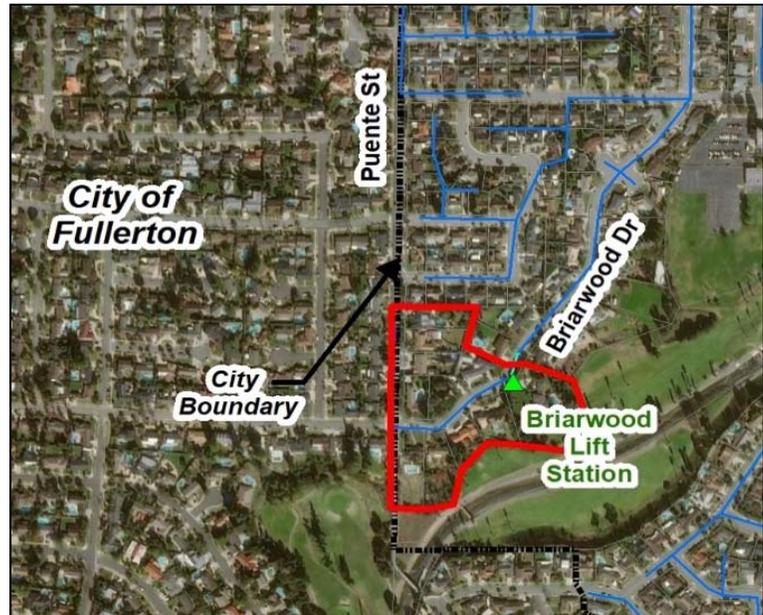
<sup>6</sup> PWWF = Peak Wet Weather Flow

<sup>7</sup> Flows at the Brea Creek Lift Station are dependent on the upstream overflow manhole.

**4-6.1 Briarwood Lift Station**

**General**

Briarwood Lift Station is located on Briarwood Drive in the southwest corner of the City. The Briarwood system is shown on Figure 4-5. It is a submersible lift station that serves 11 residential homes. Three (3) homes are located on the east side of South Puente Street, north of Briarwood Drive. Eight (8) homes are located along Briarwood Drive, east of South Puente Street. The Briarwood Lift Station was constructed in 1959, when the residential development and upstream gravity sewers were constructed.



**Figure 4-5: Briarwood Lift Station Service Area**

**Flows**

As shown in Table 4-4, the existing and future PWWF is estimated as 0.0173 MGD (12 gpm).

**Influent Sewer**

An 8-inch influent sewer enters the wet well from the west.

**Wet Well**

The wet well is a 5-foot diameter sewer manhole.

The sewage enters the wet well through an 8-inch VCP gravity sewer and is discharged through a 4-inch diameter cast iron force main.

**Pumps**

The lift station has one duty and one standby pump (Photograph 4-1). As shown in Table 4-5, the submersible pumps are Goulds W S2012D4 with 205 gpm capacity, based on the Goulds WS D4 Technical Brochure. Photograph 4-1 illustrates the pumps within the wet well.

With existing and future PWWF of 12 gpm, the existing pumps have sufficient capacity to convey the maximum anticipated flows.

**Force Main**

The 4-inch force main extends approximately 125 feet north along Briarwood Drive, to discharge manhole FB3513, where an 8-inch gravity sewer conveys the sewage north. The force main velocity is 6.4 ft/s which is just over the recommended criteria of 3 ft/s to 5 ft/s. Future pump selection shall take into consideration the force main pipe velocity minimum diameter criteria.

**Lift Station Equipment**

The wet well includes transducers and float switches to monitor the wet well levels.

**Table 4-5  
Briarwood Lift Station Summary**

Duty Pump	
Model	Goulds WS2012D4
Rated Flow (gpm)	205
Rated Head (feet)	25
Rotational Speed (rpm)	1750
HP	2

The meter enclosure panel is located approximately 90-feet northeast of the manhole enclosure. The meter enclosure also contains a phone dialer to alert City staff of any break-ins or equipment failure. The Briarwood Lift Station has a control panel and wet well with a smart lock system (Photograph 4-2).



**Photograph 4-1**  
Briarwood Lift Station Wet Well



**Photograph 4-2**  
Briarwood Lift Station Electrical Panel

**Deficiencies**

Constructed in 1959, the Briarwood Lift Station is over 62 years old, and has reached the end of its useful life, per the criteria included in Table 3-5.

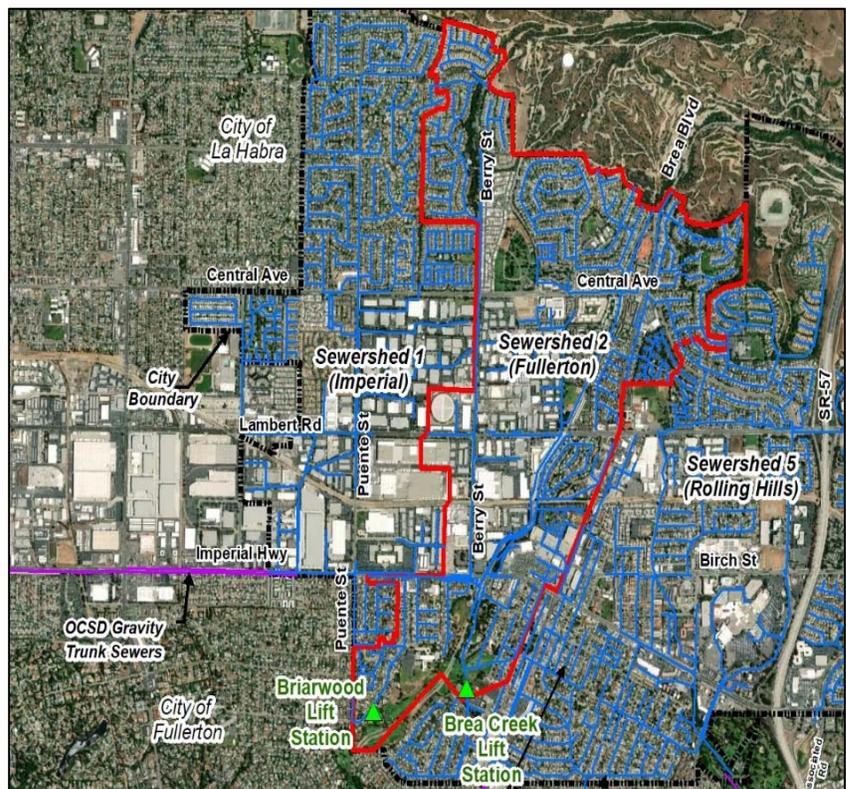
**Recommended Improvements**

It is recommended that the existing lift station be replaced and designed to meet all criteria included in Section 3-8.

**4-6.2 Brea Creek Lift Station**

**General**

The Brea Creek Lift Station (referred to as Arovista Park Pump Station in the 2005 Sewer Master Plan) is located on the Brea Creek Golf Course, northwest of Fir Street and the Mulberry Avenue extension. The Brea Creek Lift Station tributary area is illustrated on Figure 4-6. A detail of the lift station is provided on



**Figure 4-6: Brea Creek Lift Station Service Area**



## Flows

The results of the existing system hydraulic model analysis shows that the lift station does not operate during the existing average dry weather flow (ADWF) and peak dry weather flow (PDWF) conditions. The sewage is anticipated to backup into the wet well during the peak wet weather flow (PWWF) condition, when the influent flowrate is estimated to be 0.4453 MGD (309 gpm). The lift station remains inactive for a majority of the time, and the City diverts flow to the lift station on a monthly maintenance schedule to prevent any sewage from becoming septic.

The anticipated PWWF at the lift station will be 0.5649 MGD (392 gpm), if all known near-term developments are built out, as discussed in Section 5-1. The PWWF is estimated to be 2.5804 MGD (1,792 gpm), if the sphere of influence, north of the City is also developed as discussed in Section 5-2.

## Collection System

It should be noted that the upstream sewer system includes the existing 15-inch siphon (Siphon S-2), discussed in Section 4-5.2. From the siphon, a 27-inch gravity sewer conveys the tributary flow to the overflow manhole.

## Overflow Manhole

At Manhole FB56, the sewage will typically flow to the eastern 15-inch sewer, with upstream invert elevation 314.94 feet. The sewage will overflow to the 15-inch pipe that extends to the Brea Creek Lift Station wet well, when the depth of flow at Manhole FB56 exceeds 316.16 feet. Basically, the eastern 15-inch sewer has to flow full before sewage will overflow to the lift station wet well. The profile of the overflow manhole and influent sewer to the wet well is shown on Figure 4-8.

## Wet Well

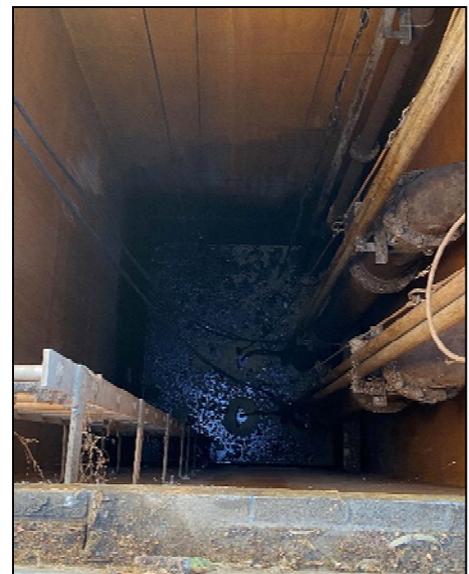
The submersible pumps are located in an 8-foot wide by 10-foot long, rectangular epoxy urethane lined concrete wet well that is 32.2-foot deep. As shown on Photograph 4-3, access is through a stainless steel ladder.

The lift station has a sonic transducer and a backup float switch to identify the high wet well levels. The lead pump is set to start at wet well level of 5.5 feet and stop at 2.0 feet. The lag pump is set to start at wet well level of 6.0 feet and stop at 2.0 feet. The high level alarm is set at wet well level 6.5 feet.

The lift station has 2,095 gallons of operational storage, with a 3.5-foot operating band. The 1,400 gpm capacity pumps would cycle a maximum of 5 times per hour if they are alternated, and the tributary flow were 700 gpm (half the capacity of one pump), which satisfies the pump cycling criteria for a pumps with 20 HP motors.

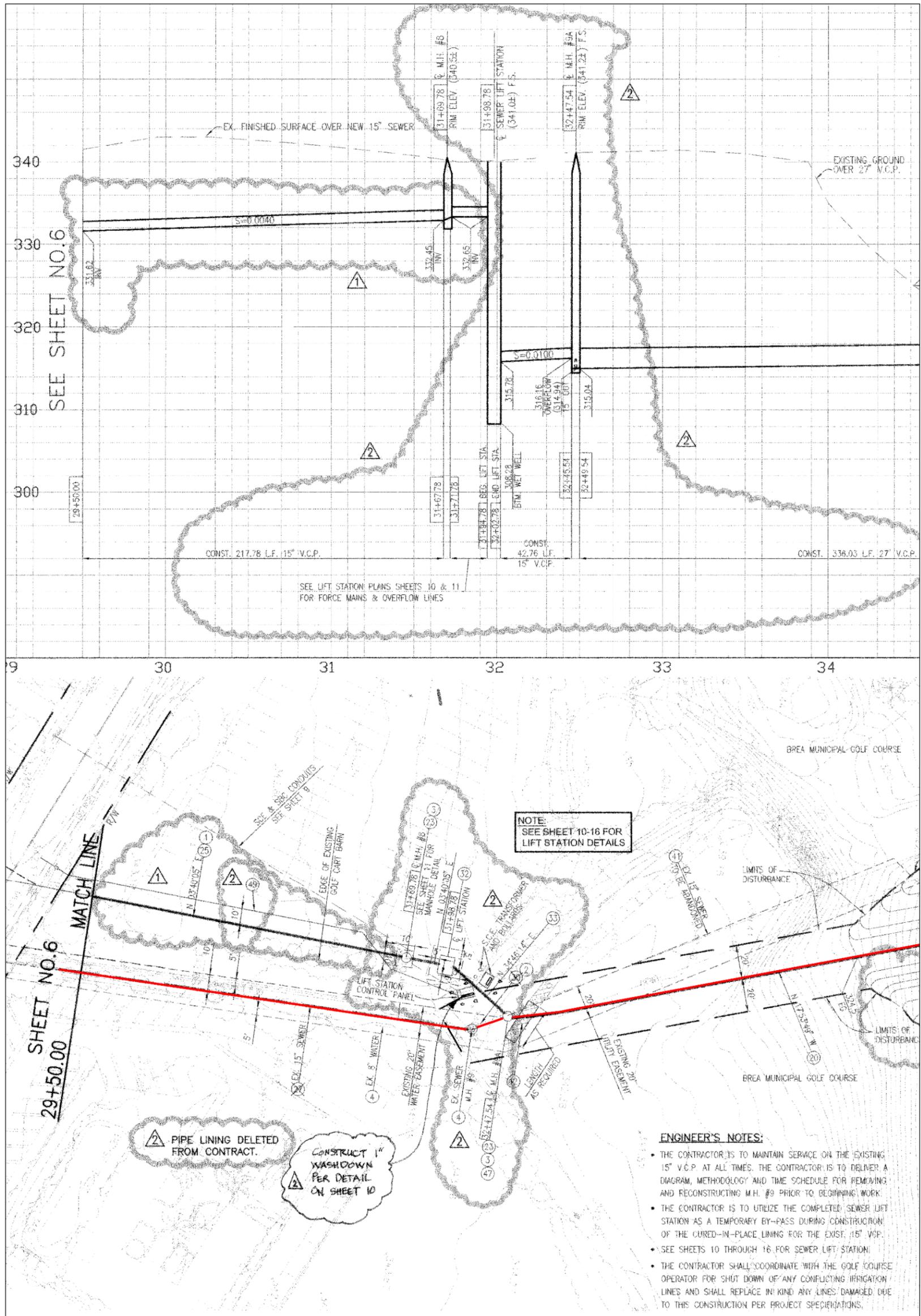
## Pumps

There are two slide rail submersible angle flow pumps and one torque flow sump pump. As shown in Table 4-6, the Brea Creek Lift station includes two (2) Fairbanks Morse submersible duty pumps with 1,400 gpm capacity.



**Photograph 4-3**  
**Brea Creek Lift Station**  
**Wet Well**

**Figure 4-8**  
**Brea Creek Lift Station Overflow Manhole and Influent Sewer Profile**



The duty pumps have capacity of 1,400 gpm, each. They are capable of conveying the existing PWWF (0.4453 MGD, 309 gpm) and near-term future PWWF (0.5649 MGD, 392 gpm), which includes the near-term planned future developments. The future PWWF (2.5804 MGD, 1,792 gpm) when the future flows from the SOI are included, is expected to be greater than the existing 1,400 gpm pump capacity. The necessary future pump capacity at the Brea Creek Lift Station should be re-evaluated as more details for the SOI is developed. At that time, a flow monitoring study should be conducted to evaluate the tributary flows to diversion manhole FB56. The duty pump should be capable of conveying the full PWWF for all proposed future conditions.

**Discharge Pipe/Force Main**

The discharge pipe/ force main consists of two parallel 10-inch diameter ductile iron pipe (DIP) that extends from the west side of the wet well to the 5-foot discharge manhole. Each pump is connected to a separate 10-inch discharge pipe/force main.

The sump pump also extends from the wet well to the same discharge manhole. There is also a 10-inch DIP overflow pipe that extends from the wet well to the discharge manhole, that will convey sewage from the wet well to the discharge manhole, when the level in the wet well increases beyond elevation 332.65 feet, as shown on Figure 4-8.

The force main velocity is 5.7 ft/s which is just over the recommended criteria of 3 ft/s to 5 ft/s. Since this lift station is inactive for the majority of the time, no recommendations are required for the minor velocity deficiency. During the field investigation the ductile iron discharge piping appeared to be in good condition. The City should reevaluate the discharge pipe velocity and determine if the existing 10-inch pipe should be replaced with 12-inch pipe, when the pipes reach the end of their useful lives. At that time, the pipes should be replaced with stainless steel.

**Disposal System**

Sewage is pumped from the wet well with suction elevation 309.08 feet to the discharge manhole with elevation of 332.65 feet, as shown on Figure 4-8.

From the discharge manhole, the pumped flow is conveyed south through a 15-inch VCP gravity system. The gravity sewers extend south along Mulberry Avenue, east on Acacia Street, south on Walnut Avenue, and East on Juniper Street to the OCSD 24-inch Fullerton-Brea Interceptor that begin at the intersection of Brea Blvd and Juniper Street.

**Table 4-6  
Brea Creek Lift Station Summary**

<b>Duty Pump</b>	
Model	Fairbanks Morse 6" 5433MV
Rated Flow (gpm)	1400
Rated Head (feet)	24
Rotational Speed (rpm)	1175
HP	20
Start Level (feet)	313.78
Stop Level (feet)	310.28
<b>Lag Pump</b>	
Model	Fairbanks Morse 6" 5433MV
Rated Flow (gpm)	1400
Rated Head (feet)	24
Rotational Speed (rpm)	1175
HP	20
Start Level (feet)	314.28
Stop Level (feet)	310.28
<b>Sump Pump</b>	
Model	ESSCO 4x12 TF
Rated Flow (gpm)	150
Rated Head (feet)	24
Rotational Speed (rpm)	1170
HP	5
Start Level (feet)	310.28
Stop Level (feet)	307.78

## Lift Station Equipment

The lift station includes transducers and float switches, which are located within the wet well.

The MCC Panel, meter and main disconnect, and manual transfer switch are contained in the 80-inch wide by 60-inch high by 18-inch deep enclosure, which is located to the north of the wet well. The Southern California Edison (SCE) transformer is located north of this enclosure, as shown on Photograph 4-4.

The MCC Panel is 36-inch wide by 48-inch high by 10-inch deep, and it is rated for 100A, 480V, 3 phase, service. The MCC displays and controls include the following:

- |                          |                                |
|--------------------------|--------------------------------|
| 1. High Level Alarm      | 10. Motor Circuit Breaker      |
| 2. High Level Bell       | 11. Elapsed Time Meter         |
| 3. Emergency High Alarm  | 12. Motor Run Light            |
| 4. High Level Reset      | 13. Hand Off Auto (HOA) Switch |
| 5. Emergency Level Reset | 14. Seal Fail Light            |
| 6. Start Delay By-Pass   | 15. Overload Reset             |
| 7. Alarm Silence         | 16. Utility Receptacle         |
| 8. Light Test            | 17. Sonic Controller           |
| 9. Seal Fail Test        |                                |

The lift station also has a portable generator connection and a manual transfer switch located next to the SCE Transformer and MCC panel

The lift station is equipped with an automatic dialer to transmit pump seal fail and high level alarm conditions to City staff. There is also a portable generator connection and wash-down assembly, located on the south side of the panel enclosure as shown on Photograph 4-5.



**Photograph 4-4**  
**Brea Creek Lift Station**  
**SCE Transformer (left)**  
**MCC Panel (right)**



**Photograph 4-5**  
**Brea Creek Lift Station**  
**Portable Generator Connection**  
**and Washdown Assembly**

## Recommended Improvements

It is recommended that the capacity of the Brea Creek Lift Station be reevaluated when more details regarding the development of the SOI become available.

The City's operation and maintenance staff indicated that this lift station does not typically run during normal system operations. The City diverts the sewage to the lift station monthly, to allow the pumps to run and prevent the sewage from turning septic. It is recommended that the City continue this operation and maintenance routine.

### **4-6.3 La Floresta Lift Station**

#### General

The La Floresta Lift Station is located outside Oakmont of Capriana, a residential retirement community, located at La Floresta Drive and Imperial Highway. The lift station is accessible from Imperial Highway. The La Floresta Lift Station was constructed in 2011. The service area for La Floresta is shown on Figure 4-9, and the profile is shown on Figure 4-10.

#### Flows

The existing sewage flows into the lift station are generated from the La Floresta residential communities that are generally bound by Rose Drive to the north, Valencia Avenue to the west, La Tienda and Imperial Highway to the south, and La Campana and Rose Drive to the east.



**Figure 4-9: La Floresta Lift Station Service Area**

The existing sewer loading was estimated from the lift station monthly maintenance meter records. The existing PWWF was estimated to be 0.2321 MGD (161 gpm), as shown in Table 4-4.

While the La Floresta community is generally developed, there were some vacancies and/or buildings that were under construction, which affected the water meter billing data and historical pump meter data that was used to develop the existing sewage generation estimate. For this reason, the future model loading was based on sewage flow estimates developed from unit flow factors and the planned residential buildout that was included in the La Floresta Development Proposal, dated December 19, 2005. The future system PWWF is estimated at 0.4854 MGD (337 gpm). There are currently no plans to connect any future developments to the La Floresta Pump Station collection gravity sewers, so the future tributary flows are expected to be the same in the near-term future and in the extended future when the SOI and Carbon Canyon areas are developed.



**Influent Sewers**

There is an emergency storage vault located approximately 24 feet upstream of the wet well, with two manhole access points. The 12-inch gravity sewer enters the vault at elevation 360.37 feet. The storage vault is 20’ long by 8’ wide by 9’4” high, with a total volume of 1,493 CF (11,170 gallons).

A 12-inch gravity sewer extends from the emergency storage vault to the wet well, with the discharge elevation 359.50 feet.

**Wet Well**

The pumps are located within an 8’ wide by 8’ long by 28.3’ high precast concrete wet well with T-lock liner. The access door to the wet well enclosure is a 4’ x 6’ double leaf aluminum, spring assisted, with fall protection grating (Photograph 4-6). The access ladder is stainless steel with a LadderUP Safety Post to provide easy and safe access to the wet well.

The lift station has a sonic transducer, a backup float switch at high and low levels, and a telephone auto alarm dialer to transmit alarm to City’s operation and maintenance staff.

The lead and lag pumps are set to start at wet well levels 5.23-feet and 6.23-feet, respectively. Both pumps turn off at wet well level 3.40-feet. The high-high level, high level, and low level alarms are set at wet well levels 6.23-feet, 5.73-feet, and 2.90-feet respectively.

The lift station has 800 gallons of operational storage, with a 1.83-foot operating band. The 350 gpm capacity pumps would cycle a maximum of 4 times per hour if they are alternated, and the tributary flow were 175 gpm (half the capacity of one pump), which satisfies the pump cycling criteria for a pumps with 20 HP motors.

**Pumps**

There are two (2) submersible vortex pumps in a lead-lag configuration. The La Floresta Lift Station includes two (2) ESSCO 4x12TF pumps with 350 gpm capacity, as shown in Table 4-7,

The lift station is capable of conveying PWWF for the existing and future conditions, which are 161 gpm (0.2321 MGD) and 337 gpm (0.4854 MGD), respectively. The future flows were based on sewage flow estimates developed from flow factors and the planned residential buildout. It is recommended that



**Photograph 4-6  
La Floresta Lift Station  
Wet Well**

**Table 4-7  
La Floresta Lift Station Summary**

<b>Duty Pump</b>	
Model	ESSCO 4x12TF
Rated Flow (gpm)	350
Rated Head (feet)	75
Rotational Speed (rpm)	1750
HP	20
Start Level (feet)	359.50
Stop Level (feet)	357.67
<b>Lag Pump</b>	
Model	ESSCO 4x12TF
Rated Flow (gpm)	350
Rated Head (feet)	75
Rotational Speed (rpm)	1750
HP	20
Start Level (feet)	360.50
Stop Level (feet)	357.67

the City evaluate the sewage generation once the La Floresta development is fully built out and fully occupied. The lift station capacity should be reviewed to ensure that it may convey the full PWWF.

### Force Main

The La Floresta Lift Station tributary area is illustrated on Figure 4-9. Sewage is pumped from the wet well, through a 6-inch DIP force main that extends north on La Campana Drive, east on Mercado Drive, north on Cameo Way, and east of Glorietta Place to Rose Drive. The force main discharges into the OCSD 24-inch Carbon Canyon Interceptor.

### Lift Station Equipment

The pumps are located in the precast concrete wet well.

The swing check valves, eccentric plug valves, air injection and pressure transducer are located in a below ground reinforced concrete valve vault located to the northeast of the wet well. The precast concrete valve vault is 5' wide by 8.5' long by 80" high. The electromagnetic flow meter, eccentric plug valve, air injection and pressure transducer are located in a below ground 4' wide by 6.5' long by 6.7' high reinforced concrete meter vault north east of the valve vault.

The MCC panel and air compressor are located east of the wet well enclosure underneath a metal canopy, which provides weather protection and is equipped with lighting (Photograph 4-7). The MCC enclosure contains the programmable logic controller, telemetry level control, the pump starter, load center panel, 15KVA transformer, and an automatic transfer switch. The MCC is rated for 480V, 3 phase, service. The enclosure is 12.5-foot wide by 7.5-foot high NEMA 3R galvanized and epoxy painted steel enclosure.

The SCE service transformer and the electrical service meter are located outside the automatic gate.

Panel A on the MCC contains a color touch screen operator interface, which displays the wet well water level, discharge pressure, flow rate, and identifies the active pump. The 5 Digit LCD Process Indicator (Analog Output) is located to the left of the operator interface, which display the level, flow, and pressure levels in feet, gpm, and psi. The MCC also contains the following controls, indicator lights, or switches on the inner door:

1. Hand Off Auto (HOA) Switch for pumps and compressor
2. Pump Start/Fail Indicator
3. Seal Failure Indicator
4. Low Level Alarms
5. High Level Alarms



**Photograph 4-7**  
**La Floresta Lift Station**  
**MCC Panel**



**Photograph 4-8**  
**La Floresta Lift Station**  
**Backup Generator**

6. Float Alarm Reset
7. Sonic Controller
8. Seal Fail Light/Test
9. Temp Fail Indicator
10. Float Alarm
11. Soft Starter Remote Keypad Controller
12. Alarm Reset
13. Telephone Auto Alarm Dialer
14. Automatic Transfer Switch Control Panel
15. Generator Selector Switch
16. Transformer Circuit Breakers
17. Door Safety Switch

The lift station also has a 198 gallon bladder type surge vessel and an 80kW standby diesel engine generator (Photograph 4-8.)

#### **Recommended Improvements**

The City currently contracts its monthly, bi-annual, and annual inspection and operation and maintenance activity for the La Floresta Lift Station. It is recommended that the City continue this operation and maintenance routine.

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## SECTION 5 FUTURE SYSTEM

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### 5-1 Near-Term Future Developments

The future land uses are generally based upon specific plans, developer studies, and the City's General Plan, dated August 19, 2003. Meetings with City staff were conducted to identify the future development and redevelopment areas.

Details of near-term future developments are shown in Table 5-1. The locations of the future developments are shown on Figure 5-1.

Future sewage loads were estimated from land use data and corresponding unit flow factors shown in Table 3-2. If available, specific data regarding the proposed dwelling units, gross building floor area, and floor to area ratios was used with its corresponding unit flow factor. If the specific data was not available, the future loads were estimated using the known acreage and its corresponding unit flow factor assuming the maximum floor area ratio or dwelling unit density.

The "Near-Term Future Condition" (future condition without sphere of influence or Carbon Canyon future developments) hydraulic model scenario includes the existing and near-term future development loads.

As plans for developments are solidified or as existing plans are updated, the future sewer loads and their effects on the capacity within the downstream sewers should be reevaluated.

### 5-2 Sphere of Influence and Carbon Canyon Future Development

The majority of the undeveloped land that could be developed in the future and contribute sewage to the existing system is located within the Sphere of Influence (SOI) outside the City boundary and within the Carbon Canyon Sewershed. As shown on Figure 5-1, the SOI extends from the City's northern boundary to the Los Angeles County boundary to the north and the San Bernardino County boundary and City of Yorba Linda boundary to the east and southeast. The City may expand to incorporate the SOI by annexation; however, there are no near-term plans for development.

The majority of the future development within the SOI and the Carbon Canyon Sewershed is Hillside Residential (H-R), as identified in the City's current General Plan. It is assumed that the development will be based on the maximum density of 2.2 dwelling units per acre. Estimates of future development and associated sewage loads within the Sphere of Influence and the Carbon Canyon Sewershed are shown in Table 5-2. The Olinda Landfill is located within the SOI, but there are no plans for development on this property.

The "Future Condition" hydraulic model scenario includes the existing and near-term future development loads, as well as the sewage loads for the future SOI areas and the future Carbon Canyon developments.

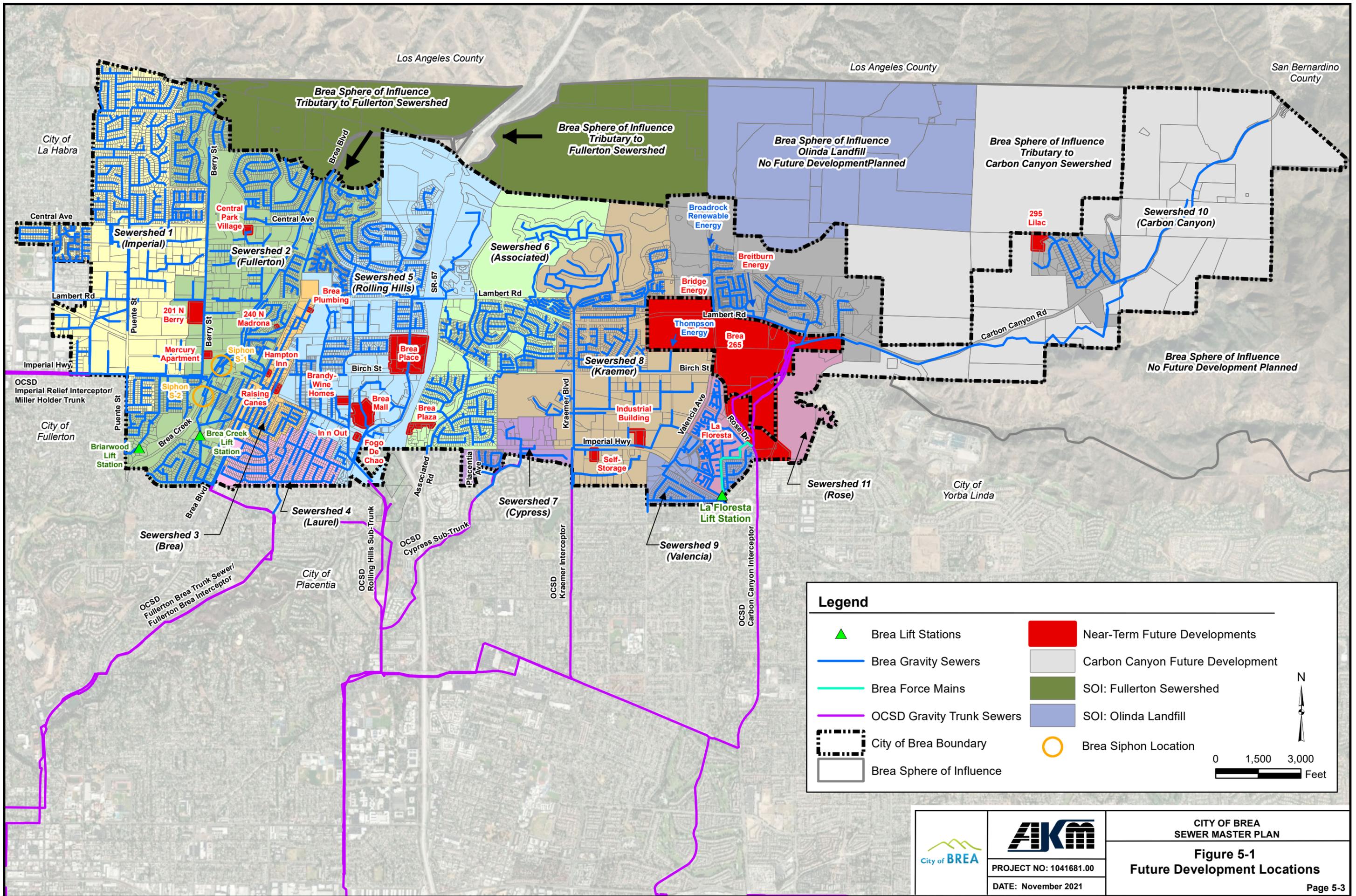
It is currently anticipated that the sewage generated by the future developments in the SOI area, west of the Olinda Landfill, will be tributary to the sewer in Brea Boulevard (Fullerton Sewershed). The sewage generated by the future developments, east of the Olinda Landfill, will be tributary to the sewer in Carbon Canyon Road (Carbon Canyon Sewershed).

As plans for developments are solidified or as existing plans are updated, the future sewer loads and their effects on the capacity of the downstream sewers should be reevaluated.

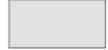
### 5-3 Future Sewage Flows

The InfoSewer (Innovyze) hydraulic modeling program was utilized to develop the existing and future hydraulic model scenarios. Water use data and sewer return factors were used to develop the existing average sewer loads, while unit flow factors and land use data was used to develop the future average sewer loads. The peaking formula, discussed in Section 3-5, was used to convert average flows to peak dry weather flows. The calculated sewage flows of each sewershed is shown in Table 5-3.

The total existing ADWF is estimated at 4.8845 MGD. The total future ADWF with near-term developments is estimated at 5.9222 MGD. The total future ADWF with the near-term developments and the sphere of influence and Carbon Canyon developments is estimated to increase to 8.7407 MGD.



**Legend**

	Brea Lift Stations		Near-Term Future Developments
	Brea Gravity Sewers		Carbon Canyon Future Development
	Brea Force Mains		SOI: Fullerton Sewershed
	OCSD Gravity Trunk Sewers		SOI: Olinda Landfill
	City of Brea Boundary		Brea Siphon Location
	Brea Sphere of Influence		


**Table 5-1  
Future Developments**

Status	Development Name	Location	Acres	Description	Development Information					Sewer Load (MGD) <sup>1</sup>
					Zoning Type	Value	Units	Unit Flow Factor	Units	
Under Construction	Central Park Village	400 West Central Ave	4.61		M-P	4.61	AC	4,800	gpd/AC	0.0221
	La Floresta	East of Valencia Avenue, north of Imperial Highway	6.80	PA1	R-3	99	DU	210	gpd/DU	0.0208
			13.00	PA2	R-1	65	DU	270	gpd/DU	0.0176
			12.10	PA3	R-2	107	DU	248	gpd/DU	0.0265
			4.30	PA4A	R-3	56	DU	210	gpd/DU	0.0118
			4.60	PA6	R-2	80	DU	248	gpd/DU	0.0198
			10.00	PA7	R-3	150	DU	210	gpd/DU	0.0315
			16.20	PA8	R-1	96	DU	270	gpd/DU	0.0259
			7.00	PA9	R-3	100	DU	210	gpd/DU	0.0210
			21.00	PA10	R-1	95	DU	270	gpd/DU	0.0257
Brea Place			NW corner of State College Boulevard and Birch Street	5.79		R-3	653	DU	210	gpd/DU
		Hotel			146	Rooms	173.25	gpd/room		
		C-P			18.94	TSF	73.5	gpd/TSF		
Brea Plumbing	340 North Orange Ave	0.25		M-2	0.25	AC	4,800	gpd/AC	0.0012	
295 Lilac Lane	295 Lilac Lane	5.24		R-1 <sup>2</sup>	5.24	AC	1,620	gpd/AC	0.0085	
Approved for Entitlement	201 North Berry Street	201 North Berry Street	7.92		M-2	7.92	AC	2,400	gpd/AC	0.0190
	Brandywine Homes	251 Randolph Avenue	1.92		R-3	82	DU	210	gpd/DU	0.0172
	Self-Storage	2700 East Imperial Hwy	1.97		M-1	1.97	AC	2,400	gpd/AC	0.0047
	Industrial Building	3075 East Imperial Hwy	3.66		M-1	3.66	AC	2,400	gpd/AC	0.0088
	240 North Madrona Avenue	240 North Madrona Avenue	0.18		R-3	4	DU	210	gpd/DU	0.0008
	Brea Imperial Center (In-N-Out)	2500 East Imperial Highway	0.26		Restaurant <sup>2</sup>	16.988	TSF	1,575	gpd/TSF	0.0268
	Mercury Apartment	2110 West Mercury Lane	1.01		R-3	120	DU	210	gpd/DU	0.0252
Under Entitlement Review	Raising Canes	255 East Imperial Highway	0.81		Restaurant <sup>2</sup>	3.267	TSF	1,575	gpd/TSF	0.0051
	Brea Imperial Center - Fogo De Chao	State College Boulevard and Imperial Highway	0.26		Restaurant <sup>2</sup>	11.326	TSF	1,575	gpd/TSF	0.0178
	Brea Mall Expansion <sup>3</sup>	1065 Brea Mall	2.28		R-3	312	DU	-	-	0.1860
					G-C	311.62	TSF	-	-	
	Brea 265 <sup>4</sup>	East and west of Valencia Avenue, south of Lamber Road/ Carbon Canyon Road	265.00	Carbon Canyon Sewershed	R-3	76	DU	210	gpd/DU	0.0160
					parks	0.6194	AC	10.5	GPD/AC	
				Kraemer Sewershed	R-2	273	DU	248	GPD/AC	0.1291
					parks	2.8395	AC	10.5	GPD/AC	
				Valencia Sewershed	R-1	301	DU	270	gpd/DU	0.1146
					parks	14.641	AC	10.5	GPD/AC	
Hampton Inn (Tower Records Building)	220 South Brea Boulevard	0.38		C-G	116	Rooms	173.25	gpd/room	0.0201	
Brea Plaza	1639 E. Imperial Hwy	15.49		R-3	189	DU	210	gpd/DU	0.0413	
				C-P	21.355	TSF	73.5	gpd/TSF		
Breitburn Energy <sup>5</sup>	Carbon Canyon Road, east of Valencia Avenue	-		-	-	-	-	-	0.0240	
Bridge Energy <sup>5</sup>	Lambert Rd and Valencia Ave	-		-	-	-	-	-	0.1152	
<b>Total 412.03</b>										<b>1.1678</b>

<sup>1</sup> Sewer load is the average dry weather flow generated by future land use type

<sup>2</sup> Maximum residential density or maximum FAR was used to develop the UFF

<sup>3</sup> Future sewer load for the Brea Mall Expansion is based on developer study completed in 2020

<sup>4</sup> Future sewer load includes the Brea 265 development and the existing loads for Thompson Energy

<sup>5</sup> Breitburn and Bridge Energy sewer loads based upon maximum discharge in sewer connection agreement  
Brietburn Energy was included in the existing model scenario

**Table 5-2  
SOI Development and Carbon Canyon Future Development**

Development Area	Sewershed	Acres	Model Loading Manhole ID	Development Information					Sewer Load (MGD) <sup>1</sup>
				Zoning Type	Acres	Units	Unit Flow Factor (MGD)	Units	
Sphere of Influence	Fullerton Sewershed	1,203	FA0101	RH <sup>2</sup>	1,203	AC	847	gpd/AC	1.0190
Carbon Canyon Future Development (Existing Boundary and Sphere of Influence)	Carbon Canyon Sewershed	265	CC01	RH <sup>2</sup>	265	AC	847	gpd/AC	0.2240
		133	CC05	RH <sup>2</sup>	124	AC	847	gpd/AC	0.1052
				C-RC	9	AC	3.15	gpd/AC	
		1,174	CC13	RH <sup>2</sup>	1,145	AC	847	gpd/AC	0.9702
				C-RC	24	AC	3.15	gpd/AC	
				P/R/OS-NOS	5	AC	10.5	gpd/AC	
		13	CC23	RH <sup>2</sup>	13	AC	847	gpd/AC	0.0113
		63	CC28	RH <sup>2</sup>	63	AC	847	gpd/AC	0.0537
		314	CC41	RH <sup>2</sup>	164	AC	847	gpd/AC	0.1404
				P/R/OS-NOS	150	AC	10.5	gpd/AC	
449	CC53	RH <sup>2</sup>	347	AC	847	gpd/AC	0.2947		
		P/R/OS-NOS	102	AC	10.5	gpd/AC			
<b>Total</b>		<b>3,614</b>							<b>2.8185</b>

<sup>1</sup> Sewer load is the average dry weather flow generated by future land use type

<sup>2</sup> Maximum residential density or maximum FAR was used to develop the UFF

**Table 5-3  
Future Sewage Flows by Sewershed**

No.	Designation	Sewershed Name	Area (Ac)	Existing Condition <sup>1</sup>		Near-Term Future Condition <sup>2</sup>		Future Condition <sup>3</sup>	
				Average Dry Weather Flow, ADWF (MGD)	Peak Dry Weather Flow, PDWF (MGD) <sup>4</sup>	Average Dry Weather Flow, ADWF (MGD)	Peak Dry Weather Flow, PDWF (MGD) <sup>4</sup>	Average Dry Weather Flow, ADWF (MGD)	Peak Dry Weather Flow, PDWF (MGD) <sup>4</sup>
1	I	Imperial	956	0.6684	1.2267	0.6684	1.2267	0.6684	1.2267
2	F	Fullerton	1,213	1.0542	1.8654	1.1128	1.9606	2.1317	3.5655
3	B	Brea	146	0.1805	0.3679	0.2054	0.4143	0.2054	0.4143
4	L	Laurel	159	0.1431	0.2971	0.1431	0.2971	0.1431	0.2971
5	R	Rolling Hills	1,110	0.8595	1.5460	1.2629	2.2026	1.2629	2.2026
6	A	Associated	723	0.4747	0.8953	0.5159	0.9667	0.5159	0.9667
7	C	Cypress	102	0.0859	0.1857	0.0859	0.1857	0.0859	0.1857
8	K	Kraemer <sup>5</sup>	968	0.7331	1.2463	0.8712	1.4793	0.8712	1.4793
9	V	Valencia	111	0.0862	0.1863	0.0979	0.2096	0.0979	0.2096
10	CC	Carbon Canyon <sup>5</sup>	2,193	0.5130	0.8159	0.6526	0.9747	2.4522	3.8925
11	RO	Rose	271	0.0859	0.1857	0.3061	0.5979	0.3061	0.5979
<b>Total</b>			<b>7,952</b>	<b>4.8845</b>	<b>-</b>	<b>5.9222</b>	<b>-</b>	<b>8.7407</b>	<b>-</b>

<sup>1</sup> "Existing Condition" model scenario is based on existing sewage flows

<sup>2</sup> "Near-Term Future Condition" model scenario includes the sewage flows from existing customers and the near-term future developments

<sup>3</sup> "Future Condition" modeling scenario includes the sewage from the existing customers, the near-term future developments, and the future SOI and Carbon Canyon developments

<sup>4</sup> PDWF is based on the ADWF that is tributary to each specific site and is not cumulative. The total PDWF for each sewershed is equal to the PDWF calculated using the peaking equation  $PDWF = 1.777 \times ADWF^{0.92}$  for peakable flows plus non-peakable or constant flows.

<sup>5</sup> Sewage loads generated by various energy facilities in the Kraemer Sewershed and Carbon Creek Sewershed are represented in the model as non-peakable flows or constant flows. These loads are discussed in detail in Section 6-3.6 and 6-3.7.

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## SECTION 6 HYDRAULIC SEWER MODEL

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### 6-1 General

To perform a detailed analysis of the sewer collection system, it is essential to create a mathematical model that is capable of simulating the operating and flow characteristics of the system. The simulations for this study were performed utilizing Innovyze InfoSewer, which is a GIS based computer program with the ability to perform steady state analyses of the flows in sanitary sewer systems. The program also manages and maintains the database that stores the sewer analysis input and output results. Manning's Equation is used for depth of flow calculations in the gravity sewer pipes.

The sewer system is modeled by entering pipe diameters, lengths, invert elevations, slopes, and pipe roughness coefficients. The sewer model includes all of the City's existing lift stations, manholes, and sewer pipes (excluding laterals, private sewers, and sewers belonging to other agencies). The model identifies points of connection to regional facilities owned and operated by the Orange County Sanitation District (OCSD) or other adjacent agency sewer systems.

The model uses the average dry weather flows and determines peak flows based upon relationships specified by the user. Pumped flows and measured flows can be entered at any manhole as a fixed flow.

At the completion of a modeling run, output data is created for viewing on the screen or for printing. Output data for pipes include average and peak flow rate, velocity, pipe capacity, and ratio of flow depth to pipe diameter (d/D).

### 6-2 Construction of Model Geometry

#### 6-2.1 Geographic Information System (GIS)

The hydraulic model geometry was based on the existing geographic information system (GIS) data of the sewer system. The sewer GIS shapefiles were updated to include the newest sewer developments that were constructed after the City's most recent sewer GIS update. For these new sewers, as-built plans were reviewed and linked to the existing pipe shapefile. The pipe inverts, lengths, and/or slopes were verified as part of the GIS update process.

The primary tool in checking the pipe data for accuracy was to compare the recorded pipe slope to the slope calculated using the recorded inverts and length of pipe. The recorded pipe slope consist of either the previous slope included in the City's existing sewer geodatabase or the pipe slope recorded from the as-built plans that were reviewed for the new development areas. Sometimes, slopes or elevation data had to be calculated when the plan did not provide all the information needed.

#### 6-2.2 Model Data

The GIS data was used to create the hydraulic model. Table 6-1 and Table 6-2 list the manhole and pipe information that was imported into the model, respectively.

There are a total of 12 outlets in the sewer model that represent connections to OCSD's regional systems or adjacent agency sewer systems.

### 6-2.3 Lift Stations

Currently the City operates three (3) lift stations: Briarwood Lift Station, Brea Creek Lift Station, and La Floresta Lift Station.

The Briarwood Lift Station is located near 636 Briarwood Drive, east of Puente Street. This small lift station serves eleven (11) residential units on the southwest side of the City. The tributary flows are transferred in the model to the discharge manhole FB3513.

The Brea Creek Lift Station is located northwest of Fir Street and the Mulberry Avenue extension, on the Brea Creek Golf Course. It was constructed in 2005 to convey sewage that overflows the 15-inch pipe at leaving manhole FB56. Its tributary area includes the majority of the Fullerton Sewershed. The tributary flows are transferred in the model to the discharge manhole FB57.

The La Floresta Lift Station was constructed in 2011 to serve the La Floresta community. The lift station is located at Imperial Highway, east of La Floresta Drive. The tributary flows are transferred in the model to discharge manhole R18, which is just upstream of the OCS D Carbon Canyon Interceptor.

### 6-2.4 Split Manholes

There are 15 split manholes (two pipes exit the manhole meaning that flow can be split in two directions) in the City's existing sewer system. Many of the tributary areas to these split manholes are small with very little flow. The split manhole locations are summarized in Table 6-3 and shown on Figure 6-1. The model was set up to split the flows based on the exiting pipe sizes and the invert elevations.

Split manhole FB56 is upstream of the Brea Creek Lift Station, which is described in Section 4-6.2. Sewage flows will typically flow to the eastern 15-inch sewer. When the sewage flows back up into manhole FB56, it will overflow to the 15-inch gravity sewer that diverts excess flow to the Brea Creek Lift Station wet well. The flows are then pumped to discharge manhole FB57 and conveyed by the gravity system south and east to the OCS D Fullerton-Brea Trunk Sewer, located at the intersection of Brea Boulevard and Juniper Street.

**Table 6-1  
Manhole Information**

Model Manhole Data	GIS Field Name	Description
ID	MH_ID	Manhole ID
DIAMETER	DIAMETER	Diameter in feet
RIM_ELEV	RIM_ELEV	Rim Elevation in feet
ELEVATION	Invert_el	Invert elevation in feet
OLD_ID	ID	Previous sewer master plan ID
COMMENT	MPCComment	Model Comments

**Table 6-2  
Pipe Information**

Model Pipe Data	GIS Field Name	Description
ID	PIPE_ID	Pipe ID
FROM_INV	FROM_INV	Upstream invert in feet
TO_INV	TO_INV	Downstream invert in feet
LENGTH	LENGTH	length in feet
DIAMETER	DIAMETER	Diameter in inches
MATERIAL	MATERIAL	Material
YR_INST	YR_INST	Date Installed
REC_SLOPE	SLOPE	Recorded Pipe Slope
OLD_ID	ID	Previous Master Plan ID

**Table 6-3  
Split Manhole Summary**

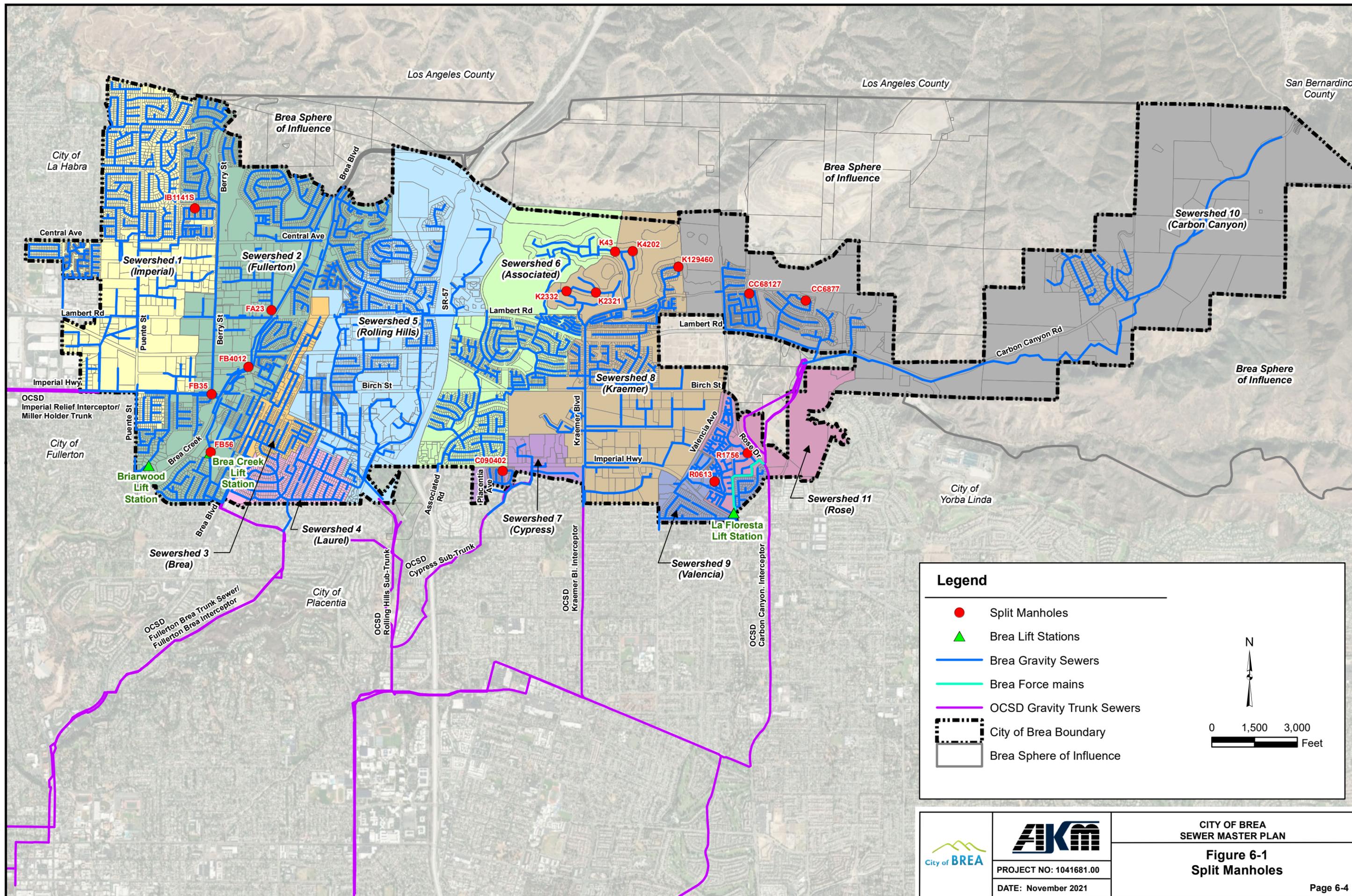
MH_ID	Location	DS Pipes	Size (in)	Comment
C090402	Studio and Legacy	C090402-C090401	8	Flows are generally evenly split
		C090402-C0910	8	
CC68127	Swallow and Morning Dove	CC68127-CC68128	8	Flows are generally evenly split
		CC68127-CC68125	8	
CC6877	Trolley and Boxcar	CC6877-CC6876	8	Flows are generally evenly split
		CC6877-CC6881	8	
FA23	Tamarack and Lambert	FA23-FA2201	10	Flows go to the east.
		FA23-FA23D	8	
FB35	Imperial and Berry	FB35-FB36	10	Flows generally to the east
		FB35-FB3544	15	
FB4012	NE of Imperial and Berry	FB4012-FA31	15	Flows generally to the west
		FB4012-FB4011	12	
FB56	North of Fir and Mulberry	FB56-FB48	15	Overflows to Brea Creek Lift Station
		FB56-WWFBPS	15	
IB1141S	Launer and Johnson	IB1141S-IB1142	8	Flows are generally evenly split
		IB1141S-IB1140	8	
K129460	Phillips, east of Rubel	K129460-K129459	8	Flows generally to the south
		K129460-K129455	8	
K2321	Temblor Ranch and Shackline	K2321-K2320	8	Flows go to the east.
		K2321-K2338	8	
K2332	Cable Canyon and Roughneck	K2332-K2345	8	Flows generally to the west
		K2332-K2331	8	
K4202	Pico Canyon and Alamitos	K4202-K3903	8	Flows generally to the south
		K4202-K4201	8	
K43	Alamitos, east of Sheperd	K43-K42	8	Flows are generally evenly split
		K43-A088711	8	
R0613	north east of la Tienda and La	R0613-R0604	8	Flows generally to the south
		R0613-R0611	8	
R1756	Terrazo and Camelia	R1756-R1755	8	Flows generally to the North
		R1756-R0527	8	

### 6-2.5 Siphons

It should be noted that the InfoSewer hydraulic model does not include a detailed hydraulic analysis of the siphons in the existing sewer system. The model calculates an average slope using the inverts at the upstream and downstream end of the siphon. The hydraulic analysis results are based upon this calculated slope.

Whenever a siphon is in need of replacement or if a new siphon is going to be designed, a detailed hydraulic analysis should be performed during the preliminary design phase of the project to size the siphon and determine the hydraulic grade lines in the adjacent portions of the system.

The existing siphon crossing Brea Creek Channel south of Imperial Highway was analyzed for this study due to the fact that the City has been experiencing local complaints and frequent build-up of debris in upstream manholes and sewers. The analysis of this siphon is discussed in Section 7-3.



**Legend**

- Split Manholes
- ▲ Brea Lift Stations
- Brea Gravity Sewers
- Brea Force mains
- OCSD Gravity Trunk Sewers
- City of Brea Boundary
- Brea Sphere of Influence

N

0 1,500 3,000 Feet

		<b>CITY OF BREA</b> <b>SEWER MASTER PLAN</b>
	PROJECT NO: 1041681.00 DATE: November 2021	<b>Figure 6-1</b> <b>Split Manholes</b>

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## 6-3 Existing System Sewer Loads

Data collection and review is essential in accurately estimating average sewage loads, estimating peak flows, and calibrating the system model. This section describes the process of developing the existing system sewer loads and distributing the loads in the hydraulic model.

### 6-3.1 Water Billing Meter Data

The water billing meter records for indoor water use (excluding irrigation usage, where water is used but the sewage is not returned to the City's sewer system) were obtained for each customer for 2019.

The City contracted the services of Civiltec Engineering Incorporated to develop its hydraulic water model for its Water Master Plan, concurrent to this sewer master planning effort. As part of this effort, the water billing data was spatially linked to the GIS parcel centroids by address for the customers within the City's service area.

The meter billing data joined to the GIS parcel centroid shapefile provides the most accurate spatial distribution of the water use and subsequently sewage generation (calculated via developed return ratios) throughout the system.

### 6-3.2 Base Loads

Throughout this report, "base loads" are defined as the 24-hour average sewage flow rates applied to the model nodes. The base loads in the calibration scenario were allocated using water billing data, adjusted to match the average sewage flows recorded at the flow monitoring locations. Base loads were calculated for each meter from the water use and developed sewer return ratios.

Sewer return ratios for each land use type were developed to adjust the water use to equal the average sewage flows recorded at the flow monitoring sites.

### 6-3.3 Flow Monitoring

Flow monitoring was conducted at fifteen (15) sites between July 23, 2020 and August 5, 2020, as discussed in Section 3-2. During this monitoring period, the City was subjected to the California and Orange County stay-at-home orders, due to the COVID-19 pandemic.

Many commercial, industrial, and office buildings were temporarily closed at the beginning of March 2020, which resulted in the water usage and sewer generation being shifted from non-residential land use types to primarily residential land use types. The 2019 water meter data was globally adjusted in the model to represent the conditions during the stay-at-home order, which accounted for this shift in water use during the flow monitoring period.

### 6-3.4 Sewer Return Ratios

The steps in developing the sewer return ratios by land use types are listed below:

1. First, water billing data from 2019 was linked to the GIS parcel centroid shapefile. The water consumption distribution was based on the GIS shapefile developed for the Water Master Plan.
2. The 2019 water consumption data was globally adjusted to account for the shift in water use due to the stay-at-home orders, based on the Citywide water usage comparison from 2019 and 2020,
  - a. Non-residential water demand was decreased by 10%
  - b. Residential water demand was increased by 10%
3. The existing land use shapefile was utilized and spatially linked to the parcel centroid shapefile.

4. The flow monitoring tributary areas were overlaid with the GIS parcel centroid shapefile.
5. The water consumption data, billing data, and land use data tributary to each flow monitoring site was exported to an excel file.
6. Sewer return ratios were developed for each land use type for each flow monitoring area. Sewer loading was estimated as the product of the water consumption data and the sewer unit flow factors.
7. Sewage flows were estimated for the La Floresta tributary area from routine monthly pump meter reads.
8. The sewer return ratios were adjusted by trial and error. The goal was to match flow monitoring data to approximately 10 percent at all sites.

The comparison of the average sewage flows measured in the field versus the calculated flows via water billing data and sewer return ratios is shown in Table 6-4. Flow monitoring sites 3, 4, 8, and 16 were greater than the 10 percent goal. It is believed that field conditions, noted in the table, were the cause of the poor comparisons. In general, the estimated flows using the water meter data in the model were more conservative than the flow monitoring data.

### 6-3.5 Base Load Distribution

The calculated base load for each meter was allocated to the model manholes by spatially identifying the pipe nearest to each parcel centroid. The base loads associated for each pipe segment were allocated to its upstream manhole. This method of distributing the base loads within the model inherently accounted for any high sewage generators within the existing service area.

### 6-3.6 Existing Sewer Loads

The base loads developed for the calibration effort were adjusted to match the flow monitoring data that was collected when the COVID-19 stay-at-home orders were in place. To account for sewer loads that reflect more normal operating conditions, the loads for the calibration scenario were adjusted for the existing system analysis.

The water use from July 2019 and August 2019 was compared to the water use from July 2020 and August 2020, when the sewage flow monitoring was conducted. The water use for non-residential meter types was globally about 10% greater in 2019, during the normal operating conditions, than in 2020. This is likely due to the temporary closures of many commercial, industrial, and office buildings. The non-residential water usage included in the calibration scenario was globally increased for the existing model sewer loading.

Flows from the Thompson Energy facility were very low, as the facility was not in operation during the flow monitoring period. The Broadrock Renewable Energy facility sewage generation was lower than the maximum allowable discharge rate. The Breitburn Energy facility was not yet in operation. Instead of using data from flow monitoring, the sewer loads for these energy facilities were set as non-peakable or constant flowrates based upon the maximum discharge rates specified in each sewer connection agreement as follows:

- Thompson Energy Plant maximum allowable discharge: 90 gpm
- Broadrock Renewable Energy maximum allowable discharge: 117 gpm
- Breitburn Operating LP maximum allowable discharge: 16.7 gpm

### 6-3.7 Load Fields

The existing loads (average dry weather flows) were assigned by land use type to the following model load fields:

- Load 1: Existing system residential loads
- Load 2: Existing system non-residential loads
- Load 3: Existing system non-peakable or constant loads for Thompson Energy, Broadrock Renewable, and Breitburn Energy

### 6-4 Future System Sewer Loads

The future loads (average dry weather flows) were assigned by land use and development phasing to the following model load fields:

- Load 4: Future system residential loads
- Load 5: Future system non-residential loads
- Load 6: SOI and Carbon Canyon Future Development residential loads

### 6-5 Existing and Future Peak Dry Weather Flows

Peak dry weather flows are calculated in the model by a user defined relationship as discussed in Section 3-5. For the existing and future system analyses, the peaking formula is as follows:

$$PDWF = 1.777 \times ADWF^{0.92}$$

Where PDWF = Peak Dry Weather flow in mgd

ADWF = Average Dry Weather flow in mgd

### 6-6 Model Scenarios

Four model scenarios were established as follows:

1. Calibration Condition (CALIBRATION)
  - a. Existing facilities
  - b. Calibration period sewage loads (CALIBRATION\_LOADING)
2. Existing Condition (EXISTING\_NORMAL\_CONDITIONS)
  - a. Existing facilities
  - b. Existing condition sewage loads (EXISTING\_NORMAL)
3. Near-Term Future Condition without the SOI and Carbon Canyon future development (FUTURE\_WITHOUT\_SOI)
  - a. Existing facilities
  - b. Future condition with near-term development sewage loads (FUTURE\_WO\_SOI)
    - i. Existing sewage loads
    - ii. Loads from near-term future developments

4. Future Condition with the SOI and Carbon Canyon future development (FUTURE\_WITH\_SOI)
  - a. Existing facilities
  - b. Future condition with all future development sewage loads (FUTURE\_WITH\_SOI)
    - i. Existing sewage loads
    - ii. Loads from near-term future developments
    - iii. Loads from the SOI and the Carbon Canyon future development

The results of the hydraulic analysis are discussed in Section 7.

**Table 6-4  
Field Measured vs Calculated Sewage Flows**

Site ID	Location	MH ID	Pipe ID	U/S Pipe Size (in)	Flow Monitoring Average Flow (MGD)	Model Average Flows (MGD)	% Difference	Comment
1	North of Imperial Hwy; West of Puente St (Parking Lot)	IB26S	IB26S-IB27	15	0.517	0.571	-10.4%	Mild hydraulic jumps in the flow monitoring data.
2	Berry St, north of Imperial Hwy	FB33	FB33-FB65	12	0.198	0.211	-6.4%	
3	West side of channel; North of Brea Trail	FA28	FA28-FA29	15	0.568	0.474	16.5%	Site 3 is upstream of Site 4, and the sewer return ratios were chosen such that the difference between both sites were split.
4	South of Elm St; East of channel	FB44	FB44-FB45	27	0.770	0.892	-15.9%	
5	Brea Blvd, north of Acacia St	B19	B19-OUTLETB	10	0.166	0.174	-4.5%	Flow monitoring data shows hydraulic jump through 2-inch depths
6	Laurel Ave, south of Alder St	LC14	LC14-OUTLETL	12	0.140	0.143	-2.0%	
7	Randolph Ave extension (open space)	RB65	RB65-RB66	12	0.470	0.477	-1.6%	
8	State College Blvd, south of Imperial Hwy	RB6601	RB6601-RB66	8	0.067	0.054	19.0%	The flows from the Brea Mall were greatly affected by the stay-at-home orders. The distribution of flows within the mall could not be easily identified from the limited water use records
9	State College Blvd, south of Imperial Hwy	RA42	RA42-RA43D	12	0.219	0.218	0.5%	

**Table 6-4 (Continued)**  
**Field Measured vs Calculated Sewage Flows**

Site ID	Location	MH ID	Pipe ID	U/S Pipe Size (in)	Flow Monitoring Average Flow (MGD)	Model Average Flows (MGD)	% Difference	Comment
10	SW corner of Associated Rd and Imperial Hwy (behind gas station)	A27	A27-A28	12	0.398	0.440	-10.7%	ADS indicated flow monitoring experienced hydraulic jumps in the first 6 days, which were removed from the average.
11	Kraemer Blvd, south of Saturn St	K20	K20-K21	21	0.504	0.553	-9.7%	
12	Thompson Energy flow going into Brea Sports Park sewer; See 2010 flow monitoring report by ADS	K1283	K1283-K1282	8	0.002	0.002	0.0%	The model flows at Thompson Energy were set to match the flow monitoring data.
La Flores ta	La Floresta tributary area	R02	R01-R02	12	0.078	0.086	-9.3%	
14	Valencia Ave south of Sand Pipe Way; Broadrock Renewables flow	CC6821	CC6821-CC6820	8	0.154	0.154	0.0%	The model flows at Broadrock Renewables were set to match the flow monitoring data.
15	Carbon Canyon Rd at Santa Fe Rd	CC68	CC6801-CC68	15	0.302	0.303	-0.4%	
16	Carbon Canyon Regional Park	CC67	CC67-CC68	24	0.187	0.155	16.9%	ADS identified that the depths and velocities experienced shifting data which is characteristic of debris moving through large pipes with shallow flow.

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## SECTION 7 CAPACITY ANALYSIS

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### 7-1 Gravity System

The analysis of the sewer collection system was based upon the calculated existing and future peak dry weather flows. The hydraulic analysis results are included in Appendix 7-1. Pipes that exceed the following criteria are considered hydraulically deficient: Peak Dry Weather (PDWF) depth to diameter ( $d/D$ ) > 0.64. The hydraulic deficiencies, based upon the criteria above, are listed in Table 7-1. The locations of these deficiencies are shown on Figure 7-1. Detailed maps of the mainline sewers for each of the eleven sewershed are included in Appendix 4-1.

#### 7-1.1 Existing Conditions Capacity Deficiencies

A total length of 749 feet of sewers was identified to be capacity deficient under existing conditions per the hydraulic model. This is 0.11 percent ( $749 / 708,750$ ) of the total existing system length. This percentage is quite minimal, in part because the City has completed several capital improvement projects since the last Sewer Master Plan was completed in 2005 and, in part because sewage generation has decreased in recent years due to water conservation efforts.

##### Location EX1 - Randolph Avenue and Imperial Highway

Location EX1 is shown on Figure 7-2. The maximum PDWF depth over diameter ( $d/D$ ) ratio for Location EX1 is 0.70, which exceeds the City's  $d/D$  criteria of 0.64. In addition to the capacity deficiency identified in the hydraulic model, high water levels due to sags and large offset joints were identified in the closed circuit television (CCTV) inspection. The condition assessment of the system is discussed in Section 8.

These pipes are recommended for upsize and replacement because they were identified with capacity and condition deficiencies. Until improvements are implemented at Location EX1, it is recommended that a Smart Cover be installed at Manhole FB59D. The Smart Cover is a device attached to the underside of the manhole lid that monitors water levels in the manhole itself. Alarms are sent to notify the City when the water reaches a predetermined level in the manhole. This will allow the City time to respond to and/or prevent a potential overflow event.

##### Location EX2 - Walling Avenue, between De Jur Street and Delay Street

Location EX2 is shown on Figure 7-3. The maximum PDWF depth over diameter ( $d/D$ ) ratio for Location EX2 is 0.65, which exceeds the City's  $d/D$  criteria of 0.64. In addition to the capacity deficiency, high water levels due to a sag was identified in the CCTV inspection. The condition assessment of the system is discussed in Section 8.

This pipe is recommended for upsize and replacement because it was identified with capacity and condition deficiencies. Since the capacity deficiency is minimal in nature, this project is not a high priority. Until improvements are implemented, it is recommended that a Smart Cover be installed at Manhole IC32. This will allow the City time to respond to and/or prevent a potential overflow event.

**Table 7-1  
Capacity Deficiencies Identified by the Hydraulic Model**

Location ID	Load Condition	Location Description	Pipe ID	U/S MH ID	DS MH ID	Pipe Diam. (in)	Length (ft)	Slope	Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI and Carbon Canyon Developments)						Comment				
									PDWF (MGD)	Unpeakable ADFW (MGD)	ADWF (MGD)	PDWF Velocity (fps)	PDWF Depth (ft)	PDWF d/D	PDWF (MGD)	Unpeakable ADFW (MGD)	ADWF (MGD)	PDWF Velocity (fps)	PDWF Depth (ft)	PDWF d/D	PDWF (MGD)	Unpeakable ADFW (MGD)	ADWF (MGD)	PDWF Velocity (fps)	PDWF Depth (ft)	PDWF d/D					
									EX1	Existing	Randolph Ave and Imperial Hwy	RB59D-RB60D	RB59D	RB60D	10	215	0.0044	0.7753	0.0000	0.4059	2.99	0.57	0.69	0.8031	0.0000	0.4218		3.01	0.59	0.71	0.8031
			RB60D-RB61	RB60D	RB61	10	118	0.0051	0.8500	0.0000	0.4486	3.22	0.58	0.70	0.8775	0.0000	0.4644	3.23	0.60	0.72	0.8775	0.0000	0.4644	3.23	0.60	0.72	Large pipe offset joint observed from review of CCTV video (Structural Condition Grade = 5)				
			RB62-RB63D	RB62	RB63D	10	50	0.0060	0.8518	0.0000	0.4497	3.45	0.55	0.66	0.8793	0.0000	0.4655	3.47	0.56	0.68	0.8793	0.0000	0.4655	3.47	0.56	0.68	Capacity deficiency only				
EX2	Existing	Walling Ave, between De Jur St and Delay St	IC32-IC33D	IC32	IC33D	8	366	0.0030	0.3225	0.0000	0.1564	2.07	0.43	0.65	0.3225	0.0000	0.1564	2.07	0.43	0.65	0.3225	0.0000	0.1564	2.07	0.43	0.65	Major sag with inspection report water level as high as 80%. (Structural Condition Grade =5)				
<b>Existing Condition Capacity Deficiency Total</b>							<b>749</b>																								
FUT1	Near-Term Future	State College Blvd and Imperial Hwy	RB6604-RB6603	RB6604	RB6603	8	275	0.0084	0.2800	0.0000	0.1342	2.98	0.29	0.43	0.6232	0.0000	0.3202	3.58	0.48	0.72	0.6232	0.0000	0.3202	3.58	0.48	0.72	Brea Mall Developments				
			RB6603-RB6602	RB6603	RB6602	8	361	0.0084	0.2843	0.0000	0.1364	2.99	0.29	0.44	0.7055	0.0000	0.3664	3.62	0.54	0.81	0.7055	0.0000	0.3664	3.62	0.54	0.81					
FUT2	Near-Term Future	Birch St, Bluegrass St, Primrose Ave, and Starflower St	K1250-K1249	K1250	K1249	6	324	0.0035	0.1493	0.1296	0.0075	1.83	0.31	0.61	0.4142	0.1296	0.1366	3.26	0.50	1.00	0.4142	0.1296	0.1366	3.26	0.50	1.00	Unpeakable flow is load from Thompson Energy. If all flows from the Brea 265 development are conveyed to the Rose sewershed, there are no deficiencies.				
			K1279-K1269	K1279	K1269	8	253	0.0032	0.1296	0.1296	0.0000	1.70	0.25	0.37	0.3997	0.1296	0.1291	2.22	0.50	0.74	0.3997	0.1296	0.1291	2.22	0.50	0.74					
			K1248-K1247	K1248	K1247	6	142	0.0064	0.1560	0.1296	0.0103	2.33	0.26	0.52	0.4195	0.1296	0.1393	3.31	0.50	1.00	0.4195	0.1296	0.1393	3.31	0.50	1.00					
			K1222-K1221	K1222	K1221	10	132	0.0036	0.5023	0.1296	0.1831	2.53	0.46	0.55	0.7385	0.1296	0.3122	2.73	0.60	0.72	0.7385	0.1296	0.3122	2.73	0.60	0.72					
<b>Near-Term Future Condition (without SOI or Carbon Canyon Developments) Capacity Deficiency Total</b>							<b>1,487</b>																								

\*PDWF d/D exceeds 0.64

**Table 7-1 (Continued)**  
**Capacity Deficiencies Identified by the Hydraulic Model**

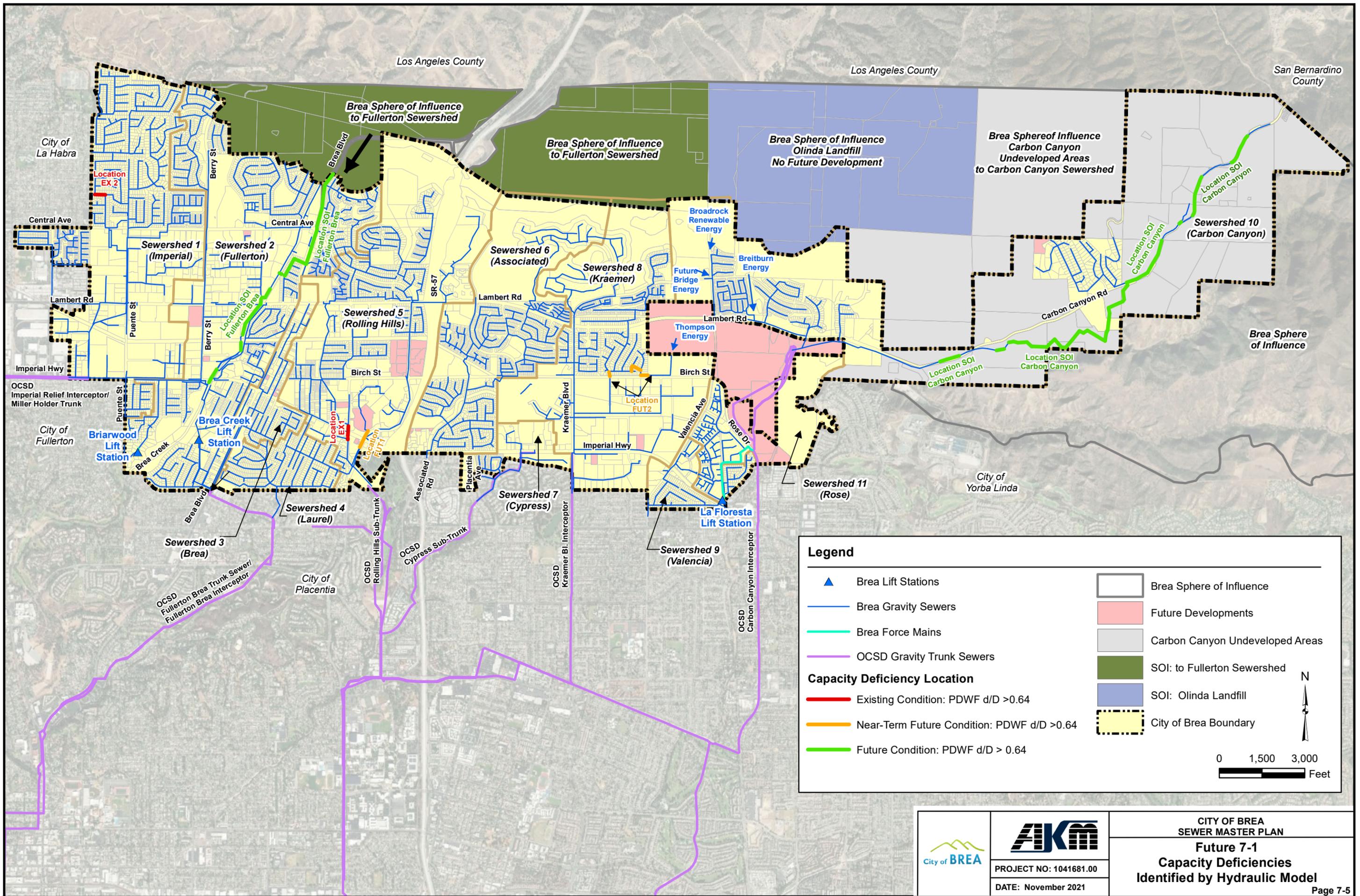
Location	Load Condition	Location Description	Pipe ID	U/S MH ID	DS MH ID	Pipe Diam. (in)	Length (ft)	Slope	Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI and Carbon Canyon Developments)						Comment
									PDWF (MGD)	Unpeak able ADWF (MGD)	ADWF (MGD)	PDWF Velocity (fps)	PDWF Depth (ft)	PDWF d/D	PDWF (MGD)	Unpeak able ADWF (MGD)	ADWF (MGD)	PDWF Velocity (fps)	PDWF Depth (ft)	PDWF d/D	PDWF (MGD)	Unpeak able ADWF (MGD)	ADWF (MGD)	PDWF Velocity (fps)	PDWF Depth (ft)	PDWF d/D	
									SOI Fullerton Brea	Future (with SOI & Carbon Canyon Developments)	SOI to the OCSD Brea-Fullerton Interceptor, along Brea Blvd, Pepper Tree Dr, Brea Creek Channel, and Mullberry Ave.	FA0101-FA01	FA0101	FA01	8	125	0.0030	0.0000	0.0000	0.0000	0.00	0.00	0.00	0.0000	0.0000	0.0000	
FA01-FA02	FA01	FA02	8	349	0.0030	0.0000	0.0000	0.0000	0.00	0.00	0.00	0.0000	0.0000	0.0000	0.00	0.00	0.00	1.8080	0.0000	1.0190	8.01	0.67	1.00				
FA02-FA03	FA02	FA03	8	395	0.0030	0.0708	0.0000	0.0301	1.41	0.18	0.27	0.0708	0.0000	0.0301	1.41	0.18	0.27	1.8571	0.0000	1.0491	8.23	0.67	1.00				
FA03-FA04	FA03	FA04	8	404	0.0025	0.0723	0.0000	0.0308	1.32	0.19	0.29	0.0723	0.0000	0.0308	1.32	0.19	0.29	1.8582	0.0000	1.0498	8.24	0.67	1.00				
FA04-FA05	FA04	FA05	8	336	0.0036	0.1208	0.0000	0.0538	1.74	0.23	0.35	0.1208	0.0000	0.0538	1.74	0.23	0.35	1.8956	0.0000	1.0728	8.40	0.67	1.00				
FA05-FA06	FA05	FA06	8	336	0.0030	0.1211	0.0000	0.0539	1.64	0.24	0.36	0.1211	0.0000	0.0539	1.64	0.24	0.36	1.8959	0.0000	1.0729	8.40	0.67	1.00				
FA06-FA07	FA06	FA07	8	131	0.0224	0.1211	0.0000	0.0539	3.35	0.14	0.22	0.1211	0.0000	0.0539	3.35	0.14	0.22	1.8959	0.0000	1.0729	8.40	0.67	1.00				
FA07-FA08	FA07	FA08	8	353	0.0035	0.1856	0.0000	0.0858	1.94	0.29	0.44	0.1856	0.0000	0.0858	1.94	0.29	0.44	1.9476	0.0000	1.1048	8.63	0.67	1.00				
FA08-FA09	FA08	FA09	8	271	0.0030	0.1936	0.0000	0.0898	1.84	0.32	0.47	0.1936	0.0000	0.0898	1.84	0.32	0.47	1.9542	0.0000	1.1088	8.66	0.67	1.00				
FA09-FA10	FA09	FA10	8	80	0.0048	0.2105	0.0000	0.0984	2.24	0.29	0.43	0.2105	0.0000	0.0984	2.24	0.29	0.43	1.9680	0.0000	1.1174	8.72	0.67	1.00				
FA10-FA11	FA10	FA11	8	264	0.0036	0.2113	0.0000	0.0988	2.02	0.31	0.47	0.2113	0.0000	0.0988	2.02	0.31	0.47	1.9687	0.0000	1.1178	8.73	0.67	1.00				
FA11-FA12	FA11	FA12	8	292	0.0039	0.2113	0.0000	0.0988	2.08	0.31	0.46	0.2113	0.0000	0.0988	2.08	0.31	0.46	1.9687	0.0000	1.1178	8.73	0.67	1.00				
FA12-FA13	FA12	FA13	8	156	0.0090	0.3128	0.0000	0.1514	3.15	0.30	0.45	0.3128	0.0000	0.1514	3.15	0.30	0.45	2.0537	0.0000	1.1703	9.10	0.67	1.00				
FA13-FA14	FA13	FA14	8	300	0.0184	0.3167	0.0000	0.1534	4.11	0.25	0.37	0.3167	0.0000	0.1534	4.11	0.25	0.37	2.0570	0.0000	1.1724	9.12	0.67	1.00				
FA14-FA15	FA14	FA15	8	244	0.0160	0.3202	0.0000	0.1552	3.92	0.26	0.39	0.3202	0.0000	0.1552	3.92	0.26	0.39	2.0600	0.0000	1.1742	9.13	0.67	1.00				
FA15-FA16	FA15	FA16	8	253	0.0119	0.3268	0.0000	0.1587	3.54	0.29	0.43	0.3268	0.0000	0.1587	3.54	0.29	0.43	2.0655	0.0000	1.1777	9.16	0.67	1.00				
FA16-FA17	FA16	FA17	8	179	0.0313	0.3328	0.0000	0.1619	5.05	0.22	0.33	0.3328	0.0000	0.1619	5.05	0.22	0.33	2.0707	0.0000	1.1809	9.18	0.67	1.00				
FA18D-FA19D	FA18D	FA19D	15	78	0.0030	0.3576	0.0000	0.1751	2.09	0.34	0.27	0.3576	0.0000	0.1751	2.09	0.34	0.27	2.0919	0.0000	1.1940	3.25	0.94	0.76				
FA21-FA22	FA21	FA22	18	338	0.0015	0.7132	0.0000	0.3707	1.96	0.53	0.35	0.7132	0.0000	0.3707	1.96	0.53	0.35	2.4053	0.0000	1.3897	2.62	1.12	0.75				
FA22-FA2201	FA22	FA2201	18	133	0.0015	0.7132	0.0000	0.3707	1.96	0.53	0.35	0.7132	0.0000	0.3707	1.96	0.53	0.35	2.4053	0.0000	1.3897	2.62	1.12	0.75				
FA2201-FA2202	FA2201	FA2202	18	240	0.0018	0.8790	0.0000	0.4653	2.22	0.57	0.38	0.9174	0.0000	0.4874	2.24	0.58	0.39	2.5905	0.0000	1.5064	2.85	1.11	0.74				
FA2202-FA24	FA2202	FA24	18	11	0.0018	0.8790	0.0000	0.4653	2.24	0.56	0.38	0.9174	0.0000	0.4874	2.27	0.58	0.38	2.5905	0.0000	1.5064	2.89	1.10	0.73				
FA24-FA25	FA24	FA25	15	73	0.0047	0.9024	0.0000	0.4788	3.19	0.48	0.39	0.9407	0.0000	0.5009	3.23	0.49	0.39	2.6119	0.0000	1.5199	4.08	0.94	0.75				
FA25-FA26	FA25	FA26	15	194	0.0029	0.9043	0.0000	0.4799	2.68	0.55	0.44	0.9426	0.0000	0.5020	2.71	0.56	0.45	2.6136	0.0000	1.5210	3.30	1.25	1.00				
FA26-FA27	FA26	FA27	15	595	0.0042	0.9101	0.0000	0.4832	3.08	0.50	0.40	0.9484	0.0000	0.5054	3.11	0.51	0.41	2.6189	0.0000	1.5243	3.89	0.99	0.79				
FA27-FA28	FA27	FA28	15	394	0.0040	0.9111	0.0000	0.4838	3.02	0.51	0.41	0.9493	0.0000	0.5059	3.05	0.52	0.42	2.6198	0.0000	1.5249	3.79	1.02	0.81				
FA34-FA35D	FA34	FA35D	15	381	0.0020	0.8968	0.0000	0.4756	2.36	0.61	0.48	0.9250	0.0000	0.4918	2.37	0.62	0.49	2.0248	0.0000	1.1524	2.55	1.25	1.00				
FA35D-FB4005	FA35D	FB4005	15	157	0.0027	0.9148	0.0000	0.4859	2.64	0.56	0.45	0.9429	0.0000	0.5021	2.66	0.57	0.46	2.0415	0.0000	1.1628	3.14	0.96	0.76				
FB4013-FA30	FB4013	FA30	15	287	0.0059	0.9111	0.0000	0.4838	3.49	0.46	0.36	0.9493	0.0000	0.5059	3.53	0.47	0.37	2.6198	0.0000	1.5249	4.51	0.86	0.69				
FB60-FB61	FB60	FB61	15	433	0.0020	0.0094	0.0000	0.0033	0.61	0.06	0.05	0.1447	0.0000	0.0655	1.40	0.24	0.19	1.8256	0.0000	1.0298	2.68	1.00	0.80				
<b>SOI Fullerton Brea Future Condition Capacity Deficiency Subtotal</b>							<b>7,782</b>																				

\*PDWF d/D exceeds 0.64

**Table 7-1 (Continued)  
Capacity Deficiencies Identified by the Hydraulic Model**

Location ID	Load Condition	Location Description	Pipe ID	U/S MH ID	DS MH ID	Pipe Diam. (in)	Length (ft)	Slope	Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI and Carbon Canyon Developments)						Comment
									PDWF (MGD)	Unpeak able ADWF (MGD)	ADWF (MGD)	PDWF Velocity (fps)	PDWF Depth (ft)	PDWF d/D	PDWF (MGD)	Unpeak able ADWF (MGD)	ADWF (MGD)	PDWF Velocity (fps)	PDWF Depth (ft)	PDWF d/D	PDWF (MGD)	Unpeak able ADWF (MGD)	ADWF (MGD)	PDWF Velocity (fps)	PDWF Depth (ft)	PDWF d/D	
									CC02-CC03	CC02	CC03	8	483	0.0035	0.0000	0.0000	0.0000	0.00	0.00	0.00	0.0000	0.0000	0.0000	0.00	0.00	0.00	
CC03-CC04	CC03	CC04	8	617	0.0047	0.0000	0.0000	0.0000	0.00	0.00	0.00	0.0000	0.0000	0.0000	0.00	0.00	0.00	0.4487	0.0000	0.2240	2.68	0.46	0.70				
CC06-CC07	CC06	CC07	8	1,400	0.0081	0.0000	0.0000	0.0000	0.00	0.00	0.00	0.0000	0.0000	0.0000	0.00	0.00	0.00	0.6394	0.0000	0.3292	3.53	0.50	0.75				
CC09-CC10	CC09	CC10	8	99	0.0046	0.0000	0.0000	0.0000	0.00	0.00	0.00	0.0000	0.0000	0.0000	0.00	0.00	0.00	0.6394	0.0000	0.3292	2.83	0.67	1.00				
CC12D-CC13	CC12D	CC13	8	510	0.0072	0.0000	0.0000	0.0000	0.00	0.00	0.00	0.0000	0.0000	0.0000	0.00	0.00	0.00	0.6394	0.0000	0.3292	3.35	0.53	0.79				
CC13-CC14	CC13	CC14	8	340	0.0072	0.0000	0.0000	0.0000	0.00	0.00	0.00	0.0000	0.0000	0.0000	0.00	0.00	0.00	2.2612	0.0000	1.2994	10.02	0.67	1.00				
CC14-CC15	CC14	CC15	8	399	0.0180	0.0000	0.0000	0.0000	0.00	0.00	0.00	0.0000	0.0000	0.0000	0.00	0.00	0.00	2.2612	0.0000	1.2994	10.02	0.67	1.00				
CC15-CC16	CC15	CC16	8	398	0.0173	0.0000	0.0000	0.0000	0.00	0.00	0.00	0.0000	0.0000	0.0000	0.00	0.00	0.00	2.2612	0.0000	1.2994	10.02	0.67	1.00				
CC16-CC17	CC16	CC17	8	14	0.0186	0.0000	0.0000	0.0000	0.00	0.00	0.00	0.0000	0.0000	0.0000	0.00	0.00	0.00	2.2612	0.0000	1.2994	10.02	0.67	1.00				
CC17-CC18D	CC17	CC18D	8	393	0.0177	0.0000	0.0000	0.0000	0.00	0.00	0.00	0.0000	0.0000	0.0000	0.00	0.00	0.00	2.2612	0.0000	1.2994	10.02	0.67	1.00				
CC18D-CC19	CC18D	CC19	8	104	0.0631	0.2281	0.0000	0.1074	5.82	0.15	0.23	0.2447	0.0000	0.1159	5.94	0.16	0.24	2.4461	0.0000	1.4153	10.84	0.67	1.00				
CC19-CC20	CC19	CC20	8	258	0.0120	0.2281	0.0000	0.1074	3.21	0.23	0.35	0.2447	0.0000	0.1159	3.28	0.24	0.37	2.4461	0.0000	1.4153	10.84	0.67	1.00				
CC20-CC21	CC20	CC21	8	303	0.0120	0.2281	0.0000	0.1074	3.22	0.23	0.35	0.2447	0.0000	0.1159	3.28	0.24	0.37	2.4461	0.0000	1.4153	10.84	0.67	1.00				
CC21-CC22	CC21	CC22	8	85	0.0120	0.2281	0.0000	0.1074	3.22	0.23	0.35	0.2447	0.0000	0.1159	3.28	0.24	0.37	2.4461	0.0000	1.4153	10.84	0.67	1.00				
CC22-CC23	CC22	CC23	8	133	0.0120	0.2281	0.0000	0.1074	3.21	0.23	0.35	0.2447	0.0000	0.1159	3.27	0.24	0.37	2.4461	0.0000	1.4153	10.84	0.67	1.00				
CC23-CC24	CC23	CC24	8	294	0.0160	0.2281	0.0000	0.1074	3.57	0.22	0.33	0.2447	0.0000	0.1159	3.64	0.23	0.34	2.4641	0.0000	1.4267	10.92	0.67	1.00				
CC24-CC25	CC24	CC25	8	121	0.0160	0.2281	0.0000	0.1074	3.56	0.22	0.33	0.2447	0.0000	0.1159	3.63	0.23	0.34	2.4641	0.0000	1.4267	10.92	0.67	1.00				
CC25-CC26D	CC25	CC26D	8	190	0.0499	0.2281	0.0000	0.1074	5.36	0.16	0.24	0.2447	0.0000	0.1159	5.47	0.17	0.25	2.4641	0.0000	1.4267	10.92	0.67	1.00				
CC26D-CC27	CC26D	CC27	12	595	0.0037	0.2281	0.0000	0.1074	2.04	0.27	0.27	0.2447	0.0000	0.1159	2.08	0.28	0.28	2.4641	0.0000	1.4267	4.85	1.00	1.00				
CC27-CC28	CC27	CC28	12	110	0.0117	0.2281	0.0000	0.1074	3.07	0.20	0.20	0.2447	0.0000	0.1159	3.13	0.21	0.21	2.4641	0.0000	1.4267	5.61	0.81	0.81				
CC28-CC29	CC28	CC29	8	284	0.0379	0.2777	0.0000	0.1330	5.14	0.19	0.29	0.2940	0.0000	0.1415	5.22	0.20	0.30	2.5898	0.0000	1.5059	11.48	0.67	1.00				
CC29-CC30	CC29	CC30	10	182	0.0100	0.2777	0.0000	0.1330	3.12	0.25	0.30	0.2940	0.0000	0.1415	3.18	0.26	0.31	2.5898	0.0000	1.5059	7.35	0.83	1.00				
CC30-CC31	CC30	CC31	10	135	0.0300	0.2777	0.0000	0.1330	4.62	0.19	0.23	0.2940	0.0000	0.1415	4.70	0.19	0.23	2.5898	0.0000	1.5059	7.35	0.83	1.00				
CC31-CC32	CC31	CC32	10	399	0.0070	0.2777	0.0000	0.1330	2.75	0.27	0.33	0.2940	0.0000	0.1415	2.79	0.28	0.34	2.5898	0.0000	1.5059	7.35	0.83	1.00				
CC32-CC33	CC32	CC33	10	171	0.0439	0.2777	0.0000	0.1330	5.29	0.17	0.21	0.2940	0.0000	0.1415	5.38	0.18	0.21	2.5898	0.0000	1.5059	9.51	0.60	0.72				
CC33-CC34	CC33	CC34	10	148	0.0440	0.2777	0.0000	0.1330	5.29	0.17	0.21	0.2940	0.0000	0.1415	5.38	0.18	0.21	2.5898	0.0000	1.5059	9.52	0.60	0.72				
CC34-CC35	CC34	CC35	10	382	0.0050	0.2777	0.0000	0.1330	2.43	0.30	0.36	0.2940	0.0000	0.1415	2.47	0.31	0.37	2.5898	0.0000	1.5059	7.35	0.83	1.00				
CC35-CC36	CC35	CC36	10	366	0.0200	0.2777	0.0000	0.1330	4.00	0.21	0.25	0.2940	0.0000	0.1415	4.07	0.22	0.26	2.5898	0.0000	1.5059	7.35	0.83	1.00				
CC36-CC37	CC36	CC37	10	147	0.0485	0.2777	0.0000	0.1330	5.48	0.17	0.20	0.2940	0.0000	0.1415	5.57	0.17	0.21	2.5898	0.0000	1.5059	9.92	0.58	0.69				
CC37-CC38	CC37	CC38	10	187	0.0483	0.2777	0.0000	0.1330	5.47	0.17	0.20	0.2940	0.0000	0.1415	5.56	0.17	0.21	2.5898	0.0000	1.5059	9.90	0.58	0.70				
CC38-CC39	CC38	CC39	10	186	0.0088	0.2777	0.0000	0.1330	2.99	0.26	0.31	0.2940	0.0000	0.1415	3.04	0.27	0.32	2.5898	0.0000	1.5059	7.35	0.83	1.00				
CC39-CC40D	CC39	CC40D	10	264	0.0088	0.2777	0.0000	0.1330	2.98	0.26	0.31	0.2940	0.0000	0.1415	3.03	0.27	0.32	2.5898	0.0000	1.5059	7.35	0.83	1.00				
CC40D-CC41	CC40D	CC41	10	121	0.0050	0.2777	0.0000	0.1330	2.44	0.30	0.36	0.2940	0.0000	0.1415	2.48	0.31	0.37	2.5898	0.0000	1.5059	7.35	0.83	1.00				
CC41-CC42	CC41	CC42	10	505	0.0049	0.2777	0.0000	0.1330	2.42	0.30	0.36	0.2940	0.0000	0.1415	2.46	0.31	0.37	2.8112	0.0000	1.6463	7.97	0.83	1.00				
CC42-CC43	CC42	CC43	15	28	0.0071	0.2777	0.0000	0.1330	2.66	0.24	0.19	0.2940	0.0000	0.1415	2.70	0.24	0.19	2.8112	0.0000	1.6463	4.95	0.84	0.67				
CC43-CC44	CC43	CC44	15	222	0.0048	0.2777	0.0000	0.1330	2.30	0.26	0.21	0.2940	0.0000	0.1415	2.34	0.27	0.22	2.8112	0.0000	1.6463	4.16	0.99	0.80				
CC44-CC45	CC44	CC45	15	320	0.0043	0.2777	0.0000	0.1330	2.22	0.27	0.21	0.2940	0.0000	0.1415	2.26	0.28	0.22	2.8112	0.0000	1.6463	3.54	1.25	1.00				
CC45-CC46	CC45	CC46	15	155	0.0046	0.2777	0.0000	0.1330	2.28	0.26	0.21	0.2940	0.0000	0.1415	2.32	0.27	0.22	2.8112	0.0000	1.6463	4.10	1.01	0.81				
CC46-CC47	CC46	CC47	15	175	0.0046	0.2777	0.0000	0.1330	2.27	0.26	0.21	0.2940	0.0000	0.1415	2.31	0.27	0.22	2.8112	0.0000	1.6463	4.07	1.02	0.81				
CC48-CC49	CC48	CC49	15	280	0.0044	0.2777	0.0000	0.1330	2.23	0.27	0.21	0.2940	0.0000	0.1415	2.27	0.28	0.22	2.8112	0.0000	1.6463	3.54	1.25	1.00				
CC54-CC55	CC54	CC55	15	476	0.0082	0.2777	0.0000	0.1330	2.79	0.23	0.18	0.2940	0.0000	0.1415	2.84	0.24	0.19	3.2709	0.0000	1.9410	5.38	0.90	0.72				
CC55-CC56	CC55	CC56	15	224	0.0103	0.2777	0.0000	0.1330	3.02	0.22	0.17	0.2940	0.0000	0.1415	3.07	0.22	0.18	3.2709	0.0000	1.9410	5.90	0.82	0.66				
SOI Carbon Canyon Future Condition Capacity Deficiency Subtotal							12,203																				
Future Condition (with SOI and Carbon Canyon Developments Capacity Deficiency Total							19,985																				

\*PDWF d/D exceeds 0.64

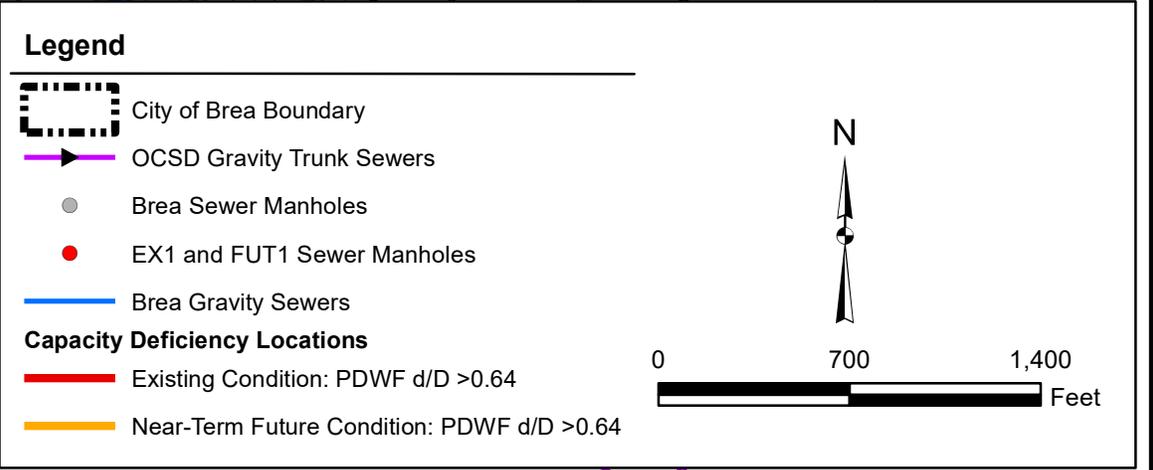
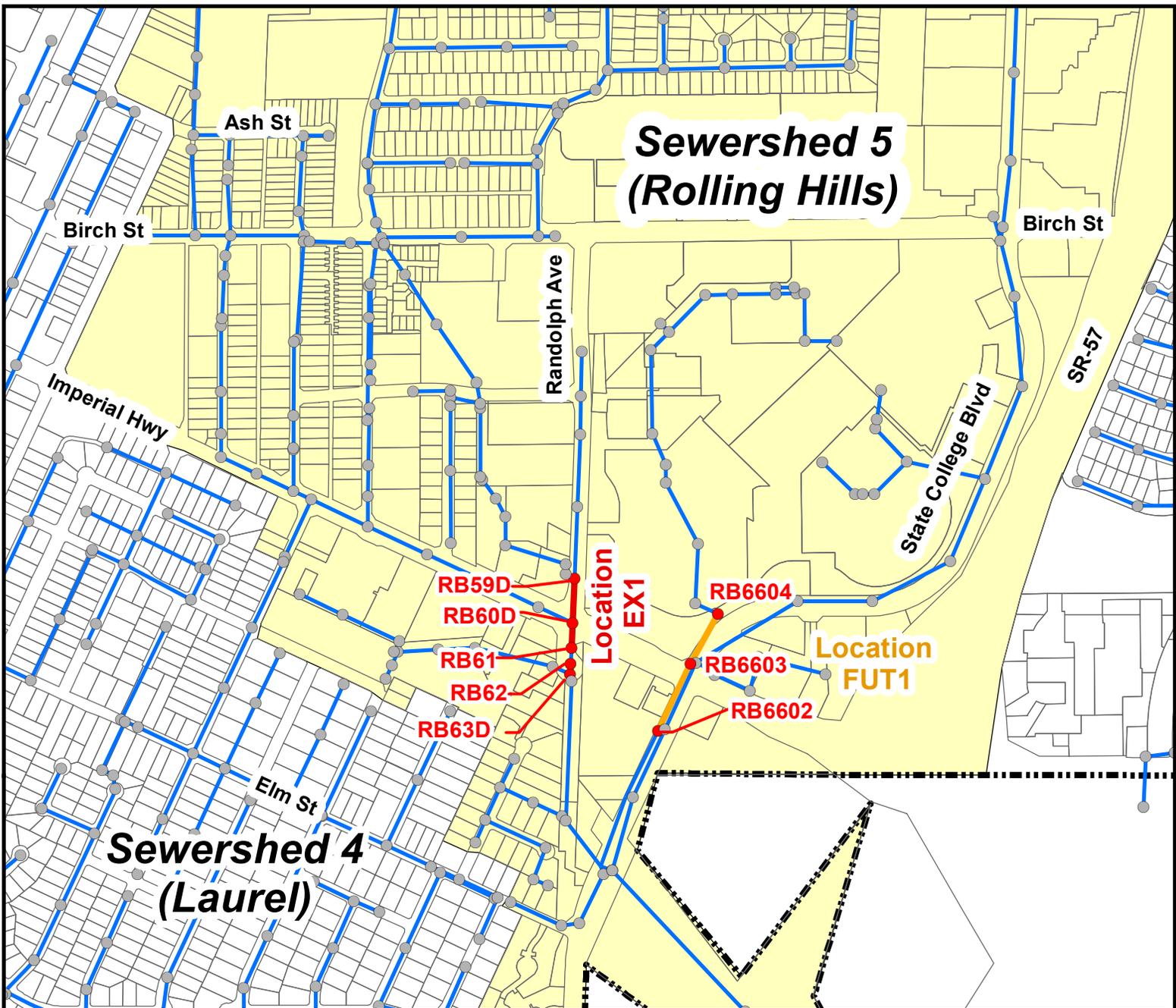


**Legend**

- ▲ Brea Lift Stations
- Brea Gravity Sewers
- Brea Force Mains
- OCSD Gravity Trunk Sewers
- Existing Condition: PDWF d/D > 0.64
- Near-Term Future Condition: PDWF d/D > 0.64
- Future Condition: PDWF d/D > 0.64
- Brea Sphere of Influence
- Future Developments
- Carbon Canyon Undeveloped Areas
- SOI: to Fullerton Sewershed
- SOI: Olinda Landfill
- City of Brea Boundary

**Capacity Deficiency Location**

N  
0 1,500 3,000  
Feet



**AKM**

PROJECT NO: 1041681.00

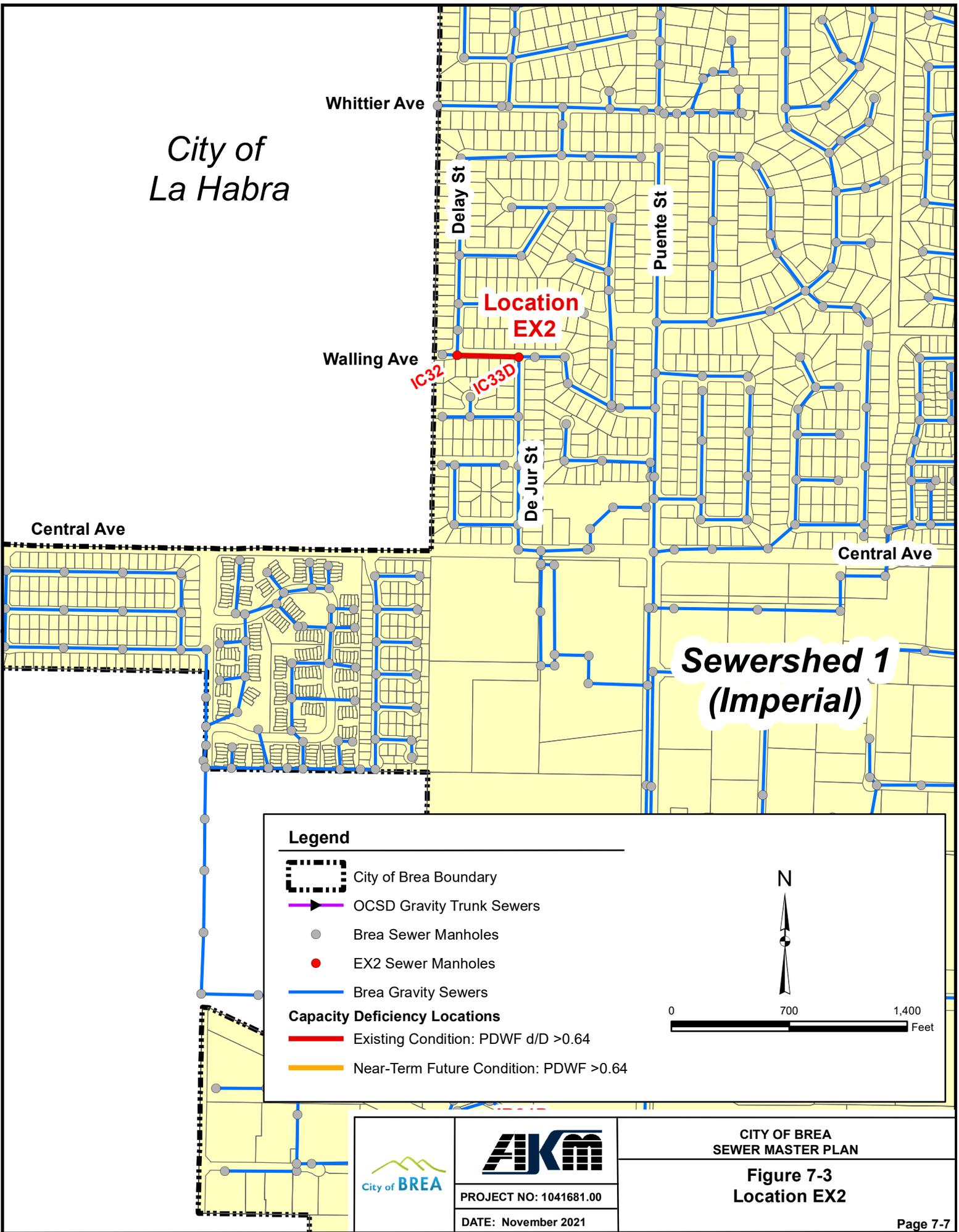
DATE: November 2021

CITY OF BREA  
SEWER MASTER PLAN

**Figure 7-2**  
Location EX1 and  
Location FUT1

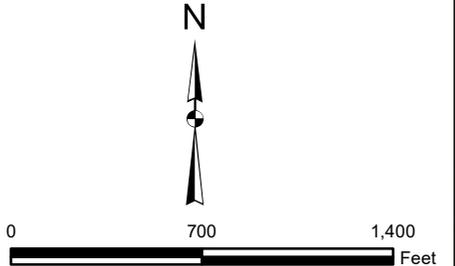
Page 7-6

City of  
La Habra



**Legend**

-  City of Brea Boundary
-  OCS Gravity Trunk Sewers
-  Brea Sewer Manholes
-  EX2 Sewer Manholes
-  Brea Gravity Sewers
- Capacity Deficiency Locations**
-  Existing Condition: PDWF d/D > 0.64
-  Near-Term Future Condition: PDWF > 0.64



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DATE: November 2021

CITY OF BREA  
SEWER MASTER PLAN

Figure 7-3  
Location EX2

### 7-1.2 Near-Term Future Condition Capacity Deficiencies

An additional 1,487 feet of sewers was identified as capacity deficient when the near-term future development loads were applied in the hydraulic model. This is 0.21 percent (1,487 / 708,750) of the total existing system length. This length does not include the pipes identified as capacity deficient under existing conditions, discussed in Section 7-1.1.

The near-term future capacity deficiencies are attributed to the increased sewer loads from future planned developments. It is recommended that project specific studies be performed using detailed development projections to accurately develop future loads and to identify the necessary sewer improvements to the existing system.

#### Location FUT1 – State College Boulevard, between Elm Street and Imperial Highway

Location FUT1 is shown on Figure 7-2. As shown in Table 7-1, the PDWF d/D ranges between 0.43 and 0.44 in the existing condition scenario, and ranges from 0.72 and 0.81 in the future condition scenarios. The capacity deficiency is attributed to the additional flows that are estimated to be generated by the proposed Brea Mall expansion.

#### Location FUT2 – Birch Street, between Starflower Street and Flower Hill Street

The future sewage loads generated by the proposed Brea 265 development are expected to be conveyed to the Sewershed 11 (Rose) and Sewershed 8 (Kraemer), based on the Brea 265 report (dated July 16, 2018). A small portion of the Brea 265 development area will be directly tributary to the OCSD Carbon Canyon Interceptor, per the most-recent future Bridge Energy development study.

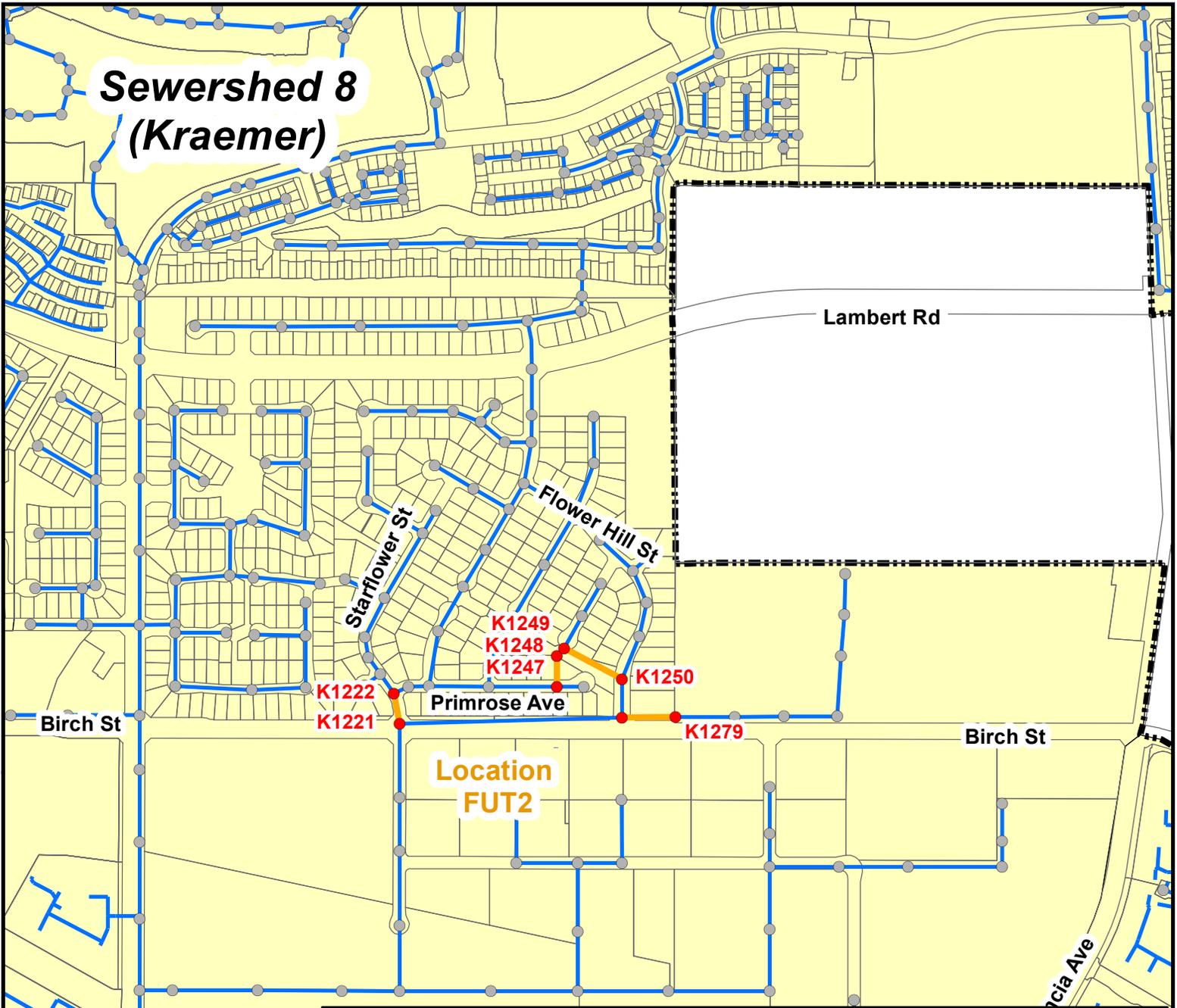
Location FUT2, shown on Figure 7-4, will become capacity deficient when the Brea 265 development is completed. If all future Brea 265 sewage flows can be conveyed to the east instead of a portion of it being tributary to Sewershed 8 (Kraemer), the Location FUT2 sewers will not become capacity deficient. One option may be to convey all of the Brea 265 sewage to OCSD's Carbon Canyon Interceptor. A study would have to be completed to determine if the Brea 265 development flows could be diverted to the interceptor and if the interceptor has sufficient downstream capacity. As plans for the Brea 265 development become more definite, it is recommended that the City evaluate different connection points for the future gravity sewer system to minimize the extent of the capacity deficiencies in its existing system.

### 7-1.3 Future Condition Capacity Deficiencies

An additional 19,985 feet of sewer pipe was identified as capacity deficient when the future loads for the sphere of influence (SOI) and the future Carbon Canyon development were added to the hydraulic model. This is 2.82 percent (19,985 / 708,750) of the total existing system length. This length does not include the pipes identified as capacity deficient for the existing system analysis and the near-term future analysis, which is discussed in Section 7-1.1 and 7-1.2, respectively.

As discussed in Section 5-2, there are no near-term plans for development within the SOI or the undeveloped portions of Carbon Canyon. Sewer loads were estimated based on acreage and unit flow factors, shown in Table 3-2. The capacity deficiencies attributed to these future loads are located within Sewershed 2 (Fullerton) and Sewershed 10 (Carbon Canyon). The location of these deficiencies are shown on Figure 7-5 and Figure 7-6, respectively.

# Sewershed 8 (Kraemer)



**Legend**

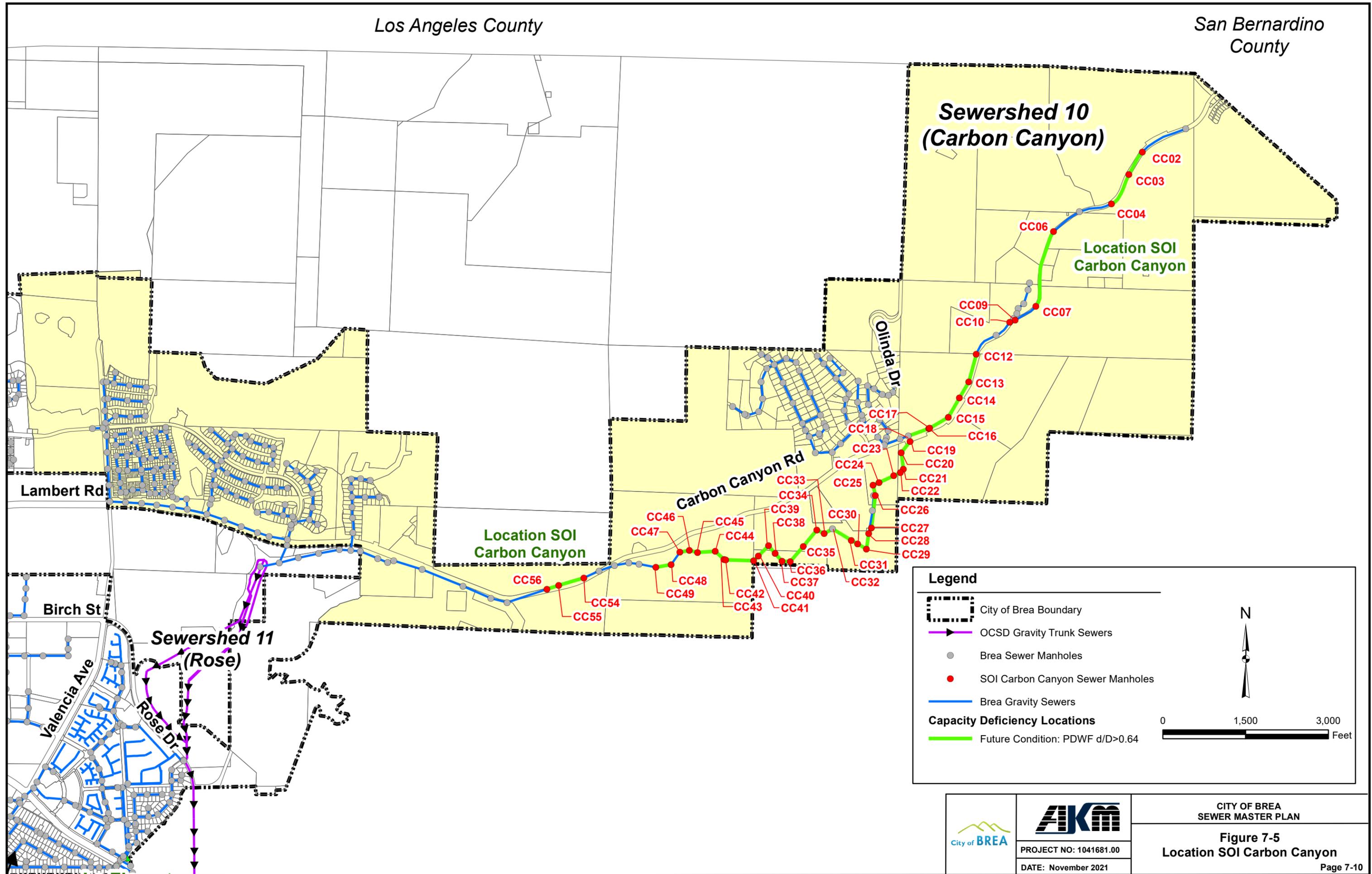
- City of Brea Boundary
- OCSD Gravity Trunk Sewers
- Brea Sewer Manholes
- FUT2 Sewer Manholes
- Brea Gravity Sewers

**Capacity Deficiency Locations**

- Existing Condition: PDWF d/D >0.64
- Near-Term Future Condition: PDWF >0.64

N

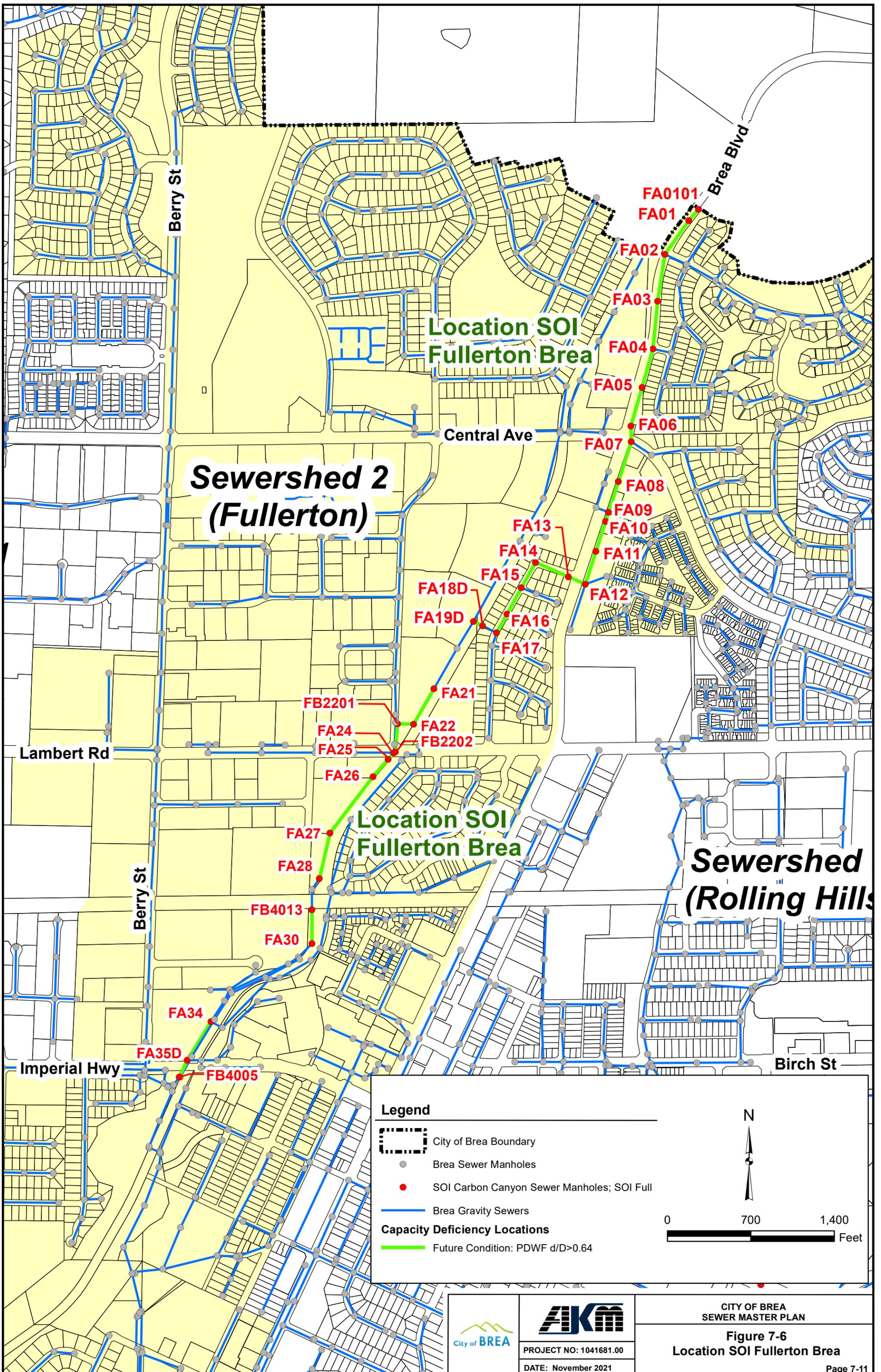
0      700      1,400  
Feet



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CITY OF BREA  
SEWER MASTER PLAN

**Figure 7-5**  
**Location SOI Carbon Canyon**



**Sewershed 2  
(Fullerton)**

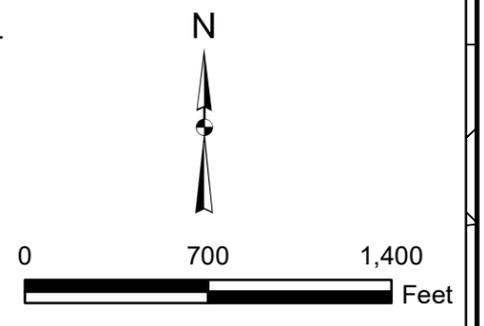
Location SOI  
Fullerton Brea

Location SOI  
Fullerton Brea

**Sewershed  
(Rolling Hills)**

**Legend**

- City of Brea Boundary
- Brea Sewer Manholes
- SOI Carbon Canyon Sewer Manholes; SOI Full
- Brea Gravity Sewers
- Capacity Deficiency Locations**
- Future Condition: PDWF d/D>0.64




  
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CITY OF BREA  
 SEWER MASTER PLAN  
**Figure 7-6**  
**Location SOI Fullerton Brea**  
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As detailed development plans become available or when the City General Plan is updated, the future sewer loads and the effect on the capacity of the downstream sewer system should be re-evaluated. At that time, sewage flows should also be verified through flow monitoring.

#### **7-1.4 Gravity System Downstream of Split Manhole FB56**

It should be noted that the hydraulic model analysis identified the 15-inch sewer (original gravity system) downstream of split Manhole FB56 as hydraulically deficient. This is because the 15-inch system is designed to flow full before excess sewage can overflow to the Brea Creek Lift Station wet well, as described in Section 4-6.2. The InfoSewer model evaluates depth and capacity for each individual sewer reach. It does not calculate the backwater conditions and overflow to the Brea Creek Lift Station.

Downstream of the Brea Creek Lift Station, there is a 15-inch gravity sewer that extends south to the OCSD Fullerton-Brea interceptor at the intersection of Brea Boulevard and Juniper Street, as shown on Figure 7-7. The Brea Creek Lift Station rarely operates under existing conditions, indicating that the original gravity system is able to convey the typical peak flows. Further improvements due to capacity are not recommended at this time.

The City should monitor the operation of the Brea Creek Lift Station in the future and be aware of how often it operates. If the Brea Creek Lift Station is consistently operating, it means the flows have increased significantly in the upstream system or there may be an issue in the original gravity system. The flows in the system should be re-evaluated at that time.

High water levels in the original gravity system downstream of Manhole FB56 were seen in recently completed closed circuit television (CCTV) inspections. Although the sewers are located in excess of 20 feet deep and it may not be an issue that the sewers flow full, it is recommended that Smart Covers be installed at periodic locations throughout the original gravity system from Manhole FB56 to the connection with OCSD. The Smart Covers are devices attached to the underside of the manhole lid that monitor water levels in the manhole itself. Alarms are sent to notify the City when the water reaches a predetermined level in the manhole. This allows the City time to respond to and/or prevent a potential overflow event.

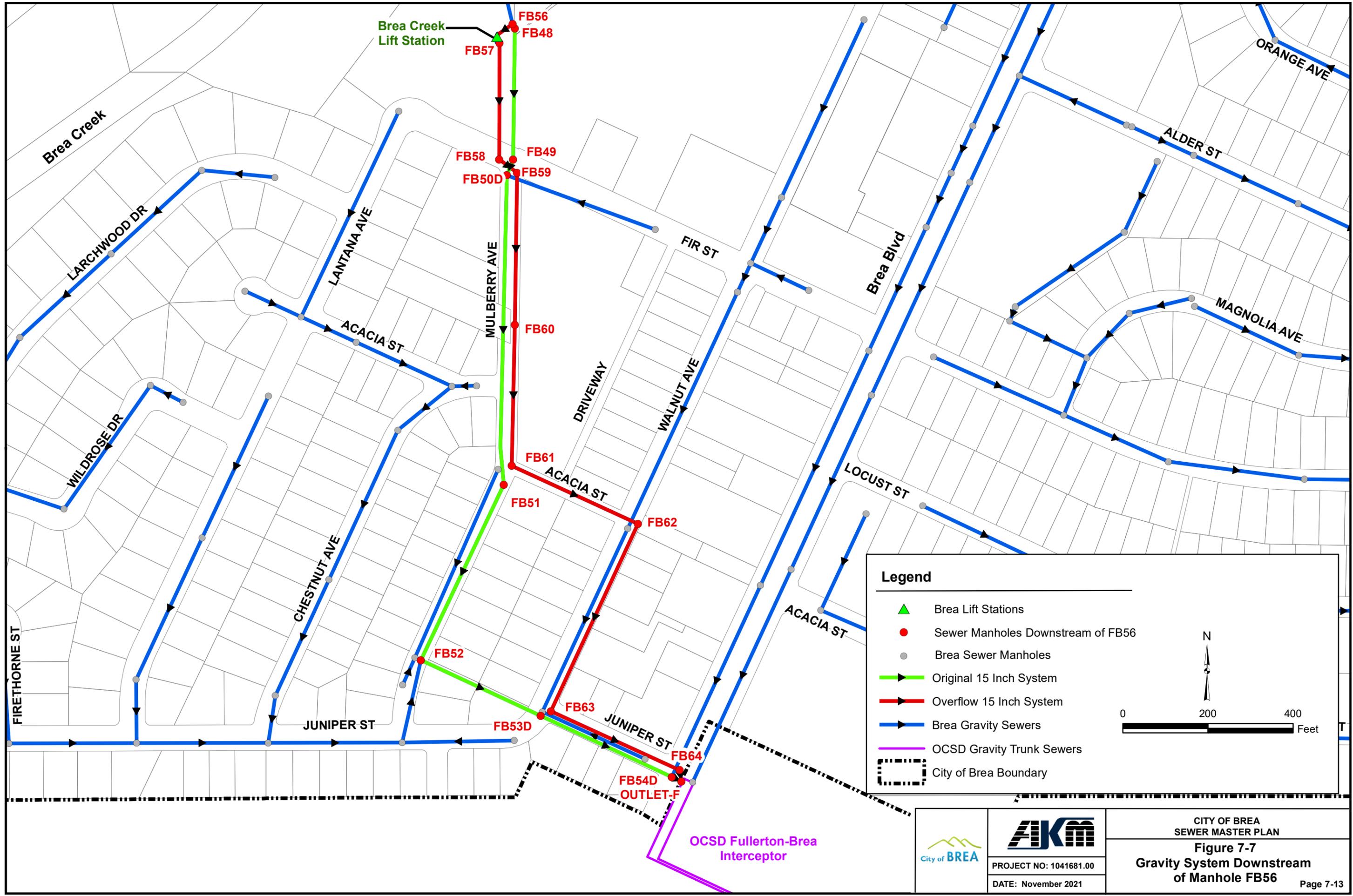
## **7-2 Lift Stations**

The City currently owns three (3) sewer lift stations: Briarwood Lift Station, Brea Creek Lift Station, and La Floresta Lift Station, which are discussed in Section 4-6. The lift stations should be capable of conveying the peak wet weather flows (PWWF).

The existing pumps (205 gpm) at the Briarwood Lift Station have sufficient capacity to convey the maximum anticipated PWWF of 12 gpm.

The duty pumps at the Brea Creek Lift Station have capacity of 1,400 gpm each. They are capable of conveying the estimated existing PWWF (309 gpm) and future PWWF (392 gpm), which includes the future near-term developments. The future PWWF is estimated to be about 1,792 gpm, when the SOI is fully developed, which is greater than the existing 1,400 gpm pump capacity. The necessary future pump capacity at the Brea Creek Lift Station should be re-evaluated as the development details for the SOI area become known.

The duty pumps at La Floresta Lift Station have 350 gpm capacity, which are capable of conveying PWWF for the existing (161 gpm) and future (337 gpm) conditions. The future sewer loads were estimated with unit flow factors and the most-recent planning data, so that sewage loads from buildings that were currently under construction and/or vacant lots could be accounted for.



**Legend**

- ▲ Brea Lift Stations
- Sewer Manholes Downstream of FB56
- Brea Sewer Manholes
- ▶ Original 15 Inch System
- ▶ Overflow 15 Inch System
- ▶ Brea Gravity Sewers
- ▶ OCS D Gravity Trunk Sewers
- City of Brea Boundary



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### 7-3 Siphons

Siphon S-1 is a 10-inch single barrel crossing Brea Creek Channel north of Imperial Highway. The existing and future PDWF are 0.1139 MGD and 0.1156 MGD, respectively. As discussed in Section 4-5.1, the City does not have any operation or maintenance concerns for this siphon.

Siphon S-2 is a 15-inch single barrel crossing Brea Creek Channel south of Imperial Highway. The location of Siphon S-2 is shown on Figure 4-1. The gravity sewer system upstream of the siphon is 24-inch VCP pipe. The existing PDWF is 1.5671 MGD. The future PDWF without and with flows from the SOI are 1.6636 MGD and 3.2846 MGD, respectively. As a result of the resident complaints and the frequent build-up of debris in the upstream manholes and sewers, the capacity and operation and maintenance of this siphon is a high priority.

In order to evaluate the size of the Siphon S-2 barrel (15-inch), a Water Surface Pressure Gradient (WSPG) model was created using the Innovyze XPSTORM/XPSWMM software and the as-built plans for the gravity sewers located upstream and the downstream of the siphon. Since the true sewage level in the system varies based on time and location, the analysis starts at a point further downstream of the siphon location to ensure that the changes in the downstream control will not affect the siphon results. Several test runs using various sewage level controls at the point downstream were conducted to verify the accuracy of the results. The model simulates the operation of the siphon if it were clear of debris accumulation. The analysis results are located in Appendix 7-2 and are summarized as follows:

#### **Existing Average Dry Weather Conditions**

Existing average dry weather flow conditions = 0.8723 MGD or 1.35 cfs

Minimum flow velocity inside siphon = 1.10 fps

Sewage level in upstream siphon manhole = 0.63 feet or 7.6 inches

#### **Existing Peak Dry Weather Conditions**

Existing peak dry weather flow conditions = 1.5671 MGD or 2.42 cfs

Minimum flow velocity inside siphon = 1.98 fps

Sewage level in upstream siphon manhole = 0.93 feet or 11.2 inches

#### **Existing Peak Wet Weather Conditions**

Existing peak dry weather flow conditions = 1.9589 MGD or 3.03 cfs

Minimum flow velocity inside siphon = 2.47 fps

Sewage level in upstream siphon manhole = 1.17 feet or 14.0 inches

#### **Future Average Weather Conditions without Sphere of Influence**

Future average dry weather flow conditions without the Sphere of Influence = 0.9308 MGD or 1.44 cfs

Minimum flow velocity inside siphon = 1.17 fps

Sewage level in upstream siphon manhole = 0.66 feet or 7.9 inches

#### **Future Peak Dry Weather Conditions without Sphere of Influence**

Future peak dry weather flow conditions without the Sphere of Influence = 1.6636 MGD or 2.57 cfs

Minimum flow velocity inside siphon = 2.10 fps

Sewage level in upstream siphon manhole = 0.99 feet or 11.9 inches

**Future Peak Wet Weather Conditions without Sphere of Influence**

Future peak dry weather flow conditions without the Sphere of Influence = 2.080 MGD or 3.22 cfs

Minimum flow velocity inside siphon = 2.62 fps

Sewage level in upstream siphon manhole = 1.25 feet or 15.0 inches

**Future Average Dry Weather Conditions with Sphere of Influence**

Future average dry weather flow conditions with the Sphere of Influence = 1.9498 MGD or 3.02 cfs

Minimum flow velocity inside siphon = 2.46 fps

Sewage level in upstream siphon manhole = 1.13 feet of 13.6 inches

**Future Peak Dry Weather Conditions with Sphere of Influence**

Future peak dry weather flow conditions with the Sphere of Influence = 3.2846 MGD or 5.08 cfs

Minimum flow velocity inside siphon = 4.14 fps

Sewage level in upstream siphon manhole = 2.02 feet or 24.2 inches

**Future Peak Wet Weather Conditions with Sphere of Influence**

Future peak dry weather flow conditions with the Sphere of Influence = 4.1058 MGD or 6.35 cfs

Minimum flow velocity inside siphon = 5.18 fps

Sewage level in upstream siphon manhole = 2.71 feet or 32.5 inches

The hydraulic analysis of the siphon shows that the 15-inch barrel is sufficiently sized for existing and near-term future conditions without estimated SOI loads as long as the siphon is clear of debris, meaning the City must periodically flush the siphon.

If the SOI becomes fully developed, the capacity of the single barrel 15-inch siphon may not be sufficient. The analysis resulted in flow depths greater than 24-inches in the manholes and sewers upstream of the siphon under peak dry weather and peak wet weather conditions, meaning that the sewers would surcharge under these circumstances. This indicates that the 15-inch barrel siphon is not large enough to handle the estimated flows when the SOI is fully developed. For this master plan study, assumptions were made on how the SOI area would develop and be provided with sewer service. Since the exact details of the development of the SOI is relatively unknown, it is recommended that the capacity of the siphon be re-evaluated at a later date when more information is available.

Since the siphon has adequate capacity, the historical complaints of build-up is likely caused by obstructions and debris. Because the siphon is a single barrel and currently has no way to bypass the flow, the siphon does not get cleaned and there is no CCTV data. It is recommended that the City construct a permanent bypass line across the pedestrian bridge. The City will be able to isolate Siphon S-2 for routine maintenance, which is expected to resolve the sewer build-up issue at this site.

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## SECTION 8 GRAVITY SEWER CONDITION ASSESSMENT

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### 8-1 General

Closed circuit television (CCTV) inspections of the City's sewer system is essential in evaluating the condition of the gravity pipes, maximizing the useful life of pipes, and preventing sanitary sewer overflows.

The State Water Resources Control Board (SWRCB) adopted the Statewide General Waste Discharge Requirements (WDR) for sanitary sewer systems and the associated monitoring and reporting program by issuing Order No. 2006-0003 on May 2, 2006. Provision D13.iv of the WDR requires each enrollee to develop and maintain an Operation and Maintenance Program with specified elements. One of the elements is a *"rehabilitation and replacement plan to identify and prioritize system deficiencies and implement short-term and long-term rehabilitation actions to address each deficiency"*. The program should include the following:

1. Regular visual and TV inspections of the sewer manholes and gravity pipes
2. System for ranking the condition of sewer pipes and scheduling rehabilitation
3. Rehabilitation and replacement should focus on facilities that are at risk of collapse or prone to more frequent blockages due to identified defects.
4. Capital improvement plan that addresses proper management and protection of the infrastructure assets
5. Time schedule for implementing the short and long term plans
6. Schedule for developing the funds needed for the capital improvement plan

The purpose of CCTV inspections is to create an archive of the condition of all pipes within a system. The documentation of all defects within a sewer allows for the development of a condition rating for each pipe. CCTV inspections are used for, but not limited to the following:

- Identification of structural defects
- Identification of operation and maintenance related deficiencies
- Infiltration/Inflow investigations
- Evaluation of depth of flow and d/D to verify capacity deficiencies
- Pre-rehabilitation surveys
- Post-rehabilitation survey
- Pre-acceptance surveys (for new facilities)
- Routine assessment
- Capital Improvement Program assessment

### 8-2 Closed Circuit Television Inspections

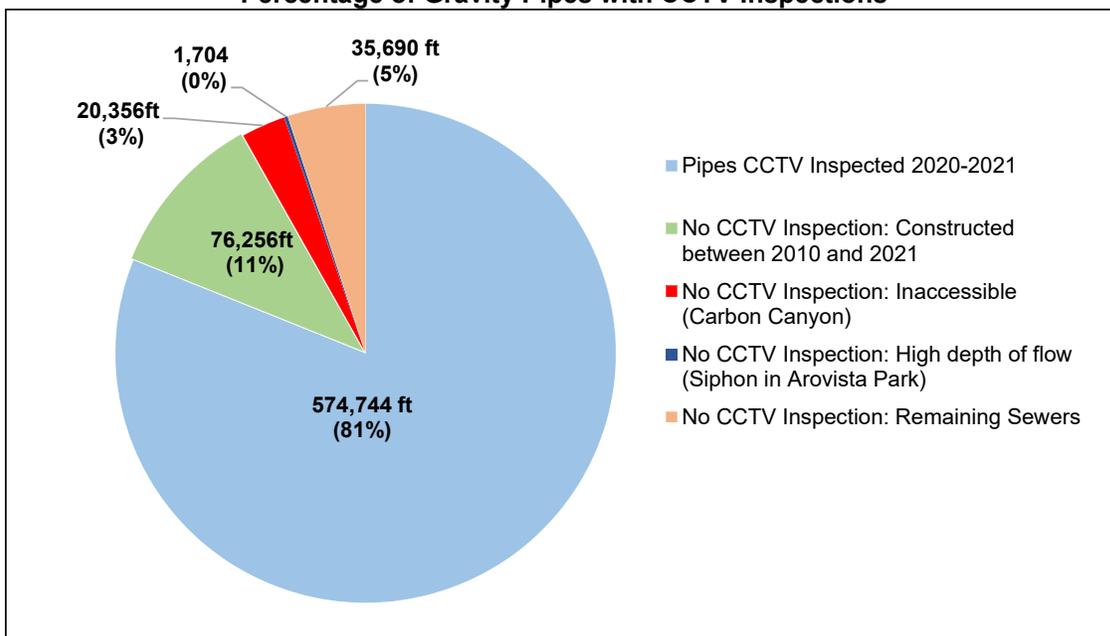
Pipe Tec Incorporated (Pipe Tec) conducted CCTV inspections of the City's gravity sewers between April 7, 2020 and February 12, 2021. During this time, approximately 574,744 feet of sewers (2,557 pipes) was cleaned and inspected by closed circuit television. The National Association of Sewer Service Companies (NASSCO) Pipeline Assessment and Certification Program (PACP) coding procedures formed the basis of the gravity sewer inspections.

A breakdown of the length of pipe inspected and not inspected is shown in Figure 8-1. The City's sewer system includes a total of 708,750 feet of gravity sewers. Approximately 574,744 feet or 81 percent of the system was

inspected in 2020-2021. The remaining 19 percent of the City's system does not have a record of CCTV inspection due to one of the following reasons:

- CCTV inspections for gravity sewers constructed between 2010 and 2021 were delayed until a later date.
- Some sewers in the Carbon Canyon Sewershed are located in easements that are currently inaccessible to CCTV inspection trucks. The City can only access some of the manholes by foot. The diameters range between 8-inches and 15-inches. These sewers are not properly maintained due to the inaccessibility. A capital improvement project was developed to construct access roads to these sewers. The sewers in this area will be inspected when the access roads are constructed.
- Sewers upstream of Siphon S-2 in Arovista Park often back up and flow fairly full and therefore could not be inspected. A capital improvement project was developed to construct a bypass line so that the siphon can be cleaned regularly. The sewers in this area will be inspected when the bypass line is constructed, the siphon is cleared of debris, and flows are not backing up into the system.
- CCTV inspection data was not provided for analysis of the remaining five percent of sewers. It is recommended that CCTV inspections be conducted when improvement projects are being implemented near these sewers.

**Figure 8-1**  
**Percentage of Gravity Pipes with CCTV Inspections**



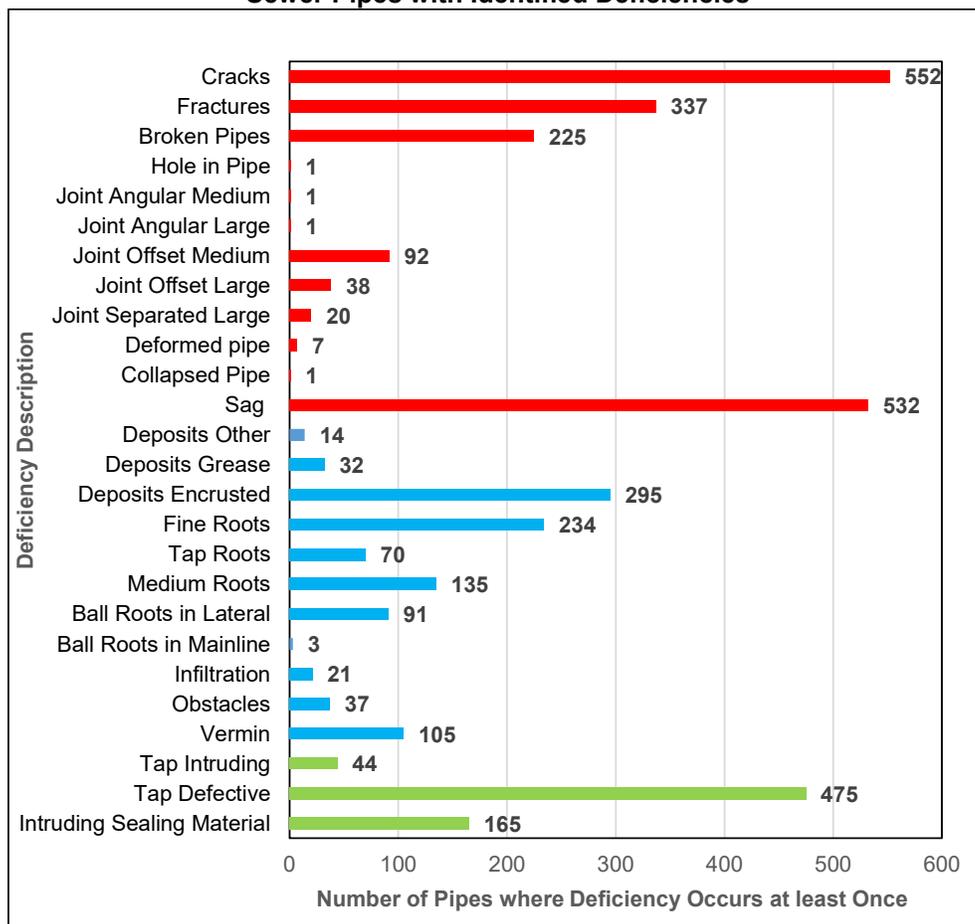
### 8-3 Gravity Sewer Inspection Report Database Summary

The InfoAsset Planner (InfoAsset) software by Innovyze is an ArcGIS based asset integrity management and capital planning software package, certified by NASSCO. Since the CCTV inspection data follows the PACP standards, the data was easily imported into the InfoAsset software, which already recognizes the same coding system that is required by PACP. For this project, the inspection data was imported into InfoAsset in order to easily compile the inspection data, filter the data, review videos, and plot the locations of the identified defects graphically on the Sewer GIS. An inspection report database summary was generated from InfoAsset and can be found in Appendix 8-1. The inspection report database summary includes the following information:

- Sewer Pipe ID
- Location (Street Name)
- Upstream and Downstream Manhole Identification Numbers
- Pipe Size
- Pipe Material
- Date of Installation
- Length of Pipe (based on City GIS)
- PACP Peak Structural Grades
- PACP Peak Operation and Maintenance Grades
- Deficiency Tabulation using PACP Codes

Figure 8-2 shows the number of pipes where an identified deficiency was found at least once within the pipe. It provides a general sense of the magnitude of the problems that were found within the City's sewer system inspected in 2020-2021. The problems most identified were cracks (552 pipes, 22% of total pipes inspected), sags (532 pipes, 21% of total pipes inspected) and tap defects (475 pipes, 19% of total pipes inspected).

**Figure 8-2**  
**Sewer Pipes with Identified Deficiencies**



#### 8-4 Condition Grades

The PACP Condition grading system Version 7 was used to assign condition ratings for structural defects and operation and maintenance defects for each sewer pipe. The rating provides the ability to quantitatively measure the difference in pipe condition between one inspection and subsequent inspections, and to prioritize

among different pipe segments. Grades are assigned based on the significance of the defect, extent of damage, percentage of restriction of flow capacity or the amount of wall loss due to deterioration. A grade of 1 to 5 is assigned to each defect based on potential for further deterioration or pipe failure. Pipe failure is defined as when it can no longer convey the design capacity. The grades are as follows:

- 5 – Most significant defect grade
- 4 – Significant defect grade
- 3 – Moderate defect grade
- 2 – Minor to moderate defect grade
- 1 – Minor defect grade

The grade values for the most common defects are shown in Table 8-1. Grade ranges are provided for defects that vary depending on the degree of the deficiency or the clock position of the defect.

**Table 8-1**  
**Gravity Sewer Defect Codes and Condition Grades**

Structural Defects	PACP Code	Grade	Operation & Maintenance/ Construction Feature Defects	PACP Code	Grade
Crack Longitudinal	CL	2	Deposits Attached Encrustation	DAE	2-5
Crack Circumferential	CC	1	Deposits Attached Grease	DAGS	2-5
Crack Multiple	CM	3	Deposits Attached Ragging	DAR	2-5
Crack Spiral	CS	2	Deposits Attached Other	DAZ	2-5
Crack Hinge 2	CH2	4	Deposits Settled Hard/Compacted	DSC	2-5
Crack Hinge 3	CH3	5	Deposits Settled Fine	DSF	2-5
Crack Hinge 4	CH4	5	Deposits Settled Gravel	DSGV	2-5
Fracture Longitudinal	FL	3	Deposits Settled Other	DSZ	2-5
Fracture Circumferential	FC	2	Deposits Ingress Fine	DNF	2-5
Fracture Multiple	FM	4	Deposits Ingress Gravel	DNGV	2-5
Fracture Spiral	FS	3	Deposits Ingress Other	DNZ	2-5
Fracture Hinge 2	FH2	3	Roots Fine Barrel	RFB	2
Fracture Hinge 3	FH3	4	Roots Fine Lateral	RFL	1
Fracture Hinge 4	FH4	4	Roots Fine Connection	RFC	1
Broken	B	4	Roots Fine Joint	RFJ	1
Broken Soil Visible	BSV	5	Roots Tap Barrel	RTB	3
Broken Void Visible	BVV	5	Roots Tap Lateral	RTL	2
Hole	H	4	Roots Tap Connection	RTC	2
Hole Soil Visible	HSV	5	Roots Tap Joint	RTJ	2
Hole Void Visible	HVV	5	Roots Medium Barrel	RMB	4
Deformed	D	4	Roots Medium Lateral	RML	3
Deformed Rigid	DR	4-5	Roots Medium Connection	RMC	3
Deformed Flexible Bulging Round	DFBR	3-5	Roots Medium Joint	RMJ	3
Deformed Flexible Bulging Inverse Curvature	DFBI	5	Roots Ball Barrel	RBB	5
Deformed Flexible Creasing	DFC	5	Roots Ball Lateral	RBL	4
Deformed Flexible Elliptical	DFE	3	Roots Ball Connection	RBC	4
Deformed Brick Bulging Round	DTBR	4-5	Roots Ball Joint	RBJ	4
Deformed Brick Bulging Inverse Curvature	DTBI	5	Infiltration Weeper	IW	2
Collapse	XP	5	Infiltration Runner	ID	3
Joint Offset Medium	JOM	3	Infiltration Gusher	IG	5
Joint Offset Large	JOL	5 <sup>a</sup>	Infiltration Stain	IS	0
Joint Angular Medium	JAM	3	Obstruction Brick or Masonry	OBB	2-5
Joint Angular Large	JAL	4	Obstruction Pipe Material in Invert	OBM	2-5

**Table 8-1 (continued)**  
**Gravity Sewer Defect Codes and Condition Grades**

Structural Defects	PACP Code	Grade	Operation & Maintenance/ Construction Feature Defects	PACP Code	Grade
Joint Separated Medium	JSM	3	Obstruction Intruding Through Wall	OBI	5
Joint Separated Large	JSL	4	Obstruction Wedged Joint	OBJ	2-5
Surface Damage Roughness Increased	SRI	1	Obstruction Through Connection	OBC	2-5
Surface Damage Aggregate Visible	SAV	2	Obstruction External Pipe or Cable	OBP	2-5
Surface Damage Aggregate Projecting	SAP	3	Obstruction Built into Structure	OBS	2-5
Surface Damage Aggregate Missing	SAM	4	Obstruction Construction Debris	OBN	2-5
Surface Damage Reinforcement Visible	SRV	4	Obstacle/Obstruction Rocks	OBR	2-5
Surface Damage Reinforcement Projecting	SRP	5	Obstacle/Obstruction Other Objects	OBZ	2-5
Surface Damage Reinforcement Corroded	SRC	5	Vermin Rat	VR	2
Surface Damage Missing Wall	SMW	5	Vermin Cockroach	VC	1
Surface Damage Surface Spalling	SSS	2	Vermin Other	VZ	1
Surface Damage Spalling of Coating	SSC	1	Tap Factory Defective	TFD	3
Surface Damage Corrosion	SCP	3	Tap Factory Intruding	TFI	2-5
Surface Damage Other	SZ	0	Tap Break-in/Hammer Defective	TBD	3
Lining Feature Blistered	LFB	3	Tap Break-in/Hammer Intruding	TBI	2-5
Lining Failure Buckled	LFBK	3 <sup>b</sup>	Tap Saddle Defective	TSD	3
Lining Failure Bulges	LFBU	3 <sup>b</sup>	Tap Saddle Intruding	TSI	2-5
Lining Failure Service Cut Shifted	LFCS	3	Tap Rehabilitated Defective	TRD	3
Lining Feature Detached	LFD	3	Tap Rehabilitated Intruding	TRI	2-5
Lining Feature Defective End	LFDE	3	Intruding Sealing Material Sealing Ring	ISSR	2-5
Lining Feature Delamination	LFDL	3	Intruding Sealing Material Sealing Ring Hanging	ISSRH	2-5
Lining Feature Overcut Service	LFOC	3	Intruding Sealing Material Sealing Ring Broken	ISSRB	2-5
Lining Feature Undercut Service	LFUC	3	Intruding Sealing Material Sealing Loose, Poorly fitting	ISSRL	2-5
Lining Feature Wrinkled	LFW	3	Intruding Sealing Material Grout	ISSGT	2-5
Lining Feature Other	LFZ	0	Intruding Sealing Material Other	ISZ	2-5
Weld Failure Circumferential	WFC	2			
Weld Failure Longitudinal	WFL	2	Notes:		
Weld Failure Multiple	WFM	3	<sup>a</sup> PACP grade is 4 increased to grade 5 for this study because Joint Offset Large is considered a severe defect that needs to be addressed.		
Weld Failure Spiral	WFS	2	<sup>b</sup> PACP code is from Version 6.		
Weld Failure Other	WFZ	0	<sup>c</sup> PACP classifies sags as a miscellaneous defect. Sags are considered structural defects for this study.		
Point Repair Lining	RPL	0			
Point Repair Liner Defective	RPLD	4			
Point Repair Patch	RPP	0			
Point Repair Patch Defective	RPPD	4			
Point Repair Replacement	RPR	0			
Point Repair Replacement Defective	RPRD	4			
Point Repair Other	RPZ	0			
Point Repair Other Defective	RPZD	0			
Miscellaneous Water Level Sag	MWLS	2-5 <sup>c</sup>			

## 8-5 Severe Structural Defects

Structural defects with a grade of 4 or 5 are of the highest concern because they have the highest probability of pipe failure and causing a sewer spill. The PACP Structural Defects with a grade of 4 or 5 are listed in Table 8-2.

The gravity sewers color coded by the peak structural defect grade within each pipe is shown on Figure 8-3. There were 102 pipes and 24,837 feet (4.3% of total length inspected) of sewer found with at least one structural grade 5 defect identified. There were 291 pipes and 70,921 feet (12.3% of total length inspected) of sewer found with at least one structural grade 4 defect identified.

**Table 8-2**  
**Structural Defects with Grade 4 or 5**

Structural Defects	PACP Code	Grade
Crack Hinge 2	CH2	4
Crack Hinge 3,4	CH3,CH3	5
Fracture Multiple	FM	4
Fracture Hinge 3,4	FH3, FH4	4
Broken	B	4
Broken- Soil/Void Visible	BSV, BVV	5
Hole	H	4
Hole- Soil/Void Visible	HSV,HVV	5
Deformed	D	4
Collapse	XP	5
Joint Offset Large	JOL	5 <sup>a</sup>
Joint Angular Large	JAL	4
Joint Separated Large	JSL	4
Surface Damage Missing Wall	SMW	5
Point Repair Liner Defective	PRLD	4
Point Repair Patch Defective	RPPD	4
Point Repair Replacement Defective	RPRD	4
Misc. Water Level Sag	MWLS	5 <sup>b</sup>

<sup>a</sup> PACP grade is 4. Grade is increased for this study because Joint Offset Large is considered a severe defect that needs to be addressed.

<sup>b</sup> PACP evaluates as an miscellaneous defect. Sags are evaluated as structural defects for this report.

Los Angeles County

Los Angeles County

San Bernardino County

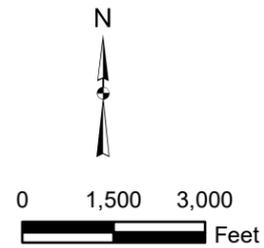


**Legend**

-  No Inspection: High Depth of Flow (Arovista Park)
-  No Inspection: No Access (Carbon Canyon)
-  No Inspection: Constructed between 2010 and 2021
-  No Inspection: Other Issues

**Peak Structural Grade**

-  0 1,363 pipes; 292,368 feet
-  1 34 pipes; 7,794 feet
-  2 389 pipes; 88,838 feet
-  3 378 pipes; 89,986 feet
-  4 291 pipes; 70,921 feet
-  5 102 pipes; 24,837 feet



		<p>CITY OF BREA SEWER MASTER PLAN</p>
	<p>PROJECT NO: 1041681.00</p> <p>DATE: November 2021</p>	<p><b>Figure 8-3</b> <b>Peak Structural Grades</b></p>

## 8-6 Severe Operation and Maintenance and Construction Defects

The PACP Operation and Maintenance (O&M) codes focus on foreign objects found in pipes that can affect the conveyance of sewage. Targeted routine maintenance extends the pipe's useful life and maintains reliable service. Pipe deterioration can be significantly affected if O&M defects are not addressed.

The Construction codes describe various defects and conditions associated with construction methods. A summary of the O&M and construction defects are shown in Table 8-3.

The gravity sewers color coded by the peak O&M and construction defect grade within each pipe is shown on Figure 8-4. There were 65 pipes and 16,617 feet (2.9% of total length inspected) of sewer found with at least one O&M or construction grade 5 defect identified. There were 184 pipes and 46,358 feet (8.1% of total length inspected) of sewer found with at least one O&M or construction grade 4 defect identified.

It is recommended that the City investigate the pipes with an O&M or construction grade 4 or 5 defect by reviewing the CCTV inspection data in detail. Some of these pipes may require immediate action or need to be moved onto the City's hotspot list.

**Table 8-3  
O&M and Construction Defects Summary**

O&M Defects	PACP Code	Grade
Deposits Attached	DAE, DAGS, DAR, DAZ	2-5
Deposits Settled	DSC, DSF, DSGV, DSZ	2-5
Deposits Ingress	DNF, DNGV, DNZ	2-5
Roots Medium Barrel	RMB	4
Roots Ball Barrel	RBB	5
Roots Ball Lateral	RBL	4
Roots Ball Connection	RBC	4
Roots Ball Joint	RBJ	4
Infiltration Gusher	IG	5
Obstructions	OBB, OBM, OBJ, OBC, OBP, OBS, OBN, OBR, OBZ	2-5
Obstruction Intruding Through Wall	OBI	5
Construction Defects	PACP Code	Grade
Tap Factory Intruding	TFI	2-5
Tap Break-In/Hammer Intruding	TBI	2-5
Tap Saddle Intruding	TSI	2-5
Tap Rehabilitated Intruding	TRI	2-5
Intruding Sealing Material	ISSR, ISSRH, ISSRB, ISSRL, ISSGT, ISZ	2-5
Line Defects	LL, LLU, LLD, LR, LRU, LRD, LU, LD	2-5

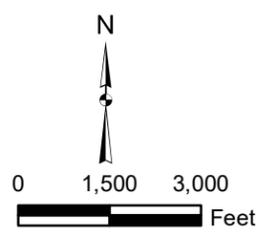


**Legend**

- No Inspection: High Depth of Flow (Arovista Park)
- No Inspection: No Access (Carbon Canyon Road)
- No Inspection: Constructed between 2010 and 2021
- No Inspection: Other Issues

**Peak O&M and Construction Grade**

- 0 1,461 pipes; 309,869 feet
- 1 145 pipes; 36,336 feet
- 2 503 pipes; 117,333 feet
- 3 199 pipes; 48,231 feet
- 4 184 pipes; 46,358 feet
- 5 65 pipes; 16,617 feet

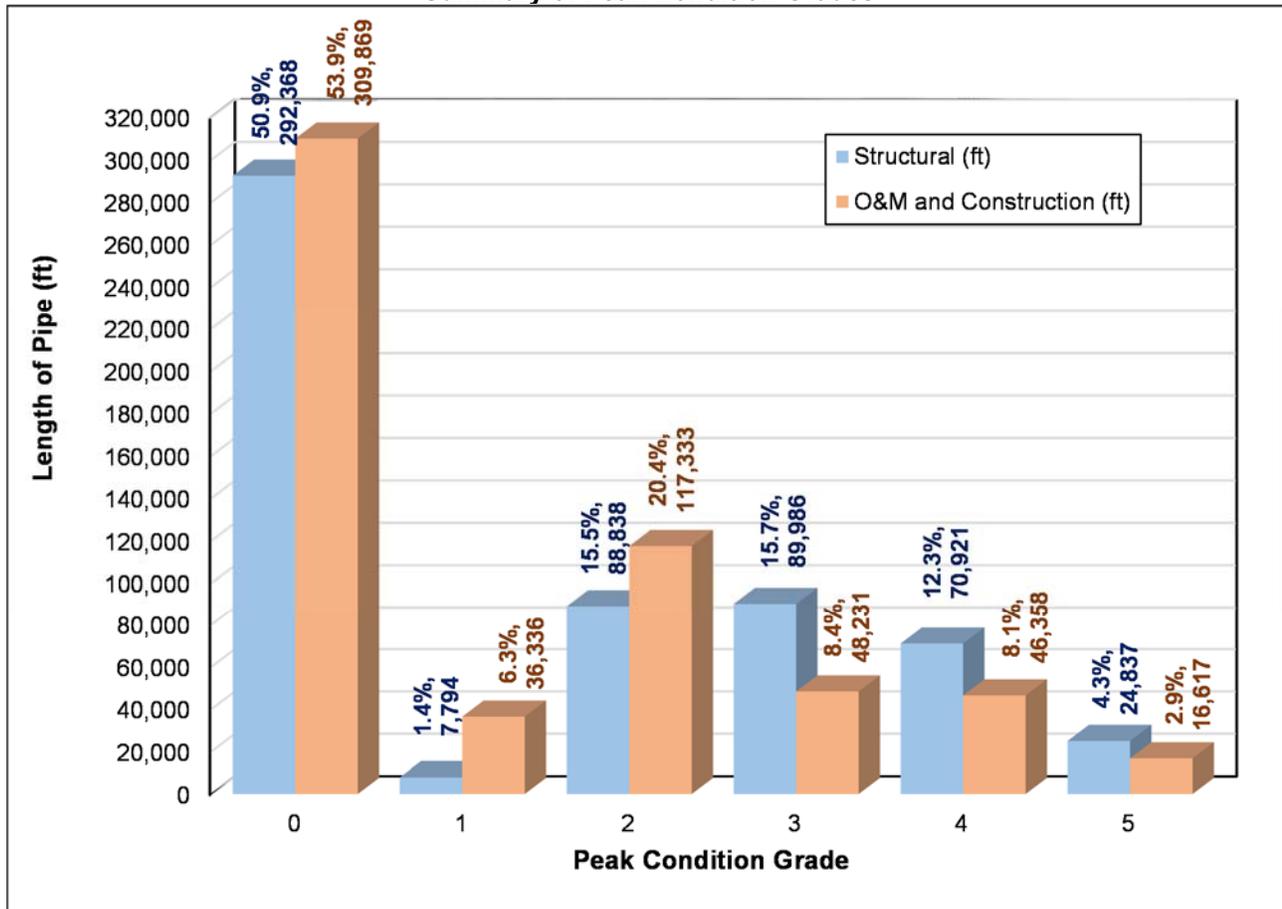


**AKM**  
 PROJECT NO: 1041681.00  
 DATE: November 2021

CITY OF BREA  
 SEWER MASTER PLAN  
**Figure 8-4**  
**Peak O&M and Construction Grades**

Figure 8-5 shows the length of pipe versus the highest deficiency grades found in each pipe. For example, there was 24,837 feet of pipe (4.3% of total length inspected) with at least one structural grade 5 defect and 16,617 feet of pipe (2.9% of total length inspected) with at least one O&M or Construction grade 5 defect.

**Figure 8-5**  
**Summary of Peak Condition Grades**



### 8-7 Recommendations for Condition Assessment Deficiencies

Improvement projects are recommended for all gravity sewers that were identified to have at least one structural grade 5 defect. Structural grade 5 defects are of the highest concern because they have the highest probability of pipe failure and causing a sewer spill.

Prior to implementing improvement projects, CCTV inspection recordings and reports need to be reviewed in detail. Specific improvement projects should then be developed for pipe removal and replacement, spot repair, pipe lining, increased maintenance, and/or other methods shall be developed based on a detailed review of the inspection data.

Approximately 35,690 feet of sewer pipe was not CCTV inspected in 2020-2021. It is assumed that the condition of these remaining sewers will be similar to those that were inspected. Therefore, the capital improvement program (see Section 9) includes the cost to replace and/or rehabilitate an additional 1,535 feet of pipe (4.3% of the 35,690 feet of remaining sewer pipe).

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## SECTION 9 CAPITAL IMPROVEMENT PROGRAM

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### 9-1 General

The primary goal of the development of the Capital Improvement Program (CIP) is to provide the City of Brea with a long-range planning tool for implementing its sewer capacity improvements in an orderly manner and a basis for financing of these improvements.

The sewer improvement projects were selected primarily based upon health and safety concerns and minimizing the possibility of overflows. The recommended CIP projects have been based upon the best information currently available. It should be updated as new information becomes available. The projects were developed upon performing a hydraulic analysis of the gravity system, conducting field visits of the pump stations and siphons, and conducting a condition assessment of the gravity sewers.

The recommended CIP projects are detailed in Table 9-1. The project locations are shown on Plate 2.

#### 9-1.1 Cost Estimates

The cost estimates presented in Table 9-1 reflect replacement of the existing facilities. Replacement costs are generally more conservative and will therefore allow the City more flexibility for each project.

The construction costs to replace gravity pipes are generally based upon \$40 per diameter inch-foot of pipe. A contingency of 50 percent has been added to the gravity sewer pipeline projects to account for construction contingencies, engineering design, administration, and construction management and inspection.

### 9-2 Capacity Improvement Projects

The projects that will eliminate the capacity deficiencies in the collection system are prioritized based upon the analysis conducted using the calibrated hydraulic model.

Generally, the recommended CIP projects include system components beyond the calculated capacity deficiencies. This is because while some pipes between two deficient segments may not indicate a calculated deficiency, they need to be increased in size to match the upstream pipe.

As discussed in Section 7-1.2 and Section 7-1.3, hydraulic deficiencies were identified when the sewer loads were increased based on available planned future development information. Capital improvement projects were not included in the Sewer Master plan for the deficiencies caused by future development loads. This is either because the future development information is in preliminary stages and needs to be refined or it is not definite that the future development will be approved by the City. It is recommended that project specific studies be performed when development projections are solidified. The specific studies should use detailed development projections to accurately develop future loads and identify the necessary sewer improvements to the existing system.

#### Location EX1 - Randolph Avenue and Imperial Highway

As discussed in Section 7-1.1, Location EX1 pipes were identified with a capacity deficiency as well as condition defects. Location EX1 pipes are therefore recommended for replacement. These sewers are about 20 feet deep per as-built plans. Manhole RB59D is a drop manhole located in Randolph Avenue, north of Imperial Highway. The drop in elevation allows the existing 10-inch sewer to cross below an existing 36-inch storm drain and a 39-inch Metropolitan Water District (MWD) water line.

Location EX1 is located in Randolph Avenue crossing the Imperial Highway. The intersection of these two streets is very busy since it is near the Brea Mall and also provides access to and from the 57 freeway. Due to the heavy traffic at the intersection, the City investigated the possibility of using the pipe bursting technology to replace this pipe so that they wouldn't have to open cut across Imperial Highway. A casing was found around the pipe and therefore, pipe bursting became infeasible.

It is recommended that a detailed utility study be conducted to identify an appropriate sewer alignment and to evaluate the best construction method for the replacement sewer. The City should evaluate the possibility of performing a jack-and-bore operation and/or traditional open cut methods for the recommended 15-inch replacement sewer. The CIP project cost is based on a jack-and-bore construction method (~\$2,000/ foot), which is anticipated to generate the most conservative cost estimate.

Until improvements are implemented at Location EX1, it is recommended that a Smart Cover be installed at Manhole FB59D to allow the City time to respond to and/or prevent a potential overflow event.

#### Location EX2 - Walling Avenue, between De Jur Street and Delay Street

As discussed in Section 7-1.1, Location EX2 pipes were identified with a minor capacity deficiency via the hydraulic model analysis, as well as high water levels due to a sag in the pipe. It is recommended that the existing 8-inch sewer be replaced with a 10-inch pipe when improvements are implemented. Until then, it is recommended that a Smart Cover be installed at Manhole IC32 to allow the City time to respond to and/or prevent a potential overflow event. Since the capacity deficiency is minimal in nature, this project is not a high priority.

### **9-3 Lift Station, Siphon, and Carbon Canyon Sewers**

#### **9-3.1 Briarwood Lift Station**

The Briarwood Lift Station is recommended to be replaced due to the facility age and condition as discussed in Section 4-6.1. The existing facility should be replaced with a package pump station. The replacement project cost is estimated to be \$1,005,000.

#### **9-3.2 Siphon S-2 – Brea Creek, South of Imperial Highway**

There has been a history of sewage backups near Siphon S-2. As discussed in Section 7-3, the hydraulic analyses of Siphon S-2 determined that the existing 15-inch siphon barrel has adequate capacity to convey the existing and near-term future flows (includes near-term developments), assuming that the siphon is clear of debris accumulation. Siphon S-2 does not have the capacity to convey the PWWF when the SOI is fully developed, based on current available planning information. It is recommended that additional planning studies be conducted when more detailed information becomes available, regarding the proposed land uses as well as the sewer facilities (i.e. determination of flow paths and connection points to the existing sewer system).

Siphon S-2 is a single barrel siphon without a way to bypass the flow around it. The siphon has not been cleaned since it was constructed and there is no CCTV inspection data for the siphon. Since the siphon has adequate capacity for the existing flows, it is likely that the buildup of debris in the sewers upstream of the siphon is due to obstructions and/or debris in the siphon itself that has not been cleared out.

It is recommended that the City construct a permanent bypass line across the nearby pedestrian bridge, or a new utility bridge. The proposed permanent bypass line will be used to convey flow upstream of the siphon, across Brea Creek Channel to the downstream system. This will give the City the ability to isolate Siphon S-2 so that it can be flushed out on a regular basis, which will keep the siphon clear of debris.

Phase 1 of the project includes the construction of a bypass line involving the construction of the following:

- A diversion manhole with a slide gate system to divert the tributary flow upstream of the siphon
- 5-foot diameter manhole structure downstream of the diversion manhole, which will serve as a wet well for the diverted tributary flow. The structure will be approximately 10-feet deep, or 5-feet lower than the invert elevation at the upstream manhole to provide sufficient submergence for the bypass pump without the flow backing up in the upstream system.
- Temporary pump with 650 gpm capacity, which is appropriate for the estimated near-term ADWF
- Vault for the temporary pump with a connection to the suction pipe that extends to the 5-foot diameter storage manhole and the permanent discharge pipeline.
- 8-inch bypass force main that will extend approximately 290-feet south of the siphon to the pedestrian bridge or a new utility bridge, 75-feet east across the pedestrian bridge, and 100-feet east to the existing 27-inch gravity sewer.
- Manhole on the 27-inch gravity pipe to receive the by-pass flow.

The cleaning interval will have to be determined by the City. Currently, a contractor is called upon on a quarterly basis to vacuum out debris from the sewers upstream of the siphon. It is expected that the siphon would need to be flushed at a minimum on a quarterly basis.

As detailed on Figure 8-1, there are approximately 1,700 feet of sewers that have not been CCTV inspected due to high water back flow conditions caused by the Siphon S-2. Phase 2 of the Siphon S-2 improvements include the CCTV inspection of these upstream sewers, which will be accessible, once the by-pass line has been constructed.

The estimated construction cost of this project is \$750,000 if the existing foot bridge can be utilized.

### **9-3.3 Carbon Canyon Sewers**

As discussed in Section 8-2.1, the City has been unable to provide proper maintenance for the gravity sewers located in easements (natural dirt trail) south of Carbon Canyon Road, due to difficulties accessing the manholes. The sewer manholes can only be reached by foot in some areas.

The CIP includes a project to construct a 25-foot wide access road to the sewer manholes. This will not only allow for CCTV inspection of the sewers but also routine maintenance. The access road is estimated to be approximately 1.5 miles in length including two 96-foot diameter turn-arounds. Phase 1 of the CIP project is the right-of-way acquisition, with estimated cost of \$705,750. Phase 2 of the CIP project is the construction of the access roads, with estimated construction cost of \$1.80 Million. Phase 3 of the CIP project is cleaning and CCTV inspection of the sewers in Carbon Canyon and in the easements that were not inspected in 2020-2021 (22,500 feet). The estimated cost of Phase 3 is \$690,000. This cost includes cleaning, CCTV inspection, and anticipated traffic control plans and implementation. Carbon Canyon Road is a two lane road with heavy traffic throughout the day. Work hours is expected to be limited, therefore CCTV inspection production is expected to be much less than in a typical residential area. The cost also considers the fact that additional crews may be needed for implementing the traffic control plan, night time work may be necessary, and access to water may not be immediately adjacent to the sewers that need to be cleaned.

The Carbon Canyon Sewershed (Sewershed 10) is generally undeveloped aside from the Olinda Village and Hollydale Mobile Home Estates areas. There are no near-term plans for development in this area; however, there is a potential for major development in the extended future. During the planning stages of the Carbon Canyon area, it is recommended that the City reevaluate the available capacity of the existing sewers and consider the possibility of relocating the sewers to Carbon Canyon Road. This would likely require a new

sewer lift station to pump flow from a low point over a high point in Carbon Canyon Road. Another lift station may be needed on the south end of the mobile home area to pump flow collected up to Carbon Canyon Road.

#### **9-4 Condition Improvement Projects**

Condition improvement projects are recommended for all sewers with at least one structural defect grade of 5, which include broken pipes, pipes with holes, and other defects that affect the structural integrity of the pipe. The recommended projects are summarized in Table 9-1 and detailed on Plate 2.

CCTV inspection videos and summary reports need to be reviewed in detail for all pipes that are identified with structural defect grade of 5. Specific improvement projects for pipe removal and replacement, spot repair, pipe lining, increased maintenance, or other methods shall be developed based on the CCTV review. The project cost included in Table 9-1 is based on pipe replacement.

There are approximately 35,690 feet of pipe that were not CCTV inspected during this Sewer Master Plan. It is assumed that the condition of these sewers will be similar to those that were inspected. The capital improvement program will include the cost to improve an additional 1,535 feet of pipe for condition defects, which are assumed to have a peak structural grade of 5 (35,690 feet x 4.3%).

**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 <sup>1</sup>	Construction Cost	Total Cost <sup>2</sup>	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 <sup>3</sup>	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 <sup>3</sup>	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)
<b>Total</b>								<b>861</b>	<b>Existing Capacity Deficiency Projects Total</b>							<b>\$909,600</b>	<b>\$1,364,400</b>		
CIP Project ID	Lift Station, Siphons, and Carbon Canyon Sewers																Construction Cost	Total Cost <sup>2</sup>	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 <sup>4</sup>																\$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 <sup>4</sup>																\$460,000	\$690,000	22,500 feet of pipe
<b>Lift Station, Siphons, and Carbon Canyon Sewers Total</b>																	<b>\$3,319,200</b>	<b>\$4,978,800</b>	

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

<sup>2</sup> Total costs include 50% contingencies for design, engineering, administration, and construction management

<sup>3</sup> Unit cost is based on jack-and-bore operation

<sup>4</sup> 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 <sup>1</sup>	Construction Cost	Total Cost <sup>2</sup>	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, BW	\$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 <sup>1</sup>	Construction Cost	Total Cost <sup>2</sup>	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	\$50,240	\$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	SMMW	\$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 <sup>1</sup>	Construction Cost	Total Cost <sup>2</sup>	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	BWV	\$320	\$40,000	\$60,000		
Projected Structural Grade 5, estimated for sewers without CCTV inspections								1,535	-	-	\$320	\$491,200	\$736,800		
<b>Total</b>								<b>26,026</b>			<b>Existing Condition Deficiency Projects Total</b>		<b>\$8,441,120</b>	<b>\$12,661,680</b>	
<b>Grand Total</b>											<b>\$12,669,920</b>	<b>\$19,004,880</b>			

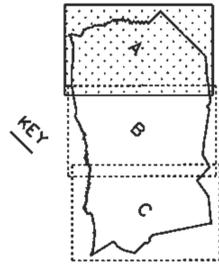
<sup>1</sup> Unit costs for construction are based on \$40/diam inch

<sup>2</sup> Total costs include 50% contingencies for design, engineering, administration, and construction management

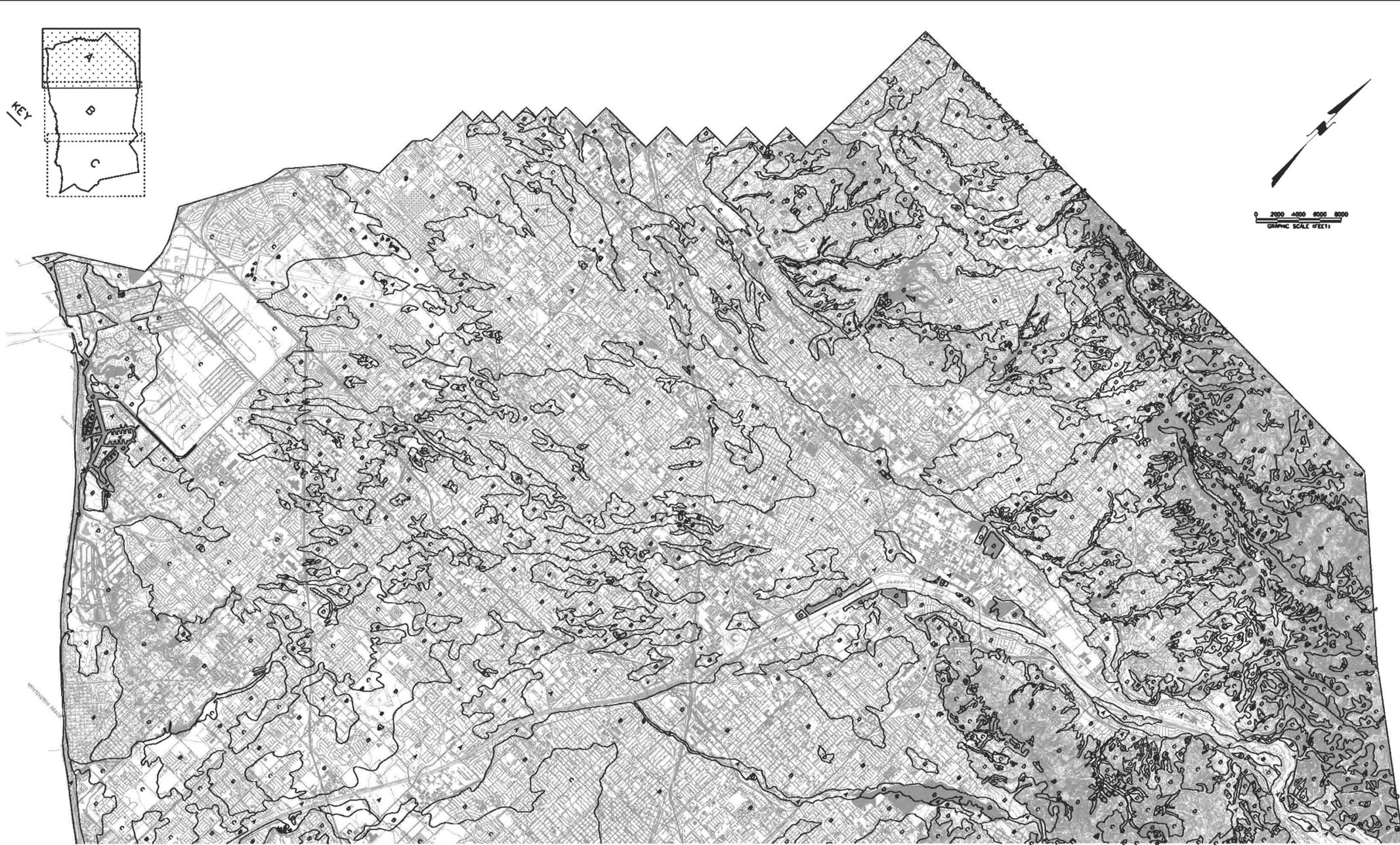
<sup>3</sup> Unit cost is based on jack-and-bore operation

<sup>4</sup> Contingency added for administration and project management

## **2-1 OC Hydrology Manual Maps**



KEY

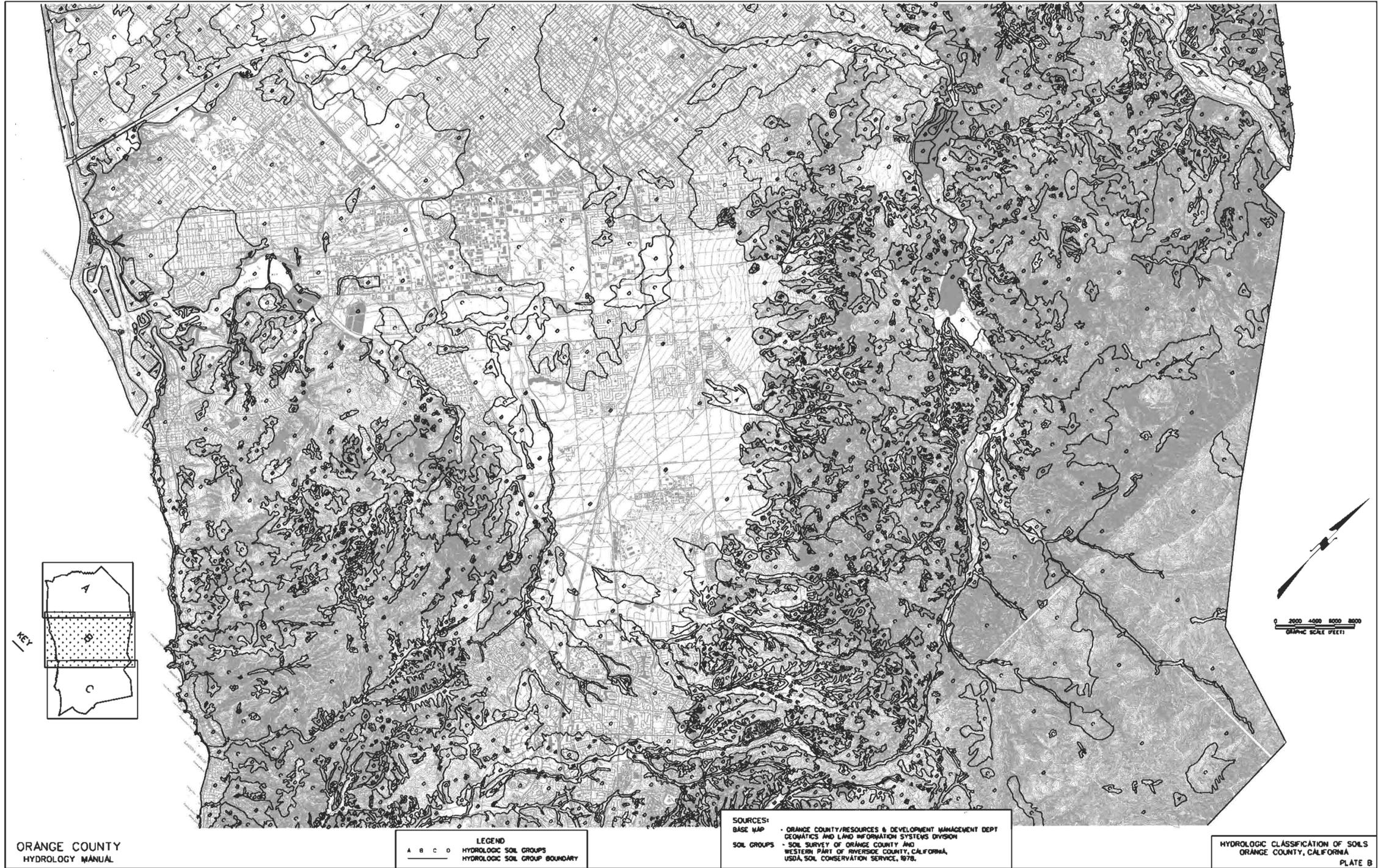


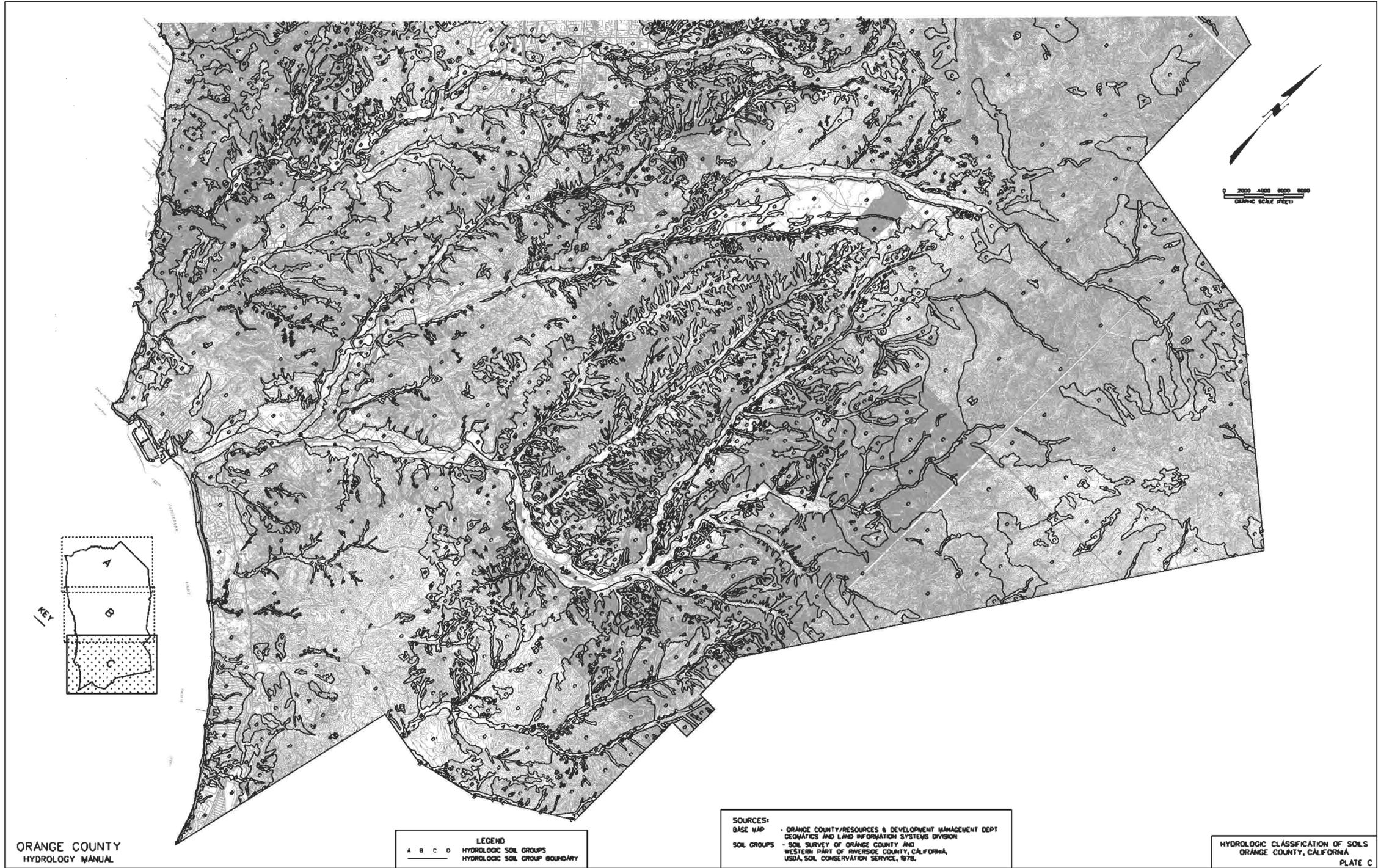
ORANGE COUNTY  
HYDROLOGY MANUAL

LEGEND  
A B C D HYDROLOGIC SOIL GROUPS  
— HYDROLOGIC SOIL GROUP BOUNDARY

SOURCES:  
BASE MAP - ORANGE COUNTY/RESOURCES & DEVELOPMENT MANAGEMENT DEPT  
GEOMATICS AND LAND INFORMATION SYSTEMS DIVISION  
SOIL GROUPS - SOIL SURVEY OF ORANGE COUNTY AND  
WESTERN PART OF RIVERSIDE COUNTY, CALIFORNIA,  
USDA, SOIL CONSERVATION SERVICE, 1978.

HYDROLOGIC CLASSIFICATION OF SOILS  
ORANGE COUNTY, CALIFORNIA  
PLATE A





ORANGE COUNTY  
HYDROLOGY MANUAL

LEGEND  
 A B C D HYDROLOGIC SOIL GROUPS  
 ———— HYDROLOGIC SOIL GROUP BOUNDARY

SOURCES:  
 BASE MAP - ORANGE COUNTY/RESOURCES & DEVELOPMENT MANAGEMENT DEPT  
 GEOMATICS AND LAND INFORMATION SYSTEMS DIVISION  
 SOIL GROUPS - SOIL SURVEY OF ORANGE COUNTY AND  
 WESTERN PART OF RIVERSIDE COUNTY, CALIFORNIA,  
 USDA, SOIL CONSERVATION SERVICE, 1978.

HYDROLOGIC CLASSIFICATION OF SOILS  
 ORANGE COUNTY, CALIFORNIA  
 PLATE C

## **2-2 Population Data**

California Department of Finance

Table 2: E-5 City/County Population and Housing Estimates, 1/1/2020

County	City	POPULATION			HOUSING UNITS							Vacancy Rate	Persons per Household
		Total	Household	Group Quarters	Total2	Single Detached	Single Attached	Two to Four	Five Plus	Mobile Homes	Occupied		
Orange	Aliso Viejo	50,044	49,575	469	20,192	7,049	5,233	666	7,244	0	19,078	5.5%	2.60
Orange	Anaheim	357,325	353,768	3,557	110,745	45,207	9,594	11,407	39,852	4,685	105,423	4.8%	3.36
Orange	Brea	45,629	45,490	139	16,911	9,426	1,478	523	4,480	1,004	16,297	3.6%	2.79
Orange	Buena Park	81,998	81,184	814	25,134	14,476	2,061	1,740	6,504	353	24,150	3.9%	3.36
Orange	Costa Mesa	114,778	112,383	2,395	43,532	17,134	4,397	5,701	15,370	930	41,637	4.4%	2.70
Orange	Cypress	49,272	48,770	502	16,631	10,034	2,912	580	2,684	421	16,116	3.1%	3.03
Orange	Dana Point	33,146	32,905	241	16,172	8,801	2,074	2,676	2,372	249	14,113	12.7%	2.33
Orange	Fountain Valley	55,878	55,441	437	19,363	12,713	1,957	696	3,606	391	18,862	2.6%	2.94
Orange	Fullerton	141,863	137,651	4,212	49,764	24,551	4,964	4,049	15,320	880	47,369	4.8%	2.91
Orange	Garden Grove	174,801	172,860	1,941	48,257	27,517	4,039	4,215	10,858	1,628	47,047	2.5%	3.67
Orange	Huntington Beach	201,281	200,390	891	82,501	39,214	9,464	9,696	21,040	3,087	78,328	5.1%	2.56
Orange	Irvine	281,707	265,275	16,432	108,822	43,013	17,187	6,765	40,692	1,165	102,033	6.2%	2.60
Orange	Laguna Beach	22,343	22,254	89	13,027	8,591	697	1,523	1,927	289	10,652	18.2%	2.09
Orange	Laguna Hills	31,508	31,139	369	11,298	6,404	1,917	573	2,052	352	10,861	3.9%	2.87
Orange	Laguna Niguel	65,316	64,892	424	26,236	14,527	5,107	1,408	5,146	48	24,869	5.2%	2.61
Orange	Laguna Woods	16,243	16,076	167	13,079	918	3,721	2,237	6,203	0	11,351	13.2%	1.42
Orange	La Habra	63,371	63,031	340	20,838	11,125	1,653	1,559	5,600	901	19,994	4.1%	3.15
Orange	Lake Forest	84,711	84,196	515	30,244	16,567	4,508	1,525	6,369	1,275	28,831	4.7%	2.92
Orange	La Palma	15,492	15,472	20	5,240	3,771	468	127	861	13	5,061	3.4%	3.06
Orange	Los Alamitos	11,567	11,324	243	4,414	2,089	370	779	1,070	106	4,260	3.5%	2.66
Orange	Mission Viejo	94,267	93,325	942	34,959	24,801	4,257	910	4,940	51	33,572	4.0%	2.78
Orange	Newport Beach	85,780	85,378	402	45,060	20,265	7,010	5,085	11,580	1,120	39,069	13.3%	2.19
Orange	Orange	140,065	133,796	6,269	46,079	26,090	4,899	4,899	8,969	1,222	44,364	3.7%	3.02
Orange	Placentia	51,494	51,157	337	17,184	10,179	1,926	1,393	3,100	586	16,695	2.8%	3.06
Orange	Rancho Santa Margarita	48,793	48,791	2	17,346	9,354	3,615	624	3,743	10	17,015	1.9%	2.87
Orange	San Clemente	64,581	64,308	273	26,573	15,208	2,611	4,164	3,991	599	24,337	8.4%	2.64
Orange	San Juan Capistrano	36,318	36,231	87	12,558	6,797	2,431	857	1,079	1,394	11,870	5.5%	3.05
Orange	Santa Ana	335,052	329,789	5,263	78,761	35,768	5,801	7,581	25,562	4,049	76,224	3.2%	4.33
Orange	Seal Beach	24,992	24,753	239	14,535	4,732	1,518	1,118	7,012	155	13,439	7.5%	1.84
Orange	Stanton	39,077	38,727	350	11,448	3,198	1,812	1,321	3,679	1,438	11,093	3.1%	3.49
Orange	Tustin	80,382	79,862	520	28,257	9,882	3,669	4,056	9,741	909	26,863	4.9%	2.97
Orange	Villa Park	5,766	5,721	45	2,031	1,995	24	12	0	0	1,963	3.3%	2.91
Orange	Westminster	92,421	91,751	670	28,002	15,149	2,056	2,523	5,129	3,145	26,997	3.6%	3.40
Orange	Yorba Linda	68,650	68,460	190	23,795	18,306	2,605	868	1,581	435	23,094	2.9%	2.96
Orange	Balance Of County	128,421	127,653	768	42,433	31,909	4,674	862	4,356	632	40,804	3.8%	3.13
Orange	Incorporated	3,065,911	3,016,125	49,786	1,068,988	524,851	128,035	93,856	289,356	32,890	1,012,927	5.2%	2.98
Orange	County Total	3,194,332	3,143,778	50,554	1,111,421	556,760	132,709	94,718	293,712	33,522	1,053,731	5.2%	2.98

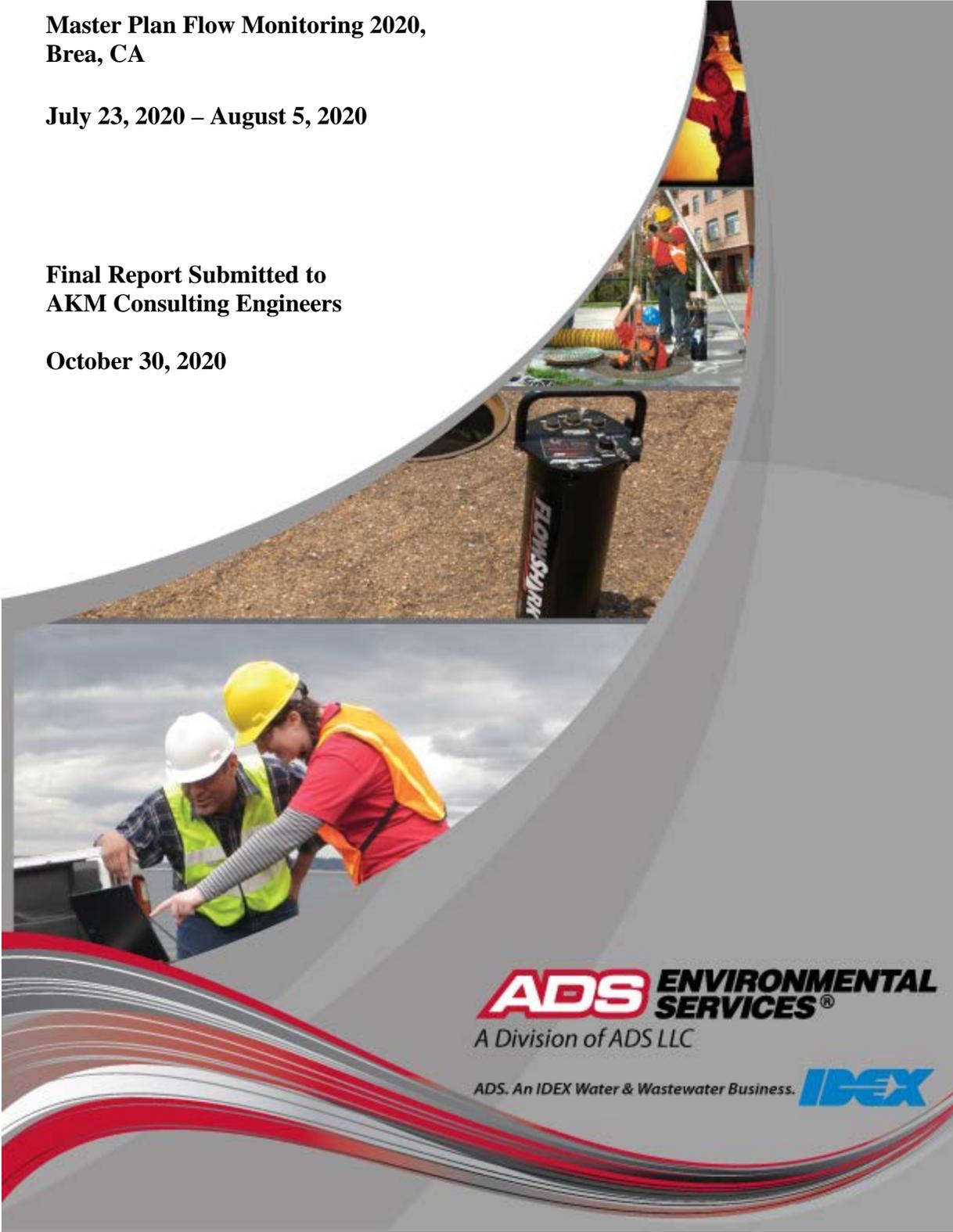
## **3-1 ADS Flow Monitoring Report**

**Master Plan Flow Monitoring 2020,  
Brea, CA**

**July 23, 2020 – August 5, 2020**

**Final Report Submitted to  
AKM Consulting Engineers**

**October 30, 2020**



**ADS ENVIRONMENTAL SERVICES®**

A Division of ADS LLC

ADS. An IDEX Water & Wastewater Business. **IDEX**



## **Master Plan Flow Monitoring 2020, Brea, CA**

Prepared for:

**Diann Pay, P.E.  
AKM Consulting Engineers  
553 Wald  
Irvine, CA 92618**

Prepared by:

**ADS, LLC  
15201 Springdale Street  
Huntington Beach, CA 92649**



October 30, 2020

Diann Pay, P.E.  
AKM Consulting Engineers  
553 Wald  
Irvine, CA 92618

SUBJECT: Master Plan Flow Monitoring 2020, Brea, CA

ADS is pleased to submit the report for the Master Plan Flow Monitoring 2020, Brea, CA conducted on behalf of AKM Consulting Engineers. The metering was contracted for fourteen (14) days at sixteen (16) locations. The study period is July 23, 2020 - August 05, 2020 for all of the sites with exception of Brea\_Site7North, which has alternate study from October 03, 2020 - October 16, 2020.

The report contains 5-minute averaged depth, velocity, and quantity hydrographs as well as daily long tables for the metering period in pdf format. An Excel file containing depth, quantity, and velocity entities for the monitoring location in 5-minute format is also provided.

In addition, we would be happy to further explain any details about the report that may seem unclear. Should you have any questions or comments, you may contact the Project Manager, Paul Mitchell at (714) 379-9778 ext 223.

It has been our pleasure to serve you in the performance of this project. Thank you for choosing ADS products and services to meet your flow monitoring needs.

Sincerely,  
ADS ENVIRONMENTAL SERVICES

Latisha Bennett  
Data Analyst III

### Introduction

AKM Consulting Engineers entered into an agreement with ADS Environmental Services to conduct flow monitoring at sixteen (16) metering points in the Brea, CA Collection System. The study was contracted for a fourteen (14) day period. The primary objective of the monitoring was to determine current flows for development planning purposes.

### Project Scope

The scope of this study involved using flow monitors to quantify wastewater flows at the designated locations. Specifically, the study included the following key components.

- Investigate the proposed flow-monitoring sites for adequate hydraulic conditions.
- Flow monitor installations.
- Flow monitor confirmations and data collections.
- Flow data analysis.

Equipment installation was completed on October 02, 2020. The study period began on July 23, 2020 and was completed on August 05, 2020 for all the sites with the exception of Brea\_Site7North, which has an alternate study period from October 3, 2020 - October 16, 2020.

### Flow Monitoring Equipment



The **ADS FlowShark Triton** monitor was selected for this project. This flow monitor is an area velocity flow monitor that uses both the Continuity and Manning's equations to measure flow.

The ADS FlowShark Triton monitor consists of data acquisition sensors and a battery-powered microcomputer. The microcomputer includes a processor unit, data storage, and an on-board clock to control and synchronize the sensor recordings. The monitor was programmed to acquire and store depth of flow and velocity readings at 5-minute intervals.

The FS Triton monitor features cross-checking using multiple technologies in each sensor for continuous running of comparisons and tolerances. The FS Triton monitor can support two (2) sets of sensors. The sensor option used for this project was:

**The Peak Combo Sensor** installed at the bottom of the pipe includes three types of data acquisition technologies.

The **up looking ultrasonic depth** uses sound waves from two independent transceivers to measure the distance from the sensor upward toward the flow surface; applying the speed of sound in the water and the temperature measured by sensor to calculate depth.

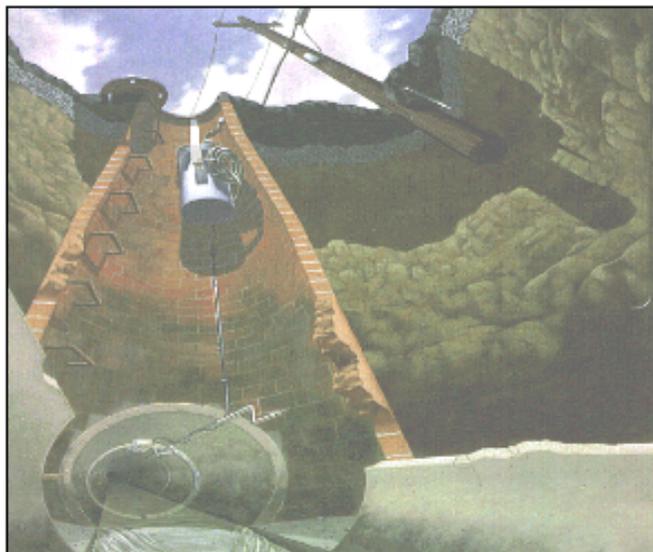
The **pressure depth** is calculated by using a piezo-resistive crystal to determine the difference between hydrostatic and atmospheric pressure. The pressure sensor is temperature compensated and vented to the atmosphere through a desiccant filled breather tube.

To obtain **peak velocity**, the sensor sends an ultrasonic signal at an angle upward through the widest cross-section of the oncoming flow. The signal is reflected by suspended particles, air bubbles, or organic matter with a frequency shift proportional to the velocity of the reflecting objects. The reflected signal is received by the sensor and processed using digital spectrum analysis to determine the peak flow velocity.

## Installation

Installation of flow monitoring equipment typically proceeds in four steps. First, the site is investigated for safety and to determine physical and hydraulic suitability for the flow monitoring equipment. Second, the equipment is physically installed at the selected location. Third, the monitor is tested to assure proper operation of the velocity and depth of flow sensors and verify that the monitor clock is operational and synchronized to the master computer clock. Fourth, the depth and velocity sensors are confirmed and line confirmations are performed.

In pipes up to 42 inches in diameter, the sensors were mounted on expandable stainless steel rings, inserted at least a foot upstream into influent pipes and tightened against the inside walls of the pipes. Influent pipe installations reduce the influences of turbulence and backwater often caused by changes in channel geometry in manholes.



## Data Collection, Confirmation, and Quality Assurance

Data collects were done remotely via wireless connect on a weekly basis via ADS Representatives. During the monitoring period, field crews visit each monitoring location to verify proper monitor operation and document field conditions. The following quality assurance steps are taken to assure the integrity of the collected data:

**Measure power supplies:** monitors were powered by dry cell battery packs. Voltages were recorded and battery packs replaced, as necessary. Separate batteries provided back-up power to memory allowing primary batteries to be replaced without loss of data.

**Clock synchronization:** Field crews synchronized monitor clocks to master clocks.

**Confirm depth and velocity readings:** Field crews descended into meter manholes to manually measure depths and velocities and compare them meter readings to confirm that they agreed. They also measured silt levels, if any, in the inverts of the pipes. Silt areas were subtracted from flow areas to compute true areas of flow.

**Confirm average velocities through cross-sectional velocity profiles:** Since ADS velocity sensors measure peak velocity, field crews collected cross-sectional velocity profiles in order to develop a relationship between peak and average velocity in lines that meet the hydraulic criteria.

**Upload and Review Data:** Data collected from the monitors were uploaded and reviewed by a Data Analyst for completeness, outliers and deviations in the flow patterns, which indicate system anomalies or equipment failure.

## Flow Quantification Methods

There are two main equations used to measure open channel flow: the **Continuity Equation** and the **Manning Equation**. The Continuity Equation, which is considered the most accurate, can be used if both depth of flow and velocity are available. In cases where velocity measurements are not available or not practical to obtain, the Manning Equation can be used to estimate velocity from the depth data based on certain physical characteristics of the pipe (i.e. the slope and roughness of the pipe being measured). However, the Manning equation assumes uniform, steady flow hydraulic conditions with non-varying roughness, which are typically invalid assumptions in most sanitary sewers. The Continuity Equation was used exclusively for this study.

### **Continuity Equation**

The Continuity Equation states that the flow quantity (Q) is equal to the wetted area (A) multiplied by the average velocity (V) of the flow.

$$Q = A * V$$

This equation is applicable in a variety of conditions including backwater, surcharge, and reverse flow.

## Data Analysis and Presentation

### Data Analysis

A flow monitor is typically programmed to collect data at 5-minute intervals throughout the monitoring period. The monitor stores raw data consisting of (1) the ultrasonic depth, (2) the peak velocity and (3) the pressure depth. The data is imported into ADS's proprietary software and is examined by a data analyst to verify its integrity. The data analyst also reviews the daily field reports and site visit records to identify conditions that would affect the collected data.

Velocity profiles and the line confirmation data developed by the field personnel are reviewed by the data analyst to identify inconsistencies and verify data integrity. Velocity profiles are reviewed and an average to peak velocity ratio is calculated for the site. This ratio is used in converting the peak velocity measured by the sensor to the average velocity

used in the Continuity equation. The data analyst selects which depth sensor entity will be used to calculate the final depth information. Silt levels present at each site visit are reviewed and representative silt levels established.

Occasionally the velocity sensor's performance may be compromised resulting in invalid readings sporadically during the monitoring period. This is generally caused by excessive debris (silt) blocking the sensor's crystals, shallow flows (~< 1") that may drop below the top of the sensor or very clear flows lacking the particles needed to measure rate. In order to use the Continuity equation to quantify the flow during these periods, a Data Analyst and/or Engineer will use the site's historical pipe curve (depth vs. velocity) data along with valid field confirmations to reconstitute and replace the false velocity recordings with expected velocity readings for a given historical depth along the curve.

Selections for the above parameters can be constant or can change during the monitoring period. While the data analysis process is described in a linear manner, it often requires an iterative approach to accurately complete.

## **Data Presentation**

This type of flow monitoring project generates a large volume of data. To facilitate review of the data, results have been provided in graphical and tabular formats. The flow data is presented graphically in the form of scattergraphs and hydrographs. Hydrographs are based on 5-minute averaging. Tables are provided in daily average format. These tables show the flow rate for each day, along with the daily minimum and maximums, the times they were observed, the total daily flow, and total flow for the month (or monitoring period). The following explanation of terms may aid in interpretation of the tables and hydrographs.

**DEPTH** - Final calculated depth measurement (in inches)

**QUANTITY** - Final calculated flow rate (in MGD)

**VELOCITY** - Final calculated flow velocity (in feet per second)

**REPORT TOTAL** - Total volume of flow recorded for the indicated time period (in MG)

## Site Commentary

### Site Information

Brea_Site1	
Pipe Dimensions	14.88 "
Silt Level	0.00"

### Overview

Site Brea\_Site1 functioned under normal conditions during the period Thursday, July 23, 2020 to Wednesday, August 5, 2020 . No surcharge conditions were experienced at this location. Review of the scattergraph shows that flows remained free flowing throughout the period.

Flow depth and velocity measurements recorded by the flow monitor are consistent with field confirmations conducted to date and support the relative accuracy of the flow monitor at this location.

### Observations

Average flow depth, velocity, and quantity data observed during Thursday, July 23, 2020 to Wednesday, August 5, 2020 , along with observed minimum and maximum data, are provided in the following table. The values presented are based on 5-minute data.

Observed Flow Conditions			
Item	Depth (in)	Velocity (ft/s)	Quantity (MGD)
Average	4.23	2.79	0.517
Minimum	2.62	1.62	0.147
Maximum	5.54	3.45	0.854
Time of Minimum	7/26/2020 4:35 AM	7/26/2020 4:30 AM	7/26/2020 4:30 AM
Time of Maximum	7/23/2020 12:05 PM	7/24/2020 12:50 PM	7/23/2020 12:00 PM

### Data Quality

Data uptime observed during the Thursday, July 23, 2020 to the Wednesday, August 5, 2020 monitoring period is provided in the table below. Based upon the quality and consistency of the observed flow depth and velocity data, the Continuity equation was used to calculate flow rate and quantities during the monitoring period.

Percent Uptime	
Depth (in)	100
Velocity (ft/s)	100
Quantity (MGD)	100

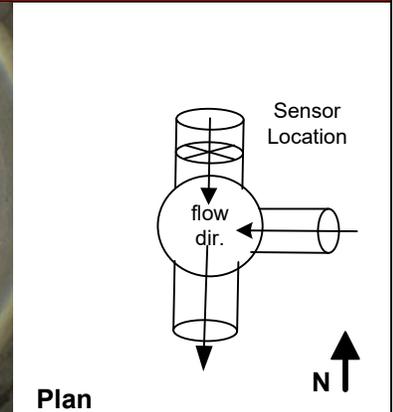
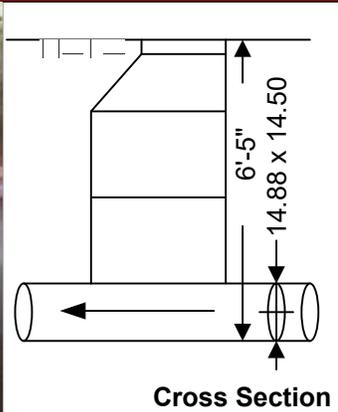
<b>Project Name:</b> Brea AKM Master Plan TFM 2020				<b>City:</b> Brea	<b>Agency:</b> Brea	<b>FM Initials:</b> SK	
<b>Site Name:</b> Brea_Site1		<b>Install Date:</b> 7/21/20			<b>Monitor Type:</b> Peak Doppler		
<b>Address/Location:</b> 125 S Puente St				<b>Monitor Model:</b> Triton +			
				<b>Data Acquisition:</b> Manual/Wireless Collect			
				<b>Manhole ID:</b> IB27			
<b>Access:</b> Drive	<b>Type of System:</b>	Sanitary <input checked="" type="checkbox"/>	Storm <input type="checkbox"/>	Combined <input type="checkbox"/>	<b>Pipe Height:</b> 14.88 "		
				<b>Pipe Width:</b> 14.50 "			



**Investigation Information: Manhole Information:**

<b>Date/Time of Investigation:</b>	7/21/20 @ 0500	<b>Manhole Depth:</b>	6'-5"
<b>Site Hydraulics:</b>	Good straight through flow	<b>Manhole Material / Condition:</b>	Precast/Good
<b>Upstream Input: (L/S, P/S)</b>	--	<b>Pipe Material / Condition:</b>	VCP/Good
<b>Upstream Manhole:</b>	Not Investigated	<b>Land Use:</b>	Residential <input type="checkbox"/> Commercial <input type="checkbox"/> Industrial <input checked="" type="checkbox"/> Trunk <input type="checkbox"/>
<b>Downstream Manhole:</b>	Not investigated	<b>Oxygen:</b> 20.9	<b>H2S:</b> 0 <b>LEL:</b> 0 <b>CO:</b> 0
<b>Depth of Flow:</b>	3.00 " +/- 0.25"	<b>Safety Notes:</b> 2 man crew required and one blower is to be operated at all times.	
<b>Range (Air DOF):</b>	+/-		
<b>Peak Velocity:</b>	1.93 fps		
<b>Silt:</b>	0.00 Inches		

**Other Information:**



Installation Information		Backup	Yes	No	?	Distance
Installation Type:	Standard	Trunk	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Sensors Devices:	Ultrasonic/Velocity/Pressure	Lift / Pump Station	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Surcharge Height:	0	WWTP	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Rain Gauge Zone:		Other	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

**Additional Site Information / Comments:**

**Standard Traffic Control with No Safety Concerns**

# SCATTERGRAPH REPORT

Brea\_Site1

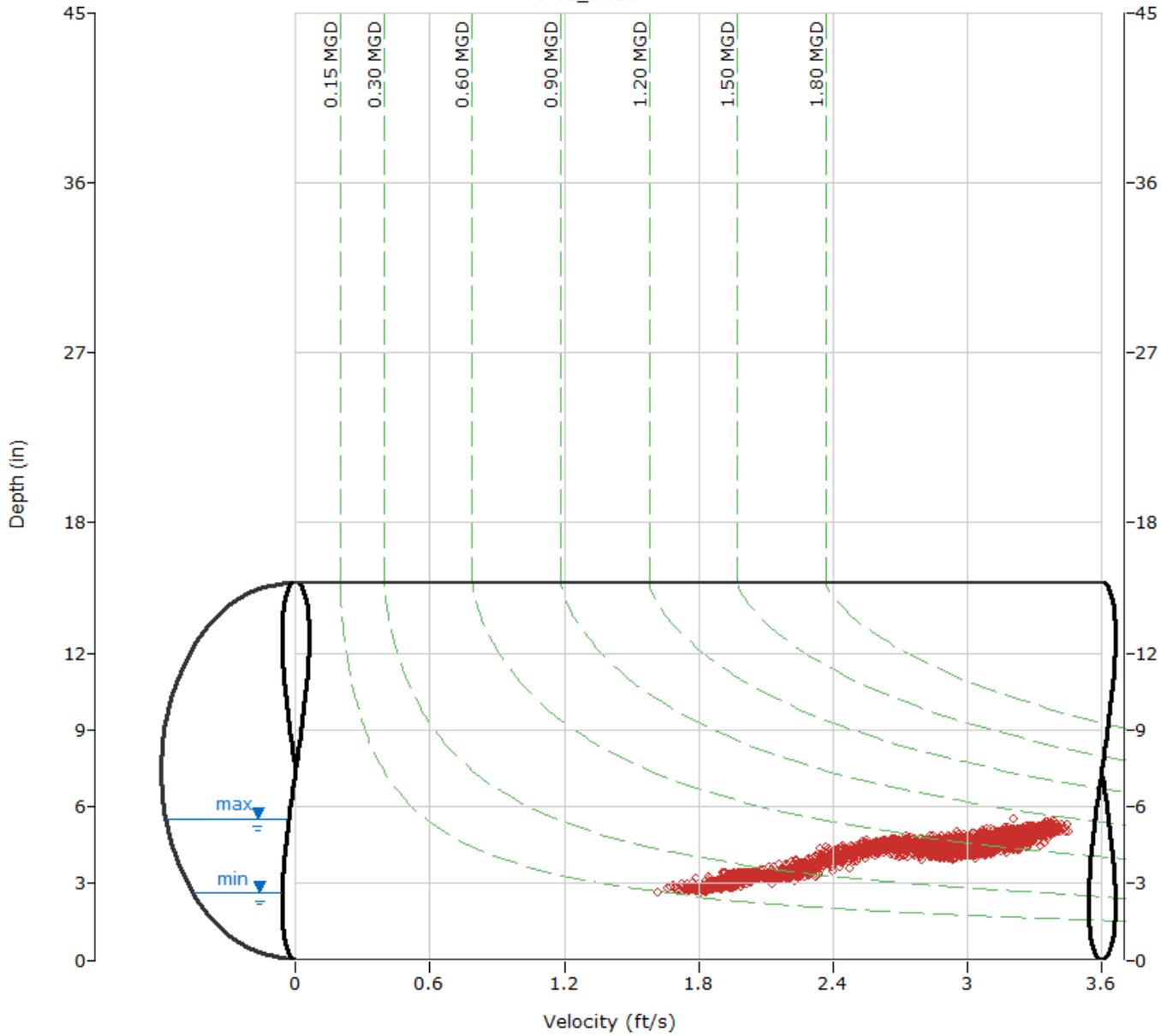
Flow Monitor  
**Brea\_Site1**

Pipe Height  
14.88 in.

Report Period  
7/23/2020  
To  
8/5/2020

**Legend**

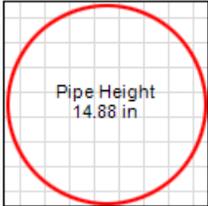
- Depth - Velocity
- - - Iso-Q™
- - - Silt
- ▼ Min-Max Depth



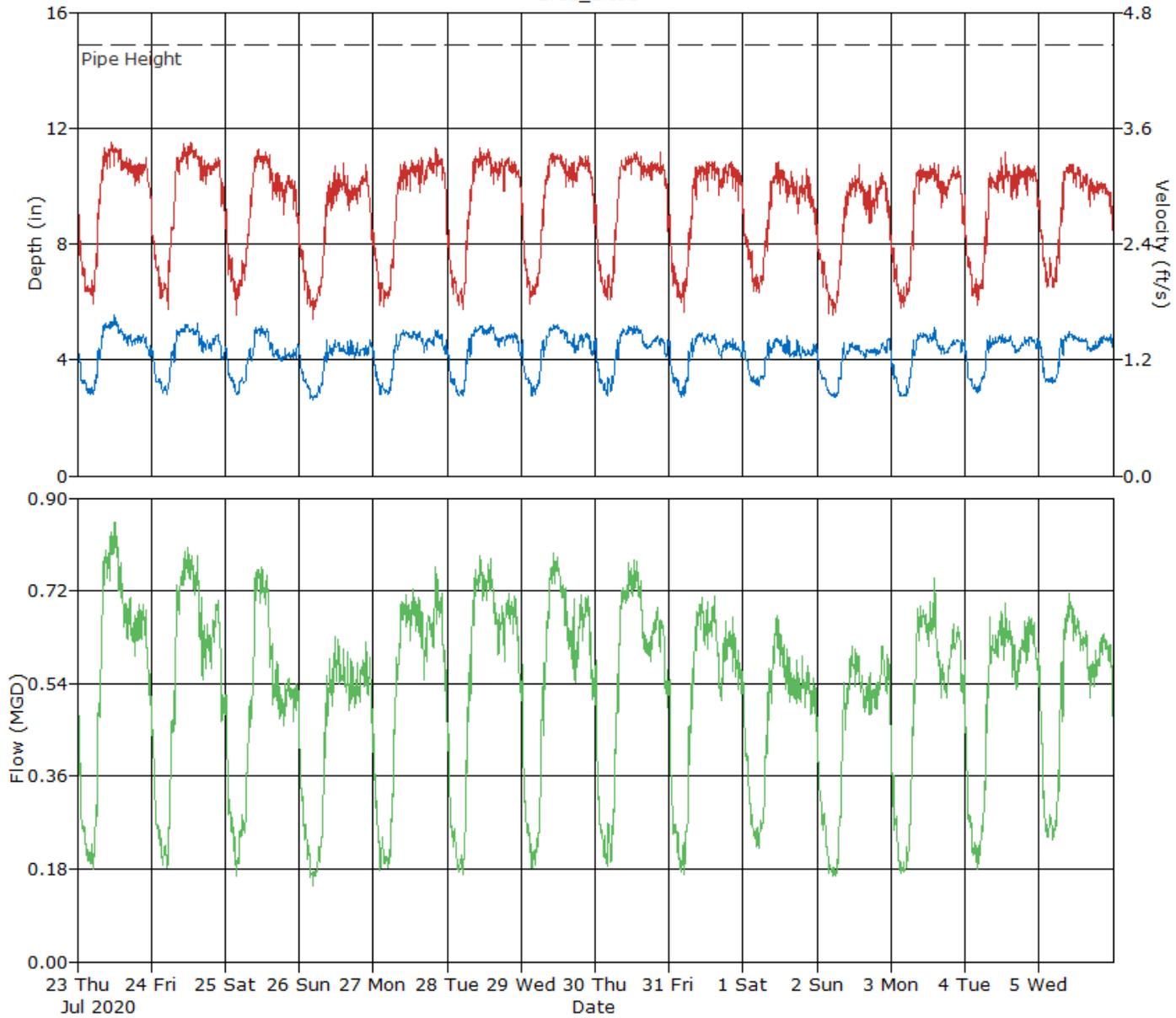
# HYDROGRAPH REPORT

Brea\_Site1

Flow Monitor  
**Brea\_Site1**



Report Period  
7/23/2020  
To  
8/5/2020



Daily Tabular Report For The Period 07/23/2020 00:00 - 08/05/2020 23:59

Brea\_Site1, Pipe Height: 14.88 in, Silt: 0.00 in

Daily Tabular Report

Date	Depth (in)					Velocity (ft/s)					Quantity (MGD - Total MG)					Rain (in)	
	Time	Min	Time	Max	Avg	Time	Min	Time	Max	Avg	Time	Min	Time	Max	Avg	Total	Total
07/23/2020	04:05	2.82	12:05	5.54	4.40	05:00	1.79	11:15	3.45	2.90	05:00	0.180	12:00	0.854	0.571	0.571	
07/24/2020	05:05	2.81	15:05	5.24	4.34	05:20	1.72	12:50	3.45	2.89	05:00	0.182	12:00	0.803	0.557	0.557	
07/25/2020	03:45	2.80	11:45	5.18	4.09	03:45	1.66	10:40	3.38	2.76	03:45	0.165	11:55	0.766	0.487	0.487	
07/26/2020	04:35	2.62	22:55	4.70	3.93	04:30	1.62	14:15	3.23	2.62	04:30	0.147	11:40	0.631	0.439	0.439	
07/27/2020	04:55	2.79	20:05	5.03	4.30	03:20	1.75	20:10	3.39	2.82	02:15	0.176	20:10	0.766	0.536	0.536	
07/28/2020	05:05	2.75	14:00	5.21	4.39	05:00	1.72	10:45	3.40	2.86	05:00	0.168	10:45	0.789	0.561	0.561	
07/29/2020	03:35	2.78	10:20	5.23	4.38	03:00	1.79	10:10	3.33	2.87	03:25	0.182	10:20	0.794	0.557	0.557	
07/30/2020	03:50	2.76	13:40	5.18	4.35	04:10	1.82	13:35	3.35	2.86	03:50	0.185	12:45	0.779	0.552	0.552	
07/31/2020	03:55	2.74	10:45	4.93	4.21	04:55	1.69	14:50	3.26	2.81	05:00	0.169	14:50	0.710	0.515	0.515	
08/01/2020	05:10	3.11	14:15	4.83	4.12	05:00	1.89	11:45	3.25	2.72	05:00	0.220	11:00	0.671	0.477	0.477	
08/02/2020	05:50	2.74	23:15	4.71	3.96	05:05	1.66	13:40	3.22	2.60	05:05	0.165	21:30	0.613	0.438	0.438	
08/03/2020	04:15	2.74	14:10	5.12	4.18	03:20	1.73	14:05	3.23	2.74	03:20	0.172	14:10	0.745	0.501	0.501	
08/04/2020	04:10	2.84	12:00	4.86	4.23	04:05	1.77	13:15	3.36	2.78	04:05	0.180	13:15	0.697	0.512	0.512	
08/05/2020	04:25	3.21	09:50	4.96	4.33	02:40	1.95	10:05	3.22	2.79	04:25	0.237	09:50	0.714	0.527	0.526	

Report Summary For The Period 07/23/2020 00:00 - 08/05/2020 23:59

	Depth (in)	Velocity (ft/s)	Quantity (MGD - Total MG)
Total			7.231
Avg	4.23	2.79	0.517

## Site Commentary

### Site Information

Brea_Site10	
Pipe Dimensions	12.25 "
Silt Level	0.00"

### Overview

Site Brea\_Site10 functioned under normal conditions during the period Thursday, July 23, 2020 to Wednesday, August 5, 2020 . No surcharge conditions were experienced at this location. The presence of an intermittent hydraulic jump and waves during higher flow periods are due to operating near critical velocity. Review of the scattergraph shows that flows remained free flowing throughout the period.

Flow depth and velocity measurements recorded by the flow monitor are consistent with field confirmations conducted to date and support the relative accuracy of the flow monitor at this location.

### Observations

Average flow depth, velocity, and quantity data observed during Thursday, July 23, 2020 to Wednesday, August 5, 2020 , along with observed minimum and maximum data, are provided in the following table. The values presented are based on 5-minute data.

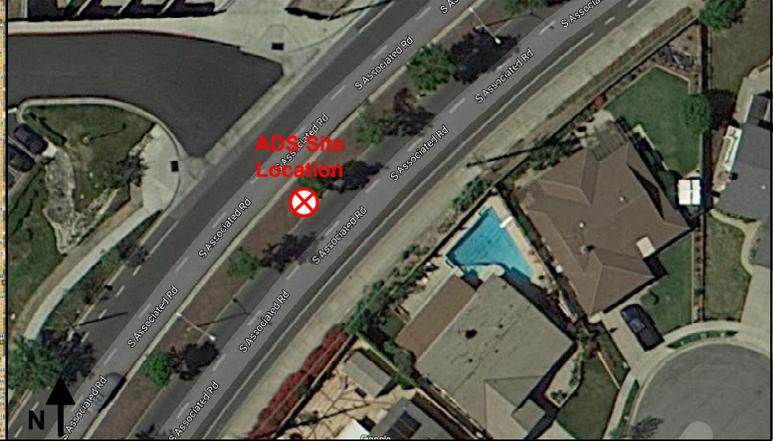
Observed Flow Conditions			
Item	Depth (in)	Velocity (ft/s)	Quantity (MGD)
Average	4.29	2.34	0.398
Minimum	2.41	1.24	0.093
Maximum	5.85	4.41	1.038
Time of Minimum	7/26/2020 5:45 AM	8/1/2020 4:50 AM	7/26/2020 5:45 AM
Time of Maximum	7/26/2020 11:35 AM	7/23/2020 8:40 PM	7/26/2020 11:35 AM

### Data Quality

Data uptime observed during the Thursday, July 23, 2020 to the Wednesday, August 5, 2020 monitoring period is provided in the table below. Based upon the quality and consistency of the observed flow depth and velocity data, the Continuity equation was used to calculate flow rate and quantities during the monitoring period.

Percent Uptime	
Depth (in)	100
Velocity (ft/s)	100
Quantity (MGD)	100

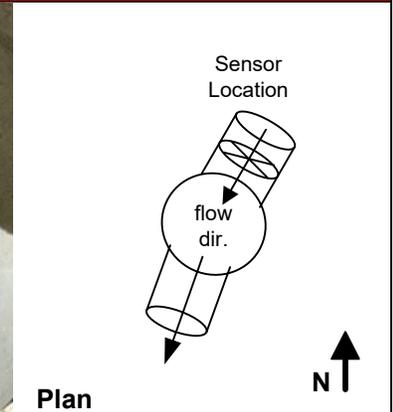
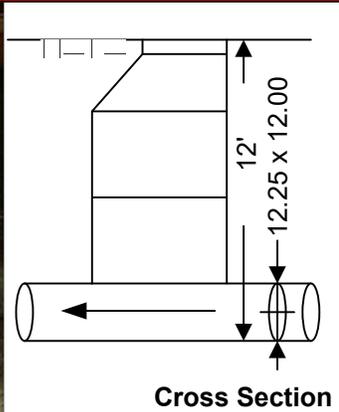
<b>Project Name:</b> Brea AKM Master Plan TFM 2020				<b>City:</b> Brea	<b>Agency:</b> Brea	<b>FM Initials:</b> SK	
<b>Site Name:</b> Brea_Site10		<b>Install Date:</b> 7/22/20		<b>Monitor Type</b>		Peak Doppler	
<b>Address/Location:</b> 490 S Associated				<b>Monitor Model</b>		Triton +	
				<b>Data Acquisition</b>		Manual/Wireless Collect	
				<b>Manhole ID</b>		A27	
<b>Access:</b> Drive	<b>Type of System:</b>	Sanitary <input checked="" type="checkbox"/>	Storm <input type="checkbox"/>	Combined <input type="checkbox"/>	<b>Pipe Height:</b>		12.25 "
					<b>Pipe Width:</b>		12.00 "



**Investigation Information: Manhole Information:**

<b>Date/Time of Investigation:</b>	7/9/20 @ 0400	<b>Manhole Depth:</b>	12'
<b>Site Hydraulics:</b>	Good straight through flow	<b>Manhole Material / Condition</b>	Precast/Good
<b>Upstream Input: (L/S, P/S)</b>	--	<b>Pipe Material / Condition:</b> VCP/Good	
<b>Upstream Manhole:</b>	Not Investigated	<b>Land Use:</b>	Residential <input type="checkbox"/> Commercial <input checked="" type="checkbox"/> Industrial <input type="checkbox"/> Trunk <input type="checkbox"/>
<b>Downstream Manhole:</b>	Not investigated	<b>Oxygen:</b> 20.9	<b>H2S:</b> 0 <b>LEL:</b> 0 <b>CO:</b> 0
<b>Depth of Flow:</b>	2.63 " +/- 0.25"	<b>Safety Notes:</b> 2 man crew required and one blower is to be operated at all times.	
<b>Range (Air DOF):</b>	+/-		
<b>Peak Velocity:</b>	1.60 fps		
<b>Silt:</b>	0.00 Inches		

**Other Information:**



Installation Information		Backup	Yes	No	?	Distance
Installation Type:	Standard	Trunk	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Sensors Devices:	Ultrasonic/Velocity/Pressure	Lift / Pump Station	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Surcharge Height:	0	WWTP	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Rain Gauge Zone:		Other	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

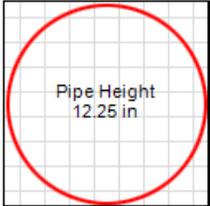
**Additional Site Information / Comments:**

Standard Traffic Control with No Safety Concerns

# SCATTERGRAPH REPORT

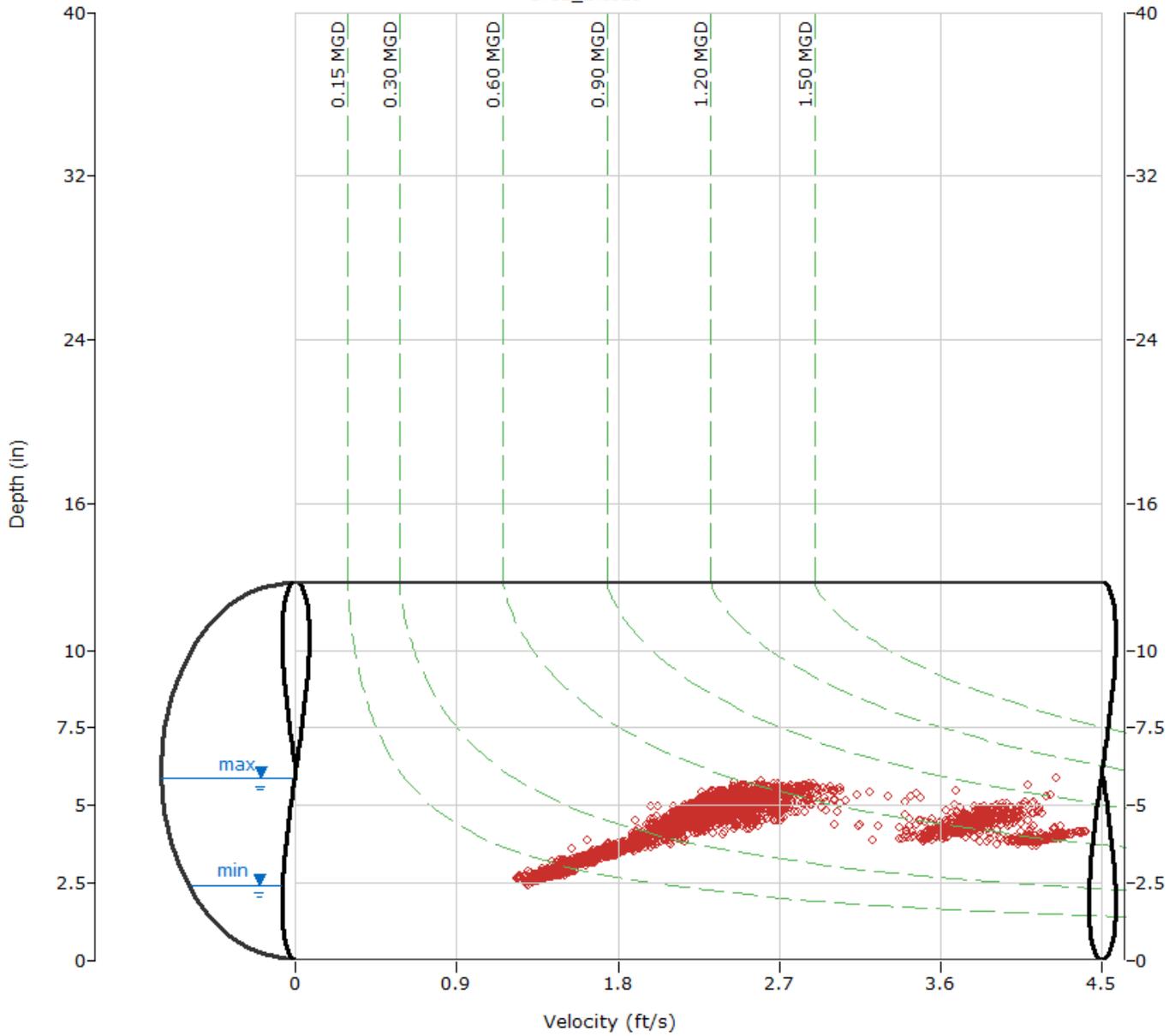
Brea\_Site10

Flow Monitor  
**Brea\_Site10**



Report Period  
7/23/2020  
To  
8/5/2020

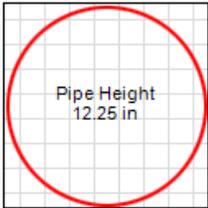
- Legend**
- Depth - Velocity
  - - - Iso-Q™
  - - - Silt
  - ▼ Min-Max Depth



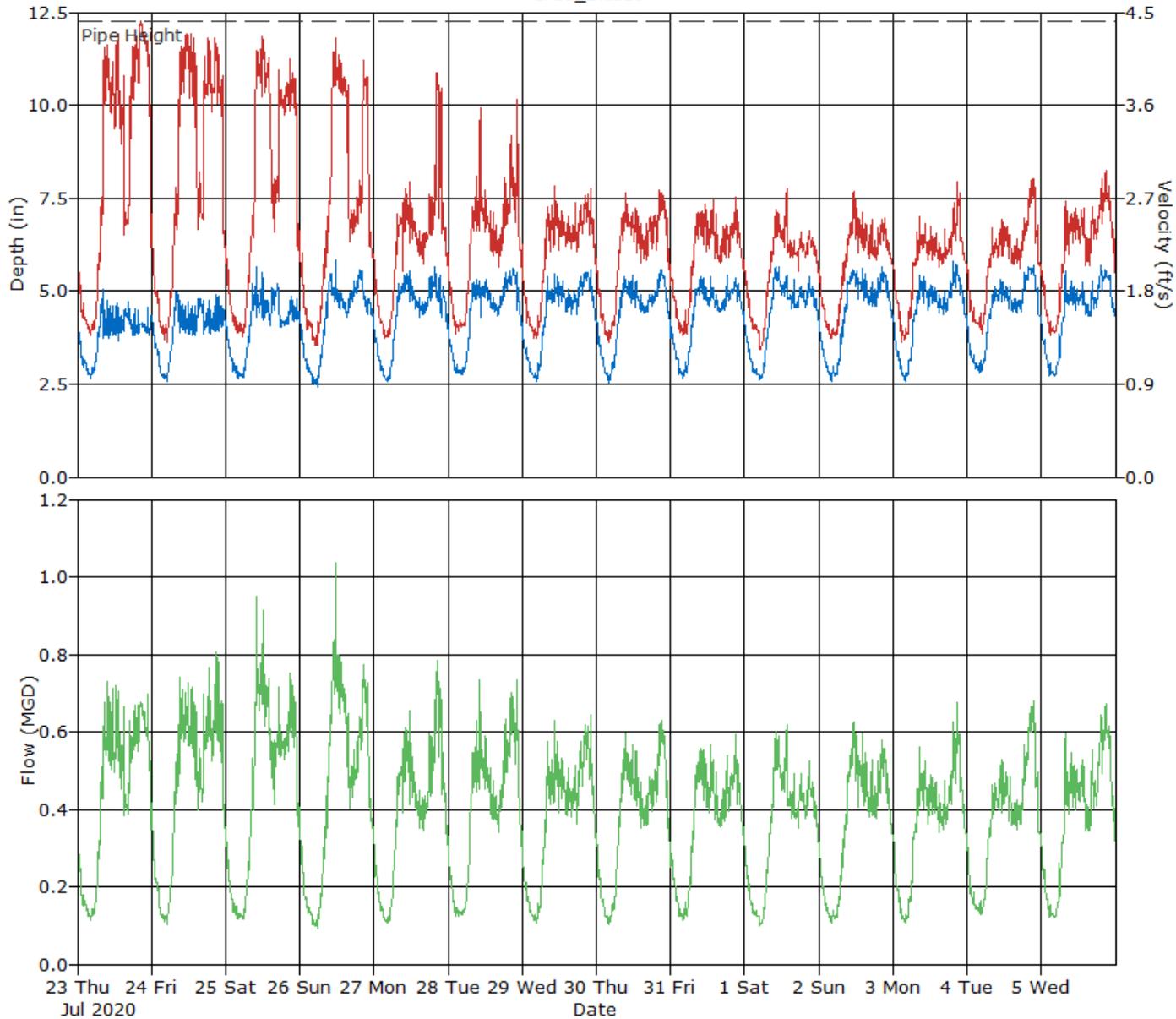
# HYDROGRAPH REPORT

Brea\_Site10

Flow Monitor  
**Brea\_Site10**



Report Period  
7/23/2020  
To  
8/5/2020



Daily Tabular Report For The Period 07/23/2020 00:00 - 08/05/2020 23:59

Brea\_Site10, Pipe Height: 12.25 in, Silt: 0.00 in

Daily Tabular Report

Date	Depth (in)					Velocity (ft/s)					Quantity (MGD - Total MG)					Rain (in)	
	Time	Min	Time	Max	Avg	Time	Min	Time	Max	Avg	Time	Min	Time	Max	Avg		Total
07/23/2020	04:30	2.64	08:25	5.05	3.86	04:30	1.38	20:40	4.41	3.02	04:30	0.113	09:40	0.728	0.441	0.441	
07/24/2020	05:10	2.56	08:10	4.99	3.98	05:10	1.31	11:15	4.29	2.99	05:10	0.103	20:40	0.806	0.457	0.457	
07/25/2020	04:10	2.66	10:05	5.63	4.08	05:25	1.36	11:55	4.27	2.82	05:30	0.117	10:05	0.951	0.456	0.456	
07/26/2020	05:45	2.41	11:35	5.85	4.26	05:25	1.27	11:35	4.25	2.60	05:45	0.093	11:35	1.038	0.450	0.450	
07/27/2020	04:30	2.58	19:40	5.66	4.37	03:15	1.35	20:40	3.92	2.25	04:30	0.108	20:40	0.783	0.396	0.396	
07/28/2020	04:10	2.74	21:00	5.59	4.41	02:35	1.38	22:25	3.66	2.25	03:30	0.125	22:20	0.733	0.400	0.400	
07/29/2020	04:40	2.58	22:10	5.58	4.37	04:40	1.34	10:35	2.81	2.17	04:40	0.107	22:10	0.642	0.380	0.380	
07/30/2020	04:05	2.54	20:55	5.57	4.37	04:00	1.30	20:25	2.78	2.16	04:00	0.101	21:05	0.630	0.377	0.377	
07/31/2020	03:55	2.66	18:30	5.42	4.35	04:00	1.37	21:10	2.71	2.11	04:00	0.114	21:10	0.591	0.366	0.366	
08/01/2020	04:50	2.61	11:05	5.67	4.34	04:50	1.24	13:35	2.79	2.02	04:50	0.100	13:35	0.619	0.351	0.351	
08/02/2020	04:00	2.58	20:40	5.64	4.42	04:15	1.35	11:30	2.76	2.06	04:00	0.108	11:30	0.627	0.367	0.367	
08/03/2020	04:00	2.58	19:25	5.79	4.42	02:40	1.30	20:55	2.86	2.07	03:55	0.107	20:55	0.677	0.364	0.364	
08/04/2020	04:00	2.81	21:30	5.70	4.43	04:50	1.38	21:25	2.89	2.11	04:35	0.130	21:25	0.680	0.373	0.373	
08/05/2020	02:30	2.71	19:05	5.69	4.40	03:05	1.37	20:55	2.97	2.20	02:30	0.119	20:55	0.671	0.389	0.389	

Report Summary For The Period 07/23/2020 00:00 - 08/05/2020 23:59

	Depth (in)	Velocity (ft/s)	Quantity (MGD - Total MG)
Total			5.567
Avg	4.29	2.34	0.398

## Site Commentary

### Site Information

Brea_Site11	
Pipe Dimensions	21.25 "
Silt Level	0.00"

### Overview

Site Brea\_Site11 functioned under normal conditions during the period Thursday, July 23, 2020 to Wednesday, August 5, 2020 . No surcharge conditions were experienced at this location. Review of the scattergraph shows that flows remained free flowing throughout the period.

Flow depth and velocity measurements recorded by the flow monitor are consistent with field confirmations conducted to date and support the relative accuracy of the flow monitor at this location.

This line is located downstream of location Brea\_Site12. A review of balancing indicates no problem.

### Observations

Average flow depth, velocity, and quantity data observed during Thursday, July 23, 2020 to Wednesday, August 5, 2020 , along with observed minimum and maximum data, are provided in the following table. The values presented are based on 5-minute data.

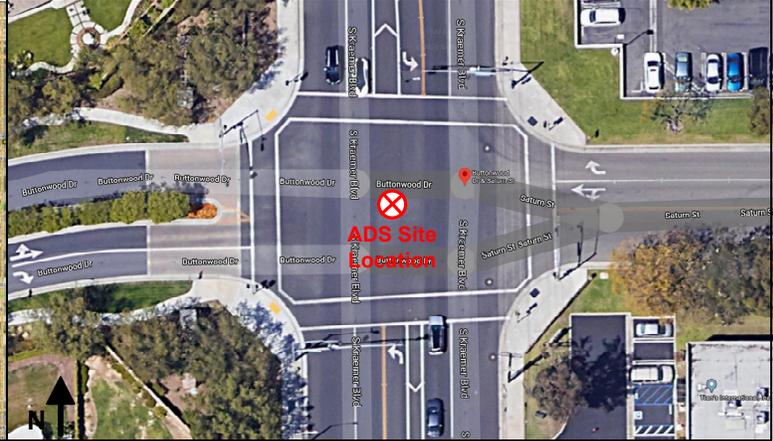
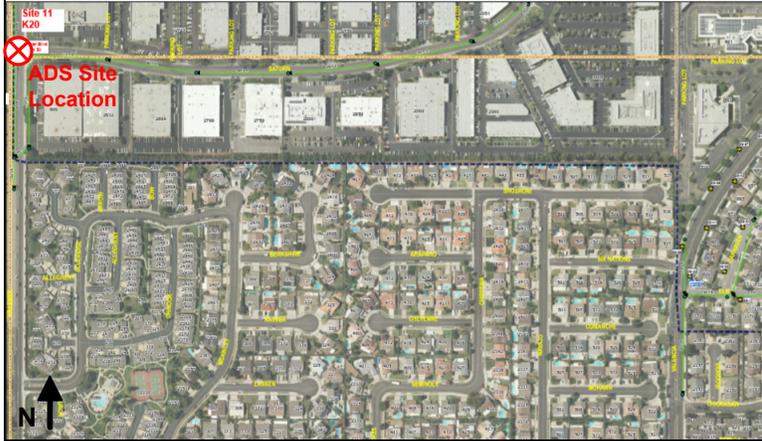
Observed Flow Conditions			
Item	Depth (in)	Velocity (ft/s)	Quantity (MGD)
Average	3.24	3.21	0.504
Minimum	2.56	1.65	0.179
Maximum	4.03	4.18	0.816
Time of Minimum	8/1/2020 5:35 AM	8/1/2020 5:35 AM	8/1/2020 5:35 AM
Time of Maximum	8/5/2020 8:35 PM	7/30/2020 10:20 AM	7/26/2020 10:45 AM

### Data Quality

Data uptime observed during the Thursday, July 23, 2020 to the Wednesday, August 5, 2020 monitoring period is provided in the table below. Based upon the quality and consistency of the observed flow depth and velocity data, the Continuity equation was used to calculate flow rate and quantities during the monitoring period.

Percent Uptime	
Depth (in)	100
Velocity (ft/s)	100
Quantity (MGD)	100

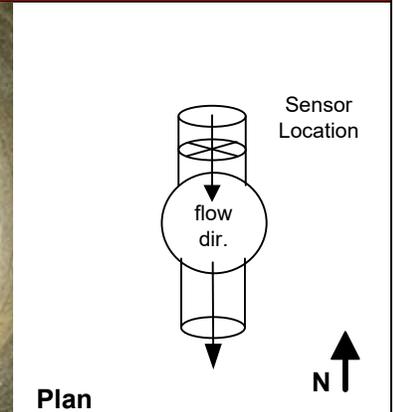
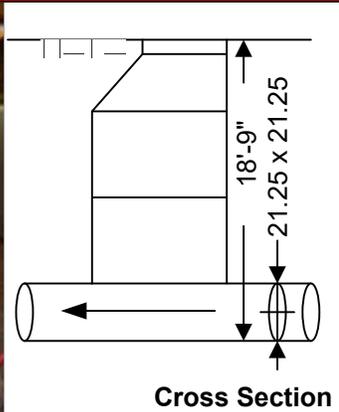
<b>Project Name:</b> Brea AKM Master Plan TFM 2020			<b>City:</b> Brea		<b>Agency:</b> Brea		<b>FM Initials:</b> SK	
<b>Site Name:</b> Brea_Site11		<b>Install Date:</b> 7/22/20			<b>Monitor Type</b>		Peak Doppler	
<b>Address/Location:</b> Kraemer & Saturn St				<b>Monitor Model</b>		Triton +		
				<b>Data Acquisition</b>		Manual/Wireless Collect		
				<b>Manhole ID</b>		K20		
<b>Access:</b> Drive		<b>Type of System:</b>		Sanitary <input checked="" type="checkbox"/>		Storm <input type="checkbox"/>		Combined <input type="checkbox"/>
				<b>Pipe Height:</b>		21.25 "		
				<b>Pipe Width:</b>		21.25 "		



**Investigation Information: Manhole Information:**

<b>Date/Time of Investigation:</b>		7/9/20 @ 0440		<b>Manhole Depth:</b>		18'-9"	
<b>Site Hydraulics:</b>		Good straight through flow		<b>Manhole Material / Condition</b>		Precast/Good	
<b>Upstream Input: (L/S, P/S)</b>		--		<b>Pipe Material / Condition:</b> VCP/Good			
<b>Upstream Manhole:</b>		Not Investigated		<b>Land Use:</b>		Residential <input checked="" type="checkbox"/> Commercial <input type="checkbox"/> Industrial <input type="checkbox"/> Trunk <input type="checkbox"/>	
<b>Downstream Manhole:</b>		Not investigated		<b>Oxygen:</b> 20.9		<b>H2S:</b> 0	
<b>Depth of Flow:</b>		2.88 " +/- 0.25"		<b>LEL:</b> 0		<b>CO:</b> 0	
<b>Range (Air DOF):</b>		+/-		<b>Safety Notes:</b> 2 man crew required and one blower is to be operated at all times.			
<b>Peak Velocity:</b>		2.70 fps					
<b>Silt:</b>		0.00 Inches					

**Other Information:**



Installation Information		Backup		Yes	No	?	Distance
Installation Type:	Standard	Trunk		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Sensors Devices:	Ultrasonic/Velocity/Pressure	Lift / Pump Station		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Surcharge Height:	0	WWTP		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Rain Gauge Zone:		Other		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

**Additional Site Information / Comments:**

**Standard Traffic Control with No Safety Concerns**

# SCATTERGRAPH REPORT

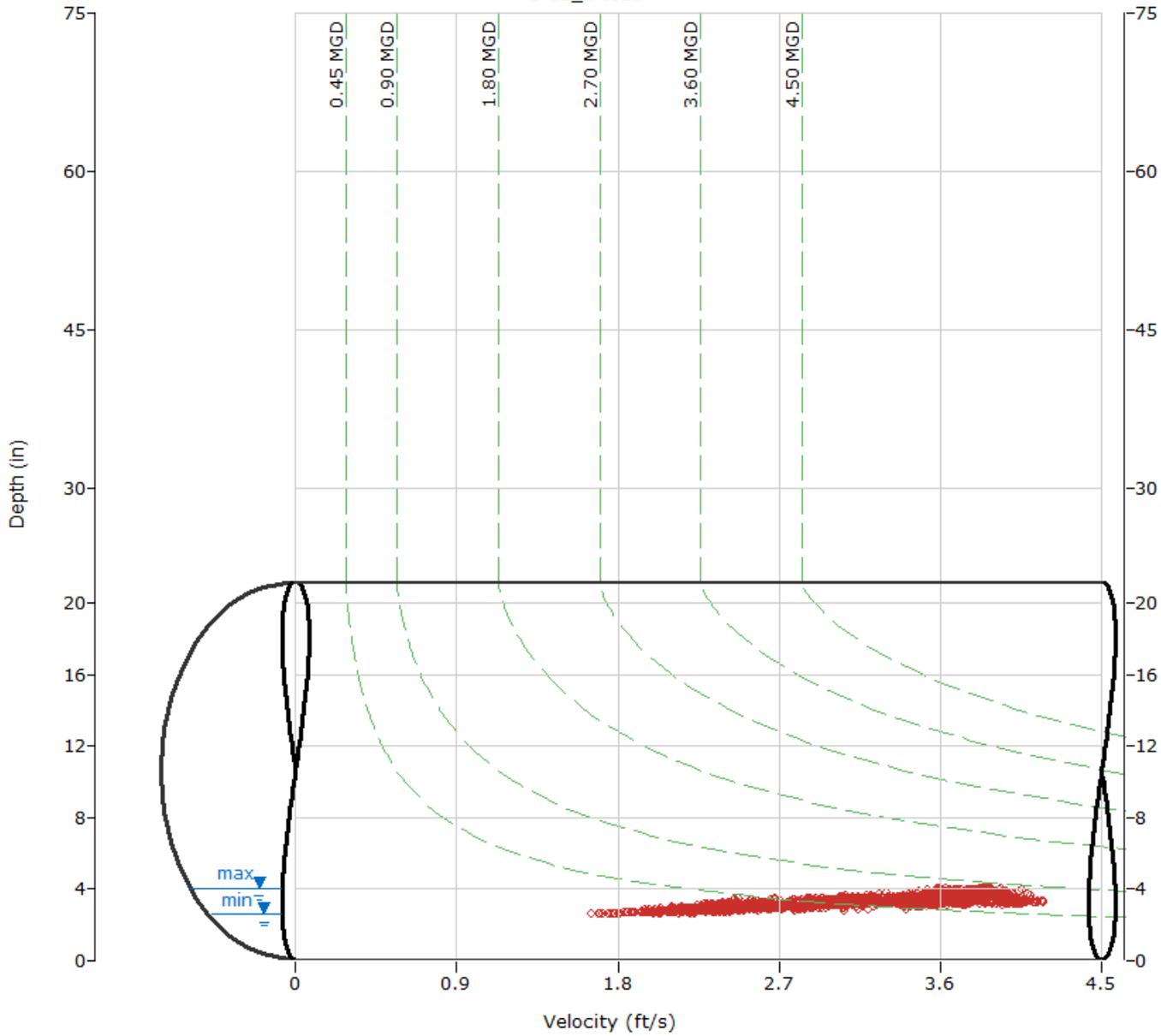
Brea\_Site11

Flow Monitor  
**Brea\_Site11**

Pipe Height  
21.25 in

Report Period  
7/23/2020  
To  
8/5/2020

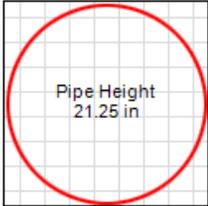
Legend  
○ Depth - Velocity  
--- Iso-Q™  
--- Silt  
▼ Min-Max Depth



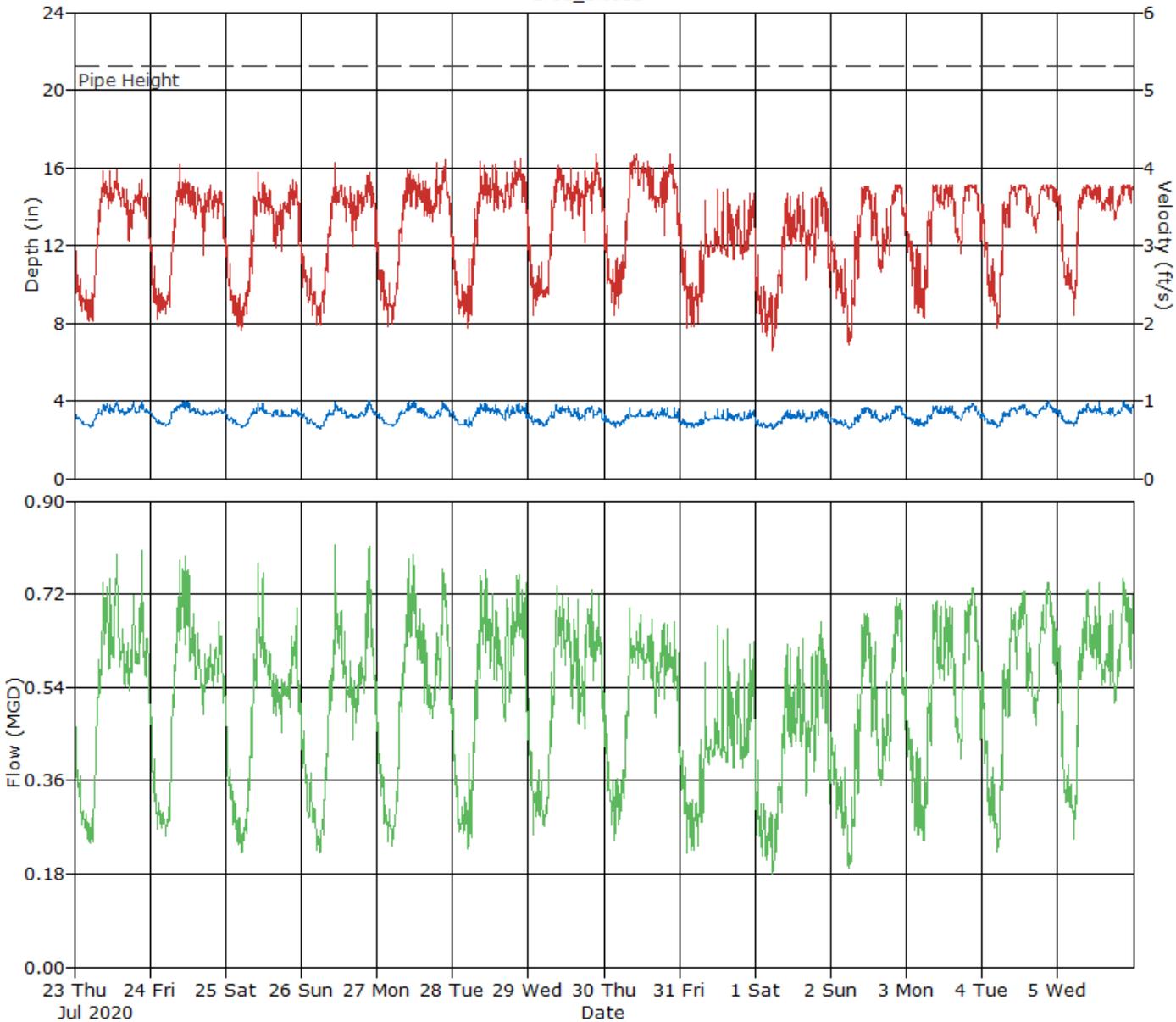
# HYDROGRAPH REPORT

Brea\_Site11

Flow Monitor  
**Brea\_Site11**



Report Period  
7/23/2020  
To  
8/5/2020



Daily Tabular Report For The Period 07/23/2020 00:00 - 08/05/2020 23:59

Brea\_Site11, Pipe Height: 21.25 in, Silt: 0.00 in

Daily Tabular Report

Date	Depth (in)				Velocity (ft/s)				Quantity (MGD - Total MG)					Rain (in)			
	Time	Min	Time	Max	Avg	Time	Min	Time	Max	Avg	Time	Min	Time		Max	Avg	Total
07/23/2020	05:05	2.66	21:35	4.02	3.36	05:55	2.02	13:35	3.97	3.22	05:05	0.239	21:35	0.803	0.534	0.534	
07/24/2020	04:55	2.72	11:05	3.97	3.34	02:15	2.04	09:30	4.04	3.21	04:55	0.252	11:05	0.792	0.526	0.526	
07/25/2020	05:20	2.65	10:20	3.89	3.22	05:05	1.90	10:15	3.95	3.09	05:05	0.220	10:15	0.781	0.479	0.479	
07/26/2020	06:00	2.57	21:30	3.99	3.23	06:15	1.97	10:45	4.06	3.16	05:55	0.221	10:45	0.816	0.493	0.493	
07/27/2020	04:50	2.69	11:20	3.98	3.30	03:25	1.95	21:35	4.10	3.25	04:55	0.235	11:20	0.797	0.525	0.525	
07/28/2020	05:10	2.67	09:55	3.86	3.30	04:50	1.94	21:40	4.11	3.32	04:50	0.229	10:40	0.766	0.536	0.536	
07/29/2020	05:15	2.68	09:15	3.76	3.26	01:40	2.10	21:35	4.18	3.35	01:40	0.255	09:15	0.736	0.528	0.528	
07/30/2020	03:35	2.66	08:15	3.66	3.16	03:30	2.10	10:20	4.18	3.47	03:30	0.245	08:15	0.692	0.518	0.518	
07/31/2020	02:20	2.66	12:15	3.57	3.03	02:20	1.93	12:15	3.73	2.90	02:20	0.222	12:15	0.659	0.410	0.410	
08/01/2020	05:35	2.56	20:45	3.60	3.05	05:35	1.65	20:45	3.74	2.88	05:35	0.179	20:45	0.667	0.415	0.415	
08/02/2020	05:35	2.58	20:50	3.74	3.15	05:35	1.72	21:45	3.77	3.05	05:35	0.190	20:50	0.711	0.462	0.462	
08/03/2020	05:35	2.70	20:50	3.83	3.29	05:35	2.07	21:40	3.77	3.27	05:35	0.244	20:50	0.730	0.524	0.524	
08/04/2020	05:00	2.66	21:00	3.98	3.34	05:00	1.93	22:05	3.77	3.34	05:00	0.222	21:00	0.742	0.547	0.547	
08/05/2020	05:10	2.71	20:35	4.03	3.36	05:10	2.10	20:50	3.77	3.40	05:10	0.249	20:35	0.751	0.560	0.559	

Report Summary For The Period 07/23/2020 00:00 - 08/05/2020 23:59

	Depth (in)	Velocity (ft/s)	Quantity (MGD - Total MG)
Total			7.055
Avg	3.24	3.21	0.504

## Site Commentary

### Site Information

Brea_Site12	
Pipe Dimensions	7.75 "
Silt Level	0.00"

### Overview

Site Brea\_Site12 functioned under normal conditions during the period Thursday, July 23, 2020 to Wednesday, August 5, 2020 . No surcharge conditions were experienced at this location. Review of the scattergraph shows that flows remained free flowing throughout the period. Low flow render lower data accuracy confidence.

Flow depth and velocity measurements recorded by the flow monitor are consistent with field confirmations conducted to date and support the relative accuracy of the flow monitor at this location.

This line is located upstream of location Brea\_Site11. See location Brea\_Site11 for balancing details.

### Observations

Average flow depth, velocity, and quantity data observed during Thursday, July 23, 2020 to Wednesday, August 5, 2020 , along with observed minimum and maximum data, are provided in the following table. The values presented are based on 5-minute data.

Observed Flow Conditions			
Item	Depth (in)	Velocity (ft/s)	Quantity (MGD)
Average	0.72	0.16	0.002
Minimum	0.45	0.14	0.001
Maximum	1.57	1.17	0.020
Time of Minimum	7/24/2020 11:45 AM	7/23/2020 12:00 AM	7/23/2020 12:00 AM
Time of Maximum	8/3/2020 9:00 PM	8/1/2020 12:10 AM	8/1/2020 12:10 AM

### Data Quality

Data uptime observed during the Thursday, July 23, 2020 to the Wednesday, August 5, 2020 monitoring period is provided in the table below. Based upon the quality and consistency of the observed flow depth and velocity data, the Continuity equation was used to calculate flow rate and quantities during the monitoring period.

Percent Uptime	
Depth (in)	100
Velocity (ft/s)	100
Quantity (MGD)	100

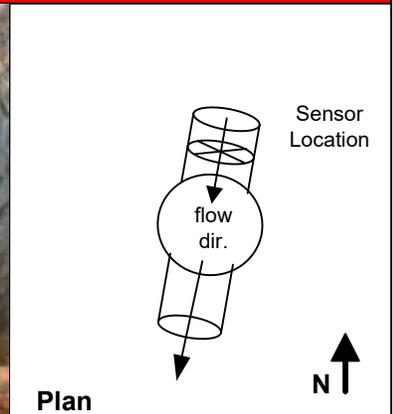
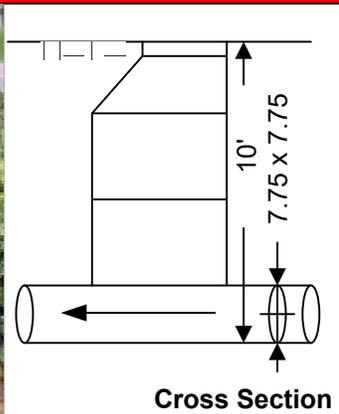
<b>Project Name:</b> Brea AKM Master Plan TFM 2020			<b>City:</b> Brea		<b>Agency:</b> Brea		<b>FM Initials:</b> SK		
<b>Site Name:</b> Brea_Site12		<b>Install Date:</b> 7/20/20			<b>Monitor Type</b>		Peak Doppler		
<b>Address/Location:</b> 3333 E Birch St				<b>Monitor Model</b>		Triton +			
				<b>Data Acquisition</b>		Manual/Wireless Collect			
				<b>Manhole ID</b>		K1283			
<b>Access:</b> Drive		<b>Type of System:</b>		Sanitary <input checked="" type="checkbox"/>		Storm <input type="checkbox"/>		Combined <input type="checkbox"/>	
				<b>Pipe Height:</b>		7.75 "			
				<b>Pipe Width:</b>		7.75 "			



**Investigation Information: Manhole Information:**

<b>Date/Time of Investigation:</b>		7/8/20 @ 0900		<b>Manhole Depth:</b>		10'	
<b>Site Hydraulics:</b>		Low straight through flow		<b>Manhole Material / Condition</b>		Precast/Good	
<b>Upstream Input: (L/S, P/S)</b>		--		<b>Pipe Material / Condition:</b> VCP/Good			
<b>Upstream Manhole:</b>		Not Investigated		<b>Land Use:</b>		Residential <input type="checkbox"/> Commercial <input checked="" type="checkbox"/> Industrial <input type="checkbox"/> Trunk <input type="checkbox"/>	
<b>Downstream Manhole:</b>		Not investigated		<b>Oxygen:</b> 20.9		<b>H2S:</b> 0	
<b>Depth of Flow:</b>		0.38 " +/- 0.25"		<b>LEL:</b> 0		<b>CO:</b> 0	
<b>Range (Air DOF):</b>		+/-		<b>Safety Notes:</b> 2 man crew required and one blower is to be operated at all times.			
<b>Peak Velocity:</b>		0.00 fps					
<b>Silt:</b>		0.00 Inches					

**Other Information:**



Installation Information		Backup	Yes	No	?	Distance
Installation Type:	Standard	Trunk	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Sensors Devices:	Ultrasonic/Velocity/Pressure	Lift / Pump Station	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Surcharge Height:	0	WWTP	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Rain Gauge Zone:		Other	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

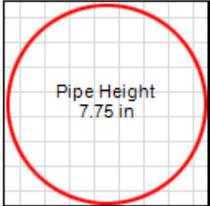
**Additional Site Information / Comments:**

**Standard Traffic Control with No Safety Concerns**

# SCATTERGRAPH REPORT

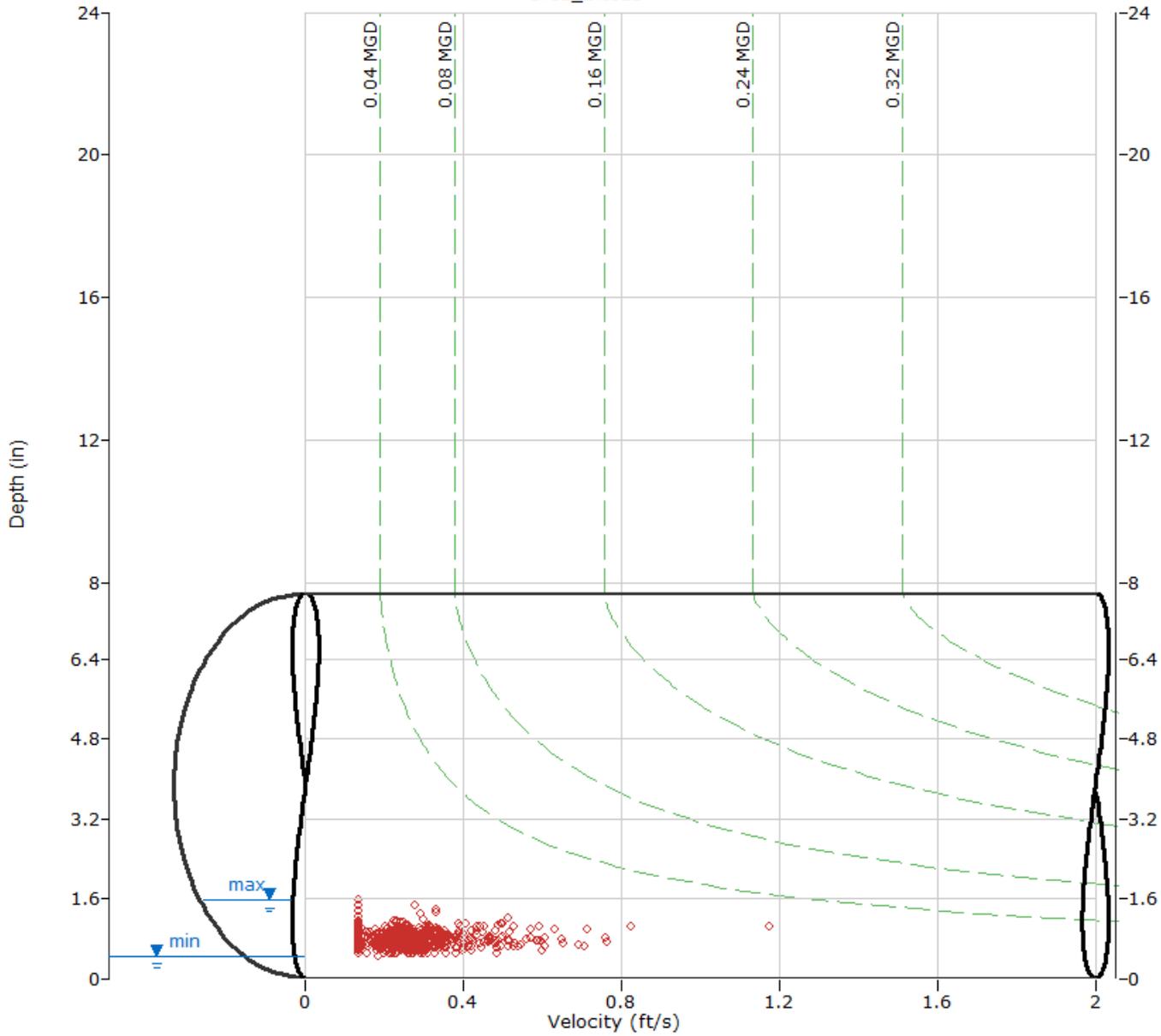
Brea\_Site12

Flow Monitor  
**Brea\_Site12**



Report Period  
7/23/2020  
To  
8/5/2020

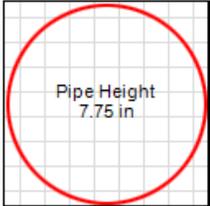
- Legend**
- Depth - Velocity
  - - - Iso-Q™
  - - - Silt
  - ▼ Min-Max Depth



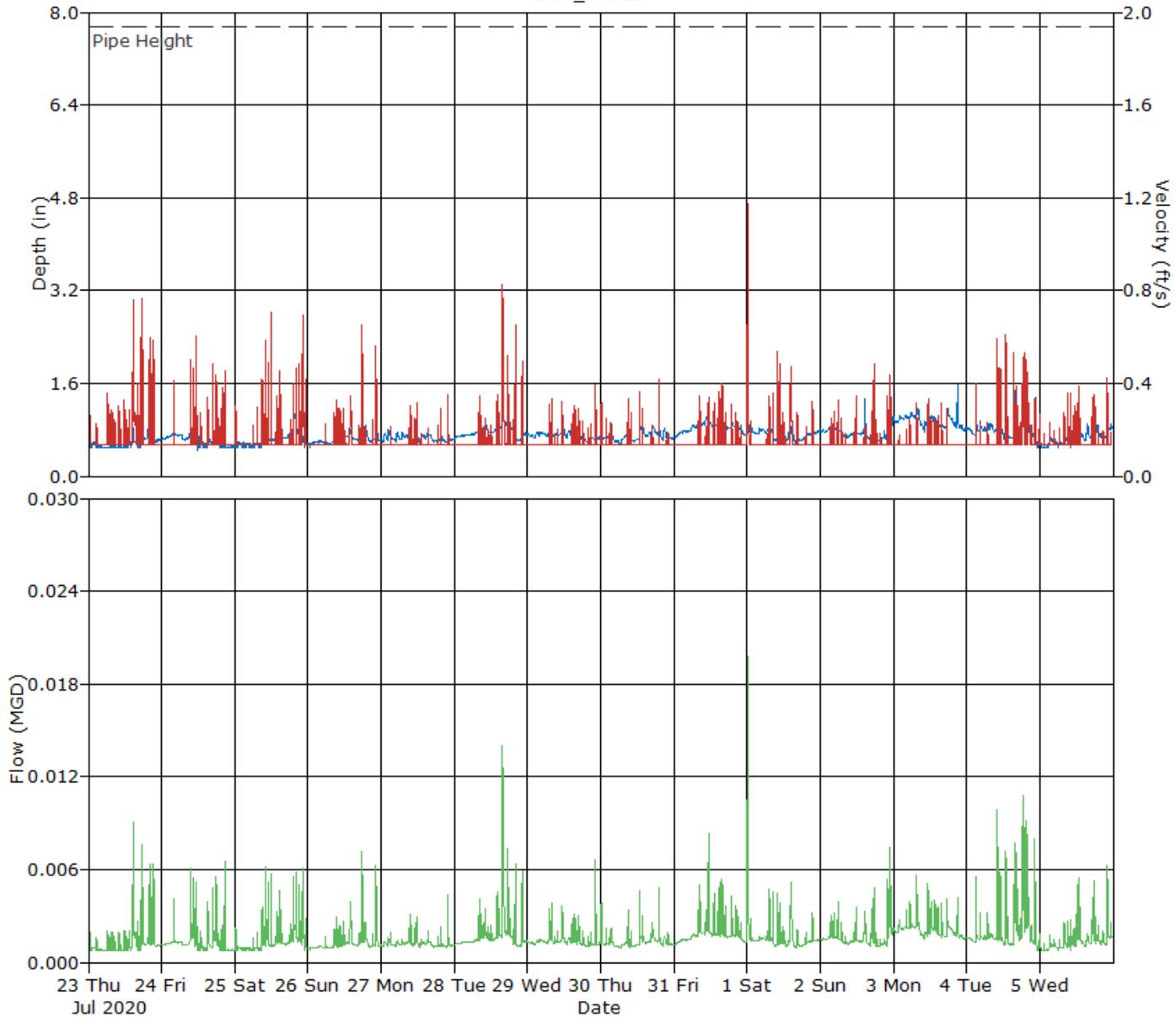
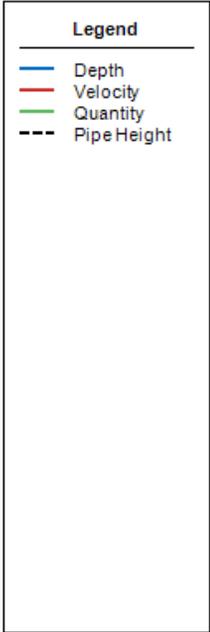
# HYDROGRAPH REPORT

Brea\_Site12

Flow Monitor  
**Brea\_Site12**



Report Period  
7/23/2020  
To  
8/5/2020



Daily Tabular Report For The Period 07/23/2020 00:00 - 08/05/2020 23:59

Brea\_Site12, Pipe Height: 7.75 in, Silt: 0.00 in

Daily Tabular Report

Date	Depth (in)					Velocity (ft/s)					Quantity (MGD - Total MG)					Rain (in)	
	Time	Min	Time	Max	Avg	Time	Min	Time	Max	Avg	Time	Min	Time	Max	Avg	Total	Total
07/23/2020	00:00	0.50	14:40	0.82	0.57	00:00	0.14	17:25	0.76	0.18	00:00	0.001	14:40	0.009	0.001	0.001	
07/24/2020	11:45	0.45	20:45	0.93	0.64	00:00	0.14	11:15	0.60	0.16	11:50	0.001	20:45	0.007	0.001	0.001	
07/25/2020	00:00	0.50	19:30	1.07	0.64	00:00	0.14	11:55	0.71	0.17	00:00	0.001	10:10	0.006	0.001	0.001	
07/26/2020	00:35	0.50	22:15	0.89	0.64	00:00	0.14	17:45	0.65	0.16	00:35	0.001	17:45	0.007	0.001	0.001	
07/27/2020	17:20	0.59	21:50	0.84	0.66	00:00	0.14	21:55	0.35	0.14	17:20	0.001	21:50	0.004	0.001	0.001	
07/28/2020	21:55	0.59	15:50	1.04	0.76	00:00	0.14	15:50	0.82	0.16	21:55	0.001	15:50	0.014	0.002	0.002	
07/29/2020	19:55	0.59	22:10	1.09	0.71	00:00	0.14	22:15	0.39	0.15	19:55	0.001	22:15	0.007	0.001	0.001	
07/30/2020	06:15	0.56	17:20	0.86	0.68	00:00	0.14	19:15	0.42	0.14	06:15	0.001	19:15	0.005	0.001	0.001	
07/31/2020	00:05	0.65	11:20	1.36	0.84	00:00	0.14	15:40	0.40	0.15	00:05	0.001	11:20	0.008	0.002	0.002	
08/01/2020	16:00	0.58	00:10	1.04	0.72	00:00	0.14	00:10	1.17	0.17	16:00	0.001	00:10	0.020	0.002	0.002	
08/02/2020	18:55	0.61	14:30	1.34	0.76	00:00	0.14	17:40	0.49	0.15	18:55	0.001	22:40	0.007	0.002	0.002	
08/03/2020	10:05	0.77	21:00	1.57	0.95	00:00	0.14	11:35	0.34	0.14	10:05	0.001	07:25	0.006	0.002	0.002	
08/04/2020	23:10	0.50	15:45	1.47	0.81	00:00	0.14	12:45	0.61	0.18	23:10	0.001	18:25	0.011	0.002	0.002	
08/05/2020	00:30	0.50	12:35	1.13	0.68	00:00	0.14	22:10	0.42	0.16	00:30	0.001	22:10	0.006	0.001	0.001	

Report Summary For The Period 07/23/2020 00:00 - 08/05/2020 23:59

	Depth (in)	Velocity (ft/s)	Quantity (MGD - Total MG)
Total			0.022
Avg	0.72	0.16	0.002

## Site Commentary

### Site Information

Brea_Site14	
Pipe Dimensions	7.5 "
Silt Level	0.00"

### Overview

Site Brea\_Site14 functioned under normal conditions during the period Thursday, July 23, 2020 to Wednesday, August 5, 2020 . No surcharge conditions were experienced at this location. Review of the scattergraph shows that flows remained free flowing throughout the period.

Flow depth and velocity measurements recorded by the flow monitor are consistent with field confirmations conducted to date and support the relative accuracy of the flow monitor at this location.

This line is located upstream of location Brea\_Site15. See location Brea\_Site15 for balancing details.

### Observations

Average flow depth, velocity, and quantity data observed during Thursday, July 23, 2020 to Wednesday, August 5, 2020 , along with observed minimum and maximum data, are provided in the following table. The values presented are based on 5-minute data.

Observed Flow Conditions			
Item	Depth (in)	Velocity (ft/s)	Quantity (MGD)
Average	1.56	5.15	0.154
Minimum	1.33	4.03	0.104
Maximum	2.01	7.18	0.270
Time of Minimum	7/23/2020 1:50 AM	8/5/2020 3:10 AM	8/5/2020 3:10 AM
Time of Maximum	7/28/2020 6:50 PM	7/25/2020 8:25 PM	7/28/2020 6:50 PM

### Data Quality

Data uptime observed during the Thursday, July 23, 2020 to the Wednesday, August 5, 2020 monitoring period is provided in the table below. Based upon the quality and consistency of the observed flow depth and velocity data, the Continuity equation was used to calculate flow rate and quantities during the monitoring period.

Percent Uptime	
Depth (in)	100
Velocity (ft/s)	100
Quantity (MGD)	100

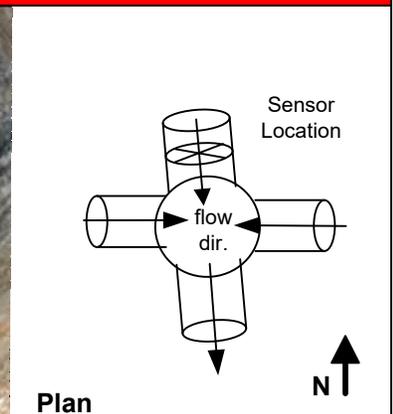
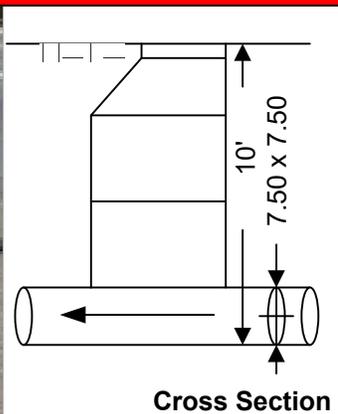
<b>Project Name:</b> Brea AKM Master Plan TFM 2020			<b>City:</b> Brea	<b>Agency:</b> Brea	<b>FM Initials:</b> SK
<b>Site Name:</b> Brea_Site14		<b>Install Date:</b> 7/20/20		<b>Monitor Type:</b> Peak Doppler	
<b>Address/Location:</b> Valencia Ave & E Santa Fe Rd (Located N of Santa Fe Rd on Valencia)			<b>Monitor Model:</b> Triton +		
			<b>Data Acquisition:</b> Manual/Wireless Collect		
			<b>Manhole ID:</b> CC6821		
<b>Access:</b> Drive	<b>Type of System:</b>	Sanitary <input checked="" type="checkbox"/>	Storm <input type="checkbox"/>	Combined <input type="checkbox"/>	<b>Pipe Height:</b> 7.50 "
					<b>Pipe Width:</b> 7.50 "



**Investigation Information: Manhole Information:**

<b>Date/Time of Investigation:</b>	7/8/20 @ 0740	<b>Manhole Depth:</b>	10'
<b>Site Hydraulics:</b>	Low fast straight through flow	<b>Manhole Material / Condition:</b>	Precast/Good
<b>Upstream Input: (L/S, P/S)</b>	--	<b>Pipe Material / Condition:</b>	VCP/Good
<b>Upstream Manhole:</b>	Not Investigated	<b>Land Use:</b>	Residential <input checked="" type="checkbox"/> Commercial <input type="checkbox"/> Industrial <input type="checkbox"/> Trunk <input type="checkbox"/>
<b>Downstream Manhole:</b>	Not investigated	<b>Oxygen:</b> 20.9	<b>H2S:</b> 0 <b>LEL:</b> 0 <b>CO:</b> 0
<b>Depth of Flow:</b>	1.50 " +/- 0.25"	<b>Safety Notes:</b> 2 man crew required and one blower is to be operated at all times.	
<b>Range (Air DOF):</b>	+/-		
<b>Peak Velocity:</b>	4.90 fps		
<b>Silt:</b>	0.00 Inches		

**Other Information:**



Installation Information		Backup	Yes	No	?	Distance
Installation Type:	Standard	Trunk	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Sensors Devices:	Ultrasonic/Velocity/Pressure	Lift / Pump Station	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Surcharge Height:	0	WWTP	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Rain Gauge Zone:		Other	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

**Additional Site Information / Comments:**

Standard Traffic Control with No Safety Concerns

# SCATTERGRAPH REPORT

Brea\_Site14

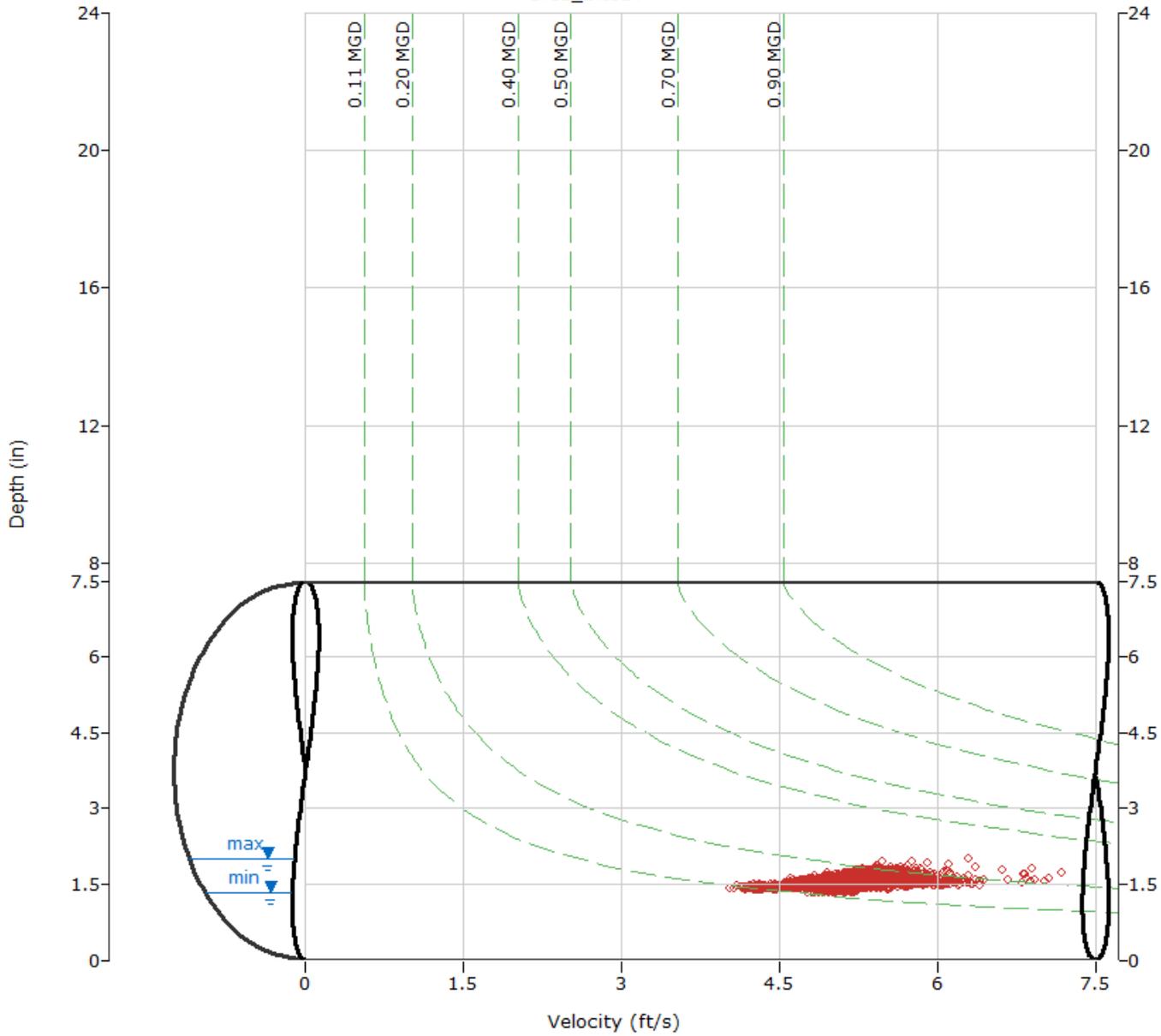
Flow Monitor  
**Brea\_Site14**

Pipe Height  
7.50 in

Report Period  
7/23/2020  
To  
8/5/2020

**Legend**

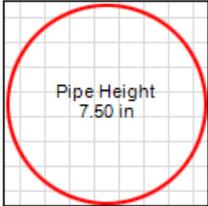
- Depth - Velocity
- - - Iso-Q™
- - - Silt
- ▼ Min-Max Depth



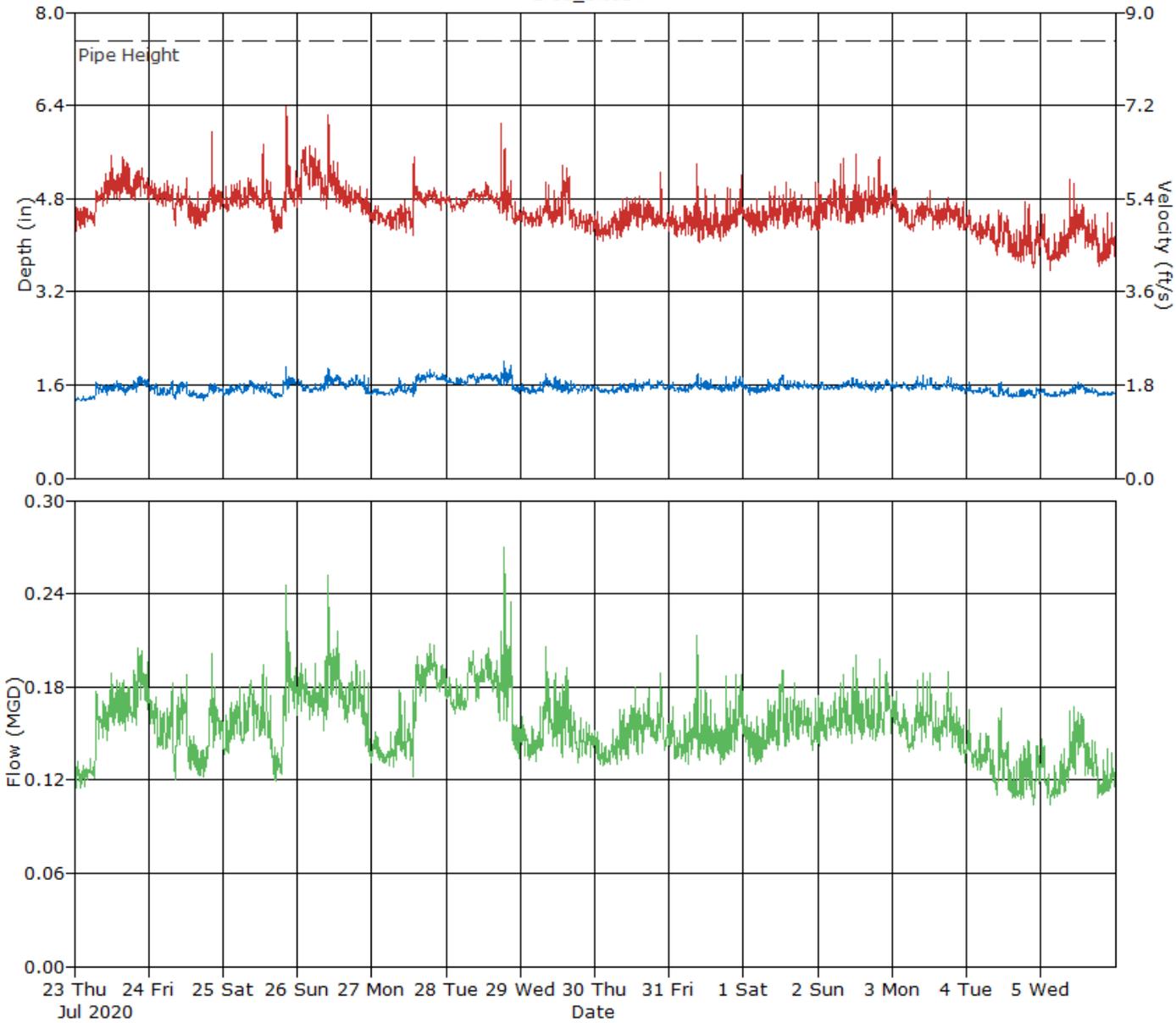
# HYDROGRAPH REPORT

Brea\_Site14

**Flow Monitor**  
**Brea\_Site14**



**Report Period**  
7/23/2020  
To  
8/5/2020



Daily Tabular Report For The Period 07/23/2020 00:00 - 08/05/2020 23:59

Brea\_Site14, Pipe Height: 7.50 in, Silt: 0.00 in

Daily Tabular Report

Date	Depth (in)				Velocity (ft/s)				Quantity (MGD - Total MG)					Rain (in)			
	Time	Min	Time	Max	Avg	Time	Min	Time	Max	Avg	Time	Min	Time		Max	Avg	Total
07/23/2020	01:50	1.33	21:35	1.74	1.51	00:30	4.77	12:10	6.23	5.46	00:30	0.115	20:40	0.205	0.156	0.156	
07/24/2020	17:30	1.34	07:40	1.66	1.50	15:05	4.82	20:25	6.68	5.33	08:30	0.121	20:25	0.202	0.151	0.151	
07/25/2020	17:00	1.38	20:15	1.90	1.54	16:30	4.75	20:25	7.18	5.41	17:00	0.119	20:25	0.245	0.159	0.159	
07/26/2020	23:50	1.42	10:00	1.89	1.60	23:35	4.95	09:55	7.02	5.62	23:50	0.131	09:50	0.252	0.175	0.175	
07/27/2020	13:25	1.40	19:00	1.85	1.59	13:20	4.70	13:40	6.21	5.22	13:25	0.122	19:00	0.207	0.161	0.161	
07/28/2020	23:30	1.45	18:50	2.01	1.68	22:30	4.91	17:45	6.85	5.36	23:30	0.134	18:50	0.270	0.179	0.179	
07/29/2020	05:00	1.45	08:25	1.79	1.55	22:30	4.71	13:25	6.03	5.09	18:45	0.131	08:20	0.205	0.151	0.151	
07/30/2020	06:25	1.45	17:25	1.70	1.55	02:35	4.58	21:25	5.89	4.98	02:35	0.129	21:25	0.189	0.148	0.148	
07/31/2020	06:00	1.47	09:10	1.78	1.57	09:40	4.56	09:05	6.07	4.95	06:05	0.130	09:05	0.213	0.149	0.149	
08/01/2020	02:00	1.43	12:40	1.77	1.57	03:55	4.70	23:20	5.73	5.10	03:55	0.130	12:50	0.191	0.153	0.153	
08/02/2020	18:50	1.49	11:25	1.73	1.58	00:05	4.80	12:15	6.26	5.31	00:40	0.141	12:20	0.200	0.161	0.161	
08/03/2020	23:40	1.46	10:00	1.77	1.58	07:00	4.77	01:00	5.62	5.10	23:40	0.131	17:55	0.190	0.155	0.155	
08/04/2020	21:45	1.38	11:20	1.66	1.47	21:50	4.07	18:45	5.34	4.66	21:45	0.104	11:20	0.166	0.128	0.128	
08/05/2020	18:25	1.39	12:10	1.64	1.47	03:10	4.03	09:25	5.77	4.58	03:10	0.104	10:35	0.167	0.127	0.127	

Report Summary For The Period 07/23/2020 00:00 - 08/05/2020 23:59

	Depth (in)	Velocity (ft/s)	Quantity (MGD - Total MG)
Total			2.154
Avg	1.56	5.15	0.154

## Site Commentary

### Site Information

Brea_Site15	
Pipe Dimensions	16.38 "
Silt Level	0.63"

### Overview

Site Brea\_Site15 functioned under normal conditions during the period Thursday, July 23, 2020 to Wednesday, August 5, 2020 . No surcharge conditions were experienced at this location. Review of the scattergraph shows that flows remained free flowing throughout the period.

Flow depth and velocity measurements recorded by the flow monitor are consistent with field confirmations conducted to date and support the relative accuracy of the flow monitor at this location.

This line is located downstream of location Brea\_Site14. A review of balancing indicates no problem.

### Observations

Average flow depth, velocity, and quantity data observed during Thursday, July 23, 2020 to Wednesday, August 5, 2020 , along with observed minimum and maximum data, are provided in the following table. The values presented are based on 5-minute data.

Observed Flow Conditions			
Item	Depth (in)	Velocity (ft/s)	Quantity (MGD)
Average	2.85	3.06	0.302
Minimum	2.21	1.83	0.163
Maximum	3.59	4.49	0.535
Time of Minimum	8/5/2020 6:15 AM	7/27/2020 4:45 AM	7/27/2020 4:50 AM
Time of Maximum	7/25/2020 8:00 PM	8/3/2020 7:45 PM	7/26/2020 10:30 AM

### Data Quality

Data uptime observed during the Thursday, July 23, 2020 to the Wednesday, August 5, 2020 monitoring period is provided in the table below. Based upon the quality and consistency of the observed flow depth and velocity data, the Continuity equation was used to calculate flow rate and quantities during the monitoring period.

Percent Uptime	
Depth (in)	100
Velocity (ft/s)	100
Quantity (MGD)	100

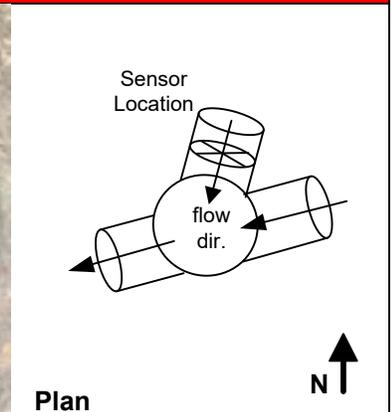
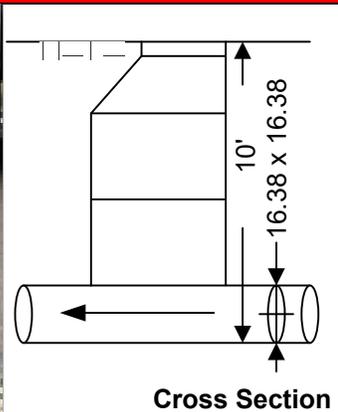
<b>Project Name:</b> Brea AKM Master Plan TFM 2020			<b>City:</b> Brea		<b>Agency:</b> Brea		<b>FM Initials:</b> SK	
<b>Site Name:</b> Brea_Site15		<b>Install Date:</b> 7/20/20			<b>Monitor Type</b>		Peak Doppler	
<b>Address/Location:</b> Carbon Canyon & Santa Fe				<b>Monitor Model</b>		Triton +		
				<b>Data Acquisition</b>		Manual/Wireless Collect		
				<b>Manhole ID</b>		CC68		
<b>Access:</b> Drive		<b>Type of System:</b>		<b>Pipe Height:</b>		16.38 "		
		Sanitary <input checked="" type="checkbox"/>		Storm <input type="checkbox"/>		<b>Pipe Width:</b> 16.38 "		
		Combined <input type="checkbox"/>						



**Investigation Information: Manhole Information:**

<b>Date/Time of Investigation:</b>		7/8/20 @ 0730		<b>Manhole Depth:</b>		10'	
<b>Site Hydraulics:</b>		Good straight through flow		<b>Manhole Material / Condition</b>		Precast/Good	
<b>Upstream Input: (L/S, P/S)</b>		--		<b>Pipe Material / Condition:</b> VCP/Good			
<b>Upstream Manhole:</b>		Not Investigated		<b>Land Use:</b>		Residential <input checked="" type="checkbox"/> Commercial <input type="checkbox"/> Industrial <input type="checkbox"/> Trunk <input type="checkbox"/>	
<b>Downstream Manhole:</b>		Not investigated		<b>Oxygen:</b> 20.9		<b>H2S:</b> 0	
<b>Depth of Flow:</b>		2.50 " +/- 0.25"		<b>LEL:</b> 0		<b>CO:</b> 0	
<b>Range (Air DOF):</b>		+/-		<b>Safety Notes:</b> 2 man crew required and one blower is to be operated at all times.			
<b>Peak Velocity:</b>		3.45 fps					
<b>Silt:</b>		~0.50 Inches					

**Other Information:**



Installation Information		Backup	Yes	No	?	Distance
Installation Type:	Standard	Trunk	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Sensors Devices:	Ultrasonic/Velocity/Pressure	Lift / Pump Station	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Surcharge Height:	0	WWTP	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Rain Gauge Zone:		Other	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

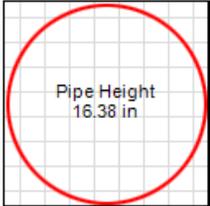
**Additional Site Information / Comments:**

**Standard Traffic Control with No Safety Concerns**

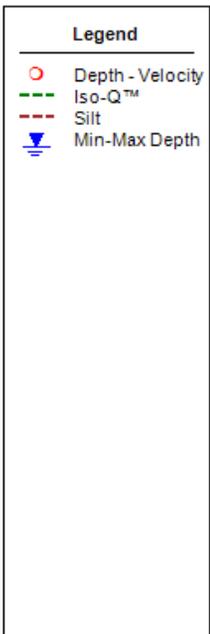
# SCATTERGRAPH REPORT

Brea\_Site15

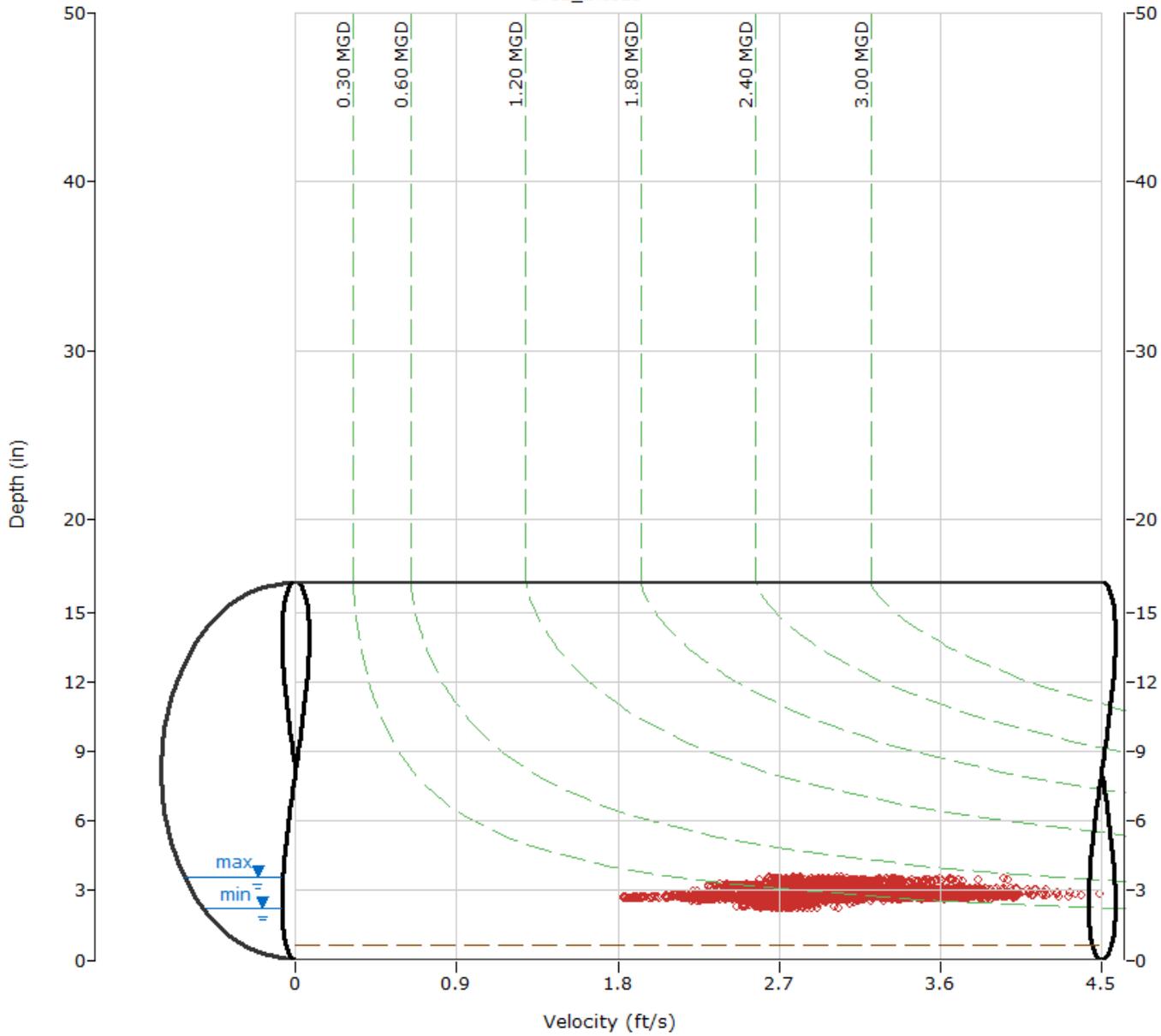
Flow Monitor  
**Brea\_Site15**



Report Period  
7/23/2020  
To  
8/5/2020



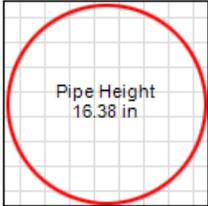
ADS ENVIRONMENTAL SERVICES



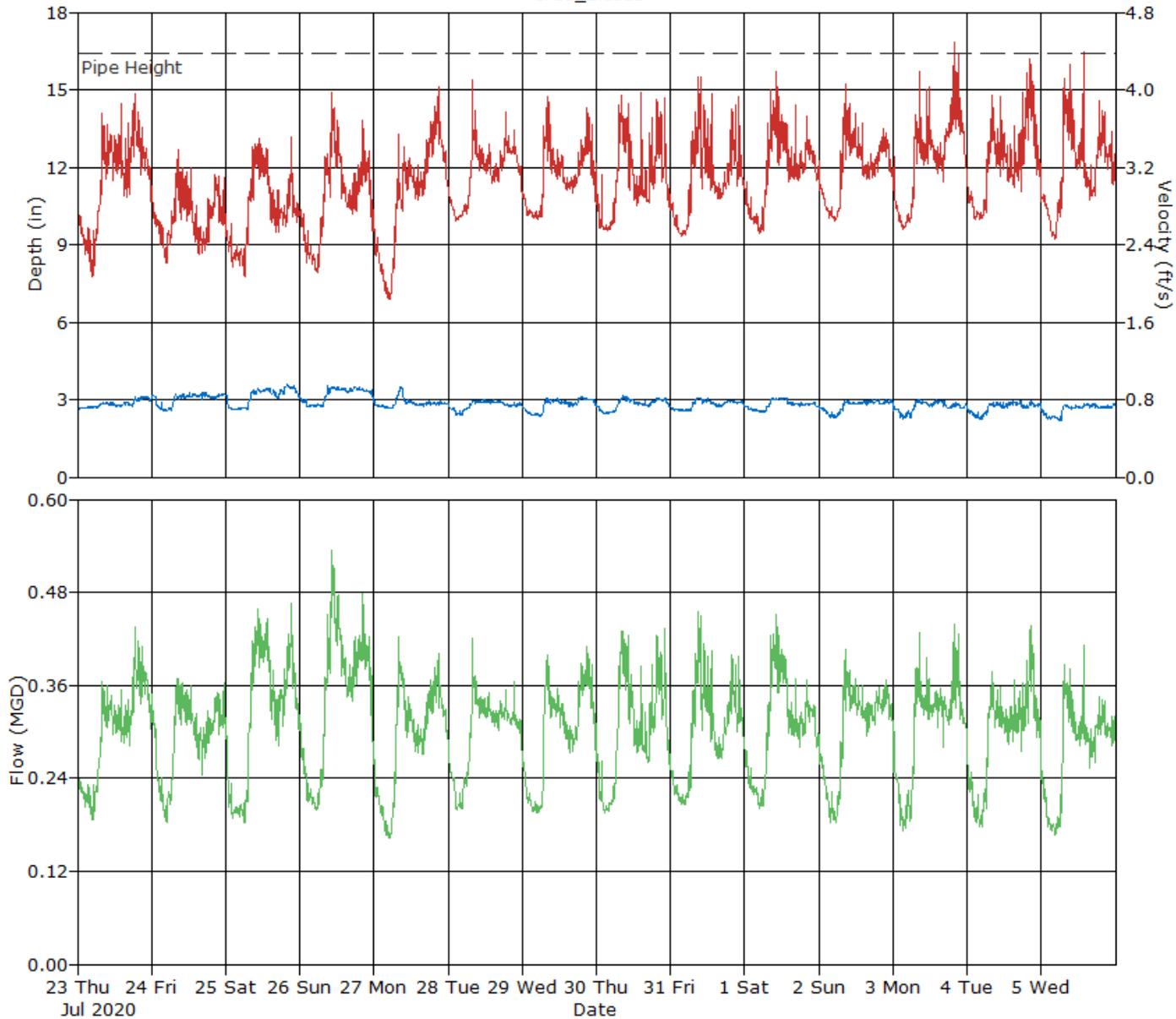
# HYDROGRAPH REPORT

Brea\_Site15

Flow Monitor  
**Brea\_Site15**



Report Period  
7/23/2020  
To  
8/5/2020



Daily Tabular Report For The Period 07/23/2020 00:00 - 08/05/2020 23:59

Brea\_Site15, Pipe Height: 16.38 in, Silt: 0.63 in

Daily Tabular Report

Date	Depth (in)					Velocity (ft/s)					Quantity (MGD - Total MG)					Rain (in)	
	Time	Min	Time	Max	Avg	Time	Min	Time	Max	Avg	Time	Min	Time	Max	Avg	Total	Total
07/23/2020	00:50	2.64	21:45	3.12	2.83	04:40	2.07	18:50	3.95	3.06	04:40	0.186	18:50	0.436	0.301	0.301	
07/24/2020	05:00	2.56	17:40	3.26	3.03	05:00	2.21	08:45	3.38	2.69	05:00	0.182	08:05	0.369	0.293	0.293	
07/25/2020	03:45	2.60	20:00	3.59	3.13	06:20	2.07	21:10	3.51	2.76	06:20	0.183	21:10	0.465	0.322	0.322	
07/26/2020	02:40	2.71	09:00	3.54	3.18	05:35	2.12	10:30	3.98	2.89	05:15	0.199	10:30	0.535	0.345	0.345	
07/27/2020	03:55	2.66	09:00	3.48	2.87	04:45	1.83	20:55	4.03	2.90	04:50	0.163	08:05	0.423	0.290	0.290	
07/28/2020	04:35	2.40	11:40	3.00	2.78	02:25	2.65	07:50	4.10	3.14	03:00	0.200	07:50	0.421	0.298	0.298	
07/29/2020	05:40	2.38	19:25	3.11	2.80	04:50	2.65	08:20	3.93	3.10	04:30	0.196	20:55	0.411	0.299	0.299	
07/30/2020	02:45	2.45	08:45	3.15	2.82	03:45	2.55	14:35	3.97	3.08	02:45	0.196	22:10	0.433	0.301	0.301	
07/31/2020	04:35	2.55	09:00	3.08	2.81	03:40	2.49	08:50	4.13	3.09	04:35	0.206	08:50	0.454	0.300	0.300	
08/01/2020	04:40	2.51	11:20	3.07	2.80	04:40	2.52	10:20	4.19	3.16	04:40	0.201	10:20	0.452	0.305	0.305	
08/02/2020	03:35	2.28	19:25	3.01	2.76	05:15	2.65	08:50	4.05	3.19	05:40	0.183	08:50	0.407	0.301	0.301	
08/03/2020	03:20	2.25	08:30	3.00	2.73	03:10	2.56	19:45	4.49	3.29	03:20	0.173	19:45	0.439	0.305	0.305	
08/04/2020	04:55	2.24	17:15	2.95	2.69	04:10	2.66	20:10	4.32	3.25	04:55	0.177	20:55	0.437	0.295	0.295	
08/05/2020	06:15	2.21	17:40	2.85	2.62	04:25	2.46	13:45	4.39	3.19	04:35	0.168	13:50	0.412	0.277	0.276	

Report Summary For The Period 07/23/2020 00:00 - 08/05/2020 23:59

	Depth (in)	Velocity (ft/s)	Quantity (MGD - Total MG)
Total			4.231
Avg	2.85	3.06	0.302

## Site Commentary

### Site Information

Brea_Site16	
Pipe Dimensions	24 "
Silt Level	0.00"

### Overview

Site Brea\_Site16 functioned under normal conditions during the period Thursday, July 23, 2020 to Wednesday, August 5, 2020 . No surcharge conditions were experienced at this location. Site likely impacted by some debris at beginning and end of the data period based on the shifting depth/velocity relationship.

Flow depth and velocity measurements recorded by the flow monitor are consistent with field confirmations conducted to date and support the relative accuracy of the flow monitor at this location.

### Observations

Average flow depth, velocity, and quantity data observed during Thursday, July 23, 2020 to Wednesday, August 5, 2020 , along with observed minimum and maximum data, are provided in the following table. The values presented are based on 5-minute data.

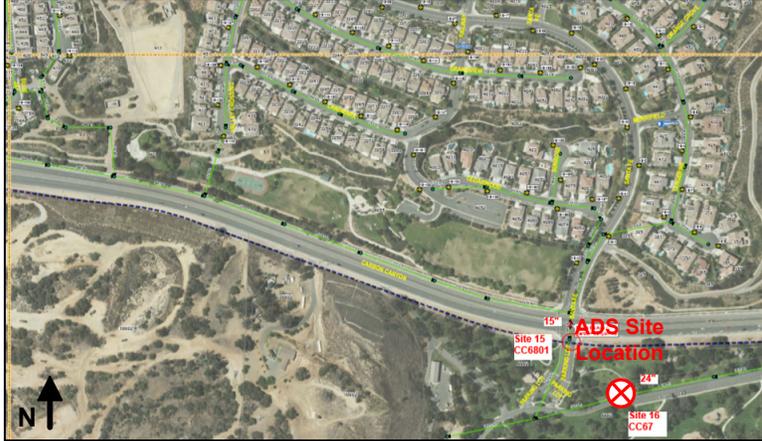
Observed Flow Conditions			
Item	Depth (in)	Velocity (ft/s)	Quantity (MGD)
Average	2.38	1.78	0.187
Minimum	1.55	0.53	0.044
Maximum	3.58	2.37	0.333
Time of Minimum	7/28/2020 3:25 AM	7/23/2020 6:40 AM	7/23/2020 6:40 AM
Time of Maximum	8/5/2020 10:35 PM	7/26/2020 5:55 PM	8/2/2020 12:30 PM

### Data Quality

Data uptime observed during the Thursday, July 23, 2020 to the Wednesday, August 5, 2020 monitoring period is provided in the table below. Based upon the quality and consistency of the observed flow depth and velocity data, the Continuity equation was used to calculate flow rate and quantities during the monitoring period.

Percent Uptime	
Depth (in)	100
Velocity (ft/s)	100
Quantity (MGD)	100

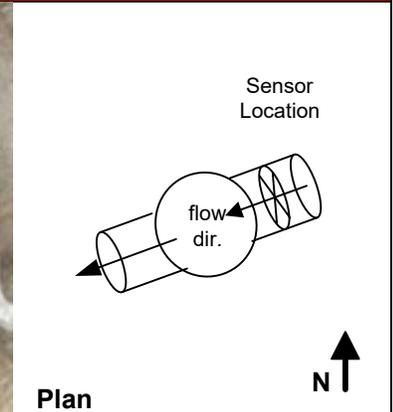
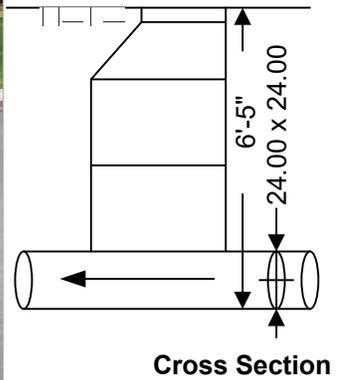
<b>Project Name:</b> Brea AKM Master Plan TFM 2020			<b>City:</b> Brea		<b>Agency:</b> Brea		<b>FM Initials:</b> SK	
<b>Site Name:</b> Brea_Site16		<b>Install Date:</b> 7/20/20			<b>Monitor Type</b>		Peak Doppler	
<b>Address/Location:</b> Carbon Canyon & Santa Fe				<b>Monitor Model</b>		Triton +		
				<b>Data Acquisition</b>		Manual/Wireless Collect		
				<b>Manhole ID</b>		CC67		
<b>Access:</b> Drive		<b>Type of System:</b>		<b>Pipe Height:</b>		24.00 "		
		Sanitary <input checked="" type="checkbox"/>		Storm <input type="checkbox"/>		<b>Pipe Width:</b>		
		Combined <input type="checkbox"/>		24.00 "				



**Investigation Information: Manhole Information:**

<b>Date/Time of Investigation:</b>		7/8/20 @ 0715		<b>Manhole Depth:</b>		6'-5"	
<b>Site Hydraulics:</b>		Good straight through flow		<b>Manhole Material / Condition</b>		Precast/Good	
<b>Upstream Input: (L/S, P/S)</b>		--		<b>Pipe Material / Condition:</b> VCP/Good			
<b>Upstream Manhole:</b>		Not Investigated		<b>Land Use:</b>		Residential <input checked="" type="checkbox"/> Commercial <input type="checkbox"/> Industrial <input type="checkbox"/> Trunk <input type="checkbox"/>	
<b>Downstream Manhole:</b>		Not investigated		<b>Oxygen:</b> 20.9		<b>H2S:</b> 0	
<b>Depth of Flow:</b>		2.63 " +/- 0.25"		<b>LEL:</b> 0		<b>CO:</b> 0	
<b>Range (Air DOF):</b>		+/-		<b>Safety Notes:</b> 2 man crew required and one blower is to be operated at all times.			
<b>Peak Velocity:</b>		1.70 fps					
<b>Silt:</b>		0.00 Inches					

**Other Information:**



Installation Information		Backup	Yes	No	?	Distance
Installation Type:	Standard	Trunk	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Sensors Devices:	Ultrasonic/Velocity/Pressure	Lift / Pump Station	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Surcharge Height:	0	WWTP	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Rain Gauge Zone:		Other	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

**Additional Site Information / Comments:**

**Standard Traffic Control with No Safety Concerns**

# SCATTERGRAPH REPORT

Brea\_Site16

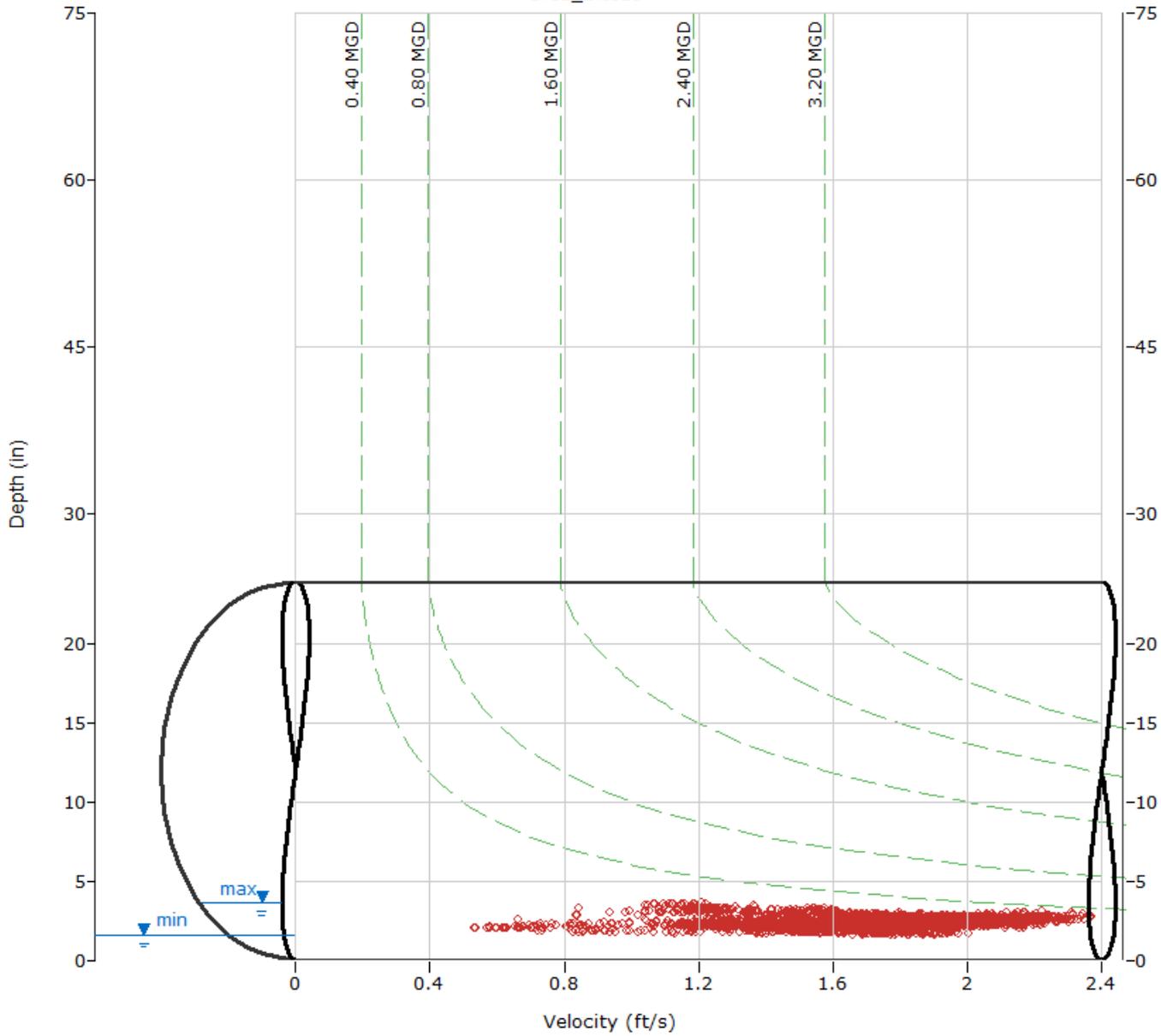
Flow Monitor  
**Brea\_Site16**

Pipe Height  
24.00 in

Report Period  
7/23/2020  
To  
8/5/2020

Legend  
○ Depth - Velocity  
--- Iso-Q™  
--- Silt  
▼ Min-Max Depth

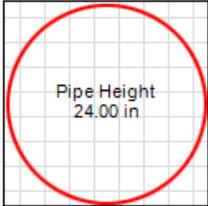
ADS ENVIRONMENTAL SERVICES



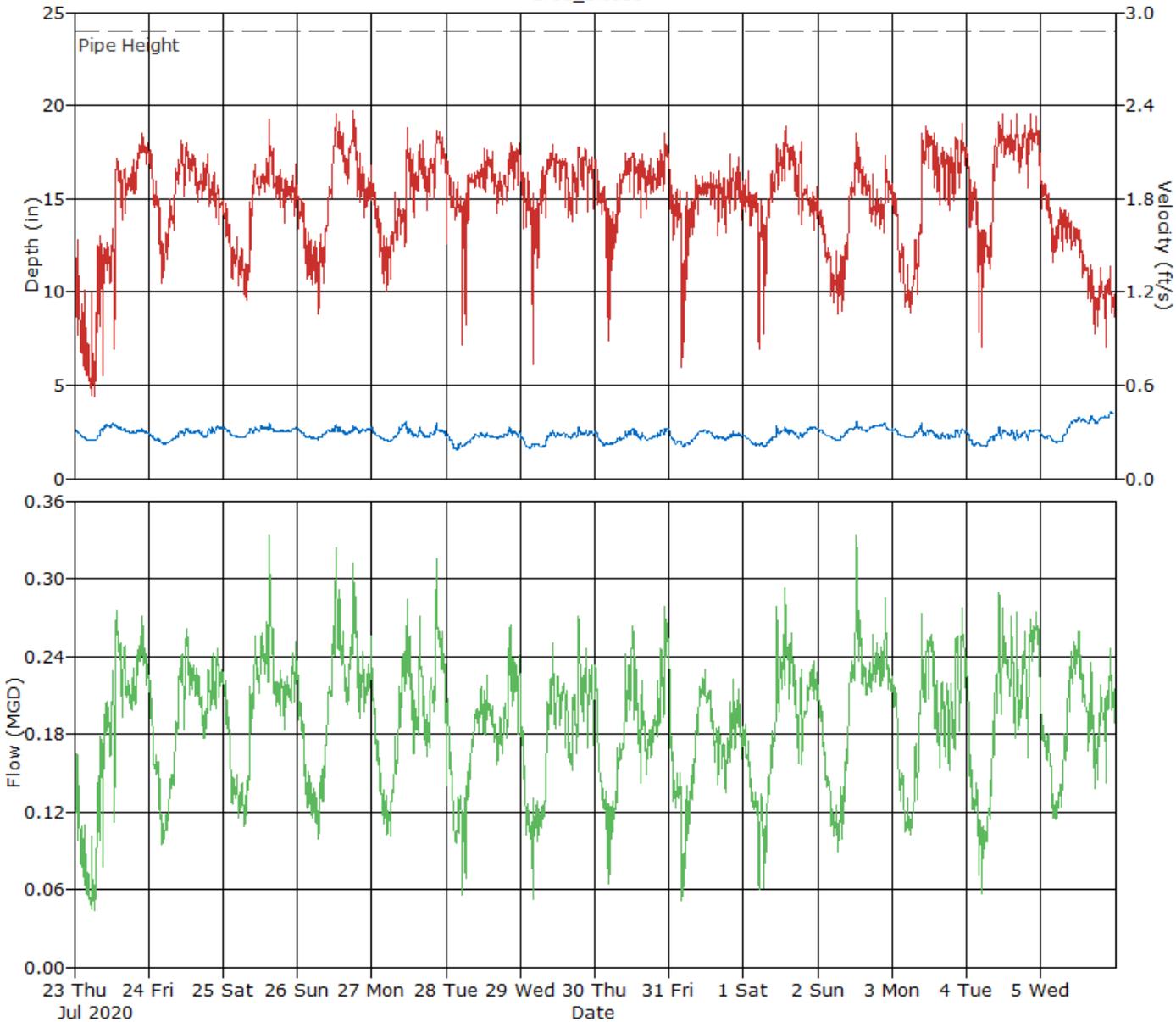
# HYDROGRAPH REPORT

Brea\_Site16

Flow Monitor  
**Brea\_Site16**



Report Period  
7/23/2020  
To  
8/5/2020



**Daily Tabular Report For The Period 07/23/2020 00:00 - 08/05/2020 23:59**

**Brea\_Site16, Pipe Height: 24.00 in, Silt: 0.00 in**

**Daily Tabular Report**

Date	Depth (in)					Velocity (ft/s)					Quantity (MGD - Total MG)					Rain (in)	
	Time	Min	Time	Max	Avg	Time	Min	Time	Max	Avg	Time	Min	Time	Max	Avg	Total	Total
07/23/2020	06:40	2.03	12:30	2.94	2.49	06:40	0.53	21:55	2.22	1.50	06:40	0.044	13:35	0.275	0.172	0.172	
07/24/2020	05:15	1.85	22:05	2.79	2.34	04:15	1.25	10:40	2.18	1.85	04:15	0.094	12:25	0.261	0.191	0.191	
07/25/2020	05:20	2.19	15:05	2.97	2.52	07:35	1.15	14:55	2.31	1.73	06:45	0.109	14:55	0.333	0.199	0.199	
07/26/2020	06:35	2.09	12:35	2.90	2.47	06:55	1.06	17:55	2.37	1.81	06:55	0.099	12:30	0.324	0.203	0.203	
07/27/2020	06:10	1.97	11:05	3.03	2.40	04:55	1.20	11:30	2.25	1.82	06:05	0.102	20:50	0.316	0.195	0.195	
07/28/2020	03:25	1.55	20:35	2.72	2.18	05:10	0.86	23:40	2.16	1.90	05:10	0.056	20:45	0.265	0.176	0.176	
07/29/2020	03:15	1.64	18:45	2.73	2.17	04:10	0.73	10:15	2.14	1.90	04:10	0.053	18:45	0.271	0.176	0.176	
07/30/2020	02:55	1.79	22:45	2.70	2.22	04:25	0.89	22:40	2.22	1.88	04:25	0.064	22:40	0.278	0.181	0.181	
07/31/2020	04:45	1.69	00:00	2.64	2.20	04:10	0.72	19:40	2.09	1.77	04:10	0.051	00:00	0.252	0.168	0.168	
08/01/2020	06:50	1.71	10:35	2.80	2.28	05:00	0.84	13:40	2.26	1.84	05:00	0.060	13:20	0.292	0.184	0.184	
08/02/2020	06:45	2.04	12:30	3.05	2.55	06:25	1.06	12:30	2.22	1.67	06:25	0.089	12:30	0.333	0.197	0.197	
08/03/2020	15:30	2.11	09:30	2.99	2.39	06:00	1.06	22:25	2.28	1.81	06:00	0.102	22:25	0.277	0.191	0.191	
08/04/2020	06:15	1.70	10:35	2.71	2.25	05:05	0.84	20:50	2.35	1.97	05:05	0.056	10:30	0.289	0.194	0.194	
08/05/2020	05:00	1.95	22:35	3.58	2.80	20:55	0.85	00:20	1.92	1.45	05:00	0.114	12:05	0.259	0.188	0.187	

**Report Summary For The Period 07/23/2020 00:00 - 08/05/2020 23:59**

	Depth (in)	Velocity (ft/s)	Quantity (MGD - Total MG)
Total			2.615
Avg	2.38	1.78	0.187

## Site Commentary

### Site Information

Brea_Site2	
Pipe Dimensions	12 "
Silt Level	0.00"

### Overview

Site Brea\_Site2 functioned under normal conditions during the period Thursday, July 23, 2020 to Wednesday, August 5, 2020 . No surcharge conditions were experienced at this location. Review of the scattergraph shows that flows remained free flowing throughout the period.

Flow depth and velocity measurements recorded by the flow monitor are consistent with field confirmations conducted to date and support the relative accuracy of the flow monitor at this location.

This line is located upstream of location Brea\_Site4. See location Brea\_Site4 for balancing details.

### Observations

Average flow depth, velocity, and quantity data observed during Thursday, July 23, 2020 to Wednesday, August 5, 2020 , along with observed minimum and maximum data, are provided in the following table. The values presented are based on 5-minute data.

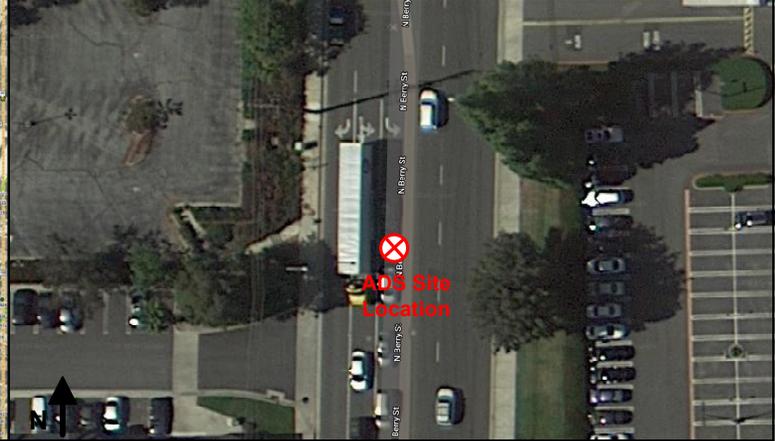
Observed Flow Conditions			
Item	Depth (in)	Velocity (ft/s)	Quantity (MGD)
Average	1.89	3.78	0.198
Minimum	1.45	2.35	0.086
Maximum	2.58	4.90	0.374
Time of Minimum	7/29/2020 4:25 AM	8/2/2020 6:25 AM	7/29/2020 4:25 AM
Time of Maximum	7/25/2020 2:05 PM	7/25/2020 11:20 AM	7/23/2020 10:20 AM

### Data Quality

Data uptime observed during the Thursday, July 23, 2020 to the Wednesday, August 5, 2020 monitoring period is provided in the table below. Based upon the quality and consistency of the observed flow depth and velocity data, the Continuity equation was used to calculate flow rate and quantities during the monitoring period.

Percent Uptime	
Depth (in)	100
Velocity (ft/s)	100
Quantity (MGD)	100

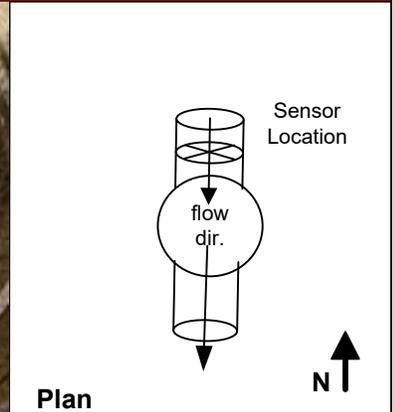
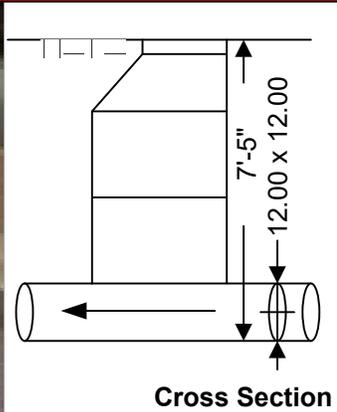
<b>Project Name:</b> Brea AKM Master Plan TFM 2020			<b>City:</b> Brea		<b>Agency:</b> Brea		<b>FM Initials:</b> SK	
<b>Site Name:</b> Brea_Site2		<b>Install Date:</b> 7/21/20			<b>Monitor Type</b>		Peak Doppler	
<b>Address/Location:</b> N Berry St & Imperial Hwy				<b>Monitor Model</b>		Triton +		
				<b>Data Acquisition</b>		Manual/Wireless Collect		
				<b>Manhole ID</b>		FB33		
<b>Access:</b> Drive		<b>Type of System:</b>		<b>Pipe Height:</b>		12.00 "		
		Sanitary <input checked="" type="checkbox"/>		Storm <input type="checkbox"/>		Combined <input type="checkbox"/>		
				<b>Pipe Width:</b>		12.00 "		



**Investigation Information: Manhole Information:**

<b>Date/Time of Investigation:</b>		7/7/20 @ 0455		<b>Manhole Depth:</b>		7'-5"	
<b>Site Hydraulics:</b>		Good straight through flow		<b>Manhole Material / Condition</b>		Precast/Good	
<b>Upstream Input: (L/S, P/S)</b>		--		<b>Pipe Material / Condition:</b> VCP/Good			
<b>Upstream Manhole:</b>		Not Investigated		<b>Land Use:</b>		Residential <input type="checkbox"/> Commercial <input type="checkbox"/> Industrial <input checked="" type="checkbox"/> Trunk <input type="checkbox"/>	
<b>Downstream Manhole:</b>		Not investigated		<b>Oxygen:</b> 20.9		H2S: 0 LEL: 0 CO: 0	
<b>Depth of Flow:</b>		1.50 " +/- 0.25"		<b>Safety Notes:</b> 2 man crew required and one blower is to be operated at all times.			
<b>Range (Air DOF):</b>		+/-					
<b>Peak Velocity:</b>		3.45 fps					
<b>Silt:</b>		0.00 Inches					

**Other Information:**



Installation Information		Backup		Yes	No	?	Distance
Installation Type:	Standard	Trunk		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Sensors Devices:	Ultrasonic/Velocity/Pressure	Lift / Pump Station		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Surcharge Height:	0	WWTP		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Rain Gauge Zone:		Other		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

**Additional Site Information / Comments:**

Standard Traffic Control with No Safety Concerns

# SCATTERGRAPH REPORT

Brea\_Site2

Flow Monitor  
**Brea\_Site2**

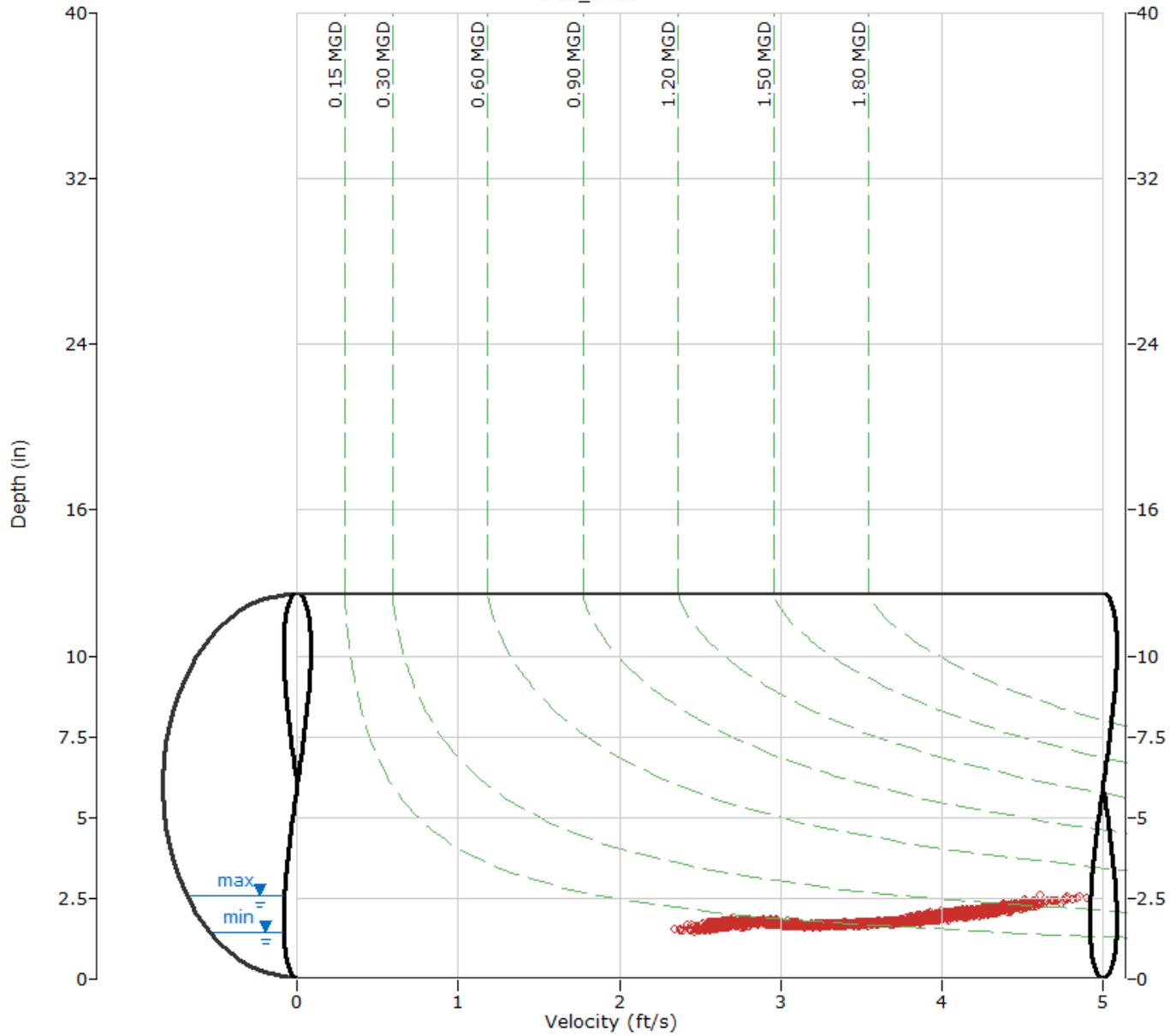
Pipe Height  
12.00 in.

Report Period  
7/23/2020  
To  
8/5/2020

**Legend**

- Depth - Velocity
- - - Iso-Q™
- - - Silt
- ▼ Min-Max Depth

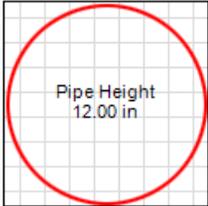
ADS ENVIRONMENTAL SERVICES



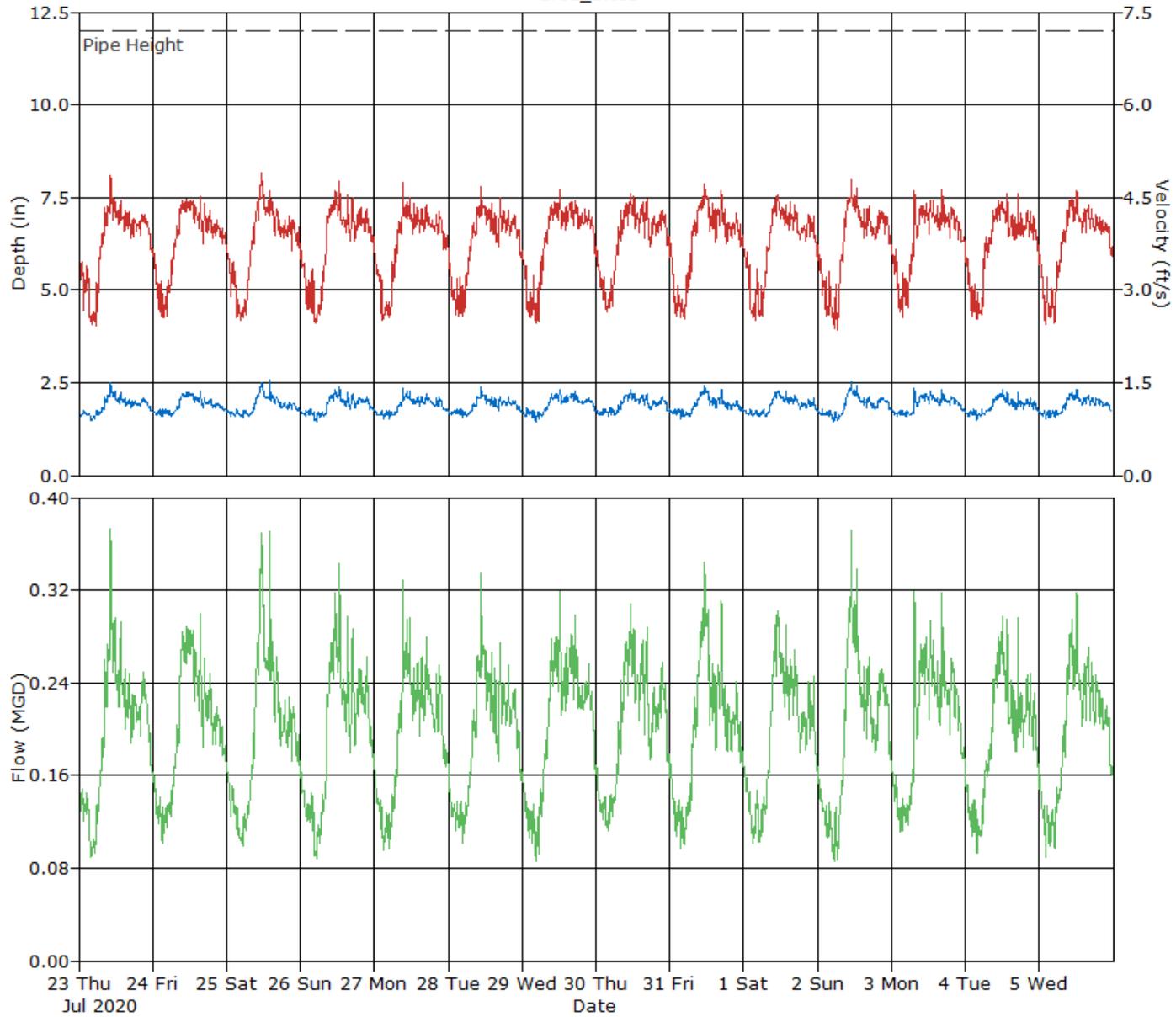
# HYDROGRAPH REPORT

Brea\_Site2

Flow Monitor  
**Brea\_Site2**



Report Period  
7/23/2020  
To  
8/5/2020



Daily Tabular Report For The Period 07/23/2020 00:00 - 08/05/2020 23:59

Brea\_Site2, Pipe Height: 12.00 in, Silt: 0.00 in

Daily Tabular Report

Date	Depth (in)					Velocity (ft/s)					Quantity (MGD - Total MG)					Rain (in)	
	Time	Min	Time	Max	Avg	Time	Min	Time	Max	Avg	Time	Min	Time	Max	Avg	Total	Total
07/23/2020	03:45	1.47	10:20	2.51	1.88	05:30	2.42	10:20	4.85	3.78	03:45	0.090	10:20	0.374	0.197	0.197	
07/24/2020	03:05	1.59	15:20	2.27	1.90	03:05	2.55	15:35	4.52	3.81	03:05	0.102	15:20	0.300	0.200	0.200	
07/25/2020	05:15	1.56	14:05	2.58	1.88	04:35	2.51	11:20	4.90	3.76	05:25	0.099	14:05	0.370	0.197	0.197	
07/26/2020	05:20	1.46	12:45	2.40	1.89	04:45	2.48	12:45	4.76	3.75	05:20	0.089	12:45	0.344	0.197	0.197	
07/27/2020	04:40	1.53	09:20	2.33	1.88	02:40	2.51	09:20	4.74	3.77	03:10	0.096	09:20	0.328	0.196	0.196	
07/28/2020	04:40	1.58	10:35	2.38	1.88	04:40	2.57	10:35	4.68	3.77	04:40	0.101	10:35	0.335	0.195	0.195	
07/29/2020	04:25	1.45	12:15	2.32	1.91	04:25	2.47	12:15	4.64	3.81	04:25	0.086	12:15	0.319	0.203	0.203	
07/30/2020	04:00	1.61	11:10	2.29	1.91	03:30	2.64	11:10	4.55	3.82	04:00	0.113	11:10	0.308	0.202	0.202	
07/31/2020	03:35	1.54	11:20	2.41	1.89	04:40	2.54	11:20	4.72	3.79	03:35	0.097	11:20	0.344	0.199	0.199	
08/01/2020	04:55	1.58	11:15	2.28	1.88	03:55	2.52	10:55	4.54	3.74	03:00	0.102	11:15	0.302	0.195	0.195	
08/02/2020	05:05	1.46	10:55	2.53	1.89	06:25	2.35	10:55	4.78	3.74	05:35	0.086	10:55	0.372	0.198	0.198	
08/03/2020	04:35	1.61	07:30	2.33	1.91	03:35	2.56	16:20	4.63	3.84	02:50	0.111	07:30	0.319	0.204	0.204	
08/04/2020	03:45	1.50	12:05	2.29	1.87	03:40	2.54	17:00	4.57	3.75	03:45	0.093	12:05	0.297	0.194	0.194	
08/05/2020	02:00	1.51	12:20	2.32	1.89	02:00	2.44	12:15	4.62	3.76	02:00	0.090	12:15	0.318	0.197	0.197	

Report Summary For The Period 07/23/2020 00:00 - 08/05/2020 23:59

	Depth (in)	Velocity (ft/s)	Quantity (MGD - Total MG)
Total			2.773
Avg	1.89	3.78	0.198

## Site Commentary

### Site Information

Brea_Site3	
Pipe Dimensions	15 "
Silt Level	0.00"

### Overview

Site Brea\_Site3 functioned under normal conditions during the period Thursday, July 23, 2020 to Wednesday, August 5, 2020 . No surcharge conditions were experienced at this location. Review of the scattergraph shows that flows remained free flowing throughout the period.

Flow depth and velocity measurements recorded by the flow monitor are consistent with field confirmations conducted to date and support the relative accuracy of the flow monitor at this location.

This line is located upstream of location Brea\_Site4. See location Brea\_Site4 for balancing details.

### Observations

Average flow depth, velocity, and quantity data observed during Thursday, July 23, 2020 to Wednesday, August 5, 2020 , along with observed minimum and maximum data, are provided in the following table. The values presented are based on 5-minute data.

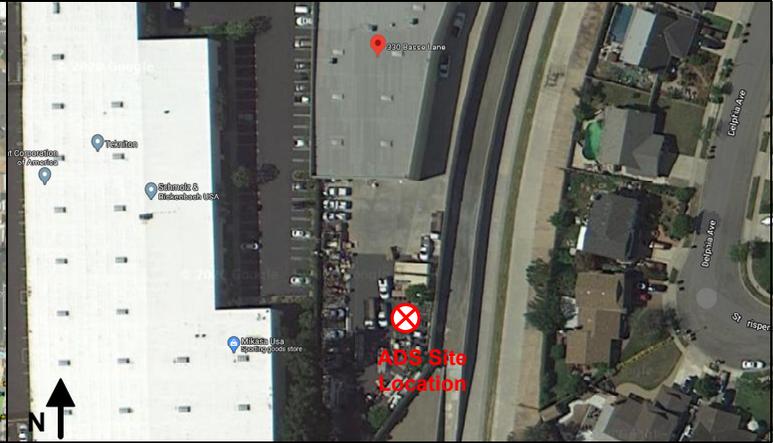
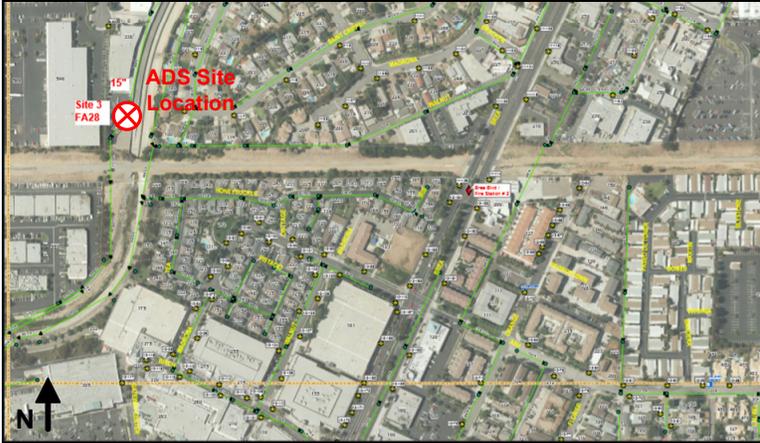
Observed Flow Conditions			
Item	Depth (in)	Velocity (ft/s)	Quantity (MGD)
Average	5.39	2.17	0.568
Minimum	3.11	1.36	0.159
Maximum	7.17	2.69	0.956
Time of Minimum	7/26/2020 4:35 AM	7/25/2020 5:25 AM	7/25/2020 5:25 AM
Time of Maximum	8/4/2020 9:40 PM	8/2/2020 9:15 PM	8/4/2020 9:40 PM

### Data Quality

Data uptime observed during the Thursday, July 23, 2020 to the Wednesday, August 5, 2020 monitoring period is provided in the table below. Based upon the quality and consistency of the observed flow depth and velocity data, the Continuity equation was used to calculate flow rate and quantities during the monitoring period.

Percent Uptime	
Depth (in)	100
Velocity (ft/s)	100
Quantity (MGD)	100

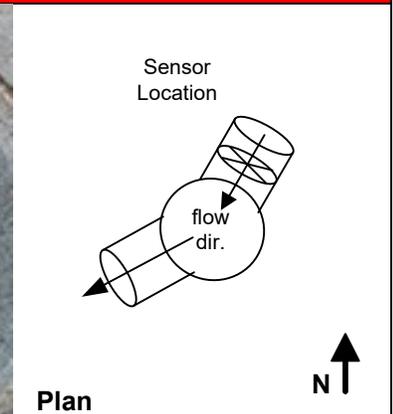
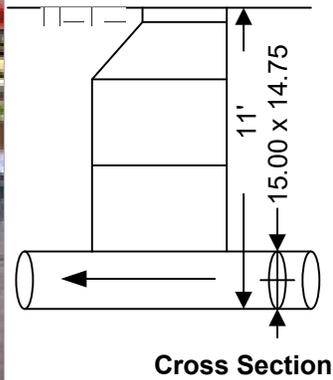
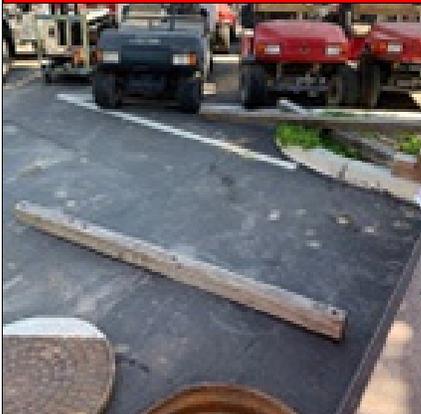
<b>Project Name:</b> Brea AKM Master Plan TFM 2020		<b>City:</b> Brea	<b>Agency:</b> Brea	<b>FM Initials:</b> SK
<b>Site Name:</b> Brea_Site3		<b>Install Date:</b> 7/21/20		<b>Monitor Type:</b> Peak Doppler
<b>Address/Location:</b> 330 N Basse Ln		<b>Monitor Model:</b> Triton +		<b>Data Acquisition:</b> Manual/Wireless Collect
<b>Access:</b> Drive		<b>Type of System:</b>	<b>Manhole ID:</b> FA28	<b>Pipe Height:</b> 15.00 "
		Sanitary <input checked="" type="checkbox"/>	Storm <input type="checkbox"/>	Combined <input type="checkbox"/>
		<b>Pipe Width:</b> 14.75 "		



**Investigation Information: Manhole Information:**

<b>Date/Time of Investigation:</b>	7/7/20 @ 0900	<b>Manhole Depth:</b>	11'
<b>Site Hydraulics:</b>	Good straight through flow	<b>Manhole Material / Condition:</b>	Precast/Good
<b>Upstream Input: (L/S, P/S)</b>	--	<b>Pipe Material / Condition:</b>	VCP/Good
<b>Upstream Manhole:</b>	Not Investigated	<b>Land Use:</b>	Residential <input type="checkbox"/> Commercial <input checked="" type="checkbox"/> Industrial <input type="checkbox"/> Trunk <input type="checkbox"/>
<b>Downstream Manhole:</b>	Not investigated	<b>Oxygen:</b> 20.9	<b>H2S:</b> 0 <b>LEL:</b> 0 <b>CO:</b> 0
<b>Depth of Flow:</b>	6.00 " +/- 0.25"	<b>Safety Notes:</b> 2 man crew required and one blower is to be operated at all times.	
<b>Range (Air DOF):</b>	+/-		
<b>Peak Velocity:</b>	1.40 fps		
<b>Silt:</b>	0.00 Inches		

**Other Information:**



Installation Information		Backup	Yes	No	?	Distance
<b>Installation Type:</b>	Standard	Trunk	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<b>Sensors Devices:</b>	Ultrasonic/Velocity/Pressure	Lift / Pump Station	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<b>Surcharge Height:</b>	0	WWTP	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<b>Rain Gauge Zone:</b>		Other	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

**Additional Site Information / Comments:**

Standard Traffic Control with No Safety Concerns

# SCATTERGRAPH REPORT

Brea\_Site3

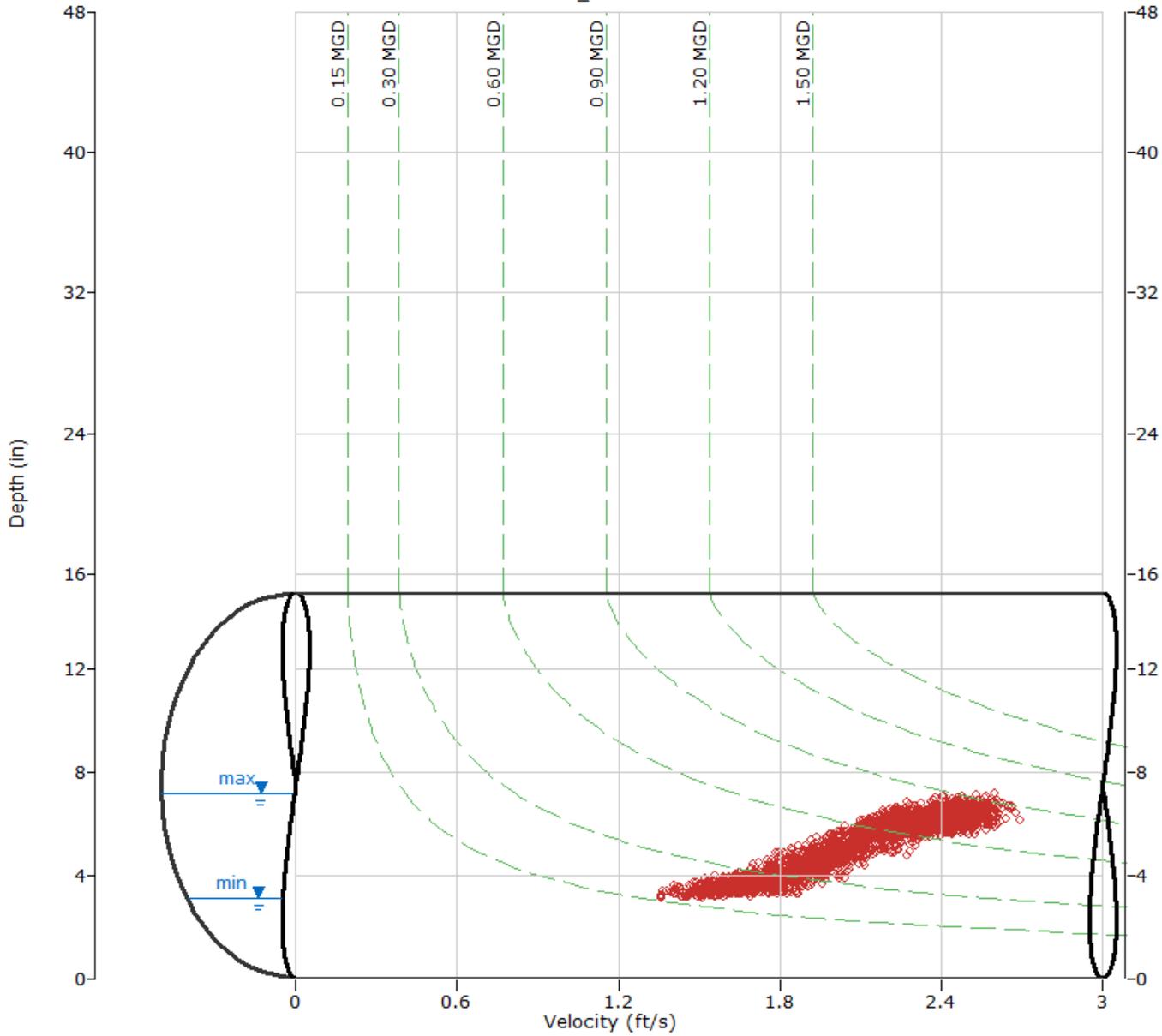
Flow Monitor  
**Brea\_Site3**

Pipe Height  
15.00 in.

Report Period  
7/23/2020  
To  
8/5/2020

**Legend**

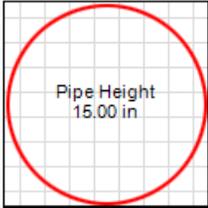
- Depth - Velocity
- - - Iso-Q™
- - - Silt
- ▼ Min-Max Depth



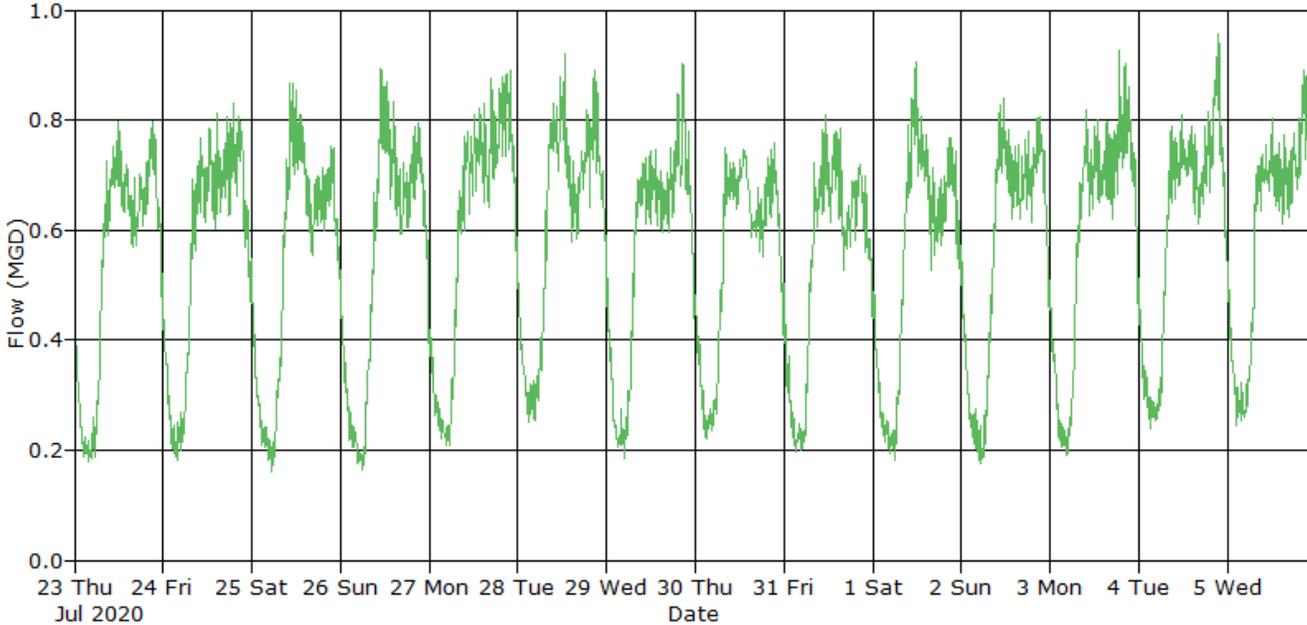
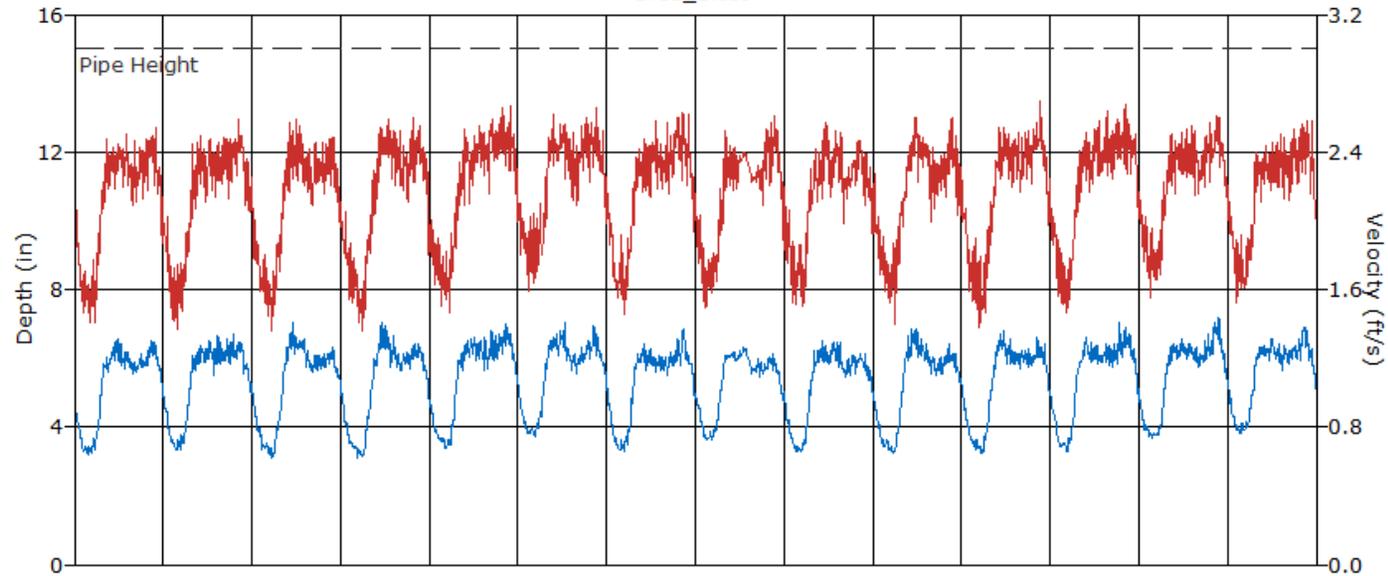
# HYDROGRAPH REPORT

Brea\_Site3

Flow Monitor  
**Brea\_Site3**



Report Period  
7/23/2020  
To  
8/5/2020



Daily Tabular Report For The Period 07/23/2020 00:00 - 08/05/2020 23:59

Brea\_Site3, Pipe Height: 15.00 in, Silt: 0.00 in

Daily Tabular Report

Date	Depth (in)					Velocity (ft/s)					Quantity (MGD - Total MG)					Rain (in)	
	Time	Min	Time	Max	Avg	Time	Min	Time	Max	Avg	Time	Min	Time	Max	Avg	Total	Total
07/23/2020	03:35	3.19	12:00	6.57	5.27	05:40	1.41	21:55	2.54	2.11	03:45	0.179	21:25	0.798	0.540	0.540	
07/24/2020	04:55	3.32	18:55	6.71	5.38	03:45	1.37	20:20	2.59	2.13	03:45	0.180	18:55	0.830	0.558	0.558	
07/25/2020	05:25	3.12	10:55	7.04	5.27	05:25	1.36	12:00	2.59	2.10	05:25	0.159	10:55	0.867	0.539	0.539	
07/26/2020	04:35	3.11	11:05	7.04	5.27	06:00	1.36	19:40	2.60	2.13	06:00	0.164	10:55	0.893	0.548	0.548	
07/27/2020	04:20	3.39	20:30	7.01	5.51	05:30	1.47	21:50	2.66	2.19	05:30	0.209	21:50	0.891	0.593	0.593	
07/28/2020	04:45	3.70	12:45	7.03	5.59	02:45	1.59	21:20	2.66	2.23	02:45	0.249	12:45	0.920	0.609	0.609	
07/29/2020	04:50	3.27	20:45	6.84	5.33	04:55	1.46	20:35	2.63	2.17	04:55	0.185	20:35	0.904	0.561	0.561	
07/30/2020	03:05	3.62	13:05	6.30	5.33	02:35	1.49	21:20	2.61	2.16	03:00	0.220	21:20	0.758	0.552	0.552	
07/31/2020	03:30	3.28	10:30	6.50	5.28	05:10	1.51	11:05	2.57	2.14	03:10	0.197	11:05	0.808	0.543	0.543	
08/01/2020	05:25	3.24	11:35	6.86	5.28	06:00	1.39	11:35	2.60	2.16	06:00	0.181	11:35	0.904	0.552	0.552	
08/02/2020	05:30	3.23	11:30	6.81	5.32	04:40	1.38	21:15	2.69	2.16	05:25	0.174	11:30	0.840	0.559	0.559	
08/03/2020	04:40	3.29	18:40	7.06	5.46	04:30	1.47	20:40	2.68	2.22	04:30	0.191	18:40	0.926	0.591	0.591	
08/04/2020	03:40	3.66	21:40	7.17	5.56	03:00	1.55	20:50	2.61	2.21	03:00	0.237	21:40	0.956	0.601	0.601	
08/05/2020	03:35	3.83	20:45	6.91	5.61	02:20	1.52	22:40	2.58	2.19	02:20	0.245	20:50	0.891	0.599	0.599	

Report Summary For The Period 07/23/2020 00:00 - 08/05/2020 23:59

	Depth (in)	Velocity (ft/s)	Quantity (MGD - Total MG)
Total			7.945
Avg	5.39	2.17	0.568

## Site Commentary

### Site Information

Brea_Site4	
Pipe Dimensions	26.13 "
Silt Level	0.00"

### Overview

Site Brea\_Site4 functioned under normal conditions during the period Thursday, July 23, 2020 to Wednesday, August 5, 2020 . No surcharge conditions were experienced at this location. Review of the scattergraph shows that flows remained free flowing throughout the period.

Flow depth and velocity measurements recorded by the flow monitor are consistent with field confirmations conducted to date and support the relative accuracy of the flow monitor at this location.

This line is located downstream of locations Brea\_Site2 and Brea\_Site3. A review of balancing indicates no problem.

### Observations

Average flow depth, velocity, and quantity data observed during Thursday, July 23, 2020 to Wednesday, August 5, 2020 , along with observed minimum and maximum data, are provided in the following table. The values presented are based on 5-minute data.

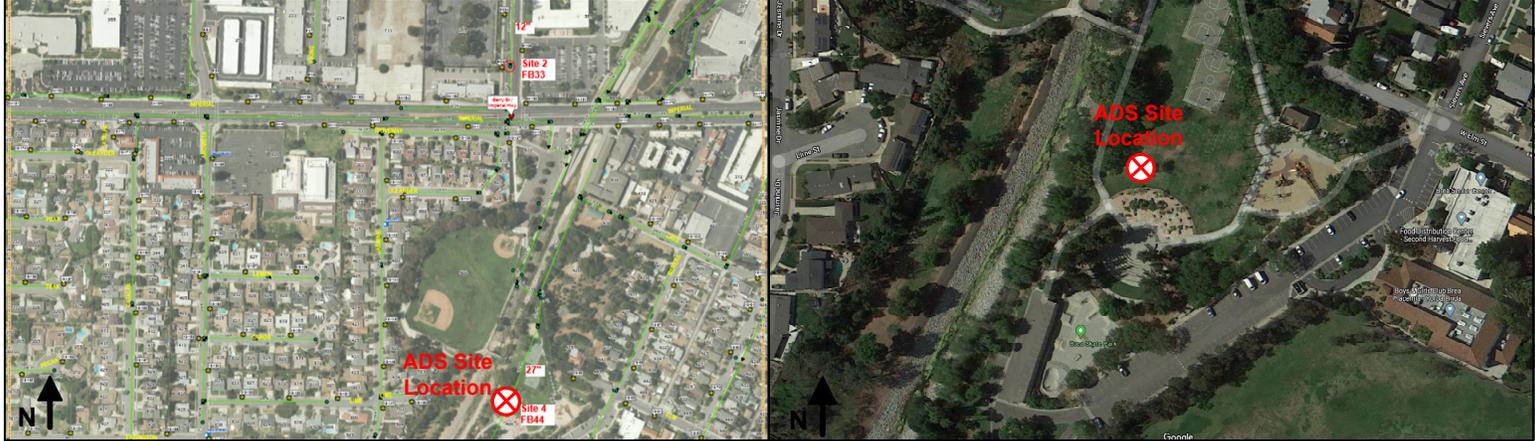
Observed Flow Conditions			
Item	Depth (in)	Velocity (ft/s)	Quantity (MGD)
Average	5.85	1.84	0.770
Minimum	3.66	1.25	0.256
Maximum	7.39	2.20	1.222
Time of Minimum	7/26/2020 6:25 AM	7/26/2020 5:55 AM	7/26/2020 5:50 AM
Time of Maximum	7/28/2020 10:25 AM	7/28/2020 10:20 AM	7/28/2020 10:20 AM

### Data Quality

Data uptime observed during the Thursday, July 23, 2020 to the Wednesday, August 5, 2020 monitoring period is provided in the table below. Based upon the quality and consistency of the observed flow depth and velocity data, the Continuity equation was used to calculate flow rate and quantities during the monitoring period.

Percent Uptime	
Depth (in)	100
Velocity (ft/s)	100
Quantity (MGD)	100

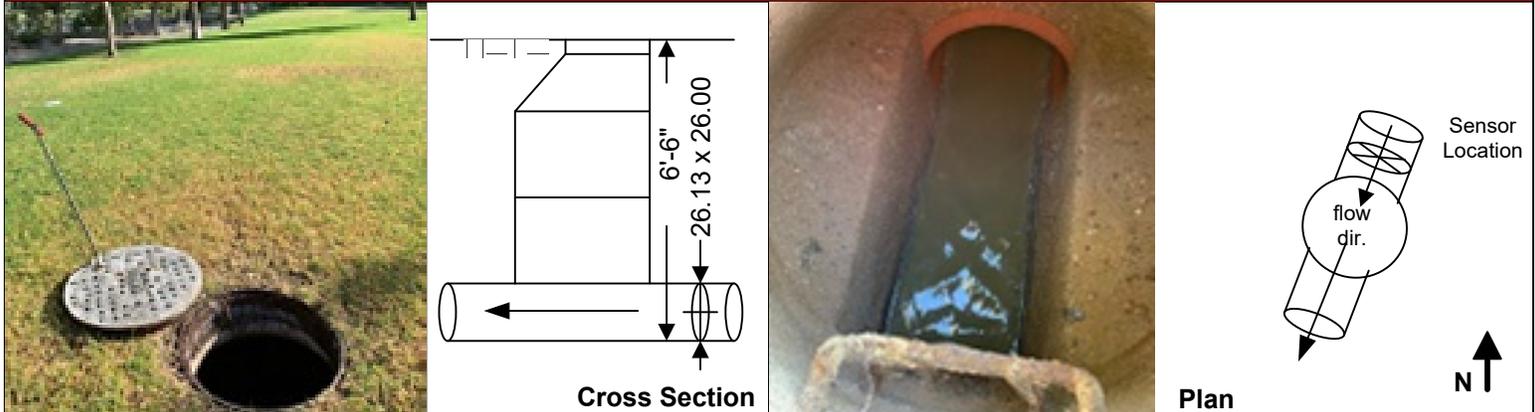
<b>Project Name:</b> Brea AKM Master Plan TFM 2020			<b>City:</b> Brea		<b>Agency:</b> Brea		<b>FM Initials:</b> SK	
<b>Site Name:</b> Brea_Site4		<b>Install Date:</b> 7/21/20			<b>Monitor Type</b>		Peak Doppler	
<b>Address/Location:</b> 500 Sievers Ave				<b>Monitor Model</b>		Triton +		
				<b>Data Acquisition</b>		Manual/Wireless Collect		
				<b>Manhole ID</b>		FB44		
<b>Access:</b> Drive		<b>Type of System:</b>		<b>Pipe Height:</b>		26.13 "		
		Sanitary <input checked="" type="checkbox"/>		Storm <input type="checkbox"/>		Combined <input type="checkbox"/>		
				<b>Pipe Width:</b>		26.00 "		



**Investigation Information: Manhole Information:**

<b>Date/Time of Investigation:</b>		7/7/20 @ 0600		<b>Manhole Depth:</b>		6'-6"	
<b>Site Hydraulics:</b>		Good straight through flow		<b>Manhole Material / Condition</b>		Precast/Good	
<b>Upstream Input: (L/S, P/S)</b>		--		<b>Pipe Material / Condition:</b> VCP/Good			
<b>Upstream Manhole:</b>		Not Investigated		<b>Land Use:</b>		Residential <input checked="" type="checkbox"/> Commercial <input type="checkbox"/> Industrial <input type="checkbox"/> Trunk <input type="checkbox"/>	
<b>Downstream Manhole:</b>		Not investigated		<b>Oxygen:</b> 20.9		<b>H2S:</b> 0	
<b>Depth of Flow:</b>		6.00 " +/- 0.25"		<b>LEL:</b> 0		<b>CO:</b> 0	
<b>Range (Air DOF):</b>		+/-		<b>Safety Notes:</b> 2 man crew required and one blower is to be operated at all times.			
<b>Peak Velocity:</b>		1.40 fps					
<b>Silt:</b>		0.00 Inches					

**Other Information:**



Installation Information		Backup		Yes	No	?	Distance
Installation Type:	Standard	Trunk		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Sensors Devices:	Ultrasonic/Velocity/Pressure	Lift / Pump Station		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Surcharge Height:	0	WWTP		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Rain Gauge Zone:		Other		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

**Additional Site Information / Comments:**

**Standard Traffic Control with No Safety Concerns**

# SCATTERGRAPH REPORT

Brea\_Site4

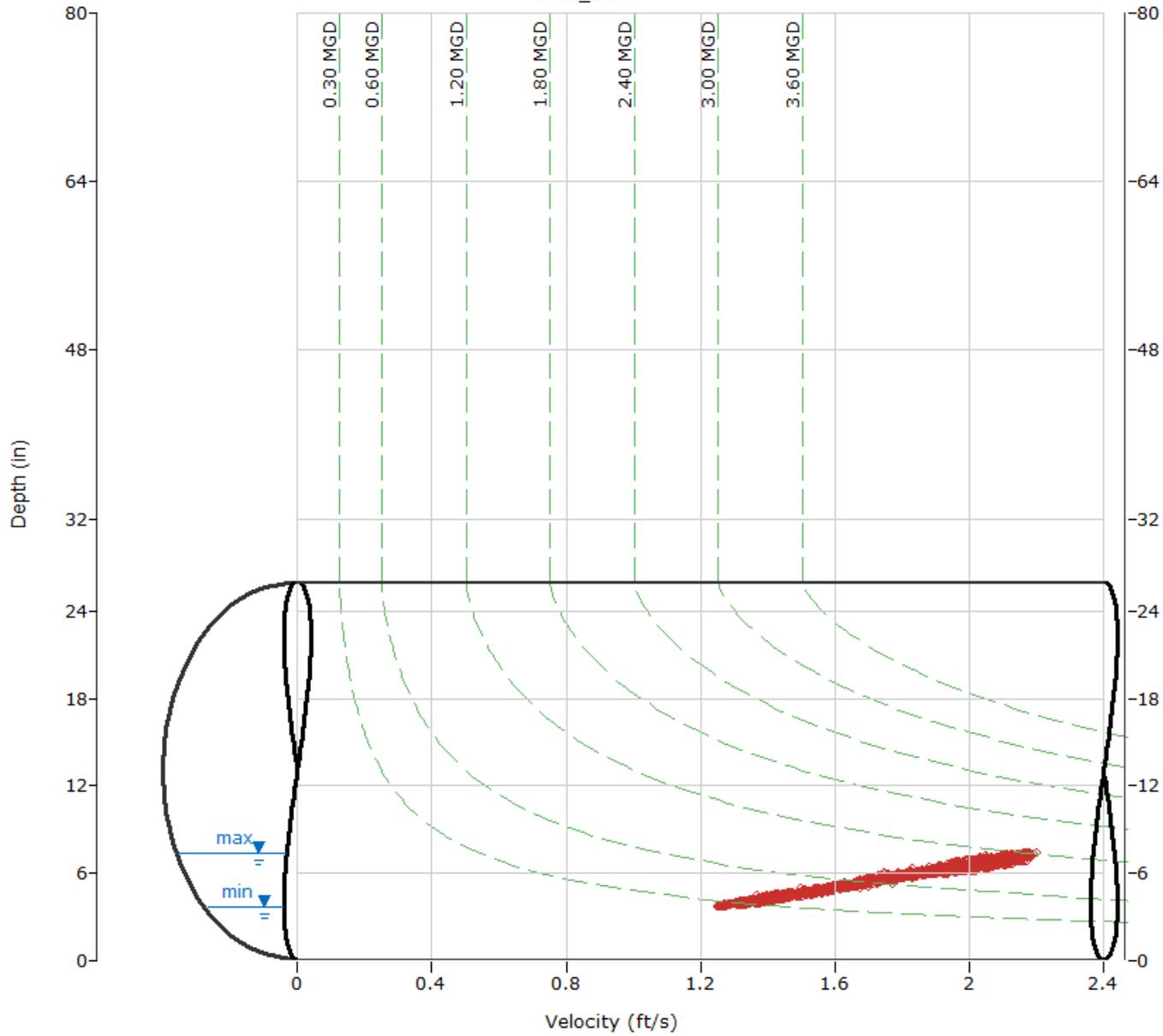
Flow Monitor  
**Brea\_Site4**

Pipe Height  
26.13 in.

Report Period  
7/23/2020  
To  
8/5/2020

**Legend**

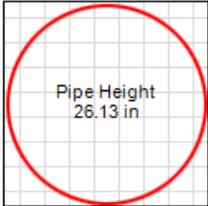
- Depth - Velocity
- - - Iso-Q™
- - - Silt
- ▼ Min-Max Depth



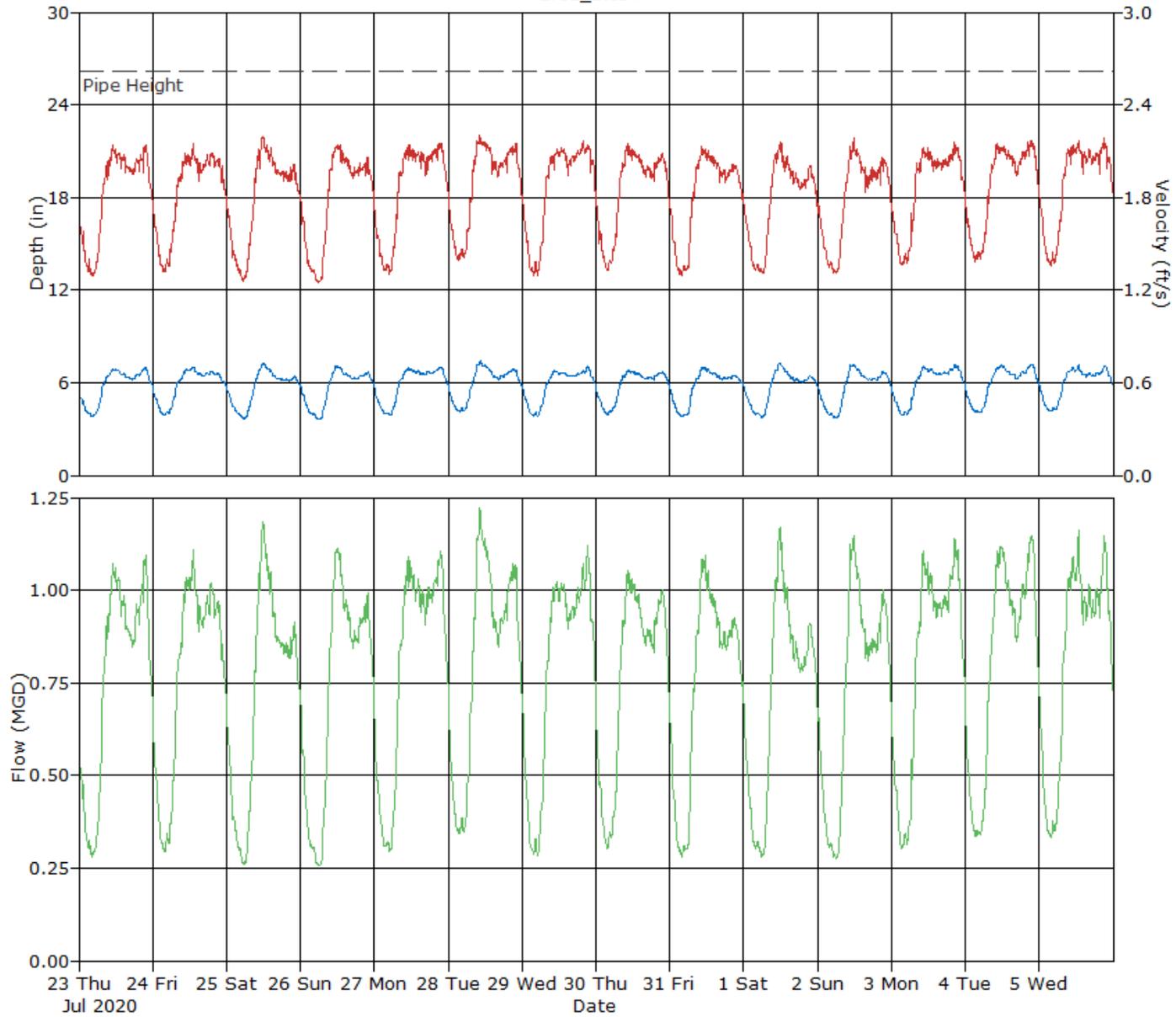
# HYDROGRAPH REPORT

Brea\_Site4

Flow Monitor  
**Brea\_Site4**



Report Period  
7/23/2020  
To  
8/5/2020



Daily Tabular Report For The Period 07/23/2020 00:00 - 08/05/2020 23:59

Brea\_Site4, Pipe Height: 26.13 in, Silt: 0.00 in

Daily Tabular Report

Date	Depth (in)				Velocity (ft/s)				Quantity (MGD - Total MG)					Rain (in)			
	Time	Min	Time	Max	Avg	Time	Min	Time	Max	Avg	Time	Min	Time		Max	Avg	Total
07/23/2020	04:10	3.82	21:35	6.96	5.82	04:15	1.29	21:50	2.14	1.83	04:10	0.281	21:50	1.096	0.761	0.761	
07/24/2020	04:00	3.88	13:05	7.00	5.87	03:55	1.32	13:10	2.15	1.84	03:55	0.293	13:10	1.108	0.770	0.770	
07/25/2020	06:05	3.68	11:50	7.25	5.68	05:20	1.26	11:55	2.19	1.79	05:20	0.259	11:50	1.183	0.725	0.725	
07/26/2020	06:25	3.66	11:35	7.06	5.69	05:55	1.25	12:20	2.14	1.79	05:50	0.256	12:15	1.114	0.727	0.727	
07/27/2020	05:10	3.93	21:35	6.99	5.93	05:00	1.30	21:50	2.15	1.86	05:00	0.295	21:40	1.105	0.794	0.794	
07/28/2020	03:35	4.14	10:25	7.39	6.01	03:30	1.40	10:20	2.20	1.89	03:30	0.342	10:20	1.222	0.818	0.818	
07/29/2020	05:15	3.85	21:15	7.11	5.87	04:55	1.29	19:45	2.17	1.87	04:55	0.285	21:20	1.122	0.785	0.785	
07/30/2020	03:45	3.96	10:40	6.76	5.84	03:45	1.32	10:35	2.15	1.85	03:45	0.303	10:35	1.052	0.767	0.767	
07/31/2020	04:00	3.82	11:35	7.01	5.79	04:00	1.30	10:20	2.13	1.82	04:00	0.281	11:35	1.093	0.749	0.749	
08/01/2020	05:50	3.77	11:50	7.28	5.70	06:30	1.31	12:00	2.15	1.78	05:50	0.281	12:00	1.169	0.718	0.718	
08/02/2020	06:10	3.74	10:40	7.14	5.71	05:10	1.31	11:45	2.18	1.80	06:05	0.276	11:45	1.148	0.730	0.730	
08/03/2020	03:25	3.88	20:40	7.13	5.97	03:10	1.36	20:35	2.16	1.86	03:15	0.304	20:35	1.140	0.802	0.802	
08/04/2020	03:25	4.09	21:30	7.17	6.00	03:10	1.39	21:50	2.16	1.89	03:25	0.335	21:35	1.147	0.814	0.814	
08/05/2020	03:45	4.14	12:45	7.21	6.00	03:45	1.36	21:10	2.19	1.89	03:45	0.332	12:45	1.161	0.816	0.815	

Report Summary For The Period 07/23/2020 00:00 - 08/05/2020 23:59

	Depth (in)	Velocity (ft/s)	Quantity (MGD - Total MG)
Total			10.777
Avg	5.85	1.84	0.770

## Site Commentary

### Site Information

Brea_Site5	
Pipe Dimensions	10 "
Silt Level	0.00"

### Overview

Site Brea\_Site5 functioned under normal conditions during the period Thursday, July 23, 2020 to Wednesday, August 5, 2020 . No surcharge conditions were experienced at this location. Review of the scattergraph shows that flows remained free flowing throughout the period.

Flow depth and velocity measurements recorded by the flow monitor are consistent with field confirmations conducted to date and support the relative accuracy of the flow monitor at this location.

### Observations

Average flow depth, velocity, and quantity data observed during Thursday, July 23, 2020 to Wednesday, August 5, 2020 , along with observed minimum and maximum data, are provided in the following table. The values presented are based on 5-minute data.

Observed Flow Conditions			
Item	Depth (in)	Velocity (ft/s)	Quantity (MGD)
Average	2.14	2.95	0.166
Minimum	1.46	1.90	0.064
Maximum	2.97	3.63	0.319
Time of Minimum	7/28/2020 3:15 AM	8/1/2020 5:05 AM	7/28/2020 3:20 AM
Time of Maximum	7/29/2020 9:30 AM	7/29/2020 9:30 AM	7/29/2020 9:30 AM

### Data Quality

Data uptime observed during the Thursday, July 23, 2020 to the Wednesday, August 5, 2020 monitoring period is provided in the table below. Based upon the quality and consistency of the observed flow depth and velocity data, the Continuity equation was used to calculate flow rate and quantities during the monitoring period.

Percent Uptime	
Depth (in)	100
Velocity (ft/s)	100
Quantity (MGD)	100

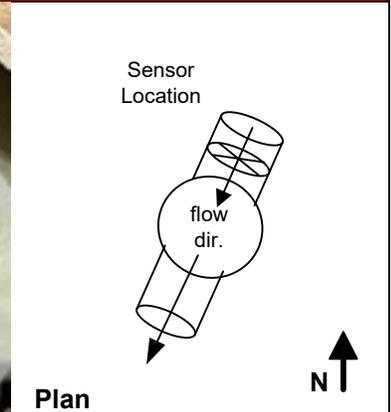
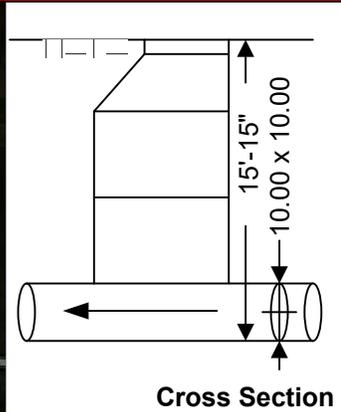
<b>Project Name:</b> Brea AKM Master Plan TFM 2020			<b>City:</b> Brea		<b>Agency:</b> Brea		<b>FM Initials:</b> SK	
<b>Site Name:</b> Brea_Site5		<b>Install Date:</b> 7/21/20			<b>Monitor Type</b>		Peak Doppler	
<b>Address/Location:</b> Brea Blvd & Acacia				<b>Monitor Model</b>		Triton +		
				<b>Data Acquisition</b>		Manual/Wireless Collect		
				<b>Manhole ID</b>		B19		
<b>Access:</b> Drive		<b>Type of System:</b>		<b>Pipe Height:</b>		10.00 "		
		Sanitary <input checked="" type="checkbox"/>		Storm <input type="checkbox"/>		<b>Pipe Width:</b>		
		Combined <input type="checkbox"/>						10.00 "



**Investigation Information: Manhole Information:**

<b>Date/Time of Investigation:</b>		7/9/20 @ 0520		<b>Manhole Depth:</b>		15'-15"	
<b>Site Hydraulics:</b>		Low straight through flow		<b>Manhole Material / Condition</b>		Precast/Good	
<b>Upstream Input: (L/S, P/S)</b>		--		<b>Pipe Material / Condition:</b> VCP/Good			
<b>Upstream Manhole:</b>		Not Investigated		<b>Land Use:</b>		Residential <input type="checkbox"/> Commercial <input checked="" type="checkbox"/> Industrial <input type="checkbox"/> Trunk <input type="checkbox"/>	
<b>Downstream Manhole:</b>		Not investigated		<b>Oxygen:</b> 20.9		H2S: 0 LEL: 0 CO: 0	
<b>Depth of Flow:</b>		1.38 " +/- 0.25"		<b>Safety Notes:</b> 2 man crew required and one blower is to be operated at all times.			
<b>Range (Air DOF):</b>		+/-					
<b>Peak Velocity:</b>		2.31 fps					
<b>Silt:</b>		0.00 Inches					

**Other Information:**



Installation Information		Backup		Yes	No	?	Distance
Installation Type:	Standard	Trunk		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Sensors Devices:	Ultrasonic/Velocity/Pressure	Lift / Pump Station		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Surcharge Height:	0	WWTP		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Rain Gauge Zone:		Other		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

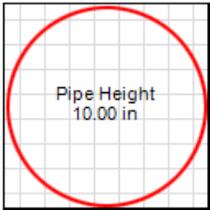
**Additional Site Information / Comments:**

**Standard Traffic Control with No Safety Concerns**

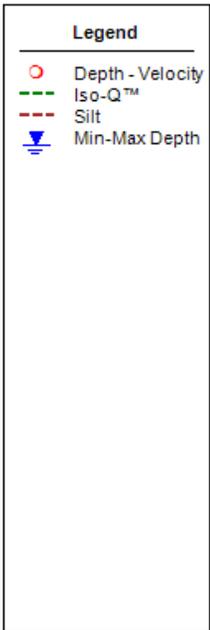
# SCATTERGRAPH REPORT

Brea\_Site5

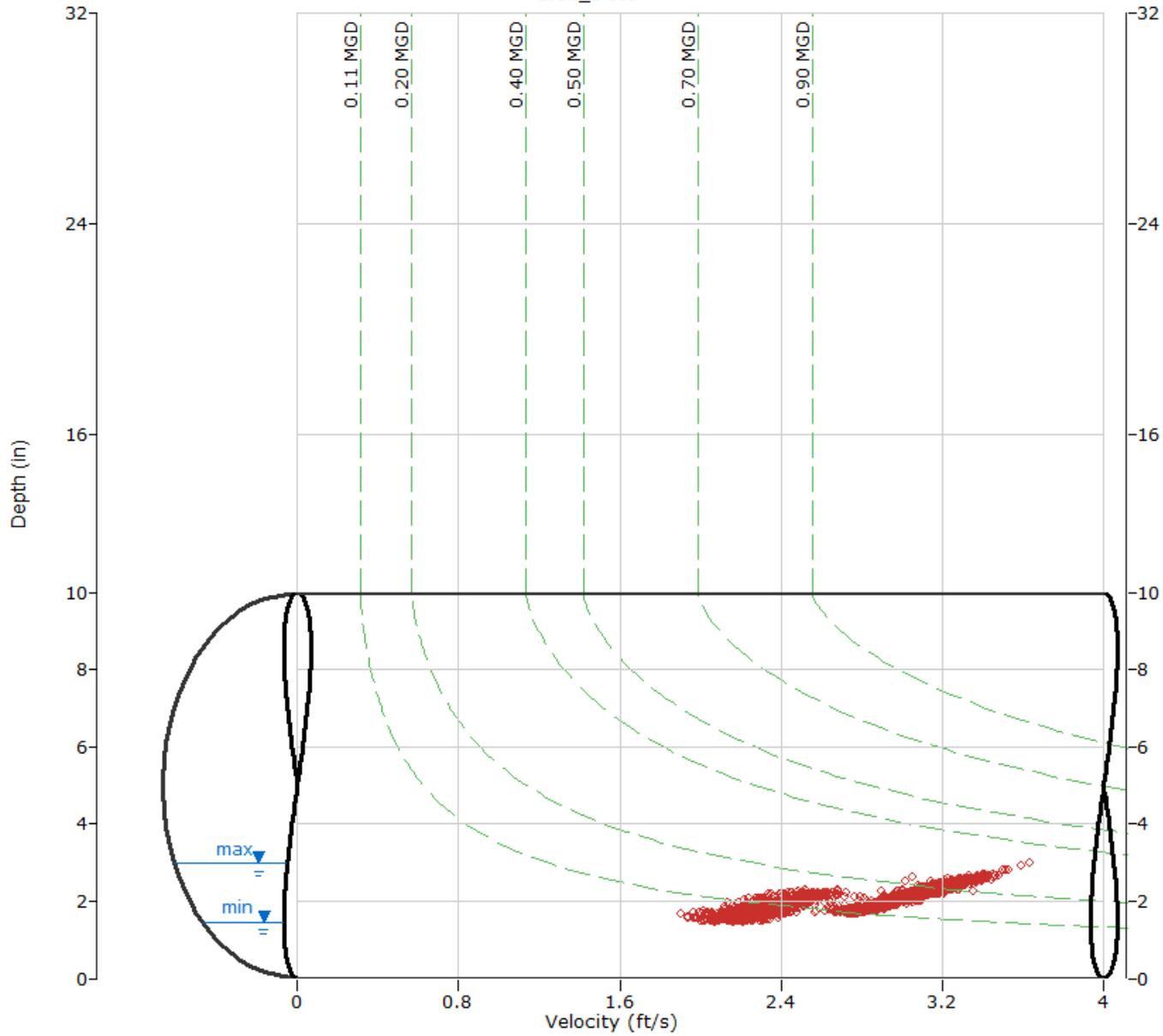
Flow Monitor  
**Brea\_Site5**



Report Period  
7/23/2020  
To  
8/5/2020



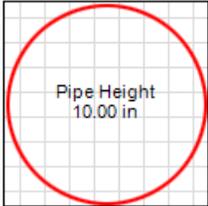
ADS ENVIRONMENTAL SERVICES



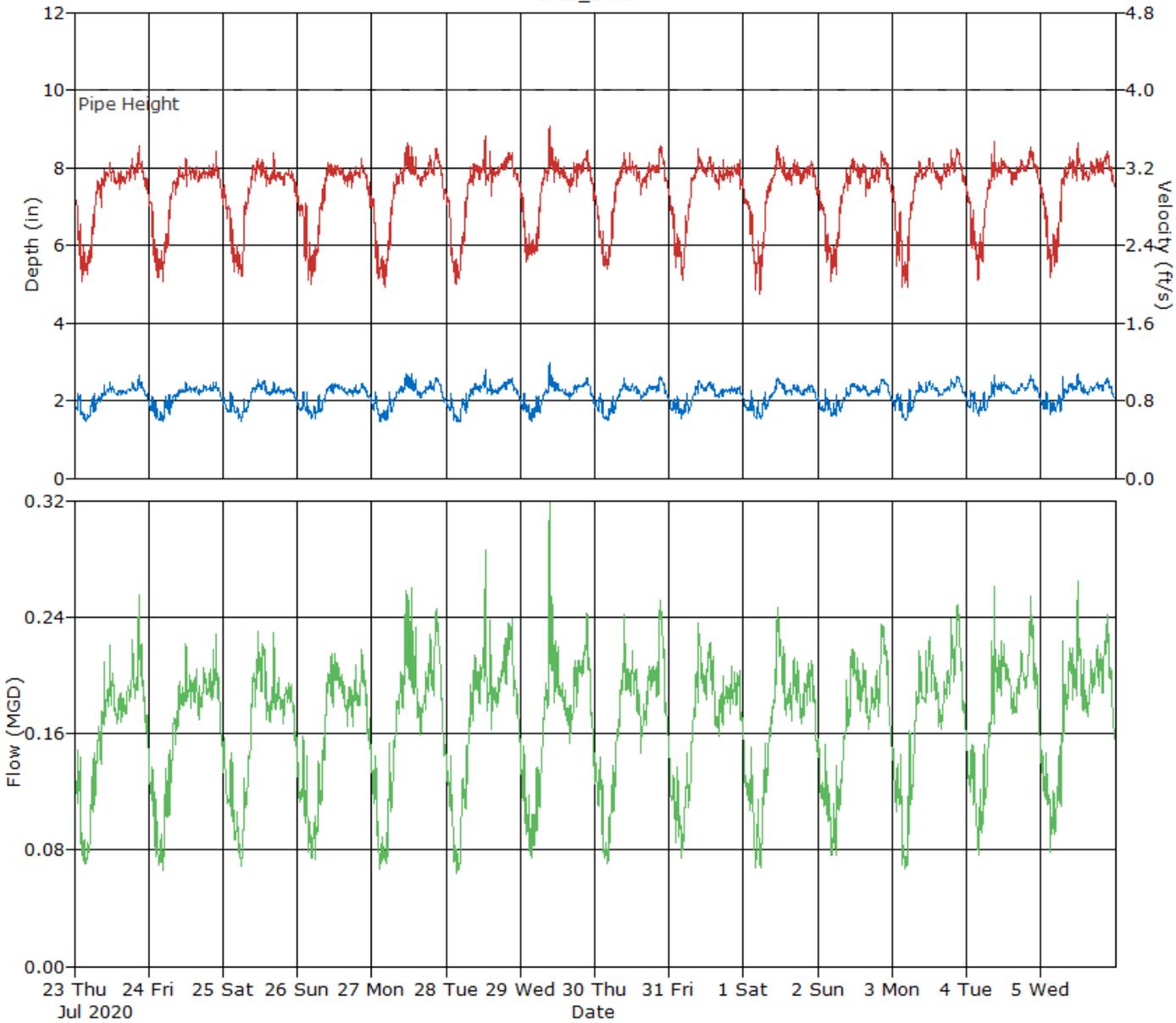
# HYDROGRAPH REPORT

Brea\_Site5

Flow Monitor  
**Brea\_Site5**



Report Period  
7/23/2020  
To  
8/5/2020



Daily Tabular Report For The Period 07/23/2020 00:00 - 08/05/2020 23:59

Brea\_Site5, Pipe Height: 10.00 in, Silt: 0.00 in

Daily Tabular Report

Date	Depth (in)					Velocity (ft/s)					Quantity (MGD - Total MG)					Rain (in)	
	Time	Min	Time	Max	Avg	Time	Min	Time	Max	Avg	Time	Min	Time	Max	Avg		Total
07/23/2020	03:40	1.47	20:50	2.64	2.10	02:25	2.02	20:50	3.43	2.92	03:40	0.070	20:50	0.255	0.160	0.160	
07/24/2020	04:45	1.48	21:50	2.48	2.10	04:40	2.02	21:50	3.37	2.91	04:40	0.065	21:50	0.229	0.160	0.160	
07/25/2020	06:00	1.47	11:20	2.52	2.09	06:05	2.08	16:20	3.35	2.92	06:05	0.069	11:20	0.230	0.159	0.159	
07/26/2020	04:40	1.54	21:00	2.45	2.10	04:20	2.00	20:35	3.30	2.91	05:50	0.074	20:45	0.217	0.159	0.159	
07/27/2020	02:45	1.46	12:55	2.69	2.15	04:10	1.97	11:35	3.45	2.94	02:40	0.067	12:55	0.260	0.168	0.168	
07/28/2020	03:15	1.46	12:50	2.80	2.15	03:20	2.00	12:50	3.53	2.97	03:20	0.064	12:50	0.285	0.170	0.170	
07/29/2020	03:30	1.47	09:30	2.97	2.15	01:45	2.23	09:30	3.63	2.98	03:30	0.074	09:30	0.319	0.170	0.170	
07/30/2020	04:10	1.48	21:15	2.61	2.13	04:10	2.16	21:10	3.43	2.98	04:10	0.070	21:10	0.251	0.167	0.167	
07/31/2020	03:50	1.54	09:35	2.52	2.13	04:30	2.04	09:35	3.39	2.96	03:50	0.075	09:35	0.236	0.166	0.166	
08/01/2020	04:10	1.52	11:15	2.58	2.11	05:05	1.90	11:15	3.42	2.93	05:40	0.068	11:15	0.246	0.162	0.162	
08/02/2020	04:50	1.59	21:20	2.54	2.13	04:10	2.03	20:40	3.36	2.94	04:15	0.076	20:40	0.235	0.164	0.164	
08/03/2020	04:10	1.48	21:05	2.61	2.16	03:25	1.97	20:55	3.39	2.97	04:10	0.067	21:05	0.248	0.170	0.170	
08/04/2020	04:05	1.59	08:55	2.66	2.20	03:45	2.03	08:55	3.46	3.01	04:05	0.076	08:55	0.260	0.176	0.176	
08/05/2020	03:10	1.63	11:50	2.70	2.20	03:15	2.07	11:50	3.45	3.00	03:15	0.078	11:50	0.265	0.175	0.175	

Report Summary For The Period 07/23/2020 00:00 - 08/05/2020 23:59

	Depth (in)	Velocity (ft/s)	Quantity (MGD - Total MG)
Total			2.327
Avg	2.14	2.95	0.166

## Site Commentary

### Site Information

Brea_Site6	
Pipe Dimensions	11.75 "
Silt Level	0.63"

### Overview

Site Brea\_Site6 functioned under normal conditions during the period Thursday, July 23, 2020 to Wednesday, August 5, 2020 . No surcharge conditions were experienced at this location. Review of the scattergraph shows that flows remained free flowing throughout the period.

Flow depth and velocity measurements recorded by the flow monitor are consistent with field confirmations conducted to date and support the relative accuracy of the flow monitor at this location.

### Observations

Average flow depth, velocity, and quantity data observed during Thursday, July 23, 2020 to Wednesday, August 5, 2020 , along with observed minimum and maximum data, are provided in the following table. The values presented are based on 5-minute data.

Observed Flow Conditions			
Item	Depth (in)	Velocity (ft/s)	Quantity (MGD)
Average	3.38	1.24	0.140
Minimum	1.93	0.72	0.031
Maximum	4.68	1.52	0.252
Time of Minimum	7/23/2020 3:05 AM	7/23/2020 3:05 AM	7/23/2020 3:05 AM
Time of Maximum	7/28/2020 10:25 AM	7/29/2020 9:50 PM	7/28/2020 10:25 AM

### Data Quality

Data uptime observed during the Thursday, July 23, 2020 to the Wednesday, August 5, 2020 monitoring period is provided in the table below. Based upon the quality and consistency of the observed flow depth and velocity data, the Continuity equation was used to calculate flow rate and quantities during the monitoring period.

Percent Uptime	
Depth (in)	100
Velocity (ft/s)	100
Quantity (MGD)	100

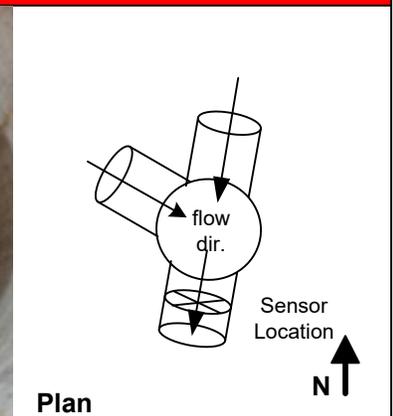
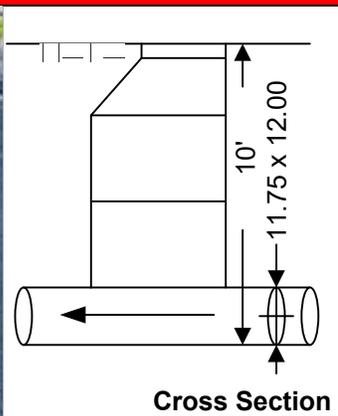
<b>Project Name:</b> Brea AKM Master Plan TFM 2020			<b>City:</b> Brea		<b>Agency:</b> Brea		<b>FM Initials:</b> SK	
<b>Site Name:</b> Brea_Site6		<b>Install Date:</b> 7/22/20			<b>Monitor Type</b>		Peak Doppler	
<b>Address/Location:</b> 802 Laurel				<b>Monitor Model</b>		Triton +		
				<b>Data Acquisition</b>		Manual/Wireless Collect		
				<b>Manhole ID</b>		LC14		
<b>Access:</b> Drive		<b>Type of System:</b>		<b>Pipe Height:</b>		11.75 "		
		Sanitary <input checked="" type="checkbox"/>		Storm <input type="checkbox"/>		<b>Pipe Width:</b> 12.00 "		
		Combined <input type="checkbox"/>						



**Investigation Information: Manhole Information:**

<b>Date/Time of Investigation:</b>		7/7/20 @ 0730		<b>Manhole Depth:</b>		10'	
<b>Site Hydraulics:</b>		Good straight through flow		<b>Manhole Material / Condition</b>		Precast/Good	
<b>Upstream Input: (L/S, P/S)</b>		--		<b>Pipe Material / Condition:</b> VCP/Good			
<b>Upstream Manhole:</b>		Not Investigated		<b>Land Use:</b>		Residential <input checked="" type="checkbox"/> Commercial <input type="checkbox"/> Industrial <input type="checkbox"/> Trunk <input type="checkbox"/>	
<b>Downstream Manhole:</b>		Not investigated		<b>Oxygen:</b> 20.9		<b>H2S:</b> 0	
<b>Depth of Flow:</b>		2.38 " +/- 0.25"		<b>LEL:</b> 0		<b>CO:</b> 0	
<b>Range (Air DOF):</b>		+/-		<b>Safety Notes:</b> 2 man crew required and one blower is to be operated at all times.			
<b>Peak Velocity:</b>		0.84 fps					
<b>Silt:</b>		0.63 Inches					

**Other Information:**



Installation Information		Backup	Yes	No	?	Distance
Installation Type:	Reverse	Trunk	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Sensors Devices:	Ultrasonic/Velocity/Pressure	Lift / Pump Station	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Surcharge Height:	0	WWTP	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Rain Gauge Zone:		Other	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

**Additional Site Information / Comments:**

**Standard Traffic Control with No Safety Concerns**

# SCATTERGRAPH REPORT

Brea\_Site6

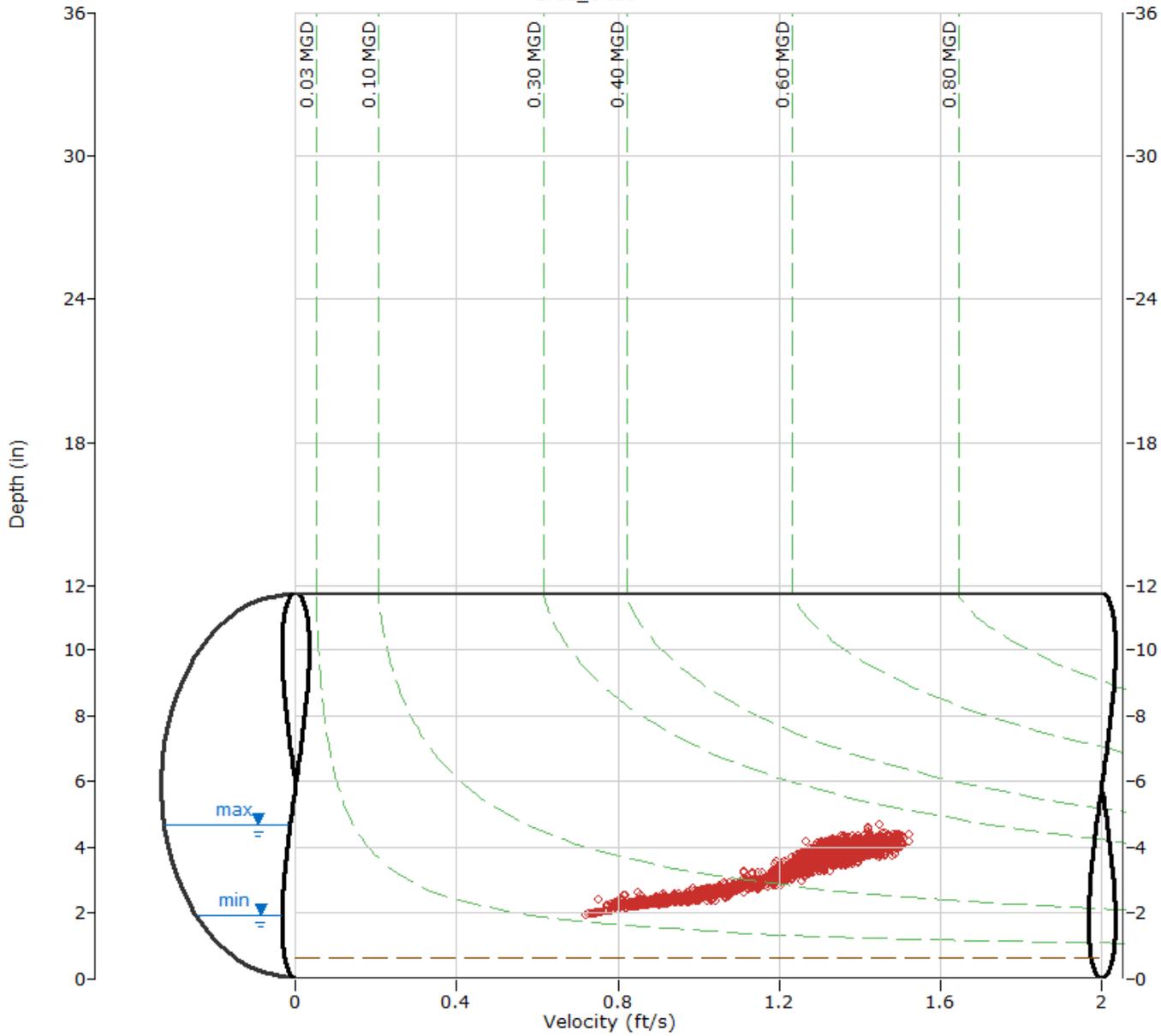
Flow Monitor  
**Brea\_Site6**

Pipe Height  
11.75 in

Report Period  
7/23/2020  
To  
8/5/2020

**Legend**

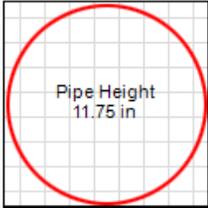
- Depth - Velocity
- - - Iso-Q™
- - - Silt
- ▼ Min-Max Depth



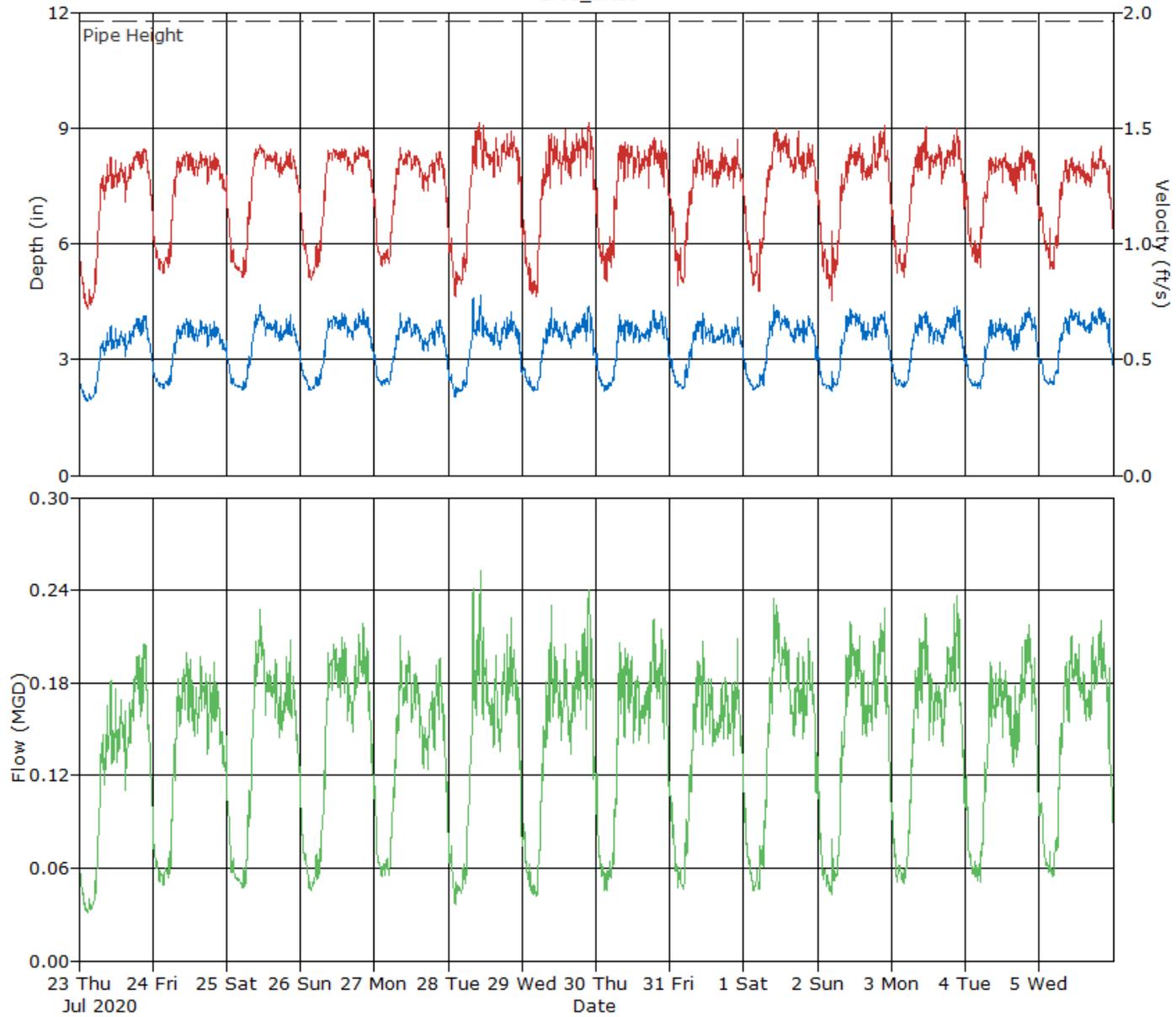
# HYDROGRAPH REPORT

Brea\_Site6

Flow Monitor  
**Brea\_Site6**



Report Period  
7/23/2020  
To  
8/5/2020



Daily Tabular Report For The Period 07/23/2020 00:00 - 08/05/2020 23:59

Brea\_Site6, Pipe Height: 11.75 in, Silt: 0.63 in

Daily Tabular Report

Date	Depth (in)					Velocity (ft/s)					Quantity (MGD - Total MG)					Rain (in)	
	Time	Min	Time	Max	Avg	Time	Min	Time	Max	Avg	Time	Min	Time	Max	Avg		Total
07/23/2020	03:05	1.93	20:55	4.13	3.18	03:05	0.72	20:55	1.41	1.17	03:05	0.031	20:55	0.205	0.124	0.124	
07/24/2020	03:30	2.26	11:00	4.07	3.33	03:30	0.87	11:00	1.40	1.23	03:30	0.049	11:00	0.199	0.135	0.135	
07/25/2020	05:10	2.22	10:55	4.40	3.36	05:10	0.85	10:55	1.42	1.23	05:10	0.047	10:55	0.228	0.138	0.138	
07/26/2020	03:40	2.20	20:25	4.29	3.40	03:40	0.84	20:25	1.42	1.23	03:40	0.046	20:25	0.219	0.142	0.142	
07/27/2020	02:25	2.34	08:25	4.20	3.36	02:25	0.90	08:25	1.41	1.24	02:25	0.054	08:25	0.210	0.137	0.137	
07/28/2020	02:15	2.04	10:25	4.68	3.33	02:15	0.77	10:20	1.52	1.25	02:15	0.037	10:25	0.252	0.140	0.140	
07/29/2020	03:35	2.18	21:35	4.39	3.39	04:40	0.77	21:50	1.52	1.25	04:40	0.042	21:50	0.240	0.143	0.143	
07/30/2020	02:45	2.19	18:30	4.28	3.41	03:25	0.84	18:55	1.46	1.26	03:25	0.045	18:45	0.222	0.144	0.144	
07/31/2020	04:20	2.23	10:55	4.20	3.34	02:50	0.82	22:00	1.45	1.24	04:25	0.046	22:00	0.209	0.136	0.136	
08/01/2020	03:20	2.23	09:40	4.42	3.39	05:00	0.79	10:45	1.50	1.25	03:00	0.045	09:45	0.234	0.143	0.143	
08/02/2020	04:35	2.18	10:40	4.32	3.40	04:50	0.75	21:45	1.51	1.23	04:35	0.043	21:45	0.228	0.141	0.141	
08/03/2020	03:35	2.28	21:20	4.37	3.45	04:10	0.86	11:25	1.51	1.26	04:10	0.050	21:20	0.237	0.147	0.147	
08/04/2020	04:00	2.25	20:40	4.33	3.41	04:45	0.90	18:30	1.42	1.25	04:45	0.051	20:40	0.218	0.141	0.141	
08/05/2020	04:25	2.36	19:30	4.34	3.55	04:35	0.89	20:00	1.42	1.22	04:25	0.055	20:00	0.220	0.148	0.148	

Report Summary For The Period 07/23/2020 00:00 - 08/05/2020 23:59

	Depth (in)	Velocity (ft/s)	Quantity (MGD - Total MG)
Total			1.958
Avg	3.38	1.24	0.140

## Site Commentary

### Site Information

Brea_Site7North	
Pipe Dimensions	12 "
Silt Level	0.00"

### Overview

Site Brea\_Site7North functioned under normal conditions during the period Saturday, October 03, 2020 to Friday, October 16, 2020 . No surcharge conditions were experienced at this location. Review of the scattergraph shows that flows remained free flowing throughout the period.

Flow depth and velocity measurements recorded by the flow monitor are consistent with field confirmations conducted to date and support the relative accuracy of the flow monitor at this location.

### Observations

Average flow depth, velocity, and quantity data observed during Saturday, October 03, 2020 to Friday, October 16, 2020 , along with observed minimum and maximum data, are provided in the following table. The values presented are based on 5-minute data.

Observed Flow Conditions			
Item	Depth (in)	Velocity (ft/s)	Quantity (MGD)
Average	4.71	2.60	0.470
Minimum	3.23	1.41	0.150
Maximum	5.78	3.20	0.693
Time of Minimum	10/11/2020 4:50 AM	10/4/2020 6:10 AM	10/4/2020 4:30 AM
Time of Maximum	10/14/2020 8:40 PM	10/8/2020 5:10 PM	10/14/2020 8:40 PM

### Data Quality

Data uptime observed during the Saturday, October 03, 2020 to the Friday, October 16, 2020 monitoring period is provided in the table below. Based upon the quality and consistency of the observed flow depth and velocity data, the Continuity equation was used to calculate flow rate and quantities during the monitoring period.

Percent Uptime	
Depth (in)	100
Velocity (ft/s)	100
Quantity (MGD)	100

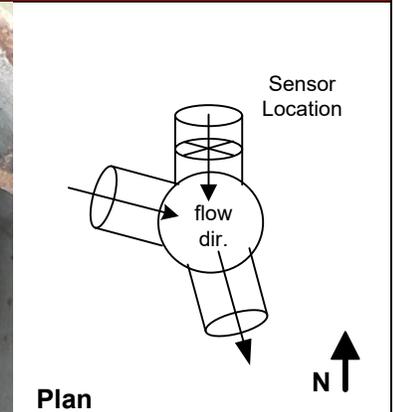
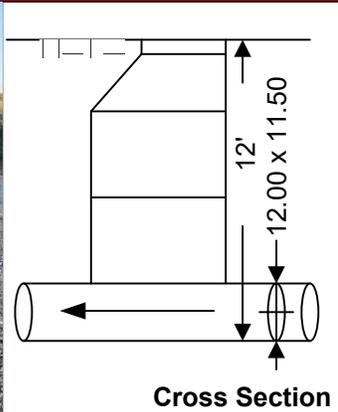
<b>Project Name:</b> Brea AKM Master Plan TFM 2020			<b>City:</b> Brea		<b>Agency:</b> Brea		<b>FM Initials:</b> SK	
<b>Site Name:</b> Brea_Site7North		<b>Install Date:</b> 10/2/20			<b>Monitor Type</b>		Peak Doppler	
<b>Address/Location:</b> 475 S State College Blvd				<b>Monitor Model</b>		Triton +		
				<b>Data Acquisition</b>		Manual/Wireless Collect		
				<b>Manhole ID</b>		RB65		
<b>Access:</b> Drive		<b>Type of System:</b>		Sanitary <input checked="" type="checkbox"/>		Storm <input type="checkbox"/>		Combined <input type="checkbox"/>
				<b>Pipe Height:</b>		12.00 "		
				<b>Pipe Width:</b>		11.50 "		



**Investigation Information: Manhole Information:**

<b>Date/Time of Investigation:</b>		10/1/20 @ 0700		<b>Manhole Depth:</b>		12'	
<b>Site Hydraulics:</b>		Good straight through flow.		<b>Manhole Material / Condition</b>		Precast/Good	
<b>Upstream Input: (L/S, P/S)</b>		--		<b>Pipe Material / Condition:</b> VCP/Good			
<b>Upstream Manhole:</b>		Not Investigated		<b>Land Use:</b>		Residential <input checked="" type="checkbox"/> Commercial <input type="checkbox"/> Industrial <input type="checkbox"/> Trunk <input type="checkbox"/>	
<b>Downstream Manhole:</b>		Not investigated		<b>Oxygen:</b> 20.9		<b>H2S:</b> 0	
<b>Depth of Flow:</b>		5.25 " +/- 0.25"		<b>LEL:</b> 0		<b>CO:</b> 0	
<b>Range (Air DOF):</b>		+/-		<b>Safety Notes:</b> 2 man crew required and one blower is to be operated at all times.			
<b>Peak Velocity:</b>		3.10 fps					
<b>Silt:</b>		0.00 Inches					

**Other Information:**



Installation Information		Backup		Yes	No	?	Distance
Installation Type:	Standard	Trunk		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Sensors Devices:	Ultrasonic/Velocity/Pressure	Lift / Pump Station		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Surcharge Height:	0	WWTP		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Rain Gauge Zone:		Other		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

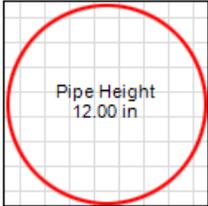
**Additional Site Information / Comments:**

Standard Traffic Control with No Safety Concerns

# SCATTERGRAPH REPORT

Brea\_Site7North

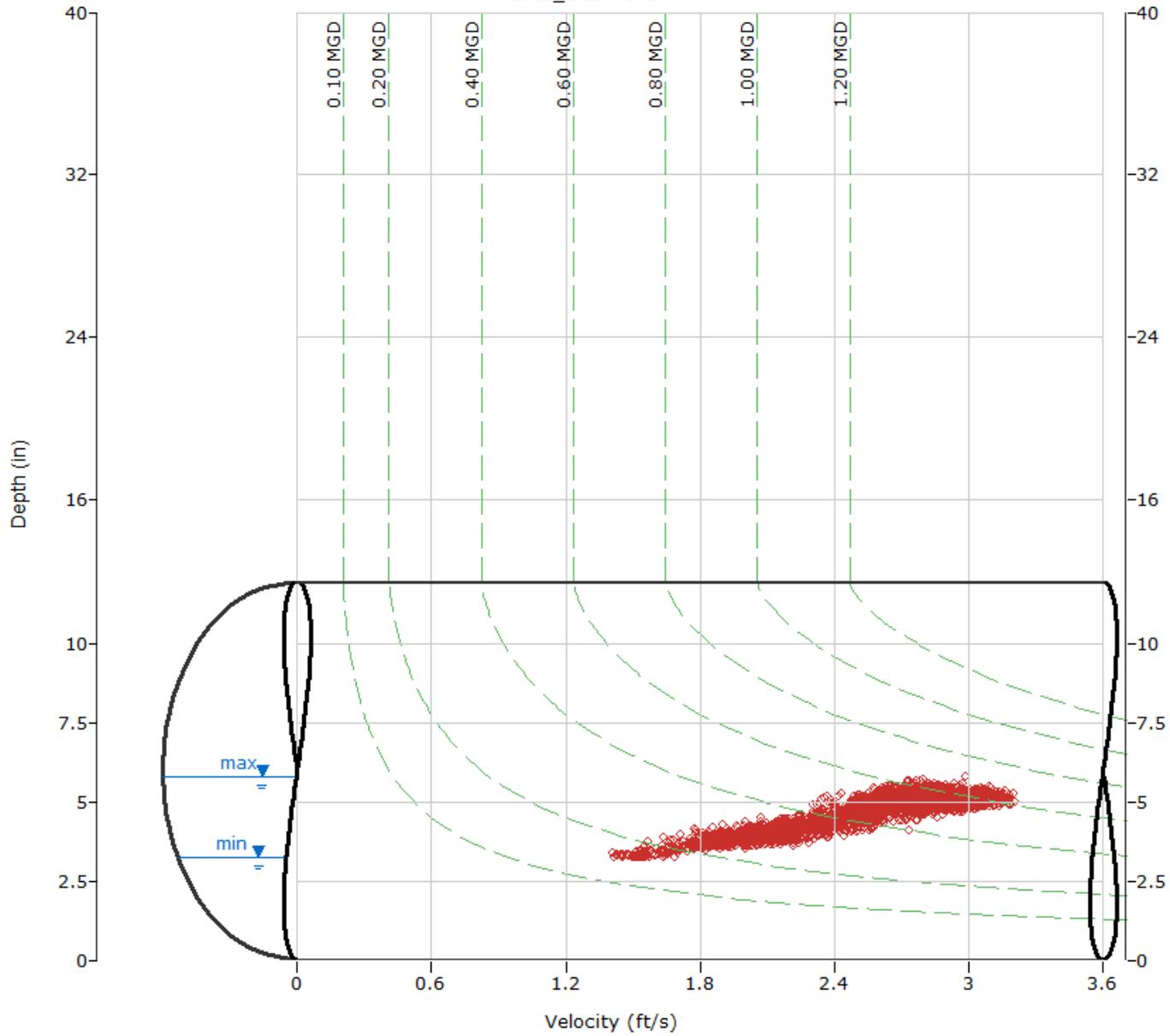
Flow Monitor  
**Brea\_Site7North**



Report Period  
10/3/2020  
To  
10/16/2020



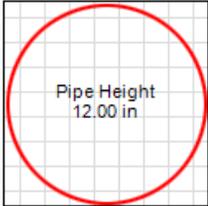
ADS ENVIRONMENTAL SERVICES



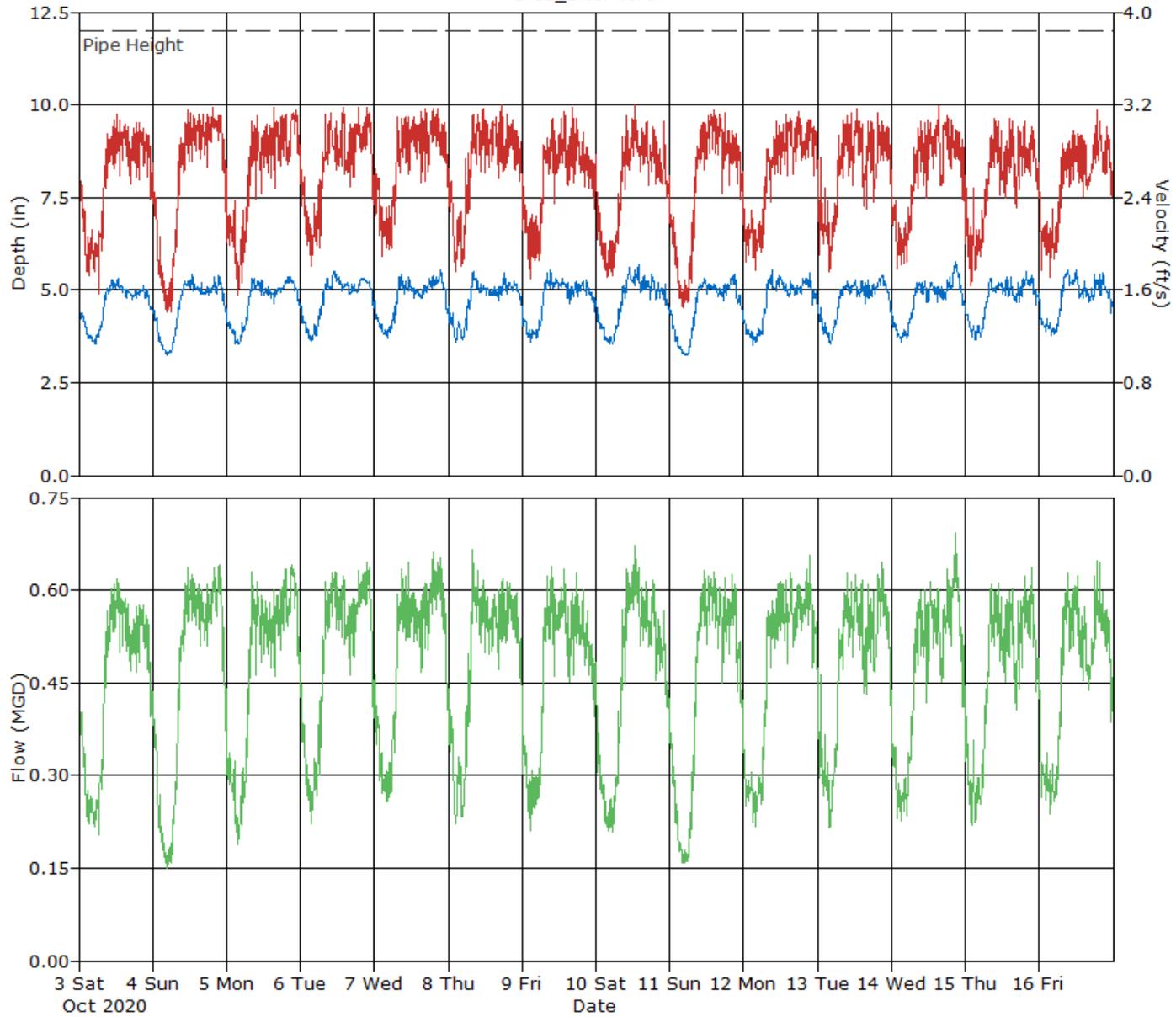
# HYDROGRAPH REPORT

Brea\_Site7North

Flow Monitor  
**Brea\_Site7North**



Report Period  
10/3/2020  
To  
10/16/2020



Daily Tabular Report For The Period 10/03/2020 00:00 - 10/16/2020 23:59

Brea\_Site7North, Pipe Height: 12.00 in, Silt: 0.00 in

Daily Tabular Report

Date	Depth (in)					Velocity (ft/s)					Quantity (MGD - Total MG)					Rain (in)	
	Time	Min	Time	Max	Avg	Time	Min	Time	Max	Avg	Time	Min	Time	Max	Avg	Total	Total
10/03/2020	05:20	3.53	12:45	5.29	4.60	06:25	1.57	12:25	3.12	2.56	06:25	0.203	12:25	0.618	0.450	0.450	
10/04/2020	04:30	3.24	12:55	5.44	4.56	06:10	1.41	19:20	3.18	2.54	04:30	0.150	21:35	0.640	0.450	0.450	
10/05/2020	04:10	3.53	20:05	5.36	4.70	03:50	1.55	15:15	3.18	2.62	03:50	0.187	21:10	0.641	0.474	0.474	
10/06/2020	03:30	3.61	10:50	5.51	4.80	03:35	1.80	21:35	3.18	2.68	03:35	0.223	21:35	0.646	0.496	0.496	
10/07/2020	04:15	3.71	21:40	5.55	4.78	02:30	1.89	20:45	3.16	2.71	04:10	0.258	19:10	0.662	0.497	0.497	
10/08/2020	02:20	3.58	08:10	5.51	4.74	02:15	1.76	17:10	3.20	2.68	02:15	0.222	08:05	0.667	0.487	0.487	
10/09/2020	02:45	3.60	09:20	5.54	4.75	02:50	1.70	16:30	3.18	2.57	02:50	0.211	09:25	0.637	0.470	0.470	
10/10/2020	05:15	3.55	13:50	5.70	4.70	03:25	1.71	12:40	3.20	2.51	05:15	0.207	12:30	0.673	0.456	0.456	
10/11/2020	04:50	3.23	20:55	5.44	4.54	04:30	1.45	14:25	3.15	2.49	04:00	0.158	11:15	0.632	0.439	0.439	
10/12/2020	03:00	3.52	09:05	5.53	4.72	04:00	1.77	17:40	3.14	2.63	04:00	0.218	21:30	0.656	0.478	0.478	
10/13/2020	04:15	3.55	21:20	5.39	4.74	03:55	1.76	12:55	3.16	2.64	03:55	0.216	21:00	0.646	0.481	0.481	
10/14/2020	03:05	3.60	20:40	5.78	4.72	01:50	1.78	15:25	3.18	2.61	03:05	0.226	20:40	0.693	0.474	0.474	
10/15/2020	03:25	3.65	19:55	5.50	4.75	01:50	1.64	09:30	3.08	2.54	02:25	0.220	21:45	0.635	0.463	0.463	
10/16/2020	04:00	3.77	11:55	5.55	4.78	03:30	1.71	18:50	3.15	2.54	03:30	0.238	18:50	0.647	0.468	0.468	

Report Summary For The Period 10/03/2020 00:00 - 10/16/2020 23:59

	Depth (in)	Velocity (ft/s)	Quantity (MGD - Total MG)
Total			6.582
Avg	4.71	2.60	0.470

## Site Commentary

### Site Information

Brea_Site7West	
Pipe Dimensions	9.75 "
Silt Level	0.00"

### Overview

Site Brea\_Site7West functioned under normal conditions during the period Thursday, July 23, 2020 to Wednesday, August 5, 2020 . No surcharge conditions were experienced at this location. Review of the scattergraph shows that flows remained free flowing throughout the period. Low flow render lower data accuracy confidence.

Flow depth and velocity measurements recorded by the flow monitor are consistent with field confirmations conducted to date and support the relative accuracy of the flow monitor at this location.

### Observations

Average flow depth, velocity, and quantity data observed during Thursday, July 23, 2020 to Wednesday, August 5, 2020 , along with observed minimum and maximum data, are provided in the following table. The values presented are based on 5-minute data.

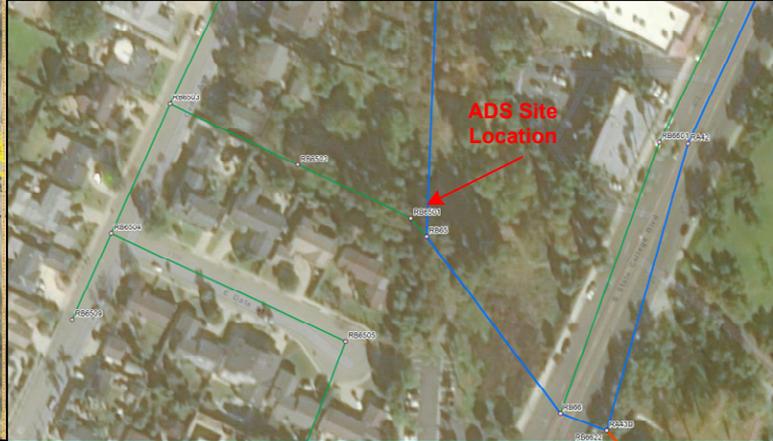
Observed Flow Conditions			
Item	Depth (in)	Velocity (ft/s)	Quantity (MGD)
Average	1.43	0.11	0.004
Minimum	0.77	0.09	0.001
Maximum	2.51	1.06	0.052
Time of Minimum	7/23/2020 12:55 AM	7/23/2020 12:00 AM	7/23/2020 12:55 AM
Time of Maximum	7/24/2020 12:10 PM	8/2/2020 9:05 AM	7/23/2020 8:25 PM

### Data Quality

Data uptime observed during the Thursday, July 23, 2020 to the Wednesday, August 5, 2020 monitoring period is provided in the table below. Based upon the quality and consistency of the observed flow depth and velocity data, the Continuity equation was used to calculate flow rate and quantities during the monitoring period.

Percent Uptime	
Depth (in)	100
Velocity (ft/s)	100
Quantity (MGD)	100

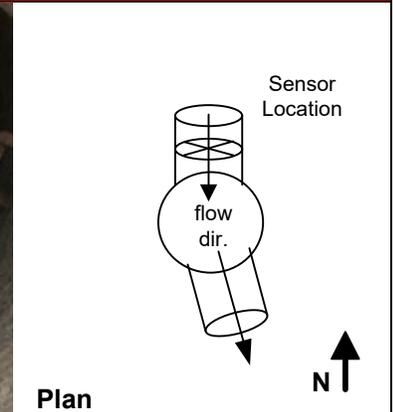
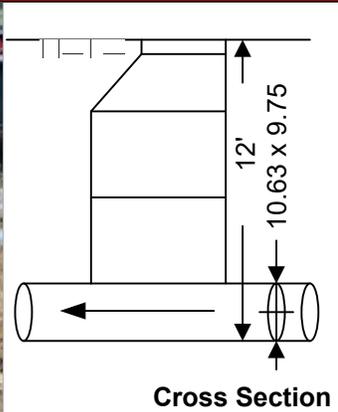
<b>Project Name:</b> Brea AKM Master Plan TFM 2020			<b>City:</b> Brea		<b>Agency:</b> Brea		<b>FM Initials:</b> SK		
<b>Site Name:</b> Brea_Site7West		<b>Install Date:</b> 7/22/20			<b>Monitor Type</b>		Peak Doppler		
<b>Address/Location:</b> 475 S State College Blvd				<b>Monitor Model</b>		Triton +			
				<b>Data Acquisition</b>		Manual/Wireless Collect			
				<b>Manhole ID</b>		RB6501			
<b>Access:</b> Drive		<b>Type of System:</b>		Sanitary <input checked="" type="checkbox"/>		Storm <input type="checkbox"/>		Combined <input type="checkbox"/>	
				<b>Pipe Height:</b>		10.63 "			
				<b>Pipe Width:</b>		9.75 "			



**Investigation Information: Manhole Information:**

<b>Date/Time of Investigation:</b>		7/9/20 @ 0600		<b>Manhole Depth:</b>		12'	
<b>Site Hydraulics:</b>		Low slow straight through flow		<b>Manhole Material / Condition</b>		Precast/Good	
<b>Upstream Input: (L/S, P/S)</b>		--		<b>Pipe Material / Condition:</b> VCP/Good			
<b>Upstream Manhole:</b>		Not Investigated		<b>Land Use:</b>		Residential <input checked="" type="checkbox"/> Commercial <input type="checkbox"/> Industrial <input type="checkbox"/> Trunk <input type="checkbox"/>	
<b>Downstream Manhole:</b>		Not investigated		<b>Oxygen:</b> 20.9		<b>H2S:</b> 0	
<b>Depth of Flow:</b>		1.00 " +/- 0.25"		<b>LEL:</b> 0		<b>CO:</b> 0	
<b>Range (Air DOF):</b>		+/-		<b>Safety Notes:</b> 2 man crew required and one blower is to be operated at all times.			
<b>Peak Velocity:</b>		0.00 fps					
<b>Silt:</b>		0.00 Inches					

**Other Information:**



Installation Information		Backup		Yes	No	?	Distance
Installation Type:	Standard	Trunk		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Sensors Devices:	Ultrasonic/Velocity/Pressure	Lift / Pump Station		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Surcharge Height:	0	WWTP		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Rain Gauge Zone:		Other		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

**Additional Site Information / Comments:**

Standard Traffic Control with No Safety Concerns

# SCATTERGRAPH REPORT

Brea\_Site7West

Flow Monitor  
**Brea\_Site7West**

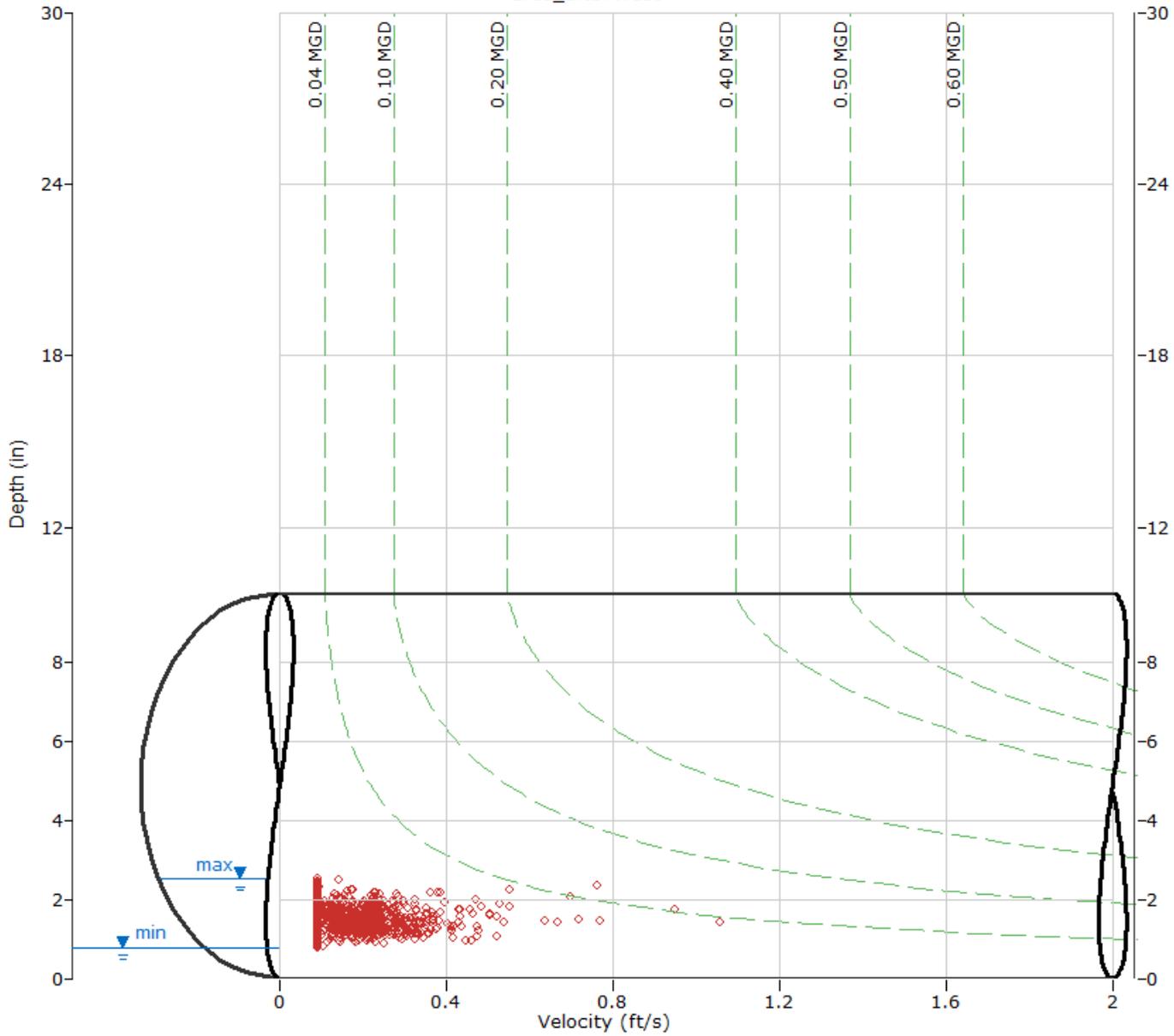
Pipe Height  
9.75 in

Report Period  
7/23/2020  
To  
8/5/2020

**Legend**

- Depth - Velocity
- - - Iso-Q™
- - - Silt
- ▼ Min-Max Depth

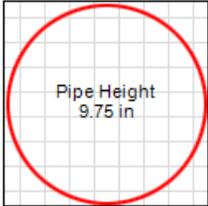
ADS ENVIRONMENTAL SERVICES



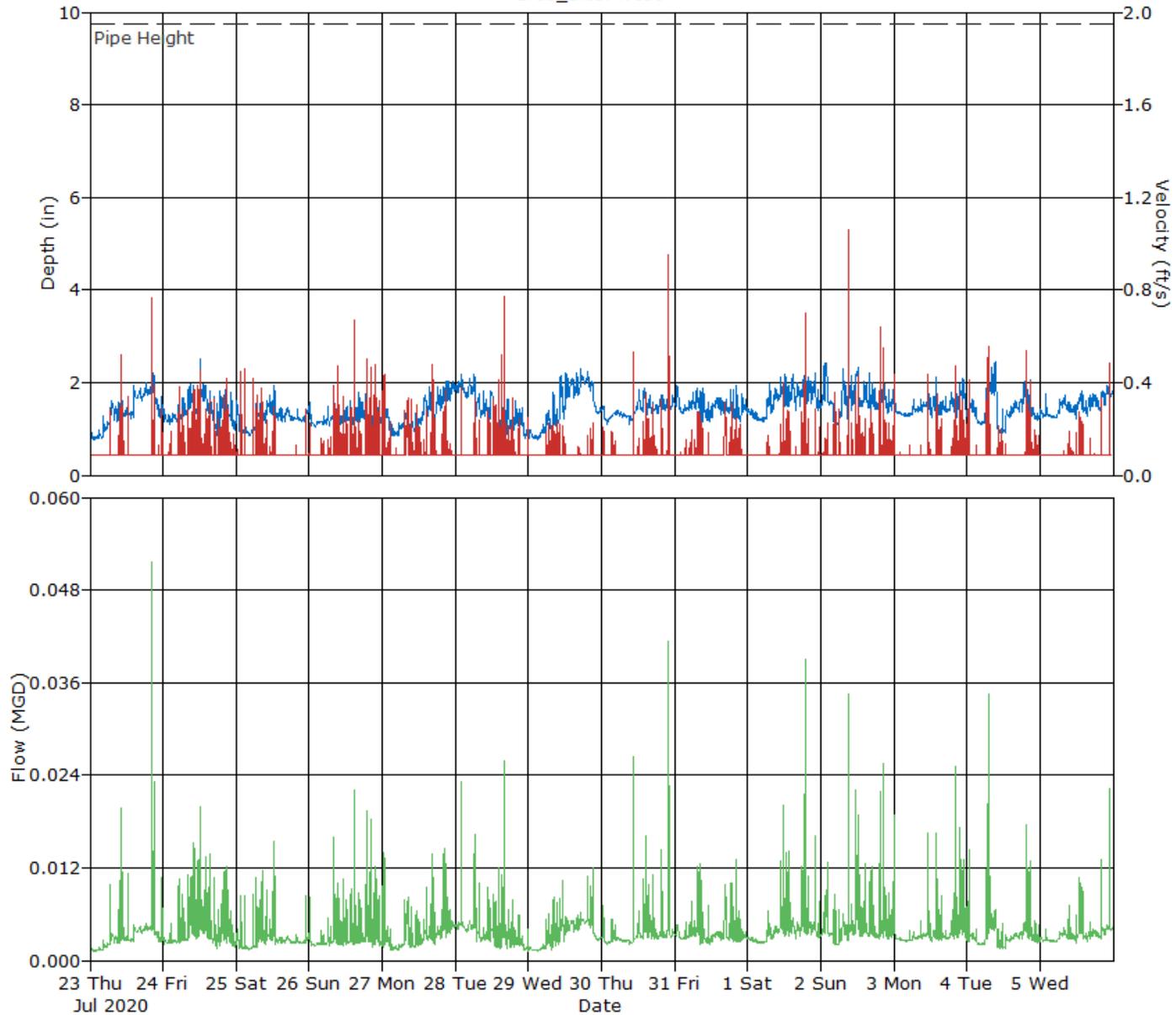
# HYDROGRAPH REPORT

Brea\_Site7West

Flow Monitor  
**Brea\_Site7West**



Report Period  
7/23/2020  
To  
8/5/2020



Daily Tabular Report For The Period 07/23/2020 00:00 - 08/05/2020 23:59

Brea\_Site7West, Pipe Height: 9.75 in, Silt: 0.00 in

Daily Tabular Report

Date	Depth (in)					Velocity (ft/s)					Quantity (MGD - Total MG)					Rain (in)	
	Time	Min	Time	Max	Avg	Time	Min	Time	Max	Avg	Time	Min	Time	Max	Avg	Total	Total
07/23/2020	00:55	0.77	20:25	2.35	1.37	00:00	0.09	20:25	0.76	0.10	00:55	0.001	20:25	0.052	0.003	0.003	
07/24/2020	17:40	0.87	12:10	2.51	1.41	00:00	0.09	12:05	0.46	0.13	17:40	0.001	12:05	0.020	0.004	0.004	
07/25/2020	04:20	0.85	12:15	1.94	1.23	00:00	0.09	02:50	0.46	0.11	04:20	0.001	12:15	0.015	0.003	0.003	
07/26/2020	20:50	0.95	16:00	1.79	1.25	00:00	0.09	14:55	0.67	0.13	20:50	0.002	14:55	0.022	0.004	0.004	
07/27/2020	02:50	0.79	21:40	2.04	1.33	00:00	0.09	16:35	0.48	0.12	02:55	0.001	20:20	0.015	0.004	0.004	
07/28/2020	23:00	0.80	02:00	2.17	1.43	00:00	0.09	16:05	0.77	0.12	23:00	0.001	16:05	0.026	0.004	0.004	
07/29/2020	02:50	0.78	17:05	2.29	1.48	00:00	0.09	09:15	0.23	0.10	02:50	0.001	21:05	0.012	0.004	0.004	
07/30/2020	01:45	1.09	10:25	1.89	1.42	00:00	0.09	22:05	0.95	0.11	01:45	0.002	22:05	0.041	0.004	0.004	
07/31/2020	08:35	1.08	00:45	1.95	1.48	00:00	0.09	16:40	0.31	0.11	08:35	0.002	20:15	0.013	0.004	0.004	
08/01/2020	04:50	1.15	22:05	2.19	1.61	00:00	0.09	18:50	0.70	0.10	04:50	0.002	18:50	0.039	0.004	0.004	
08/02/2020	06:00	1.08	01:25	2.41	1.63	00:00	0.09	09:05	1.06	0.11	06:00	0.002	09:05	0.034	0.005	0.005	
08/03/2020	20:45	1.24	13:45	2.11	1.48	00:00	0.09	20:10	0.47	0.11	12:25	0.002	20:10	0.025	0.004	0.004	
08/04/2020	11:40	0.90	09:15	2.46	1.43	00:05	0.09	07:10	0.55	0.11	11:40	0.002	07:10	0.035	0.004	0.004	
08/05/2020	11:45	1.20	22:05	1.95	1.50	00:00	0.09	22:45	0.49	0.10	11:45	0.002	22:45	0.022	0.003	0.003	

Report Summary For The Period 07/23/2020 00:00 - 08/05/2020 23:59

	Depth (in)	Velocity (ft/s)	Quantity (MGD - Total MG)
Total			0.052
Avg	1.43	0.11	0.004

## Site Commentary

### Site Information

Brea_Site8	
Pipe Dimensions	8 "
Silt Level	0.00"

### Overview

Site Brea\_Site8 functioned under normal conditions during the period Thursday, July 23, 2020 to Wednesday, August 5, 2020 . No surcharge conditions were experienced at this location. Review of the scattergraph shows that flows remained free flowing throughout the period.

Flow depth and velocity measurements recorded by the flow monitor are consistent with field confirmations conducted to date and support the relative accuracy of the flow monitor at this location.

### Observations

Average flow depth, velocity, and quantity data observed during Thursday, July 23, 2020 to Wednesday, August 5, 2020 , along with observed minimum and maximum data, are provided in the following table. The values presented are based on 5-minute data.

Observed Flow Conditions			
Item	Depth (in)	Velocity (ft/s)	Quantity (MGD)
Average	1.09	3.49	0.067
Minimum	0.85	1.24	0.020
Maximum	1.79	5.68	0.218
Time of Minimum	8/3/2020 8:50 AM	7/28/2020 2:45 AM	7/24/2020 3:50 AM
Time of Maximum	8/4/2020 8:35 AM	8/4/2020 8:35 AM	8/4/2020 8:35 AM

### Data Quality

Data uptime observed during the Thursday, July 23, 2020 to the Wednesday, August 5, 2020 monitoring period is provided in the table below. Based upon the quality and consistency of the observed flow depth and velocity data, the Continuity equation was used to calculate flow rate and quantities during the monitoring period.

Percent Uptime	
Depth (in)	100
Velocity (ft/s)	100
Quantity (MGD)	100

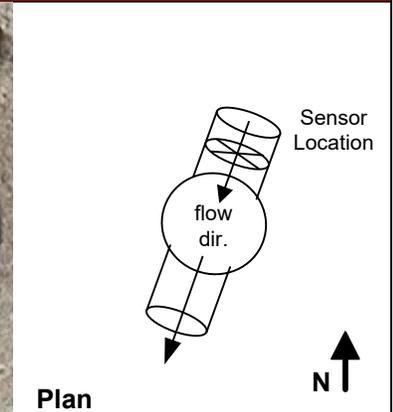
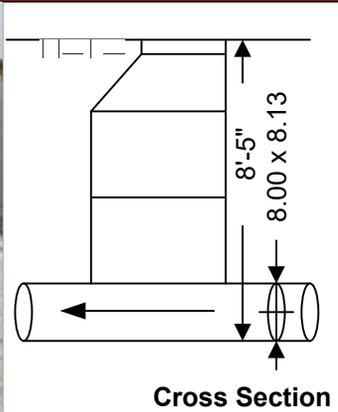
<b>Project Name:</b> Brea AKM Master Plan TFM 2020			<b>City:</b> Brea		<b>Agency:</b> Brea		<b>FM Initials:</b> SK		
<b>Site Name:</b> Brea_Site8		<b>Install Date:</b> 7/22/20			<b>Monitor Type</b>		Peak Doppler		
<b>Address/Location:</b> 405 S State College Blvd				<b>Monitor Model</b>		Triton +			
				<b>Data Acquisition</b>		Manual/Wireless Collect			
				<b>Manhole ID</b>		RB6601			
<b>Access:</b> Drive		<b>Type of System:</b>		Sanitary <input checked="" type="checkbox"/>		Storm <input type="checkbox"/>		Combined <input type="checkbox"/>	
				<b>Pipe Height:</b>		8.00 "			
				<b>Pipe Width:</b>		8.13 "			



**Investigation Information: Manhole Information:**

<b>Date/Time of Investigation:</b>		7/9/20 @ 0715		<b>Manhole Depth:</b>		8'-5"	
<b>Site Hydraulics:</b>		Good straight through flow		<b>Manhole Material / Condition</b>		Precast/Good	
<b>Upstream Input: (L/S, P/S)</b>		--		<b>Pipe Material / Condition:</b> VCP/Good			
<b>Upstream Manhole:</b>		Not Investigated		<b>Land Use:</b>		Residential <input checked="" type="checkbox"/> Commercial <input type="checkbox"/> Industrial <input type="checkbox"/> Trunk <input type="checkbox"/>	
<b>Downstream Manhole:</b>		Not investigated		<b>Oxygen:</b> 20.9		<b>H2S:</b> 0	
<b>Depth of Flow:</b>		1.00 " +/- 0.25"		<b>LEL:</b> 0		<b>CO:</b> 0	
<b>Range (Air DOF):</b>		+/-		<b>Safety Notes:</b> 2 man crew required and one blower is to be operated at all times.			
<b>Peak Velocity:</b>		2.35 fps					
<b>Silt:</b>		0.00 Inches					

**Other Information:**



Installation Information		Backup	Yes	No	?	Distance
Installation Type:	Standard	Trunk	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Sensors Devices:	Ultrasonic/Velocity/Pressure	Lift / Pump Station	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Surcharge Height:	0	WWTP	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Rain Gauge Zone:		Other	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

**Additional Site Information / Comments:**

Standard Traffic Control with No Safety Concerns

# SCATTERGRAPH REPORT

Brea\_Site8

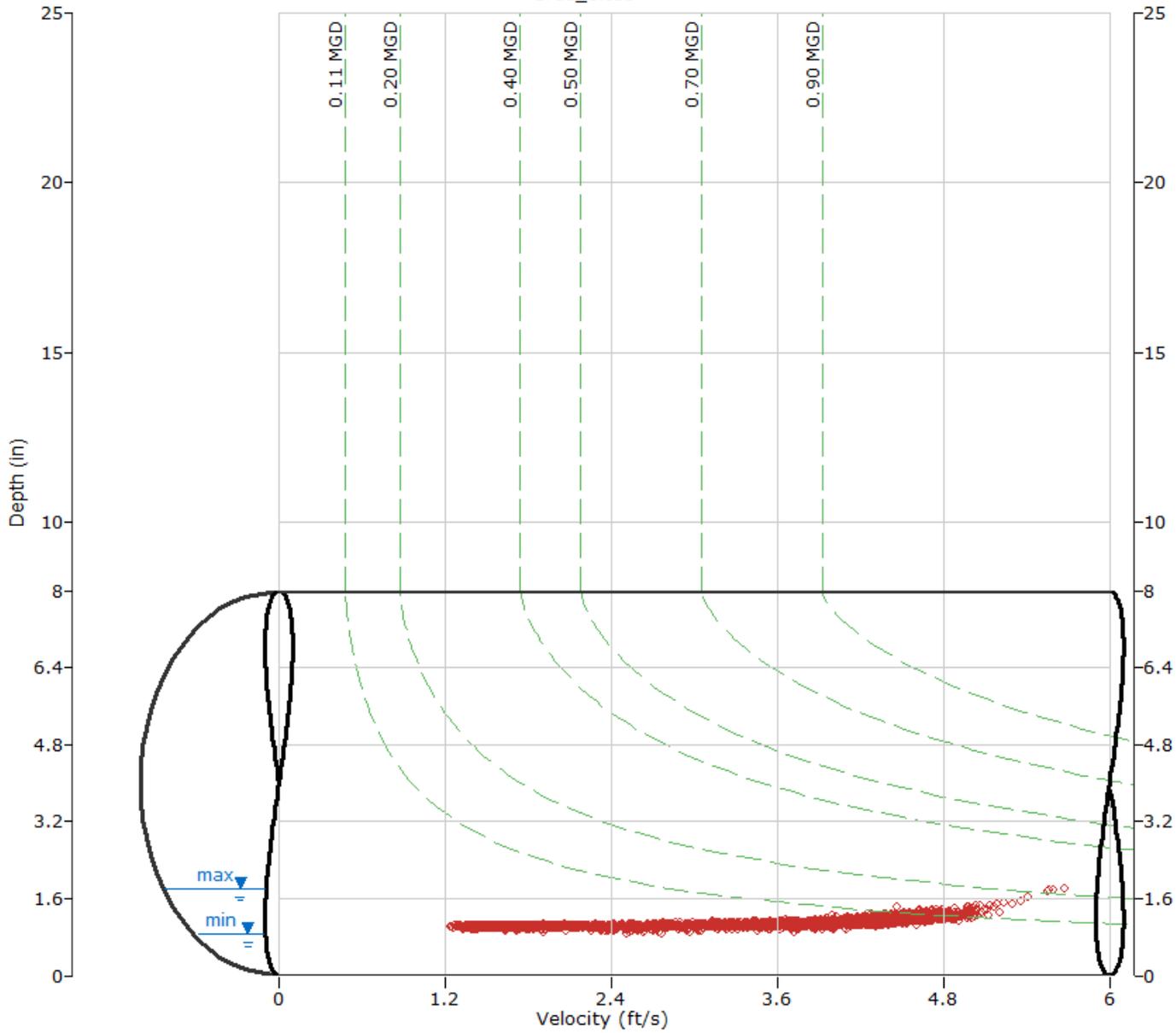
Flow Monitor  
**Brea\_Site8**

Pipe Height  
8.00 in

Report Period  
7/23/2020  
To  
8/5/2020

Legend  
○ Depth - Velocity  
--- Iso-Q™  
--- Silt  
▼ Min-Max Depth

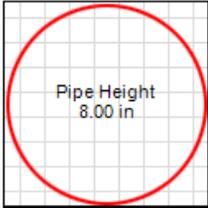
ADS ENVIRONMENTAL SERVICES



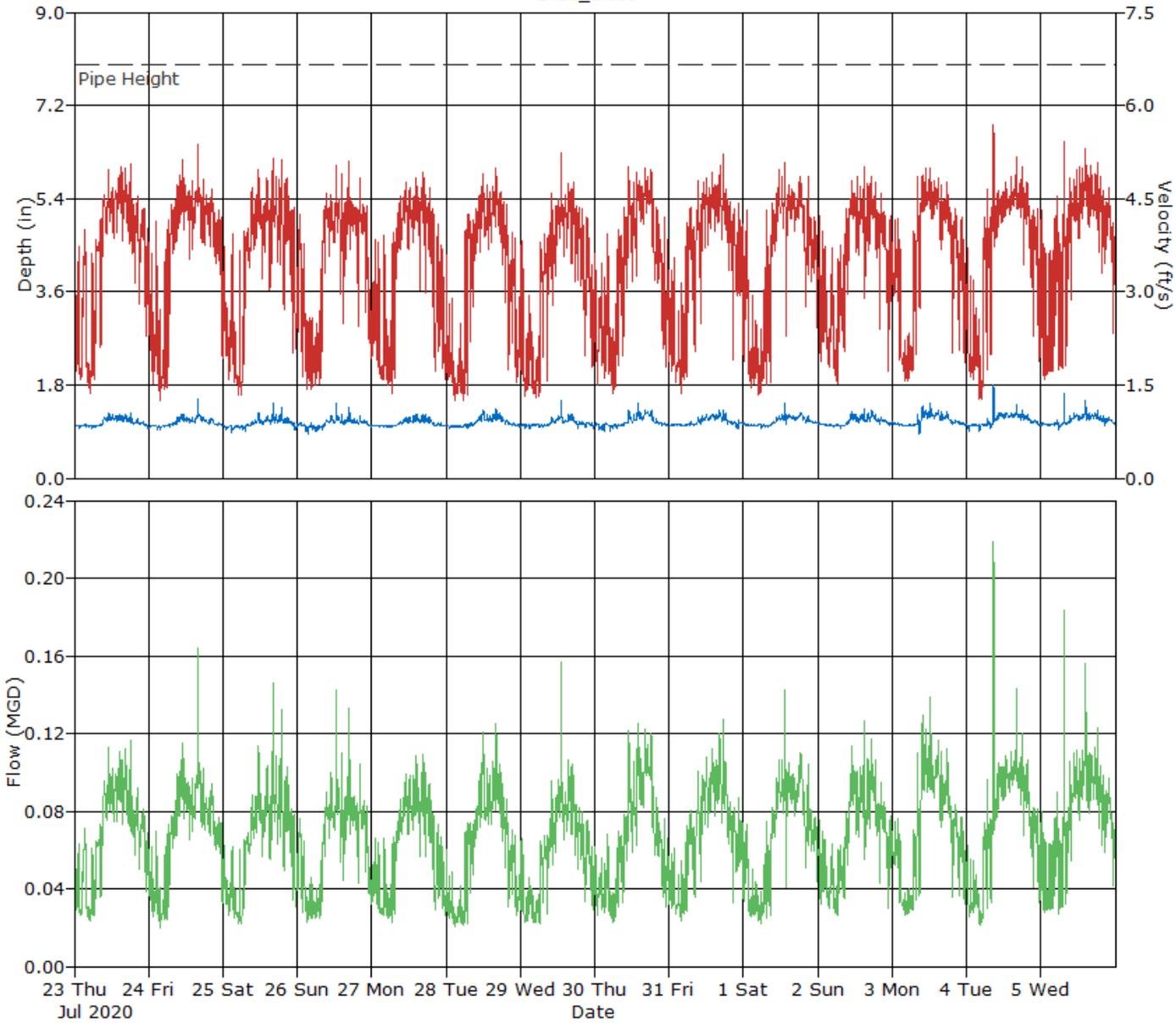
# HYDROGRAPH REPORT

Brea\_Site8

Flow Monitor  
**Brea\_Site8**



Report Period  
7/23/2020  
To  
8/5/2020



Daily Tabular Report For The Period 07/23/2020 00:00 - 08/05/2020 23:59

Brea\_Site8, Pipe Height: 8.00 in, Silt: 0.00 in

Daily Tabular Report

Date	Depth (in)				Velocity (ft/s)				Quantity (MGD - Total MG)					Rain (in)			
	Time	Min	Time	Max	Avg	Time	Min	Time	Max	Avg	Time	Min	Time	Max	Avg	Total	Total
07/23/2020	23:50	0.95	18:20	1.26	1.08	05:15	1.36	18:20	5.05	3.59	05:15	0.023	18:20	0.117	0.067	0.067	
07/24/2020	03:40	0.94	15:55	1.53	1.08	03:50	1.26	15:55	5.37	3.68	03:50	0.020	15:55	0.164	0.069	0.069	
07/25/2020	02:55	0.89	16:10	1.45	1.06	05:05	1.33	16:10	5.14	3.46	05:05	0.022	16:10	0.146	0.064	0.064	
07/26/2020	03:20	0.86	12:35	1.45	1.06	03:10	1.43	16:45	5.09	3.43	03:10	0.022	12:35	0.142	0.063	0.063	
07/27/2020	03:50	0.99	14:10	1.23	1.06	06:40	1.36	16:20	4.92	3.33	06:40	0.023	16:20	0.109	0.062	0.062	
07/28/2020	01:05	0.95	16:10	1.33	1.07	02:45	1.24	16:10	4.98	3.22	02:45	0.020	16:10	0.125	0.061	0.061	
07/29/2020	02:55	0.95	13:05	1.51	1.06	05:00	1.29	13:05	5.24	3.22	06:15	0.022	13:05	0.157	0.060	0.060	
07/30/2020	03:00	0.92	14:10	1.43	1.08	05:55	1.37	11:00	5.02	3.39	05:55	0.023	14:10	0.125	0.065	0.065	
07/31/2020	22:15	0.96	16:15	1.31	1.09	03:50	1.37	17:30	5.21	3.62	03:50	0.023	17:30	0.127	0.069	0.069	
08/01/2020	05:35	0.97	13:25	1.44	1.10	04:50	1.35	13:25	5.07	3.46	05:40	0.022	13:25	0.142	0.067	0.067	
08/02/2020	07:15	0.97	14:55	1.34	1.09	06:35	1.53	14:55	5.02	3.51	06:35	0.026	14:55	0.127	0.068	0.068	
08/03/2020	08:50	0.85	12:20	1.44	1.11	04:00	1.56	10:45	4.98	3.58	04:00	0.026	12:20	0.139	0.072	0.072	
08/04/2020	00:40	0.90	08:35	1.79	1.13	04:45	1.27	08:35	5.68	3.63	04:25	0.021	08:35	0.218	0.074	0.074	
08/05/2020	05:45	0.94	07:35	1.64	1.12	01:00	1.58	07:35	5.41	3.78	05:50	0.027	07:35	0.183	0.076	0.076	

Report Summary For The Period 07/23/2020 00:00 - 08/05/2020 23:59

	Depth (in)	Velocity (ft/s)	Quantity (MGD - Total MG)
Total			0.937
Avg	1.09	3.49	0.067

## Site Commentary

### Site Information

Brea_Site9	
Pipe Dimensions	11.75 "
Silt Level	0.00"

### Overview

Site Brea\_Site9 functioned under normal conditions during the period Thursday, July 23, 2020 to Wednesday, August 5, 2020 . No surcharge conditions were experienced at this location. Review of the scattergraph shows that flows remained free flowing throughout the period.

Flow depth and velocity measurements recorded by the flow monitor are consistent with field confirmations conducted to date and support the relative accuracy of the flow monitor at this location.

### Observations

Average flow depth, velocity, and quantity data observed during Thursday, July 23, 2020 to Wednesday, August 5, 2020 , along with observed minimum and maximum data, are provided in the following table. The values presented are based on 5-minute data.

Observed Flow Conditions			
Item	Depth (in)	Velocity (ft/s)	Quantity (MGD)
Average	1.93	4.00	0.219
Minimum	1.50	1.90	0.075
Maximum	2.28	5.21	0.334
Time of Minimum	7/26/2020 5:35 AM	7/27/2020 4:20 AM	7/27/2020 4:15 AM
Time of Maximum	7/29/2020 8:10 AM	8/4/2020 12:35 PM	7/23/2020 2:45 PM

### Data Quality

Data uptime observed during the Thursday, July 23, 2020 to the Wednesday, August 5, 2020 monitoring period is provided in the table below. Based upon the quality and consistency of the observed flow depth and velocity data, the Continuity equation was used to calculate flow rate and quantities during the monitoring period.

Percent Uptime	
Depth (in)	100
Velocity (ft/s)	100
Quantity (MGD)	100

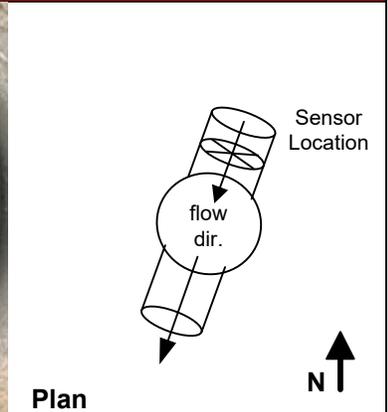
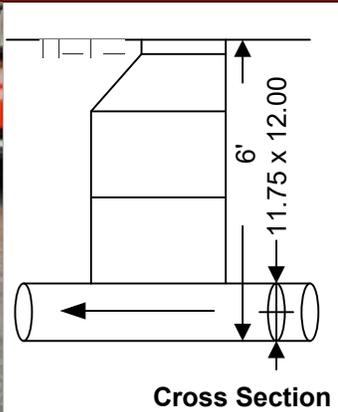
<b>Project Name:</b> Brea AKM Master Plan TFM 2020			<b>City:</b> Brea		<b>Agency:</b> Brea		<b>FM Initials:</b> SK		
<b>Site Name:</b> Brea_Site9		<b>Install Date:</b> 7/22/20			<b>Monitor Type</b>		Peak Doppler		
<b>Address/Location:</b> 405 S State College Blvd				<b>Monitor Model</b>		Triton +			
				<b>Data Acquisition</b>		Manual/Wireless Collect			
				<b>Manhole ID</b>		RA42			
<b>Access:</b> Drive		<b>Type of System:</b>		Sanitary <input checked="" type="checkbox"/>		Storm <input type="checkbox"/>		Combined <input type="checkbox"/>	
				<b>Pipe Height:</b>		11.75 "			
				<b>Pipe Width:</b>		12.00 "			



**Investigation Information: Manhole Information:**

<b>Date/Time of Investigation:</b>		7/9/20 @ 0730		<b>Manhole Depth:</b>		6'	
<b>Site Hydraulics:</b>		Good straight through flow		<b>Manhole Material / Condition</b>		Precast/Good	
<b>Upstream Input: (L/S, P/S)</b>		--		<b>Pipe Material / Condition:</b> VCP/Good			
<b>Upstream Manhole:</b>		Not Investigated		<b>Land Use:</b>		Residential <input type="checkbox"/> Commercial <input checked="" type="checkbox"/> Industrial <input type="checkbox"/> Trunk <input type="checkbox"/>	
<b>Downstream Manhole:</b>		Not investigated		<b>Oxygen:</b> 20.9		<b>H2S:</b> 0	
<b>Depth of Flow:</b>		1.88 " +/- 0.25"		<b>LEL:</b> 0		<b>CO:</b> 0	
<b>Range (Air DOF):</b>		+/-		<b>Safety Notes:</b> 2 man crew required and one blower is to be operated at all times.			
<b>Peak Velocity:</b>		2.50 fps					
<b>Silt:</b>		0.00 Inches					

**Other Information:**



Installation Information		Backup		Yes	No	?	Distance
Installation Type:	Standard	Trunk		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Sensors Devices:	Ultrasonic/Velocity/Pressure	Lift / Pump Station		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Surcharge Height:	0	WWTP		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Rain Gauge Zone:		Other		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

**Additional Site Information / Comments:**

**Standard Traffic Control with No Safety Concerns**

# SCATTERGRAPH REPORT

Brea\_Site9

Flow Monitor  
**Brea\_Site9**

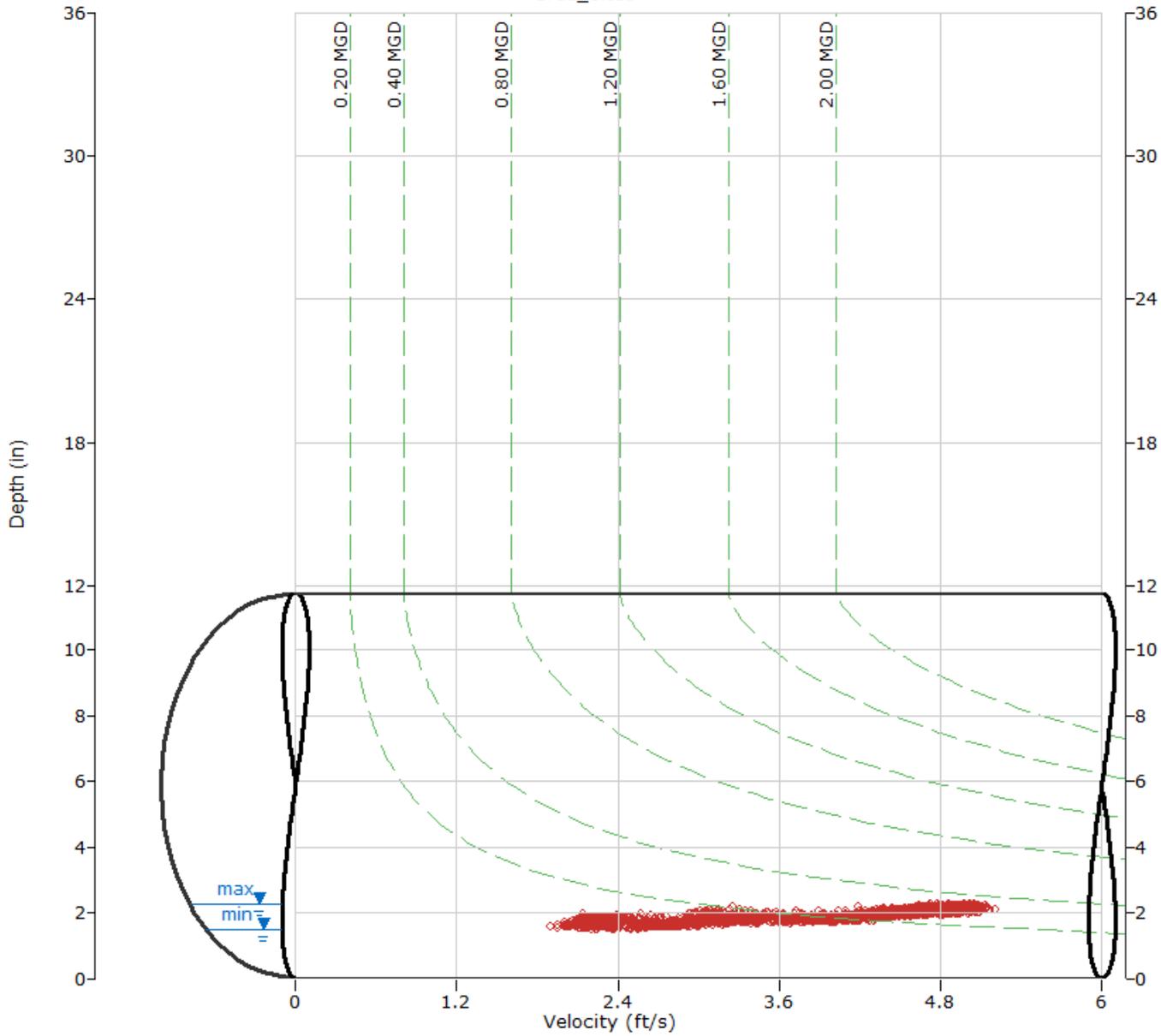
Pipe Height  
11.75 in

Report Period  
7/23/2020  
To  
8/5/2020

**Legend**

- Depth - Velocity
- - - Iso-Q™
- - - Silt
- ▼ Min-Max Depth

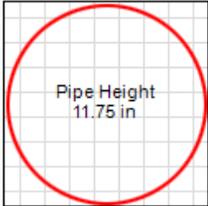
ADS ENVIRONMENTAL SERVICES



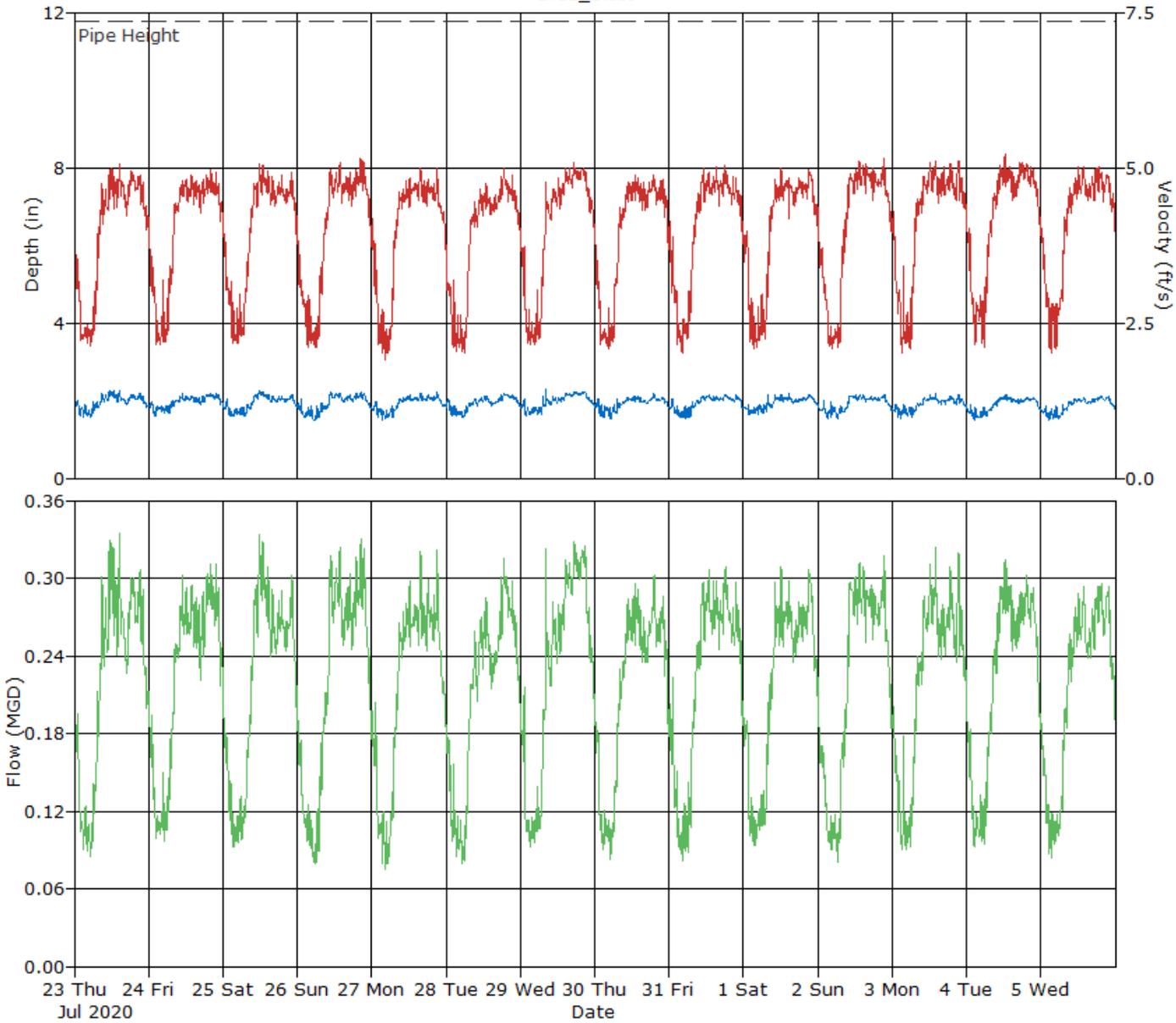
# HYDROGRAPH REPORT

Brea\_Site9

Flow Monitor  
**Brea\_Site9**



Report Period  
7/23/2020  
To  
8/5/2020



Daily Tabular Report For The Period 07/23/2020 00:00 - 08/05/2020 23:59

Brea\_Site9, Pipe Height: 11.75 in, Silt: 0.00 in

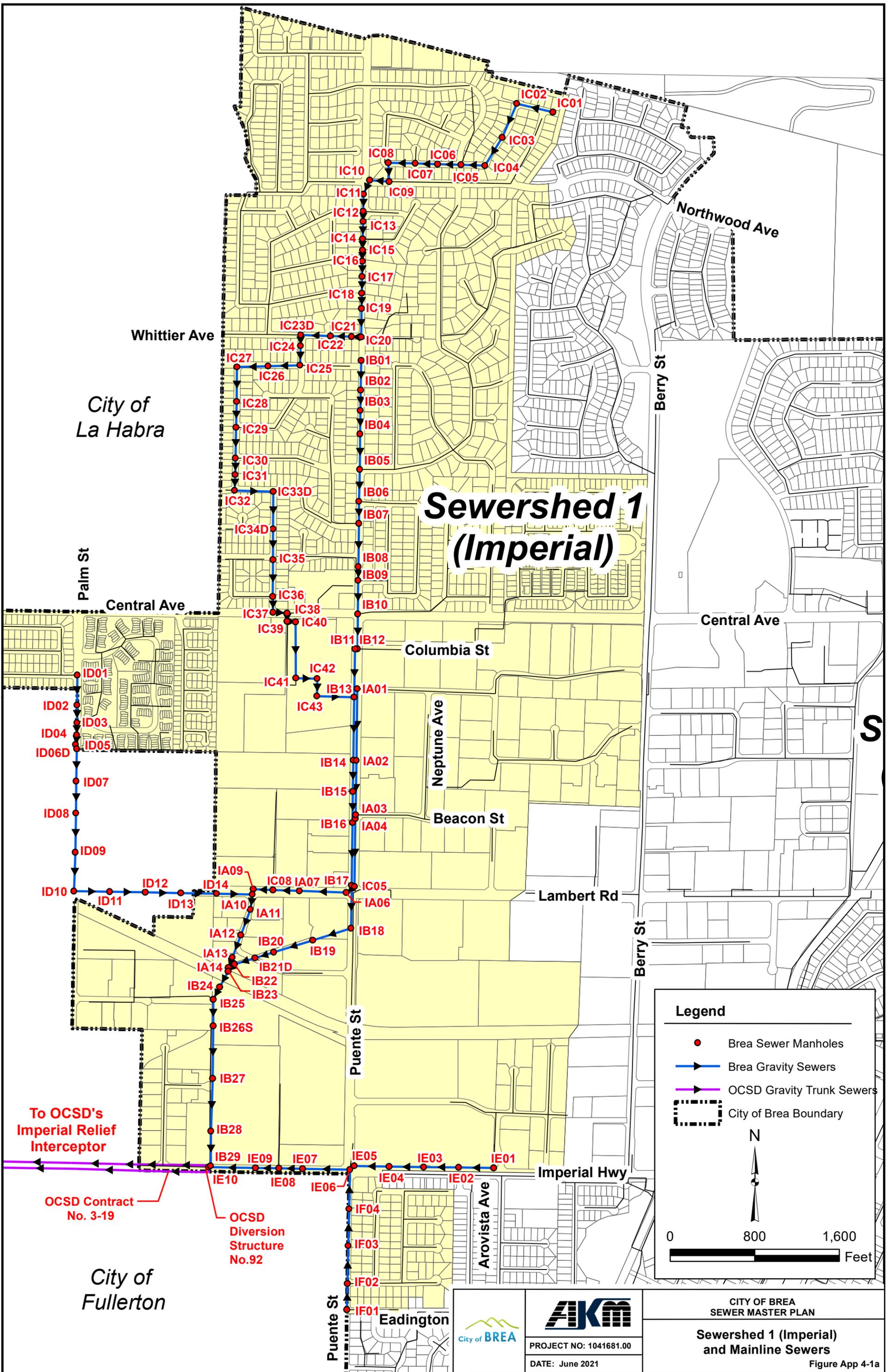
Daily Tabular Report

Date	Depth (in)					Velocity (ft/s)					Quantity (MGD - Total MG)					Rain (in)	
	Time	Min	Time	Max	Avg	Time	Min	Time	Max	Avg	Time	Min	Time	Max	Avg		Total
07/23/2020	05:10	1.57	13:00	2.27	1.96	05:15	2.13	14:45	5.05	3.98	05:15	0.085	14:45	0.334	0.222	0.222	
07/24/2020	02:10	1.60	10:50	2.17	1.96	03:40	2.15	19:50	4.96	3.99	05:10	0.097	19:50	0.311	0.223	0.223	
07/25/2020	02:20	1.60	11:50	2.23	1.94	04:50	2.17	11:50	5.06	3.98	03:20	0.092	11:50	0.333	0.220	0.220	
07/26/2020	05:35	1.50	10:55	2.20	1.92	06:00	2.11	20:20	5.15	3.96	06:00	0.079	20:30	0.330	0.217	0.217	
07/27/2020	03:35	1.50	21:10	2.22	1.92	04:20	1.90	15:35	4.99	3.95	04:15	0.075	21:05	0.322	0.215	0.215	
07/28/2020	05:10	1.55	18:35	2.17	1.92	06:05	2.02	18:35	5.00	3.86	05:15	0.079	18:35	0.315	0.210	0.210	
07/29/2020	02:00	1.60	08:10	2.28	1.98	03:20	2.14	17:25	5.08	4.02	03:20	0.092	17:25	0.328	0.228	0.228	
07/30/2020	05:15	1.53	19:10	2.16	1.93	04:25	2.09	18:55	4.88	3.93	05:10	0.083	19:15	0.302	0.214	0.214	
07/31/2020	05:10	1.53	18:15	2.16	1.93	04:20	2.01	17:45	5.04	4.00	04:20	0.082	18:20	0.308	0.219	0.219	
08/01/2020	02:00	1.63	14:40	2.17	1.93	03:30	2.09	12:05	5.00	3.97	03:40	0.094	12:05	0.309	0.217	0.217	
08/02/2020	06:25	1.53	21:35	2.14	1.91	04:35	2.08	21:30	5.14	4.05	06:25	0.080	21:30	0.317	0.220	0.220	
08/03/2020	02:50	1.55	14:10	2.19	1.90	03:20	2.01	14:05	5.11	4.10	03:20	0.090	14:10	0.324	0.219	0.219	
08/04/2020	02:40	1.50	12:45	2.16	1.89	05:55	2.12	12:35	5.21	4.18	02:40	0.093	12:45	0.314	0.222	0.222	
08/05/2020	02:40	1.51	21:55	2.11	1.88	03:20	2.02	13:50	5.01	4.09	03:20	0.084	19:30	0.296	0.215	0.215	

Report Summary For The Period 07/23/2020 00:00 - 08/05/2020 23:59

	Depth (in)	Velocity (ft/s)	Quantity (MGD - Total MG)
Total			3.062
Avg	1.93	4.00	0.219

## **4-1 Sewershed Maps**



**Legend**

- Brea Sewer Manholes
- Brea Gravity Sewers
- OCSD Gravity Trunk Sewers
- ⋯ City of Brea Boundary

N

0 800 1,600 Feet

**AKM**

PROJECT NO: 1041681.00

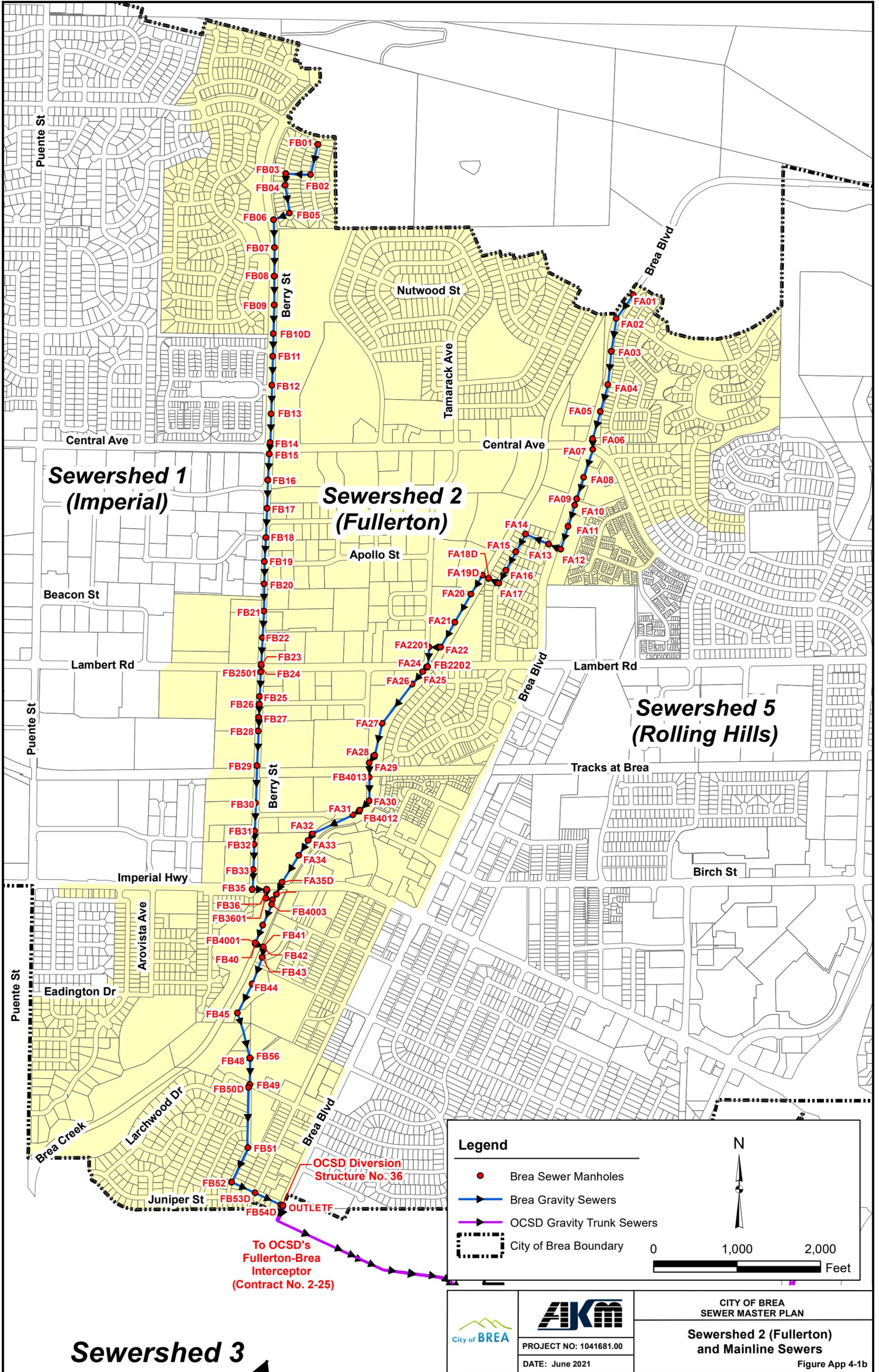
DATE: June 2021

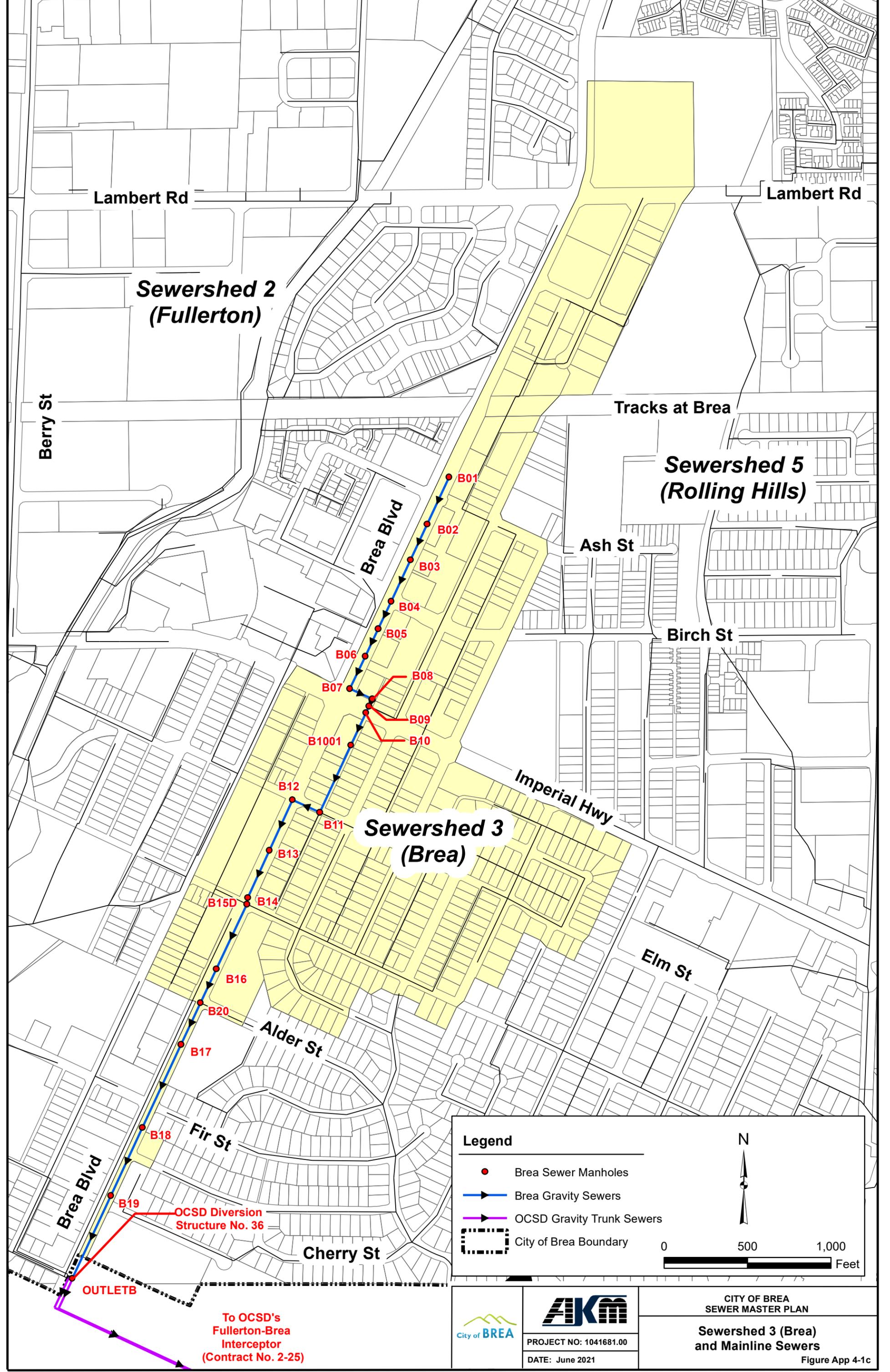
CITY OF BRE  
SEWER MASTER PLAN

**Sewershed 1 (Imperial)  
and Mainline Sewers**

Figure App 4-1a







Lambert Rd

Lambert Rd

**Sewershed 2  
(Fullerton)**

Berry St

Tracks at Brea

**Sewershed 5  
(Rolling Hills)**

Brea Blvd

Ash St

Birch St

Imperial Hwy

**Sewershed 3  
(Brea)**

Elm St

Alder St

Fir St

Cherry St

**Legend**

- Brea Sewer Manholes
- ▶ Brea Gravity Sewers
- ▶ OCSD Gravity Trunk Sewers
- City of Brea Boundary



**OUTLETB**

To OCSD's  
Fullerton-Brea  
Interceptor  
(Contract No. 2-25)

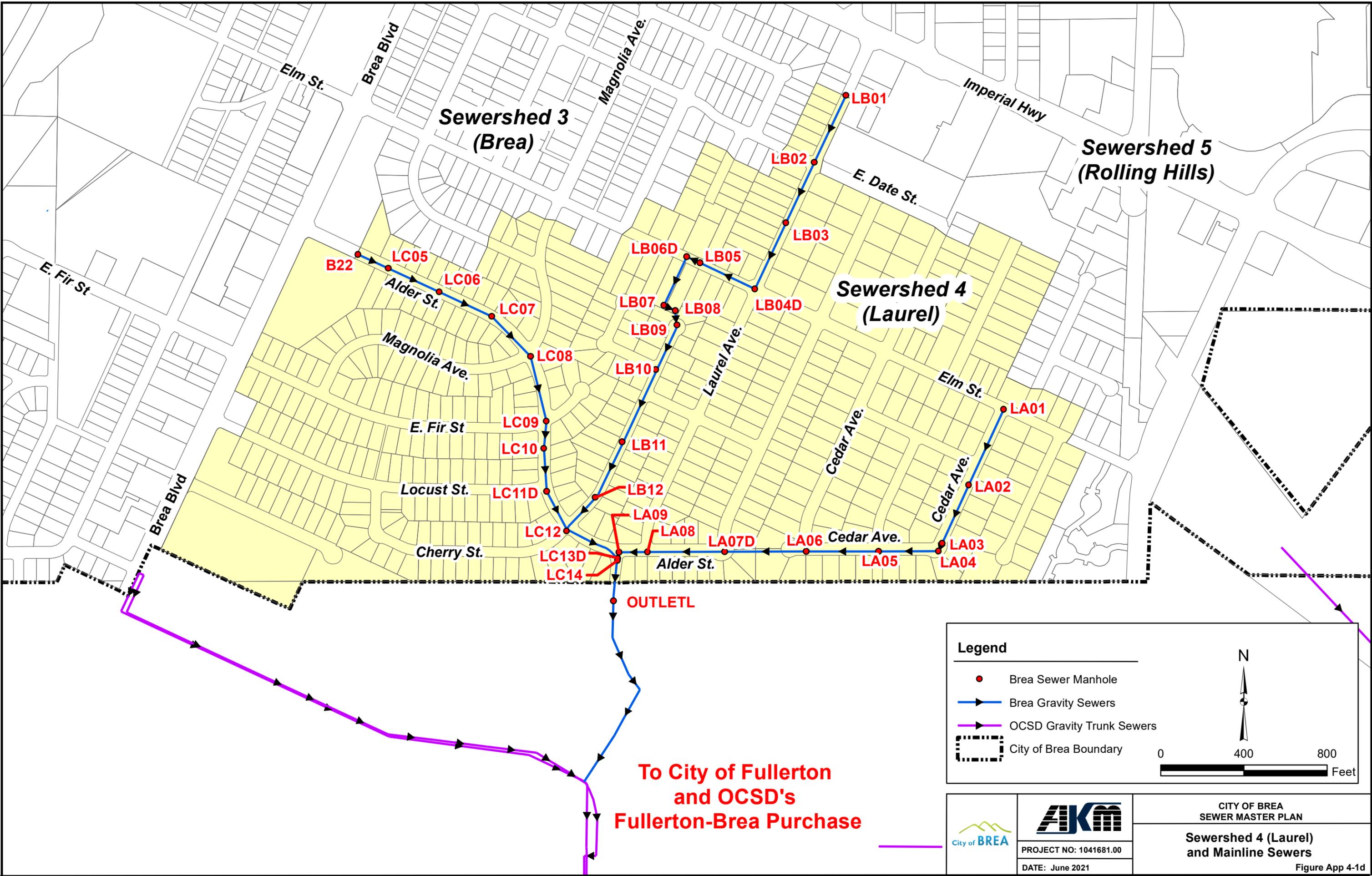


PROJECT NO: 1041681.00  
DATE: June 2021

CITY OF BREA  
SEWER MASTER PLAN

**Sewershed 3 (Brea)  
and Mainline Sewers**

Figure App 4-1c



**Sewershed 3  
(Brea)**

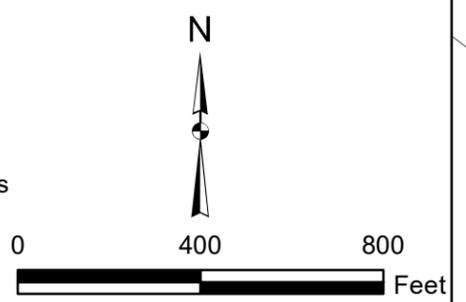
**Sewershed 5  
(Rolling Hills)**

**Sewershed 4  
(Laurel)**

**To City of Fullerton  
and OCSD's  
Fullerton-Brea Purchase**

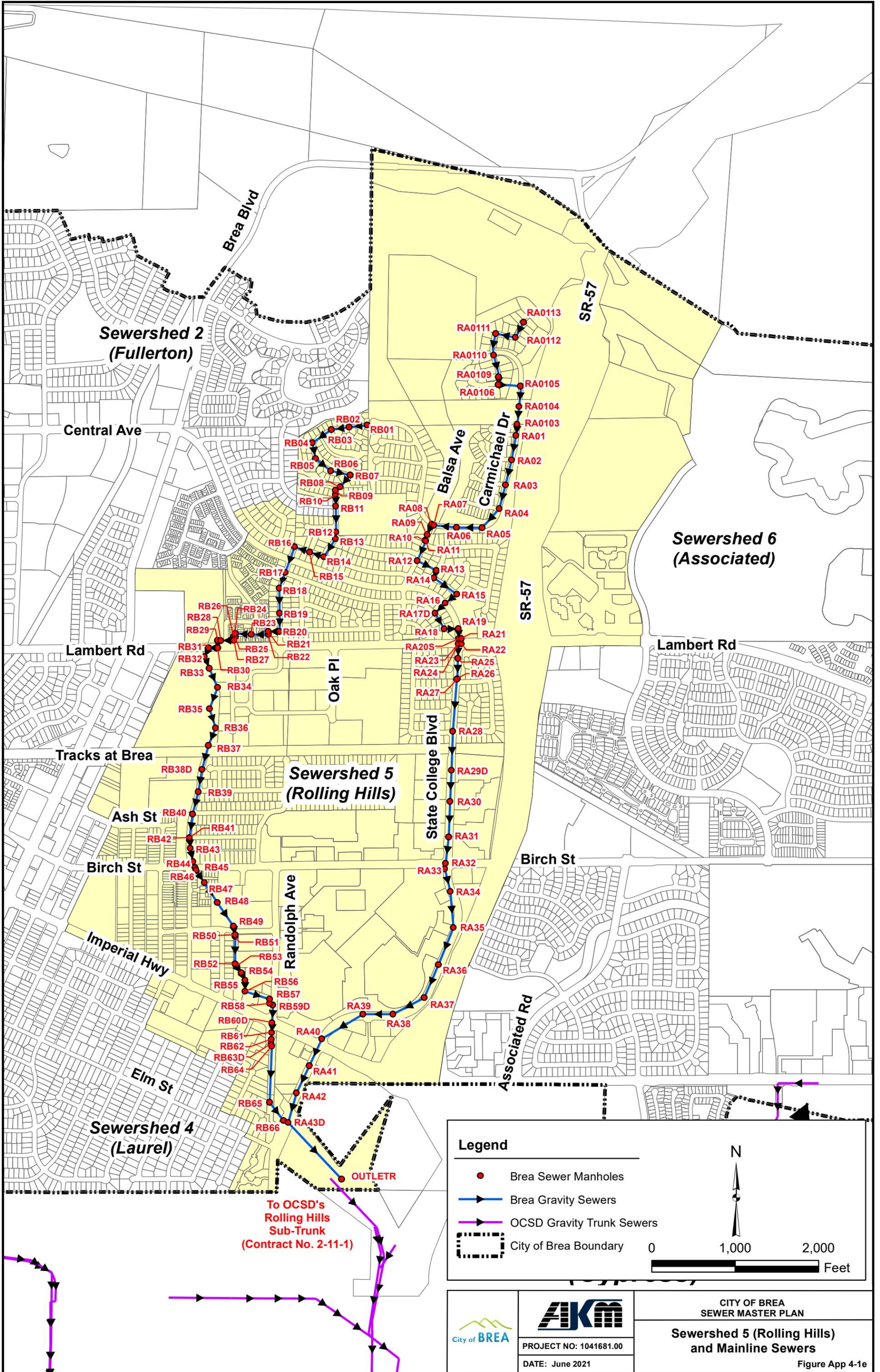
**Legend**

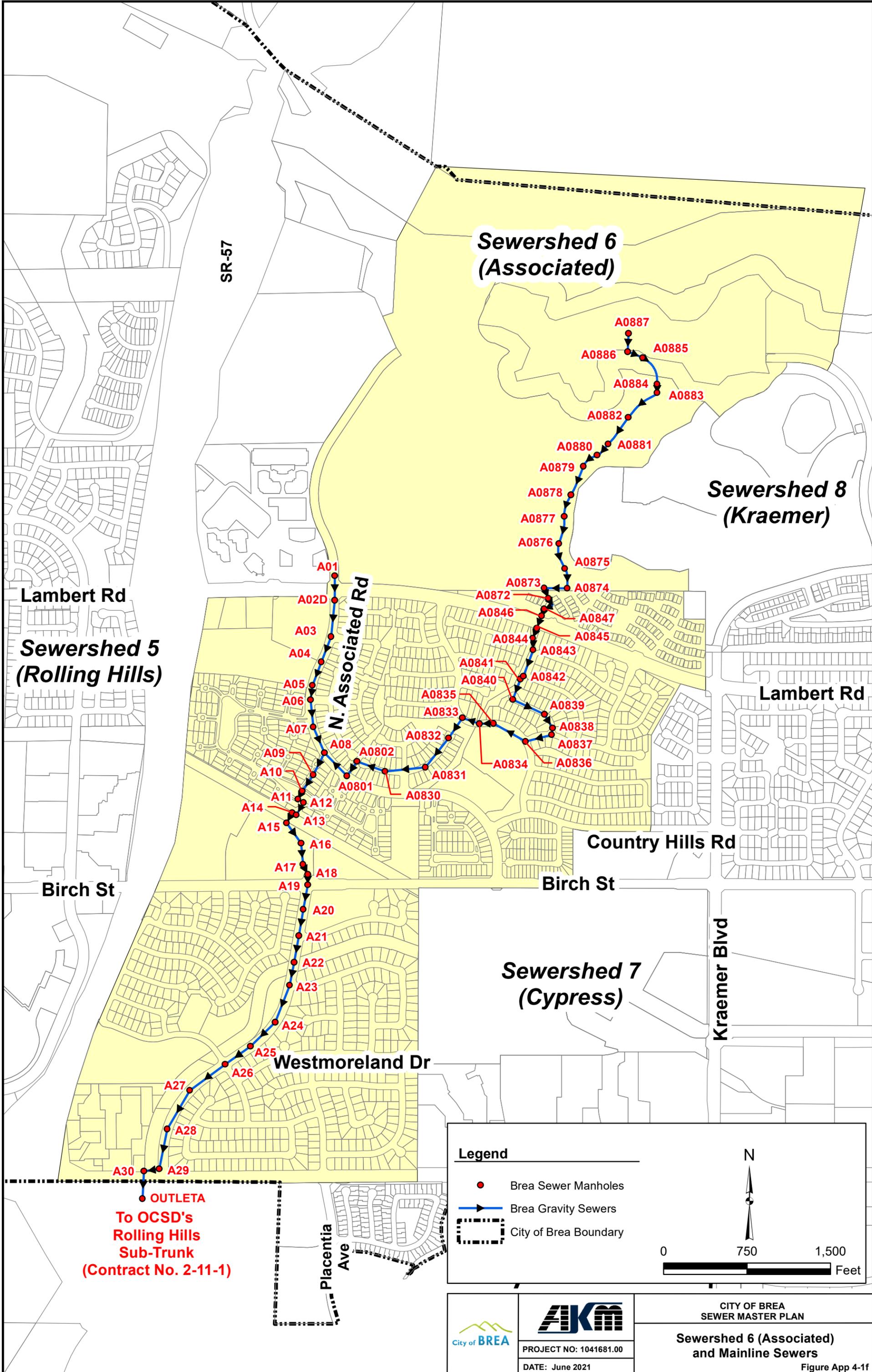
- Brea Sewer Manhole
- ▶ Brea Gravity Sewers
- ▶ OCSD Gravity Trunk Sewers
- ⋯ City of Brea Boundary



**AKM**  
PROJECT NO: 1041681.00  
DATE: June 2021

CITY OF BREA  
SEWER MASTER PLAN  
**Sewershed 4 (Laurel)  
and Mainline Sewers**  
Figure App 4-1d





**Sewershed 6  
(Associated)**

**Sewershed 8  
(Kraemer)**

**Lambert Rd  
Sewershed 5  
(Rolling Hills)**

**Lambert Rd**

**Country Hills Rd**

**Birch St**

**Sewershed 7  
(Cypress)**

**Kraemer Blvd**

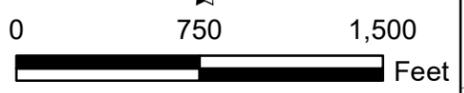
**Westmoreland Dr**

**OUTLETA  
To OCSD's  
Rolling Hills  
Sub-Trunk  
(Contract No. 2-11-1)**

**Legend**

- Brea Sewer Manholes
- ➔ Brea Gravity Sewers
- ⬜ City of Brea Boundary

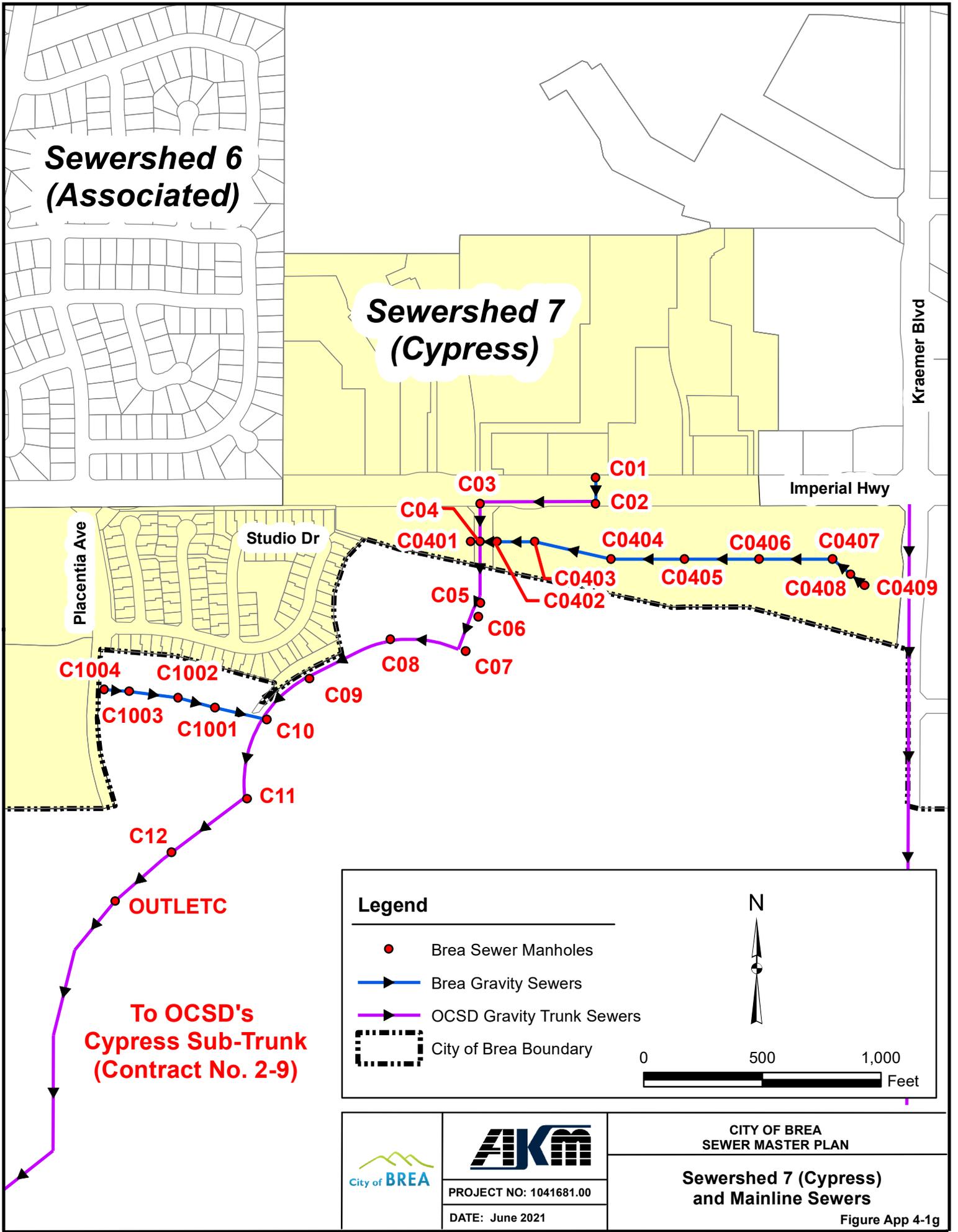
**N**



		<b>CITY OF BREA SEWER MASTER PLAN</b>
	PROJECT NO: 1041681.00 DATE: June 2021	<b>Sewershed 6 (Associated) and Mainline Sewers</b> Figure App 4-1f

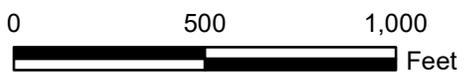
**Sewershed 6  
(Associated)**

**Sewershed 7  
(Cypress)**



**Legend**

- Brea Sewer Manholes
- ▶ Brea Gravity Sewers
- ▶ OCSD Gravity Trunk Sewers
- City of Brea Boundary



PROJECT NO: 1041681.00  
DATE: June 2021

CITY OF BREA  
SEWER MASTER PLAN

**Sewershed 7 (Cypress)  
and Mainline Sewers**

Figure App 4-1g

**Sewershed 6  
(Associated)**

**Sewershed 8  
(Kraemer)**

**Sewershed 7  
(Cypress)**

To OCSD's  
Kraemer Blvd.  
Interceptor  
(Contract 2-16-1)

**Legend**

- Brea Sewer Manholes
- ➔ Brea Gravity Sewers
- ➔ OCSD Gravity Trunk Sewers
- ▭ City of Brea Boundary

N



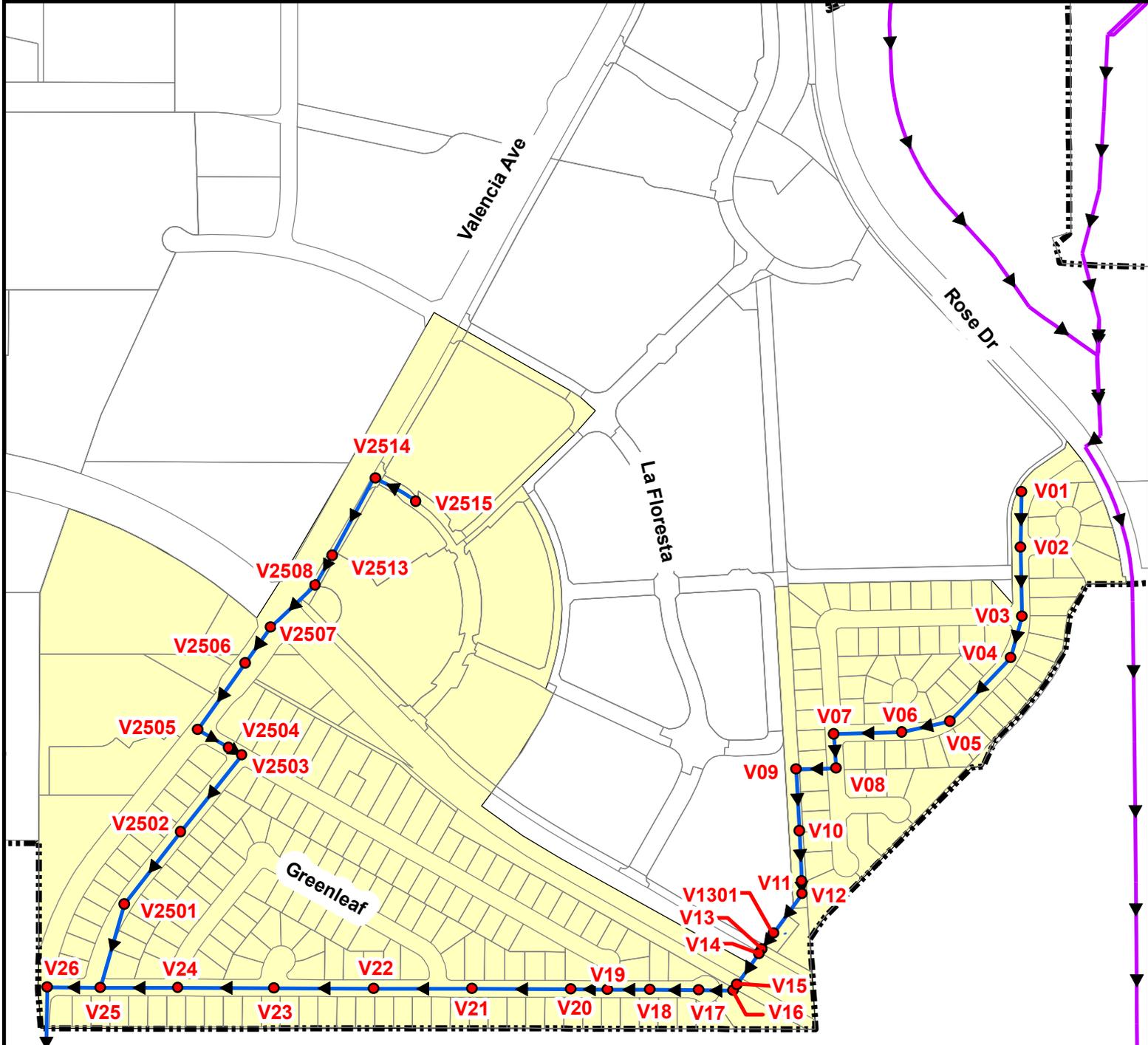
0 750 1,500  
Feet

   
PROJECT NO: 1041681.00  
DATE: June 2021

CITY OF BREA  
SEWER MASTER PLAN

**Sewershed 8 (Kraemer)  
and Mainline Sewers**

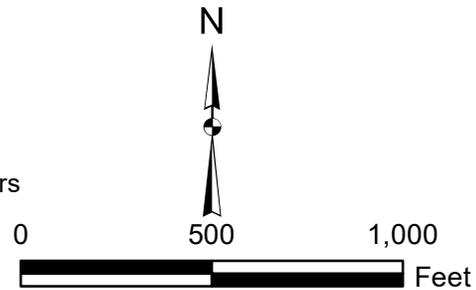
Figure App 4-1h



# Sewershed 9 (Valencia)

## Legend

- Brea Sewer Manholes
- ▶ Brea Gravity Sewers
- ▶ OCS D Gravity Trunk Sewers
- City of Brea Boundary



PROJECT NO: 1041681.00

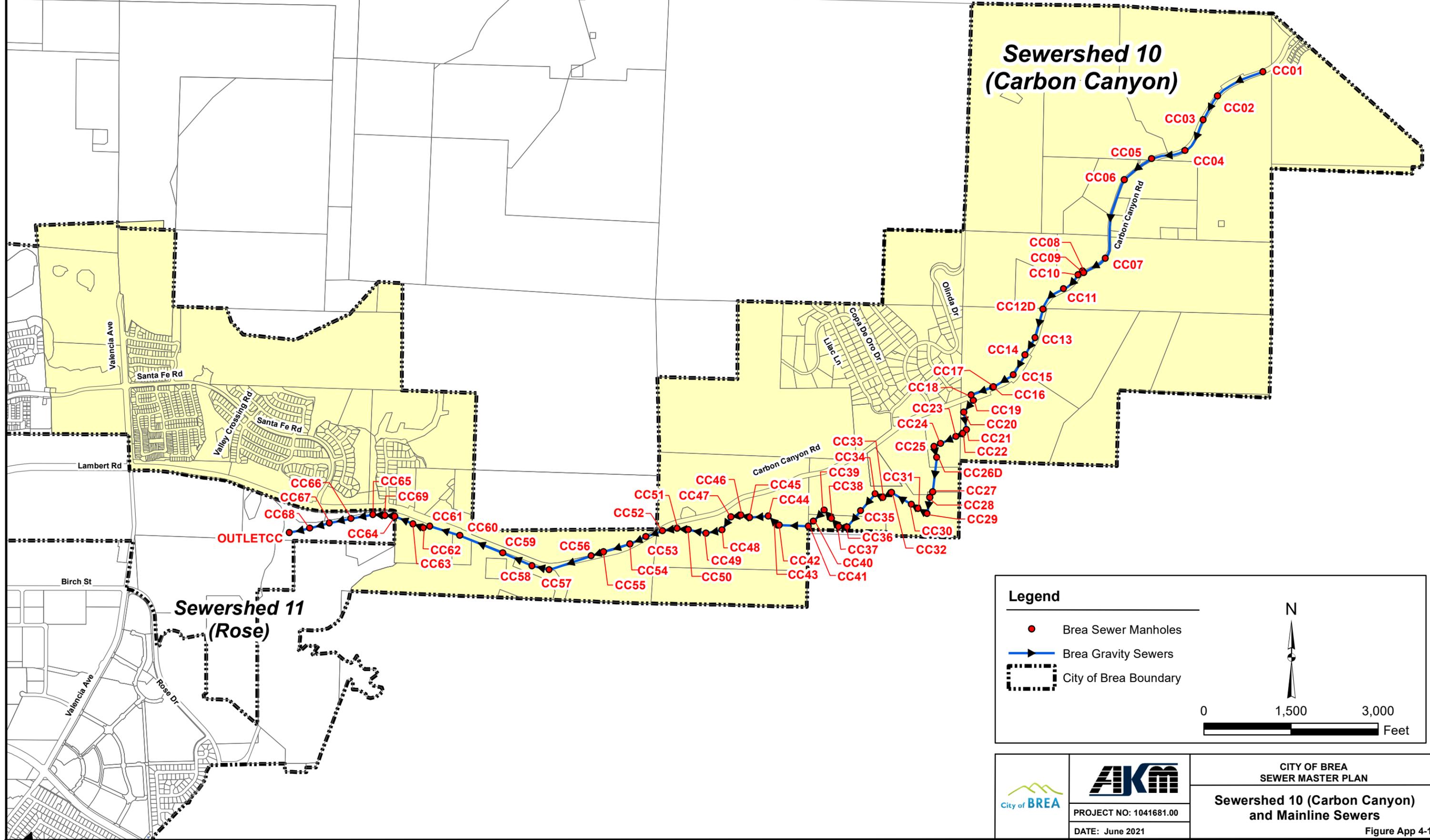
DATE: June 2021

CITY OF BREA  
SEWER MASTER PLAN

**Sewershed 9 (Valencia)  
and Mainline Sewers**

Figure App 4-1i

### Sewershed 10 (Carbon Canyon)



**Legend**

- Brea Sewer Manholes
- ➔ Brea Gravity Sewers
- ⋯ City of Brea Boundary

0 1,500 3,000 Feet

N

		CITY OF BREA SEWER MASTER PLAN	
		<b>Sewershed 10 (Carbon Canyon) and Mainline Sewers</b>	
PROJECT NO: 1041681.00		DATE: June 2021	
		Figure App 4-1j	

## **7-1 Infosewer Model Results**

City of Brea - Sewer Master Plan (November 2021)

Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
A01-A02D	A01	A02D	12	220	0.0193	0.010623	0.000000	0.003830	1.45	0.04	0.04	0.010623	0.000000	0.003830	1.45	0.04	0.04	0.010623	0.000000	0.003830	1.45	0.04	0.04
A02D-A03	A02D	A03	12	319	0.0463	0.012356	0.000000	0.004514	2.06	0.04	0.04	0.012356	0.000000	0.004514	2.06	0.04	0.04	0.012356	0.000000	0.004514	2.06	0.04	0.04
A03-A04	A03	A04	12	256	0.0510	0.012356	0.000000	0.004514	2.13	0.04	0.04	0.012356	0.000000	0.004514	2.13	0.04	0.04	0.012356	0.000000	0.004514	2.13	0.04	0.04
A04-A05	A04	A05	12	225	0.0509	0.014089	0.000000	0.005206	2.21	0.04	0.04	0.014089	0.000000	0.005206	2.21	0.04	0.04	0.014089	0.000000	0.005206	2.21	0.04	0.04
A05-A06	A05	A06	12	124	0.0542	0.014089	0.000000	0.005206	2.26	0.04	0.04	0.014089	0.000000	0.005206	2.26	0.04	0.04	0.014089	0.000000	0.005206	2.26	0.04	0.04
A06-A07	A06	A07	12	250	0.0358	0.015354	0.000000	0.005716	2.01	0.04	0.04	0.015354	0.000000	0.005716	2.01	0.04	0.04	0.015354	0.000000	0.005716	2.01	0.04	0.04
A07-A08	A07	A08	12	250	0.0198	0.016642	0.000000	0.006239	1.68	0.05	0.05	0.016642	0.000000	0.006239	1.68	0.05	0.05	0.016642	0.000000	0.006239	1.68	0.05	0.05
A08-A09	A08	A09	10	223	0.0307	0.328729	0.000000	0.159744	4.89	0.20	0.25	0.328729	0.000000	0.159744	4.89	0.20	0.25	0.328729	0.000000	0.159744	4.89	0.20	0.25
A0801-A08	A0801	A08	8	288	0.0268	0.315397	0.000000	0.152715	4.70	0.23	0.34	0.315397	0.000000	0.152715	4.70	0.23	0.34	0.315397	0.000000	0.152715	4.70	0.23	0.34
A0802-A0801	A0802	A0801	8	180	0.0193	0.314297	0.000000	0.152136	4.17	0.25	0.37	0.314297	0.000000	0.152136	4.17	0.25	0.37	0.314297	0.000000	0.152136	4.17	0.25	0.37
A0803-A0802	A0803	A0802	8	306	0.0197	0.040324	0.000000	0.016327	2.32	0.09	0.13	0.040324	0.000000	0.016327	2.32	0.09	0.13	0.040324	0.000000	0.016327	2.32	0.09	0.13
A0804-A0803	A0804	A0803	8	300	0.0117	0.038263	0.000000	0.015422	1.90	0.10	0.14	0.038263	0.000000	0.015422	1.90	0.10	0.14	0.038263	0.000000	0.015422	1.90	0.10	0.14
A0805-A0804	A0805	A0804	8	311	0.0378	0.034692	0.000000	0.013864	2.78	0.07	0.10	0.034692	0.000000	0.013864	2.78	0.07	0.10	0.034692	0.000000	0.013864	2.78	0.07	0.10
A0806-A0805	A0806	A0805	8	44	0.0311	0.032054	0.000000	0.012722	2.54	0.07	0.11	0.032054	0.000000	0.012722	2.54	0.07	0.11	0.032054	0.000000	0.012722	2.54	0.07	0.11
A0807-A0806	A0807	A0806	8	204	0.0646	0.032054	0.000000	0.012722	3.27	0.06	0.09	0.032054	0.000000	0.012722	3.27	0.06	0.09	0.032054	0.000000	0.012722	3.27	0.06	0.09
A0808-A0807	A0808	A0807	8	277	0.0564	0.014554	0.000000	0.005393	2.46	0.04	0.06	0.014554	0.000000	0.005393	2.46	0.04	0.06	0.014554	0.000000	0.005393	2.46	0.04	0.06
A0809-A0808	A0809	A0808	8	342	0.0306	0.012769	0.000000	0.004678	1.91	0.05	0.07	0.012769	0.000000	0.004678	1.91	0.05	0.07	0.012769	0.000000	0.004678	1.91	0.05	0.07
A0810AS-A0809	A0810AS	A0809	8	284	0.0310	0.004098	0.000000	0.001360	1.36	0.03	0.04	0.004098	0.000000	0.001360	1.36	0.03	0.04	0.004098	0.000000	0.001360	1.36	0.03	0.04
A0810BS-A0814	A0810BS	A0814	8	281	0.0428	0.002926	0.000000	0.000943	1.37	0.02	0.03	0.002926	0.000000	0.000943	1.37	0.02	0.03	0.002926	0.000000	0.000943	1.37	0.02	0.03
A0811-A0807	A0811	A0807	8	246	0.0237	0.014009	0.000000	0.005174	1.80	0.05	0.08	0.014009	0.000000	0.005174	1.80	0.05	0.08	0.014009	0.000000	0.005174	1.80	0.05	0.08
A0812-A0811	A0812	A0811	8	130	0.0434	0.011393	0.000000	0.004133	2.08	0.04	0.06	0.011393	0.000000	0.004133	2.08	0.04	0.06	0.011393	0.000000	0.004133	2.08	0.04	0.06
A0813-A0812	A0813	A0812	8	55	0.1189	0.009451	0.000000	0.003373	2.79	0.03	0.04	0.009451	0.000000	0.003373	2.79	0.03	0.04	0.009451	0.000000	0.003373	2.79	0.03	0.04
A0814-A0813	A0814	A0813	8	291	0.0166	0.008848	0.000000	0.003140	1.38	0.04	0.07	0.008848	0.000000	0.003140	1.38	0.04	0.07	0.008848	0.000000	0.003140	1.38	0.04	0.07
A0815-A0814	A0815	A0814	8	100	0.0300	0.002253	0.000000	0.000710	1.12	0.02	0.03	0.002253	0.000000	0.000710	1.12	0.02	0.03	0.002253	0.000000	0.000710	1.12	0.02	0.03
A0816-A0802	A0816	A0802	8	262	0.0327	0.041424	0.000000	0.016812	2.79	0.08	0.12	0.041424	0.000000	0.016812	2.79	0.08	0.12	0.041424	0.000000	0.016812	2.79	0.08	0.12
A0817-A0816	A0817	A0816	8	189	0.0106	0.017809	0.000000	0.006716	1.46	0.07	0.10	0.017809	0.000000	0.006716	1.46	0.07	0.10	0.017809	0.000000	0.006716	1.46	0.07	0.10
A0818-A0817	A0818	A0817	8	353	0.0332	0.016602	0.000000	0.006223	2.13	0.05	0.08	0.016602	0.000000	0.006223	2.13	0.05	0.08	0.016602	0.000000	0.006223	2.13	0.05	0.08
A0819-A0818	A0819	A0818	8	42	0.1460	0.003875	0.000000	0.001280	2.28	0.02	0.03	0.003875	0.000000	0.001280	2.28	0.02	0.03	0.003875	0.000000	0.001280	2.28	0.02	0.03
A0820-A0819	A0820	A0819	8	231	0.0550	0.003875	0.000000	0.001280	1.63	0.02	0.03	0.003875	0.000000	0.001280	1.63	0.02	0.03	0.003875	0.000000	0.001280	1.63	0.02	0.03
A0821-A0816	A0821	A0816	8	145	0.0248	0.018449	0.000000	0.006979	1.98	0.06	0.09	0.018449	0.000000	0.006979	1.98	0.06	0.09	0.018449	0.000000	0.006979	1.98	0.06	0.09
A0822-A0821	A0822	A0821	8	205	0.0312	0.017589	0.000000	0.006626	2.12	0.05	0.08	0.017589	0.000000	0.006626	2.12	0.05	0.08	0.017589	0.000000	0.006626	2.12	0.05	0.08
A0823-A0822	A0823	A0822	8	269	0.0773	0.009146	0.000000	0.003255	2.38	0.03	0.05	0.009146	0.000000	0.003255	2.38	0.03	0.05	0.009146	0.000000	0.003255	2.38	0.03	0.05
A0824-A0823	A0824	A0823	8	236	0.0223	0.008454	0.000000	0.002988	1.51	0.04	0.06	0.008454	0.000000	0.002988	1.51	0.04	0.06	0.008454	0.000000	0.002988	1.51	0.04	0.06
A0825-A0824	A0825	A0824	8	350	0.0100	0.005219	0.000000	0.001769	0.99	0.04	0.06	0.005219	0.000000	0.001769	0.99	0.04	0.06	0.005219	0.000000	0.001769	0.99	0.04	0.06
A0826-A0822	A0826	A0822	8	276	0.0401	0.009027	0.000000	0.003209	1.89	0.04	0.05	0.009027	0.000000	0.003209	1.89	0.04	0.05	0.009027	0.000000	0.003209	1.89	0.04	0.05
A0827-A0826	A0827	A0826	8	345	0.0103	0.006461	0.000000	0.002231	1.06	0.04	0.06	0.006461	0.000000	0.002231	1.06	0.04	0.06	0.006461	0.000000	0.002231	1.06	0.04	0.06
A0828-A0816	A0828	A0816	8	244	0.0333	0.007372	0.000000	0.002575	1.66	0.03	0.05	0.007372	0.000000	0.002575	1.66	0.03	0.05	0.007372	0.000000	0.002575	1.66	0.03	0.05
A0829-A0828	A0829	A0828	8	170	0.0353	0.004493	0.000000	0.001503	1.46	0.03	0.04	0.004493	0.000000	0.001503	1.46	0.03	0.04	0.004493	0.000000	0.001503	1.46	0.03	0.04
A0830-A0802	A0830	A0802	8	268	0.0300	0.249968	0.000000	0.118612	4.58	0.19	0.29	0.249968	0.000000	0.118612	4.58	0.19	0.29	0.249968	0.000000	0.118612	4.58	0.19	0.29
A0831-A0830	A0831	A0830	8	350	0.0189	0.246744	0.000000	0.116950	3.87	0.22	0.33	0.246744	0.000000	0.116950	3.87	0.22	0.33	0.246744	0.000000	0.116950	3.87	0.22	0.33
A0832-A0831	A0832	A0831	8	350	0.0227	0.243235	0.000000	0.115143	4.12	0.21	0.31	0.243235	0.000000	0.115143	4.12	0.21	0.31	0.243235	0.000000	0.115143	4.12	0.21	0.31
A0833-A0832	A0833	A0832	8	223	0.0068	0.238298	0.000000	0.112605	2.64	0.28	0.42	0.238298	0.000000	0.112605	2.64	0.28	0.42	0.238298	0.000000	0.112605	2.64	0.28	0.42
A0834-A0833	A0834	A0833	8	165	0.0072	0.215283	0.000000	0.100835	2.62	0.26	0.39	0.215283	0.000000	0.100835	2.62	0.26	0.39	0.215283	0.000000	0.100835	2.62	0.26	0.39
A0835-A0834	A0835	A0834	8	127	0.0909	0.214951	0.000000	0.100666	6.51	0.14	0.20	0.214951	0.000000	0.100666	6.51	0.14	0.20	0.214951	0.000000	0.100666	6.51	0.14	0.20
A0836S-A0835	A0836S	A0835	8	333	0.0236	0.214605	0.000000	0.100490	4.03	0.19	0.29	0.214605	0.000000	0.100490	4.03	0.19	0.29	0.214605	0.000000	0.100490	4.03	0.19	0.29
A0837-A0836S	A0837	A0836S	8	249	0.0212	0.212160	0.000000	0.099246	3.86	0.19	0.29	0.212160	0.000000	0.099246	3.86	0.19	0.29	0.212160	0.000000	0.099246	3.86	0.19	0.29

City of Brea - Sewer Master Plan (November 2021)

Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
A0838-A0837	A0838	A0837	8	44	0.0048	0.177654	0.000000	0.081832	2.15	0.26	0.39	0.177654	0.000000	0.081832	2.15	0.26	0.39	0.177654	0.000000	0.081832	2.15	0.26	0.39
A0839-A0838	A0839	A0838	8	150	0.0047	0.177654	0.000000	0.081832	2.13	0.26	0.40	0.177654	0.000000	0.081832	2.13	0.26	0.40	0.177654	0.000000	0.081832	2.13	0.26	0.40
A0840-A0839	A0840	A0839	8	338	0.0043	0.175196	0.000000	0.080602	2.07	0.27	0.40	0.175196	0.000000	0.080602	2.07	0.27	0.40	0.175196	0.000000	0.080602	2.07	0.27	0.40
A0841-A0840	A0841	A0840	8	165	0.0052	0.172417	0.000000	0.079213	2.20	0.25	0.38	0.172417	0.000000	0.079213	2.20	0.25	0.38	0.172417	0.000000	0.079213	2.20	0.25	0.38
A0842-A0841	A0842	A0841	8	36	0.0094	0.171103	0.000000	0.078557	2.72	0.21	0.32	0.171103	0.000000	0.078557	2.72	0.21	0.32	0.171103	0.000000	0.078557	2.72	0.21	0.32
A0843-A0842	A0843	A0842	8	243	0.0316	0.163974	0.000000	0.075006	4.14	0.15	0.23	0.163974	0.000000	0.075006	4.14	0.15	0.23	0.163974	0.000000	0.075006	4.14	0.15	0.23
A0844-A0843	A0844	A0843	8	115	0.0246	0.152601	0.000000	0.069369	3.71	0.16	0.24	0.152601	0.000000	0.069369	3.71	0.16	0.24	0.152601	0.000000	0.069369	3.71	0.16	0.24
A0845-A0844	A0845	A0844	8	70	0.3243	0.152601	0.000000	0.069369	9.20	0.08	0.13	0.152601	0.000000	0.069369	9.20	0.08	0.13	0.152601	0.000000	0.069369	9.20	0.08	0.13
A0846-A0845	A0846	A0845	8	120	0.0152	0.152601	0.000000	0.069369	3.12	0.18	0.27	0.152601	0.000000	0.069369	3.12	0.18	0.27	0.152601	0.000000	0.069369	3.12	0.18	0.27
A084601-A0846	A084601	A0846	6	168	0.0506	0.047631	0.000000	0.019567	3.51	0.08	0.16	0.047631	0.000000	0.019567	3.51	0.08	0.16	0.047631	0.000000	0.019567	3.51	0.08	0.16
A084602-A084601	A084602	A084601	6	12	0.3824	0.047631	0.000000	0.019567	7.14	0.05	0.10	0.047631	0.000000	0.019567	7.14	0.05	0.10	0.047631	0.000000	0.019567	7.14	0.05	0.10
A084603-A084602	A084603	A084602	6	72	0.0082	0.047631	0.000000	0.019567	1.85	0.13	0.26	0.047631	0.000000	0.019567	1.85	0.13	0.26	0.047631	0.000000	0.019567	1.85	0.13	0.26
A084604-A084603	A084604	A084603	6	95	0.0040	0.046191	0.000000	0.018925	1.41	0.15	0.30	0.046191	0.000000	0.018925	1.41	0.15	0.30	0.046191	0.000000	0.018925	1.41	0.15	0.30
A084605-A084604	A084605	A084604	6	88	0.0040	0.022601	0.000000	0.008702	1.15	0.11	0.21	0.022601	0.000000	0.008702	1.15	0.11	0.21	0.022601	0.000000	0.008702	1.15	0.11	0.21
A084606-A084605	A084606	A084605	6	232	0.0040	0.021929	0.000000	0.008421	1.14	0.10	0.21	0.021929	0.000000	0.008421	1.14	0.10	0.21	0.021929	0.000000	0.008421	1.14	0.10	0.21
A084607-A084606	A084607	A084606	6	261	0.0040	0.020408	0.000000	0.007788	1.12	0.10	0.20	0.020408	0.000000	0.007788	1.12	0.10	0.20	0.020408	0.000000	0.007788	1.12	0.10	0.20
A084608-A084607	A084608	A084607	6	134	0.0040	0.012721	0.000000	0.004659	0.97	0.08	0.16	0.012721	0.000000	0.004659	0.97	0.08	0.16	0.012721	0.000000	0.004659	0.97	0.08	0.16
A084609-A084608	A084609	A084608	6	100	0.0226	0.002662	0.000000	0.000851	1.11	0.03	0.05	0.002662	0.000000	0.000851	1.11	0.03	0.05	0.002662	0.000000	0.000851	1.11	0.03	0.05
A084610-A084609	A084610	A084609	6	100	0.0200	0.002662	0.000000	0.000851	1.06	0.03	0.05	0.002662	0.000000	0.000851	1.06	0.03	0.05	0.002662	0.000000	0.000851	1.06	0.03	0.05
A084611-A084610	A084611	A084610	6	100	0.0200	0.002028	0.000000	0.000633	0.98	0.02	0.05	0.002028	0.000000	0.000633	0.98	0.02	0.05	0.002028	0.000000	0.000633	0.98	0.02	0.05
A084612-A084611	A084612	A084611	6	100	0.0200	0.000808	0.000000	0.000233	0.74	0.01	0.03	0.000808	0.000000	0.000233	0.74	0.01	0.03	0.000808	0.000000	0.000233	0.74	0.01	0.03
A084613-A084612	A084613	A084612	6	50	0.0200	0.000476	0.000000	0.000131	0.63	0.01	0.02	0.000476	0.000000	0.000131	0.63	0.01	0.02	0.000476	0.000000	0.000131	0.63	0.01	0.02
A084614-A084603	A084614	A084603	6	61	0.0184	0.002054	0.000000	0.000642	0.96	0.02	0.05	0.002054	0.000000	0.000642	0.96	0.02	0.05	0.002054	0.000000	0.000642	0.96	0.02	0.05
A084615-A084614	A084615	A084614	6	75	0.0201	0.001575	0.000000	0.000481	0.91	0.02	0.04	0.001575	0.000000	0.000481	0.91	0.02	0.04	0.001575	0.000000	0.000481	0.91	0.02	0.04
A084616-A084615	A084616	A084615	6	75	0.0200	0.001135	0.000000	0.000337	0.82	0.02	0.03	0.001135	0.000000	0.000337	0.82	0.02	0.03	0.001135	0.000000	0.000337	0.82	0.02	0.03
A084617-A084604	A084617	A084604	6	39	0.0041	0.026212	0.000000	0.010223	1.21	0.11	0.23	0.026212	0.000000	0.010223	1.21	0.11	0.23	0.026212	0.000000	0.010223	1.21	0.11	0.23
A084618-A084617	A084618	A084617	6	46	0.1866	0.026212	0.000000	0.010223	4.64	0.04	0.09	0.026212	0.000000	0.010223	4.64	0.04	0.09	0.026212	0.000000	0.010223	4.64	0.04	0.09
A084619-A084618	A084619	A084618	6	94	0.0600	0.024973	0.000000	0.009699	3.08	0.06	0.12	0.024973	0.000000	0.009699	3.08	0.06	0.12	0.024973	0.000000	0.009699	3.08	0.06	0.12
A084620-A084619	A084620	A084619	6	54	0.1199	0.024973	0.000000	0.009699	3.92	0.05	0.10	0.024973	0.000000	0.009699	3.92	0.05	0.10	0.024973	0.000000	0.009699	3.92	0.05	0.10
A084621-A084620	A084621	A084620	6	119	0.1383	0.023713	0.000000	0.009168	4.05	0.05	0.09	0.023713	0.000000	0.009168	4.05	0.05	0.09	0.023713	0.000000	0.009168	4.05	0.05	0.09
A084622-A084621	A084622	A084621	6	76	0.0126	0.023713	0.000000	0.009168	1.75	0.08	0.16	0.023713	0.000000	0.009168	1.75	0.08	0.16	0.023713	0.000000	0.009168	1.75	0.08	0.16
A084623-A084622	A084623	A084622	6	53	0.0099	0.023286	0.000000	0.008989	1.60	0.09	0.17	0.023286	0.000000	0.008989	1.60	0.09	0.17	0.023286	0.000000	0.008989	1.60	0.09	0.17
A084624-A084623	A084624	A084623	6	82	0.0112	0.023286	0.000000	0.008989	1.67	0.08	0.17	0.023286	0.000000	0.008989	1.67	0.08	0.17	0.023286	0.000000	0.008989	1.67	0.08	0.17
A084625-A084624	A084625	A084624	6	80	0.0100	0.023003	0.000000	0.008870	1.60	0.09	0.17	0.023003	0.000000	0.008870	1.60	0.09	0.17	0.023003	0.000000	0.008870	1.60	0.09	0.17
A084626-A084625	A084626	A084625	6	77	0.0581	0.023003	0.000000	0.008870	2.97	0.06	0.11	0.023003	0.000000	0.008870	2.97	0.06	0.11	0.023003	0.000000	0.008870	2.97	0.06	0.11
A084627-A084626	A084627	A084626	6	33	0.0229	0.022757	0.000000	0.008767	2.14	0.07	0.14	0.022757	0.000000	0.008767	2.14	0.07	0.14	0.022757	0.000000	0.008767	2.14	0.07	0.14
A084628-A084620	A084628	A084620	6	81	0.0220	0.001725	0.000000	0.000531	0.96	0.02	0.04	0.001725	0.000000	0.000531	0.96	0.02	0.04	0.001725	0.000000	0.000531	0.96	0.02	0.04
A084629-A084628	A084629	A084628	6	68	0.0201	0.001412	0.000000	0.000427	0.88	0.02	0.04	0.001412	0.000000	0.000427	0.88	0.02	0.04	0.001412	0.000000	0.000427	0.88	0.02	0.04
A084630-A084629	A084630	A084629	6	100	0.0200	0.000770	0.000000	0.000221	0.73	0.01	0.03	0.000770	0.000000	0.000221	0.73	0.01	0.03	0.000770	0.000000	0.000221	0.73	0.01	0.03
A084631-A084630	A084631	A084630	6	72	0.0200	0.000412	0.000000	0.000112	0.60	0.01	0.02	0.000412	0.000000	0.000112	0.60	0.01	0.02	0.000412	0.000000	0.000112	0.60	0.01	0.02
A084632-A084619	A084632	A084619	6	120	0.0108	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
A084633-A084618	A084633	A084618	6	100	0.0351	0.001237	0.000000	0.000370	1.02	0.02	0.03	0.001237	0.000000	0.000370	1.02	0.02	0.03	0.001237	0.000000	0.000370	1.02	0.02	0.03
A084634-A084633	A084634	A084633	6	100	0.0200	0.000878	0.000000	0.000255	0.76	0.02	0.03	0.000878	0.000000	0.000255	0.76	0.02	0.03	0.000878	0.000000	0.000255	0.76	0.02	0.03
A084635-A084634	A084635	A084634	6	65	0.0200	0.000878	0.000000	0.000255	0.76	0.02	0.03	0.000878	0.000000	0.000255	0.76	0.02	0.03	0.000878	0.000000	0.000255	0.76	0.02	0.03
A084636-A084607	A084636	A084607	6	54	0.0200	0.001014	0.000000	0.000298	0.79	0.02	0.03	0.001014	0.000000	0.000298	0.79	0.02	0.03	0.001014					

City of Brea - Sewer Master Plan (November 2021)

Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
A084638-A084637	A084638	A084637	6	77	0.0387	0.000585	0.000000	0.000164	0.84	0.01	0.02	0.000585	0.000000	0.000164	0.84	0.01	0.02	0.000585	0.000000	0.000164	0.84	0.01	0.02
A084639-A084608	A084639	A084608	6	140	0.1004	0.010566	0.000000	0.003808	2.84	0.03	0.07	0.010566	0.000000	0.003808	2.84	0.03	0.07	0.010566	0.000000	0.003808	2.84	0.03	0.07
A084640-A084639	A084640	A084639	6	114	0.1200	0.006554	0.000000	0.002266	2.61	0.03	0.05	0.006554	0.000000	0.002266	2.61	0.03	0.05	0.006554	0.000000	0.002266	2.61	0.03	0.05
A084641-A084640	A084641	A084640	6	100	0.0200	0.002518	0.000000	0.000801	1.05	0.03	0.05	0.002518	0.000000	0.000801	1.05	0.03	0.05	0.002518	0.000000	0.000801	1.05	0.03	0.05
A084642-A084641	A084642	A084641	6	100	0.0100	0.001764	0.000000	0.000544	0.74	0.03	0.05	0.001764	0.000000	0.000544	0.74	0.03	0.05	0.001764	0.000000	0.000544	0.74	0.03	0.05
A084643-A084642	A084643	A084642	6	80	0.0100	0.000728	0.000000	0.000208	0.56	0.02	0.03	0.000728	0.000000	0.000208	0.56	0.02	0.03	0.000728	0.000000	0.000208	0.56	0.02	0.03
A084644-A084640	A084644	A084640	6	59	0.0595	0.002463	0.000000	0.000782	1.52	0.02	0.04	0.002463	0.000000	0.000782	1.52	0.02	0.04	0.002463	0.000000	0.000782	1.52	0.02	0.04
A084645-A084639	A084645	A084639	6	100	0.0200	0.002218	0.000000	0.000698	1.01	0.02	0.05	0.002218	0.000000	0.000698	1.01	0.02	0.05	0.002218	0.000000	0.000698	1.01	0.02	0.05
A084646-A084645	A084646	A084645	6	100	0.0200	0.002218	0.000000	0.000698	1.01	0.02	0.05	0.002218	0.000000	0.000698	1.01	0.02	0.05	0.002218	0.000000	0.000698	1.01	0.02	0.05
A084647-A084646	A084647	A084646	6	100	0.0100	0.001871	0.000000	0.000580	0.75	0.03	0.05	0.001871	0.000000	0.000580	0.75	0.03	0.05	0.001871	0.000000	0.000580	0.75	0.03	0.05
A084648-A084647	A084648	A084647	6	86	0.0101	0.001101	0.000000	0.000326	0.64	0.02	0.04	0.001101	0.000000	0.000326	0.64	0.02	0.04	0.001101	0.000000	0.000326	0.64	0.02	0.04
A084649-A084639	A084649	A084639	6	100	0.0501	0.002259	0.000000	0.000712	1.39	0.02	0.04	0.002259	0.000000	0.000712	1.39	0.02	0.04	0.002259	0.000000	0.000712	1.39	0.02	0.04
A084650-A084649	A084650	A084649	6	100	0.0200	0.001632	0.000000	0.000500	0.92	0.02	0.04	0.001632	0.000000	0.000500	0.92	0.02	0.04	0.001632	0.000000	0.000500	0.92	0.02	0.04
A084651-A084650	A084651	A084650	6	82	0.0199	0.000644	0.000000	0.000182	0.69	0.01	0.03	0.000644	0.000000	0.000182	0.69	0.01	0.03	0.000644	0.000000	0.000182	0.69	0.01	0.03
A084652-A084640	A084652	A084640	6	104	0.0996	0.002174	0.000000	0.000683	1.75	0.02	0.03	0.002174	0.000000	0.000683	1.75	0.02	0.03	0.002174	0.000000	0.000683	1.75	0.02	0.03
A084653-A084652	A084653	A084652	6	57	0.1273	0.001061	0.000000	0.000313	1.53	0.01	0.02	0.001061	0.000000	0.000313	1.53	0.01	0.02	0.001061	0.000000	0.000313	1.53	0.01	0.02
A084654-A084653	A084654	A084653	6	100	0.0100	0.000728	0.000000	0.000208	0.56	0.02	0.03	0.000728	0.000000	0.000208	0.56	0.02	0.03	0.000728	0.000000	0.000208	0.56	0.02	0.03
A084655-A084654	A084655	A084654	6	55	0.0100	0.000728	0.000000	0.000208	0.56	0.02	0.03	0.000728	0.000000	0.000208	0.56	0.02	0.03	0.000728	0.000000	0.000208	0.56	0.02	0.03
A084656-A084652	A084656	A084652	6	100	0.0100	0.001237	0.000000	0.000370	0.66	0.02	0.04	0.001237	0.000000	0.000370	0.66	0.02	0.04	0.001237	0.000000	0.000370	0.66	0.02	0.04
A084657-A084656	A084657	A084656	6	100	0.0100	0.001237	0.000000	0.000370	0.66	0.02	0.04	0.001237	0.000000	0.000370	0.66	0.02	0.04	0.001237	0.000000	0.000370	0.66	0.02	0.04
A084658-A084657	A084658	A084657	6	30	0.0100	0.000466	0.000000	0.000128	0.49	0.01	0.03	0.000466	0.000000	0.000128	0.49	0.01	0.03	0.000466	0.000000	0.000128	0.49	0.01	0.03
A084659-A084644	A084659	A084644	6	100	0.0100	0.002463	0.000000	0.000782	0.82	0.03	0.06	0.002463	0.000000	0.000782	0.82	0.03	0.06	0.002463	0.000000	0.000782	0.82	0.03	0.06
A084660-A084659	A084660	A084659	6	95	0.0100	0.001629	0.000000	0.000499	0.72	0.02	0.05	0.001629	0.000000	0.000499	0.72	0.02	0.05	0.001629	0.000000	0.000499	0.72	0.02	0.05
A084661-A084660	A084661	A084660	6	85	0.0100	0.000812	0.000000	0.000234	0.58	0.02	0.03	0.000812	0.000000	0.000234	0.58	0.02	0.03	0.000812	0.000000	0.000234	0.58	0.02	0.03
A084662-A084627	A084662	A084627	6	84	0.0199	0.022757	0.000000	0.008767	2.03	0.07	0.14	0.022757	0.000000	0.008767	2.03	0.07	0.14	0.022757	0.000000	0.008767	2.03	0.07	0.14
A084663-A084662	A084663	A084662	6	78	0.0747	0.022420	0.000000	0.008626	3.22	0.05	0.10	0.022420	0.000000	0.008626	3.22	0.05	0.10	0.022420	0.000000	0.008626	3.22	0.05	0.10
A084664-A084663	A084664	A084663	6	104	0.0612	0.021984	0.000000	0.008444	2.98	0.05	0.11	0.021984	0.000000	0.008444	2.98	0.05	0.11	0.021984	0.000000	0.008444	2.98	0.05	0.11
A084665-A084664	A084665	A084664	6	125	0.0092	0.021474	0.000000	0.008231	1.52	0.08	0.17	0.021474	0.000000	0.008231	1.52	0.08	0.17	0.021474	0.000000	0.008231	1.52	0.08	0.17
A0847-A0846	A0847	A0846	8	71	0.0620	0.112500	0.000000	0.049802	4.70	0.11	0.16	0.112500	0.000000	0.049802	4.70	0.11	0.16	0.112500	0.000000	0.049802	4.70	0.11	0.16
A084701-A0847	A08471	A0847	6	97	0.0110	0.001360	0.000000	0.000410	0.71	0.02	0.04	0.001360	0.000000	0.000410	0.71	0.02	0.04	0.001360	0.000000	0.000410	0.71	0.02	0.04
A084702-A084701	A08472	A08471	6	97	0.0100	0.001017	0.000000	0.000299	0.62	0.02	0.04	0.001017	0.000000	0.000299	0.62	0.02	0.04	0.001017	0.000000	0.000299	0.62	0.02	0.04
A0848-A0847	A0848	A0847	8	64	0.0081	0.111648	0.000000	0.049392	2.28	0.18	0.27	0.111648	0.000000	0.049392	2.28	0.18	0.27	0.111648	0.000000	0.049392	2.28	0.18	0.27
A084801-A0848	A08481	A0848	6	94	0.0200	0.001243	0.000000	0.000372	0.84	0.02	0.04	0.001243	0.000000	0.000372	0.84	0.02	0.04	0.001243	0.000000	0.000372	0.84	0.02	0.04
A084802-A084801	A08482	A08481	6	60	0.0300	0.000572	0.000000	0.000160	0.77	0.01	0.02	0.000572	0.000000	0.000160	0.77	0.01	0.02	0.000572	0.000000	0.000160	0.77	0.01	0.02
A0849-A0843	A0849	A0843	8	373	0.0332	0.015158	0.000000	0.005637	2.07	0.05	0.07	0.015158	0.000000	0.005637	2.07	0.05	0.07	0.015158	0.000000	0.005637	2.07	0.05	0.07
A0850-A0849	A0850	A0849	8	287	0.0469	0.006852	0.000000	0.002378	1.83	0.03	0.05	0.006852	0.000000	0.002378	1.83	0.03	0.05	0.006852	0.000000	0.002378	1.83	0.03	0.05
A0851-A0842	A0851	A0842	8	267	0.0322	0.009909	0.000000	0.003551	1.80	0.04	0.06	0.009909	0.000000	0.003551	1.80	0.04	0.06	0.009909	0.000000	0.003551	1.80	0.04	0.06
A0852AS-A0851	A0852AS	A0851	8	236	0.0172	0.005053	0.000000	0.001708	1.18	0.03	0.05	0.005053	0.000000	0.001708	1.18	0.03	0.05	0.005053	0.000000	0.001708	1.18	0.03	0.05
A0852BS-A0853	A0852BS	A0853	8	357	0.0231	0.005108	0.000000	0.001728	1.31	0.03	0.05	0.005108	0.000000	0.001728	1.31	0.03	0.05	0.005108	0.000000	0.001728	1.31	0.03	0.05
A0853-A0837	A0853	A0837	8	237	0.0337	0.041234	0.000000	0.016728	2.81	0.08	0.12	0.041234	0.000000	0.016728	2.81	0.08	0.12	0.041234	0.000000	0.016728	2.81	0.08	0.12
A0854-A0853	A0854	A0853	8	281	0.0399	0.035005	0.000000	0.014000	2.84	0.07	0.10	0.035005	0.000000	0.014000	2.84	0.07	0.10	0.035005	0.000000	0.014000	2.84	0.07	0.10
A0855-A0854	A0855	A0854	8	218	0.0278	0.027910	0.000000	0.010945	2.34	0.07	0.10	0.027910	0.000000	0.010945	2.34	0.07	0.10	0.027910	0.000000	0.010945	2.34	0.07	0.10
A0856-A0855	A0856	A0855	8	303	0.0416	0.010689	0.000000	0.003856	2.01	0.04	0.06	0.010689	0.000000	0.003856	2.01	0.04	0.06	0.010689	0.000000	0.003856	2.01	0.04	0.06
A0857-A0856	A0857	A0856	8	169	0.0086	0.005436	0.000000	0.001849	0.95	0.04	0.06	0.005436	0.000000	0.001849	0.95	0.04	0.06	0.005436	0.000000	0.001849	0.95	0.04	0.06
A0858-A0857	A0858	A0857	8	208	0.0209	0.004333	0.000000	0.001445	1.20	0.03	0.04	0.004333	0.000000	0.001445	1.20	0.03	0.04	0.004333	0.000000	0.001445	1.2		

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Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
A0860-A0859	A0860	A0859	8	84	0.0458	0.015435	0.000000	0.005749	2.33	0.05	0.07	0.015435	0.000000	0.005749	2.33	0.05	0.07	0.015435	0.000000	0.005749	2.33	0.05	0.07
A0861-A0860	A0861	A0860	8	291	0.0373	0.013580	0.000000	0.005002	2.08	0.04	0.07	0.013580	0.000000	0.005002	2.08	0.04	0.07	0.013580	0.000000	0.005002	2.08	0.04	0.07
A0862-A0861	A0862	A0861	8	119	0.0171	0.003953	0.000000	0.001308	1.09	0.03	0.05	0.003953	0.000000	0.001308	1.09	0.03	0.05	0.003953	0.000000	0.001308	1.09	0.03	0.05
A0863-A0854	A0863	A0854	8	260	0.0238	0.004272	0.000000	0.001423	1.25	0.03	0.04	0.004272	0.000000	0.001423	1.25	0.03	0.04	0.004272	0.000000	0.001423	1.25	0.03	0.04
A0864-A0865	A0864	A0865	8	256	0.0188	0.003281	0.000000	0.001068	1.07	0.03	0.04	0.003281	0.000000	0.001068	1.07	0.03	0.04	0.003281	0.000000	0.001068	1.07	0.03	0.04
A0865-A0833	A0865	A0833	8	300	0.0525	0.028166	0.000000	0.011054	2.93	0.06	0.09	0.028166	0.000000	0.011054	2.93	0.06	0.09	0.028166	0.000000	0.011054	2.93	0.06	0.09
A0866-A0865	A0866	A0865	8	270	0.0496	0.023355	0.000000	0.009018	2.71	0.05	0.08	0.023355	0.000000	0.009018	2.71	0.05	0.08	0.023355	0.000000	0.009018	2.71	0.05	0.08
A0867-A0866	A0867	A0866	8	228	0.0211	0.021797	0.000000	0.008366	1.97	0.06	0.10	0.021797	0.000000	0.008366	1.97	0.06	0.10	0.021797	0.000000	0.008366	1.97	0.06	0.10
A0868-A0867	A0868	A0867	8	266	0.0444	0.013894	0.000000	0.005128	2.23	0.04	0.07	0.013894	0.000000	0.005128	2.23	0.04	0.07	0.013894	0.000000	0.005128	2.23	0.04	0.07
A0869-A0868	A0869	A0868	8	323	0.0158	0.005757	0.000000	0.001968	1.19	0.04	0.05	0.005757	0.000000	0.001968	1.19	0.04	0.05	0.005757	0.000000	0.001968	1.19	0.04	0.05
A0870-A0868	A0870	A0868	8	321	0.0055	0.007111	0.000000	0.002476	0.88	0.05	0.08	0.007111	0.000000	0.002476	0.88	0.05	0.08	0.007111	0.000000	0.002476	0.88	0.05	0.08
A0871-A0867	A0871	A0867	8	317	0.0051	0.006344	0.000000	0.002187	0.83	0.05	0.07	0.006344	0.000000	0.002187	0.83	0.05	0.07	0.006344	0.000000	0.002187	0.83	0.05	0.07
A0872-A0848	A0872	A0848	8	153	0.0031	0.110874	0.000000	0.049020	1.61	0.23	0.34	0.110874	0.000000	0.049020	1.61	0.23	0.34	0.110874	0.000000	0.049020	1.61	0.23	0.34
A0873-A0872	A0873	A0872	8	110	0.0051	0.110456	0.000000	0.048819	1.93	0.20	0.30	0.110456	0.000000	0.048819	1.93	0.20	0.30	0.110456	0.000000	0.048819	1.93	0.20	0.30
A0874-A0873	A0874	A0873	8	201	0.0953	0.110456	0.000000	0.048819	6.53	0.09	0.13	0.110456	0.000000	0.048819	6.53	0.09	0.13	0.110456	0.000000	0.048819	6.53	0.09	0.13
A0875-A0874	A0875	A0874	8	178	0.0256	0.110456	0.000000	0.048819	4.12	0.12	0.18	0.110456	0.000000	0.048819	4.12	0.12	0.18	0.110456	0.000000	0.048819	4.12	0.12	0.18
A0876-A0875	A0876	A0875	8	235	0.0050	0.110456	0.000000	0.048819	2.31	0.18	0.27	0.110456	0.000000	0.048819	2.31	0.18	0.27	0.110456	0.000000	0.048819	2.31	0.18	0.27
A0877-A0876	A0877	A0876	8	249	0.0350	0.110456	0.000000	0.048819	4.60	0.11	0.16	0.110456	0.000000	0.048819	4.60	0.11	0.16	0.110456	0.000000	0.048819	4.60	0.11	0.16
A0878-A0877	A0878	A0877	8	203	0.0296	0.110456	0.000000	0.048819	4.34	0.11	0.17	0.110456	0.000000	0.048819	4.34	0.11	0.17	0.110456	0.000000	0.048819	4.34	0.11	0.17
A0879-A0878	A0879	A0878	8	277	0.0137	0.110456	0.000000	0.048819	2.74	0.16	0.23	0.110456	0.000000	0.048819	2.74	0.16	0.23	0.110456	0.000000	0.048819	2.74	0.16	0.23
A0880-A0879	A0880	A0879	8	160	0.0531	0.110456	0.000000	0.048819	4.43	0.11	0.17	0.110456	0.000000	0.048819	4.43	0.11	0.17	0.110456	0.000000	0.048819	4.43	0.11	0.17
A0881-A0880	A0881	A0880	8	142	0.1056	0.110456	0.000000	0.048819	5.64	0.09	0.14	0.110456	0.000000	0.048819	5.64	0.09	0.14	0.110456	0.000000	0.048819	5.64	0.09	0.14
A0882-A0881	A0882	A0881	8	298	0.0050	0.110456	0.000000	0.048819	1.92	0.20	0.30	0.110456	0.000000	0.048819	1.92	0.20	0.30	0.110456	0.000000	0.048819	1.92	0.20	0.30
A0883-A0882	A0883	A0882	8	345	0.0052	0.110456	0.000000	0.048819	1.94	0.20	0.30	0.110456	0.000000	0.048819	1.94	0.20	0.30	0.110456	0.000000	0.048819	1.94	0.20	0.30
A0884-A0883	A0884	A0883	8	73	0.0192	0.110456	0.000000	0.048819	3.72	0.13	0.19	0.110456	0.000000	0.048819	3.72	0.13	0.19	0.110456	0.000000	0.048819	3.72	0.13	0.19
A0885-A088501	A0885	A088501	8	65	0.0097	0.110456	0.000000	0.048819	2.92	0.15	0.22	0.110456	0.000000	0.048819	2.92	0.15	0.22	0.110456	0.000000	0.048819	2.92	0.15	0.22
A088501-A088502	A088501	A088502	8	18	0.0726	0.110456	0.000000	0.048819	5.94	0.09	0.14	0.110456	0.000000	0.048819	5.94	0.09	0.14	0.110456	0.000000	0.048819	5.94	0.09	0.14
A088502-A088503	A088502	A088503	8	18	0.2057	0.110456	0.000000	0.048819	8.55	0.07	0.11	0.110456	0.000000	0.048819	8.55	0.07	0.11	0.110456	0.000000	0.048819	8.55	0.07	0.11
A088503-A088504	A088503	A088504	8	18	0.3377	0.110456	0.000000	0.048819	10.17	0.06	0.09	0.110456	0.000000	0.048819	10.17	0.06	0.09	0.110456	0.000000	0.048819	10.17	0.06	0.09
A088504-A088505	A088504	A088505	8	18	0.3903	0.110456	0.000000	0.048819	10.70	0.06	0.09	0.110456	0.000000	0.048819	10.70	0.06	0.09	0.110456	0.000000	0.048819	10.70	0.06	0.09
A088505-A088506	A088505	A088506	8	18	0.3903	0.110456	0.000000	0.048819	10.70	0.06	0.09	0.110456	0.000000	0.048819	10.70	0.06	0.09	0.110456	0.000000	0.048819	10.70	0.06	0.09
A088506-A088507	A088506	A088507	8	18	0.3903	0.110456	0.000000	0.048819	10.70	0.06	0.09	0.110456	0.000000	0.048819	10.70	0.06	0.09	0.110456	0.000000	0.048819	10.70	0.06	0.09
A088507-A088508	A088507	A088508	8	18	0.3903	0.110456	0.000000	0.048819	10.70	0.06	0.09	0.110456	0.000000	0.048819	10.70	0.06	0.09	0.110456	0.000000	0.048819	10.70	0.06	0.09
A088508-A088509	A088508	A088509	8	18	0.3903	0.110456	0.000000	0.048819	10.70	0.06	0.09	0.110456	0.000000	0.048819	10.70	0.06	0.09	0.110456	0.000000	0.048819	10.70	0.06	0.09
A088509-A088510	A088509	A088510	8	18	0.3903	0.110456	0.000000	0.048819	10.70	0.06	0.09	0.110456	0.000000	0.048819	10.70	0.06	0.09	0.110456	0.000000	0.048819	10.70	0.06	0.09
A088510-A088511	A088510	A088511	8	18	0.3909	0.110456	0.000000	0.048819	10.70	0.06	0.09	0.110456	0.000000	0.048819	10.70	0.06	0.09	0.110456	0.000000	0.048819	10.70	0.06	0.09
A088511-A088512	A088511	A088512	8	18	0.3834	0.110456	0.000000	0.048819	10.63	0.06	0.09	0.110456	0.000000	0.048819	10.63	0.06	0.09	0.110456	0.000000	0.048819	10.63	0.06	0.09
A088512-A088513	A088512	A088513	8	18	0.2611	0.110456	0.000000	0.048819	9.30	0.07	0.10	0.110456	0.000000	0.048819	9.30	0.07	0.10	0.110456	0.000000	0.048819	9.30	0.07	0.10
A088513-A0884	A088513	A0884	8	20	0.0872	0.110456	0.000000	0.048819	6.33	0.09	0.13	0.110456	0.000000	0.048819	6.33	0.09	0.13	0.110456	0.000000	0.048819	6.33	0.09	0.13
A0886-A0885	A0886	A0885	8	139	0.0100	0.110456	0.000000	0.048819	2.95	0.15	0.22	0.110456	0.000000	0.048819	2.95	0.15	0.22	0.110456	0.000000	0.048819	2.95	0.15	0.22
A0887-A0886	A0887	A0886	8	160	0.0100	0.110456	0.000000	0.048819	2.96	0.15	0.22	0.110456	0.000000	0.048819	2.96	0.15	0.22	0.110456	0.000000	0.048819	2.96	0.15	0.22
A088701-A0887	A088701	A0887	8	82	0.0208	0.095674	0.000000	0.041761	3.67	0.12	0.17	0.095674	0.000000	0.041761	3.67	0.12	0.17	0.095674	0.000000	0.041761	3.67	0.12	0.17
A088702-A088701	A088702	A088701	8	197	0.0096	0.095674	0.000000	0.041761	2.80	0.14	0.21	0.095674	0.000000	0.041761	2.80	0.14	0.21	0.095674	0.000000	0.041761	2.80	0.14	0.21
A088703-A088702	A088703	A088702	8	256	0.0098	0.078530	0.000000	0.033694	2.65	0.13	0.19	0.078530	0.000000	0.033694	2.65	0.13	0.19	0.078530	0.000000	0.033694	2.65	0.13	0.19
A088704-A088703	A088704	A088703	8	89	0.0101	0.034873	0.000000	0.013943	2.11	0.08	0.13	0.034873	0.000000	0.013943	2.11	0.08	0.13	0.034873	0.000000	0.013943	2.11	0.08	0.13
A088705-A088704	A088705	A088704	8	128	0.02																		

City of Brea - Sewer Master Plan (November 2021)

Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
A088706-A088705	A088706	A088705	8	301	0.0465	0.030925	0.000000	0.012236	3.46	0.06	0.08	0.030925	0.000000	0.012236	3.46	0.06	0.08	0.030925	0.000000	0.012236	3.46	0.06	0.08
A088707-A088706	A088707	A088706	8	94	0.0700	0.017045	0.000000	0.006404	3.34	0.04	0.06	0.017045	0.000000	0.006404	3.34	0.04	0.06	0.017045	0.000000	0.006404	3.34	0.04	0.06
A088708-A088707	A088708	A088707	8	195	0.0367	0.016174	0.000000	0.006049	2.62	0.04	0.06	0.016174	0.000000	0.006049	2.62	0.04	0.06	0.016174	0.000000	0.006049	2.62	0.04	0.06
A088709-A088708	A088709	A088708	8	170	0.0475	0.015116	0.000000	0.005620	2.34	0.04	0.07	0.015116	0.000000	0.005620	2.34	0.04	0.07	0.015116	0.000000	0.005620	2.34	0.04	0.07
A088710-A088709	A088710	A088709	8	366	0.0513	0.005993	0.000000	0.002056	1.81	0.03	0.04	0.005993	0.000000	0.002056	1.81	0.03	0.04	0.005993	0.000000	0.002056	1.81	0.03	0.04
A088711-A088709	A088711	A088709	8	296	0.0385	0.008975	0.000000	0.003189	1.86	0.04	0.05	0.008975	0.000000	0.003189	1.86	0.04	0.05	0.008975	0.000000	0.003189	1.86	0.04	0.05
A088712-A088706	A088712	A088706	8	287	0.0228	0.010543	0.000000	0.003799	1.95	0.04	0.06	0.010543	0.000000	0.003799	1.95	0.04	0.06	0.010543	0.000000	0.003799	1.95	0.04	0.06
A088713-A088712	A088713	A088712	8	243	0.0192	0.008885	0.000000	0.003154	1.75	0.04	0.06	0.008885	0.000000	0.003154	1.75	0.04	0.06	0.008885	0.000000	0.003154	1.75	0.04	0.06
A088714-A088713	A088714	A088713	8	167	0.0120	0.005056	0.000000	0.001709	1.25	0.03	0.05	0.005056	0.000000	0.001709	1.25	0.03	0.05	0.005056	0.000000	0.001709	1.25	0.03	0.05
A088715-A088703	A088715	A088703	8	66	0.0512	0.047172	0.000000	0.019362	4.07	0.07	0.10	0.047172	0.000000	0.019362	4.07	0.07	0.10	0.047172	0.000000	0.019362	4.07	0.07	0.10
A088716-A088715	A088716	A088715	8	165	0.0363	0.047172	0.000000	0.019362	3.61	0.07	0.11	0.047172	0.000000	0.019362	3.61	0.07	0.11	0.047172	0.000000	0.019362	3.61	0.07	0.11
A088717-A088716	A088717	A088716	8	112	0.0072	0.004517	0.000000	0.001512	1.01	0.03	0.05	0.004517	0.000000	0.001512	1.01	0.03	0.05	0.004517	0.000000	0.001512	1.01	0.03	0.05
A088718-A088717	A088718	A088717	8	212	0.0582	0.004517	0.000000	0.001512	2.09	0.02	0.03	0.004517	0.000000	0.001512	2.09	0.02	0.03	0.004517	0.000000	0.001512	2.09	0.02	0.03
A088719-A088716	A088719	A088716	8	159	0.0032	0.042751	0.000000	0.017398	1.49	0.12	0.19	0.042751	0.000000	0.017398	1.49	0.12	0.19	0.042751	0.000000	0.017398	1.49	0.12	0.19
A088720-A088719	A088720	A088719	8	73	0.0164	0.042118	0.000000	0.017118	2.64	0.08	0.12	0.042118	0.000000	0.017118	2.64	0.08	0.12	0.042118	0.000000	0.017118	2.64	0.08	0.12
A088721-A088720	A088721	A088720	8	160	0.0207	0.041538	0.000000	0.016862	2.85	0.08	0.12	0.041538	0.000000	0.016862	2.85	0.08	0.12	0.041538	0.000000	0.016862	2.85	0.08	0.12
A088722-A088721	A088722	A088721	8	81	0.0247	0.040910	0.000000	0.016585	3.02	0.07	0.11	0.040910	0.000000	0.016585	3.02	0.07	0.11	0.040910	0.000000	0.016585	3.02	0.07	0.11
A088723-A088722	A088723	A088722	8	292	0.0301	0.040085	0.000000	0.016222	3.22	0.07	0.10	0.040085	0.000000	0.016222	3.22	0.07	0.10	0.040085	0.000000	0.016222	3.22	0.07	0.10
A088724-A088723	A088724	A088723	8	187	0.0177	0.020287	0.000000	0.007738	2.18	0.06	0.09	0.020287	0.000000	0.007738	2.18	0.06	0.09	0.020287	0.000000	0.007738	2.18	0.06	0.09
A088725-A088724	A088725	A088724	8	207	0.0102	0.019219	0.000000	0.007296	1.77	0.06	0.09	0.019219	0.000000	0.007296	1.77	0.06	0.09	0.019219	0.000000	0.007296	1.77	0.06	0.09
A088726-A088725	A088726	A088725	8	187	0.0268	0.018223	0.000000	0.006886	2.44	0.05	0.07	0.018223	0.000000	0.006886	2.44	0.05	0.07	0.018223	0.000000	0.006886	2.44	0.05	0.07
A088727-A088726	A088727	A088726	8	124	0.0194	0.016595	0.000000	0.006220	2.12	0.05	0.08	0.016595	0.000000	0.006220	2.12	0.05	0.08	0.016595	0.000000	0.006220	2.12	0.05	0.08
A088728-A088727	A088728	A088727	8	171	0.0198	0.015813	0.000000	0.005902	2.10	0.05	0.07	0.015813	0.000000	0.005902	2.10	0.05	0.07	0.015813	0.000000	0.005902	2.10	0.05	0.07
A088729-A088728	A088729	A088728	8	168	0.0184	0.013907	0.000000	0.005133	1.97	0.05	0.07	0.013907	0.000000	0.005133	1.97	0.05	0.07	0.013907	0.000000	0.005133	1.97	0.05	0.07
A088730-A0887	A088730	A0887	8	107	0.0394	0.017159	0.000000	0.006450	2.74	0.04	0.07	0.017159	0.000000	0.006450	2.74	0.04	0.07	0.017159	0.000000	0.006450	2.74	0.04	0.07
A088731-A088730	A088731	A088730	8	189	0.0106	0.017159	0.000000	0.006450	1.73	0.06	0.09	0.017159	0.000000	0.006450	1.73	0.06	0.09	0.017159	0.000000	0.006450	1.73	0.06	0.09
A088732-A088731	A088732	A088731	8	74	0.0106	0.016244	0.000000	0.006077	1.71	0.06	0.09	0.016244	0.000000	0.006077	1.71	0.06	0.09	0.016244	0.000000	0.006077	1.71	0.06	0.09
A088733-A088732	A088733	A088732	8	125	0.0100	0.016244	0.000000	0.006077	1.67	0.06	0.09	0.016244	0.000000	0.006077	1.67	0.06	0.09	0.016244	0.000000	0.006077	1.67	0.06	0.09
A088734-A088733	A088734	A088733	8	156	0.0100	0.015583	0.000000	0.005809	1.65	0.06	0.09	0.015583	0.000000	0.005809	1.65	0.06	0.09	0.015583	0.000000	0.005809	1.65	0.06	0.09
A088735-A088734	A088735	A088734	8	166	0.0104	0.006368	0.000000	0.002196	1.27	0.04	0.06	0.006368	0.000000	0.002196	1.27	0.04	0.06	0.006368	0.000000	0.002196	1.27	0.04	0.06
A088736-A088734	A088736	A088734	8	134	0.0538	0.008443	0.000000	0.002984	2.46	0.03	0.04	0.008443	0.000000	0.002984	2.46	0.03	0.04	0.008443	0.000000	0.002984	2.46	0.03	0.04
A088737-A088736	A088737	A088736	8	149	0.0881	0.001767	0.000000	0.000545	1.81	0.01	0.02	0.001767	0.000000	0.000545	1.81	0.01	0.02	0.001767	0.000000	0.000545	1.81	0.01	0.02
A088738-A088736	A088738	A088736	8	200	0.0200	0.006301	0.000000	0.002171	1.59	0.03	0.05	0.006301	0.000000	0.002171	1.59	0.03	0.05	0.006301	0.000000	0.002171	1.59	0.03	0.05
A088739-A088738	A088739	A088738	8	205	0.0297	0.004349	0.000000	0.001451	1.63	0.02	0.04	0.004349	0.000000	0.001451	1.63	0.02	0.04	0.004349	0.000000	0.001451	1.63	0.02	0.04
A09-A10	A09	A10	10	178	0.0138	0.330829	0.000000	0.160854	3.68	0.25	0.30	0.330829	0.000000	0.160854	3.68	0.25	0.30	0.330829	0.000000	0.160854	3.68	0.25	0.30
A10-A11	A10	A11	10	86	0.0162	0.330829	0.000000	0.160854	3.90	0.24	0.29	0.330829	0.000000	0.160854	3.90	0.24	0.29	0.330829	0.000000	0.160854	3.90	0.24	0.29
A11-A12	A11	A12	10	58	0.0095	0.437331	0.000000	0.217860	3.48	0.32	0.39	0.437331	0.000000	0.217860	3.48	0.32	0.39	0.437331	0.000000	0.217860	3.48	0.32	0.39
A1101-A11	A1101	A11	8	224	0.0053	0.127390	0.000000	0.057006	2.04	0.21	0.32	0.127390	0.000000	0.057006	2.04	0.21	0.32	0.127390	0.000000	0.057006	2.04	0.21	0.32
A1102-A1101	A1102	A1101	8	48	0.0063	0.121508	0.000000	0.054151	2.13	0.20	0.30	0.121508	0.000000	0.054151	2.13	0.20	0.30	0.121508	0.000000	0.054151	2.13	0.20	0.30
A1103-A1102	A1103	A1102	8	205	0.0073	0.103652	0.000000	0.045559	2.15	0.18	0.27	0.103652	0.000000	0.045559	2.15	0.18	0.27	0.103652	0.000000	0.045559	2.15	0.18	0.27
A1104-A1103	A1104	A1103	8	205	0.0081	0.100180	0.000000	0.043903	2.21	0.17	0.25	0.100180	0.000000	0.043903	2.21	0.17	0.25	0.100180	0.000000	0.043903	2.21	0.17	0.25
A1105-A1104	A1105	A1104	8	88	0.0075	0.098439	0.000000	0.043074	2.14	0.17	0.26	0.098439	0.000000	0.043074	2.14	0.17	0.26	0.098439	0.000000	0.043074	2.14	0.17	0.26
A1106-A1105	A1106	A1105	8	99	0.0090	0.095405	0.000000	0.041633	2.26	0.16	0.24	0.095405	0.000000	0.041633	2.26	0.16	0.24	0.095405	0.000000	0.041633	2.26	0.16	0.24
A1107-A1106	A1107	A1106	8	230	0.0346	0.093096	0.000000	0.040539	3.62	0.11	0.17	0.093096	0.000000	0.040539	3.62	0.11	0.17	0.093096	0.000000	0.040539	3.62	0.11	0.17
A1108-A1107	A1108	A1107	8	222	0.0316	0.089577	0.000000	0.038876	3.47	0.11	0.17	0.089577	0.000000	0.038876	3.47	0.11	0.17	0.089577	0.000000	0.038876			

City of Brea - Sewer Master Plan (November 2021)

Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
A1110-A1109	A1110	A1109	8	182	0.0270	0.084071	0.000000	0.036286	3.22	0.12	0.17	0.084071	0.000000	0.036286	3.22	0.12	0.17	0.084071	0.000000	0.036286	3.22	0.12	0.17
A1111-A1110	A1111	A1110	8	100	0.0252	0.082315	0.000000	0.035463	3.12	0.12	0.17	0.082315	0.000000	0.035463	3.12	0.12	0.17	0.082315	0.000000	0.035463	3.12	0.12	0.17
A1112-A1111	A1112	A1111	8	128	0.0888	0.024148	0.000000	0.009351	3.35	0.05	0.07	0.024148	0.000000	0.009351	3.35	0.05	0.07	0.024148	0.000000	0.009351	3.35	0.05	0.07
A1113-A1112	A1113	A1112	8	152	0.0175	0.024148	0.000000	0.009351	1.90	0.07	0.11	0.024148	0.000000	0.009351	1.90	0.07	0.11	0.024148	0.000000	0.009351	1.90	0.07	0.11
A1114-A1113	A1114	A1113	8	76	0.0050	0.024148	0.000000	0.009351	1.23	0.09	0.14	0.024148	0.000000	0.009351	1.23	0.09	0.14	0.024148	0.000000	0.009351	1.23	0.09	0.14
A1115-A1114	A1115	A1114	8	136	0.0358	0.024148	0.000000	0.009351	2.44	0.06	0.09	0.024148	0.000000	0.009351	2.44	0.06	0.09	0.024148	0.000000	0.009351	2.44	0.06	0.09
A1116-A1102	A1116	A1102	8	274	0.0227	0.022339	0.000000	0.008592	2.04	0.06	0.10	0.022339	0.000000	0.008592	2.04	0.06	0.10	0.022339	0.000000	0.008592	2.04	0.06	0.10
A1117-A1116	A1117	A1116	8	308	0.0142	0.019190	0.000000	0.007284	1.65	0.07	0.10	0.019190	0.000000	0.007284	1.65	0.07	0.10	0.019190	0.000000	0.007284	1.65	0.07	0.10
A1118-A1117	A1118	A1117	8	41	0.0093	0.014673	0.000000	0.005441	1.31	0.06	0.10	0.014673	0.000000	0.005441	1.31	0.06	0.10	0.014673	0.000000	0.005441	1.31	0.06	0.10
A1119-A1118	A1119	A1118	8	200	0.0045	0.011332	0.000000	0.004109	0.94	0.07	0.10	0.011332	0.000000	0.004109	0.94	0.07	0.10	0.011332	0.000000	0.004109	0.94	0.07	0.10
A1120-A1119	A1120	A1119	6	77	0.1087	0.006266	0.000000	0.002158	2.49	0.03	0.05	0.006266	0.000000	0.002158	2.49	0.03	0.05	0.006266	0.000000	0.002158	2.49	0.03	0.05
A1121-A1120	A1121	A1120	6	165	0.0215	0.006266	0.000000	0.002158	1.42	0.04	0.08	0.006266	0.000000	0.002158	1.42	0.04	0.08	0.006266	0.000000	0.002158	1.42	0.04	0.08
A1122-A1119	A1122	A1119	6	173	0.0054	0.004600	0.000000	0.001542	0.80	0.05	0.09	0.004600	0.000000	0.001542	0.80	0.05	0.09	0.004600	0.000000	0.001542	0.80	0.05	0.09
A1123-A1118	A1123	A1118	6	219	0.0557	0.004020	0.000000	0.001332	1.72	0.02	0.05	0.004020	0.000000	0.001332	1.72	0.02	0.05	0.004020	0.000000	0.001332	1.72	0.02	0.05
A1124-A1103	A1124	A1103	6	163	0.0212	0.002553	0.000000	0.000813	1.07	0.03	0.05	0.002553	0.000000	0.000813	1.07	0.03	0.05	0.002553	0.000000	0.000813	1.07	0.03	0.05
A1125-A1105	A1125	A1105	8	183	0.0336	0.004322	0.000000	0.001441	1.42	0.03	0.04	0.004322	0.000000	0.001441	1.42	0.03	0.04	0.004322	0.000000	0.001441	1.42	0.03	0.04
A1126-A1125	A1126	A1125	8	130	0.0386	0.001966	0.000000	0.000612	1.17	0.02	0.03	0.001966	0.000000	0.000612	1.17	0.02	0.03	0.001966	0.000000	0.000612	1.17	0.02	0.03
A1127-A1106	A1127	A1106	6	179	0.0412	0.002737	0.000000	0.000877	1.38	0.02	0.04	0.002737	0.000000	0.000877	1.38	0.02	0.04	0.002737	0.000000	0.000877	1.38	0.02	0.04
A1128-A1107	A1128	A1107	6	150	0.0582	0.004073	0.000000	0.001351	1.76	0.02	0.05	0.004073	0.000000	0.001351	1.76	0.02	0.05	0.004073	0.000000	0.001351	1.76	0.02	0.05
A1129-A1108	A1129	A1108	6	192	0.0542	0.006394	0.000000	0.002206	1.97	0.03	0.06	0.006394	0.000000	0.002206	1.97	0.03	0.06	0.006394	0.000000	0.002206	1.97	0.03	0.06
A1130-A1104	A1130	A1104	6	74	0.0355	0.002271	0.000000	0.000716	1.24	0.02	0.04	0.002271	0.000000	0.000716	1.24	0.02	0.04	0.002271	0.000000	0.000716	1.24	0.02	0.04
A1131-A1103	A1131	A1103	6	74	0.0128	0.002048	0.000000	0.000640	0.84	0.03	0.05	0.002048	0.000000	0.000640	0.84	0.03	0.05	0.002048	0.000000	0.000640	0.84	0.03	0.05
A1132-A1101	A1132	A1101	6	61	0.0189	0.002553	0.000000	0.000813	1.03	0.03	0.05	0.002553	0.000000	0.000813	1.03	0.03	0.05	0.002553	0.000000	0.000813	1.03	0.03	0.05
A12-A13	A12	A13	10	121	0.0079	0.465611	0.000000	0.233215	3.31	0.35	0.42	0.465611	0.000000	0.233215	3.31	0.35	0.42	0.465611	0.000000	0.233215	3.31	0.35	0.42
A1201-A12	A1201	A12	10	282	0.0067	0.037397	0.000000	0.015043	1.50	0.10	0.12	0.037397	0.000000	0.015043	1.50	0.10	0.12	0.037397	0.000000	0.015043	1.50	0.10	0.12
A1202-A1201	A1202	A1201	8	213	0.0160	0.032422	0.000000	0.012881	2.01	0.08	0.12	0.032422	0.000000	0.012881	2.01	0.08	0.12	0.032422	0.000000	0.012881	2.01	0.08	0.12
A1203-A1202	A1203	A1202	8	222	0.0164	0.029556	0.000000	0.011648	1.98	0.08	0.12	0.029556	0.000000	0.011648	1.98	0.08	0.12	0.029556	0.000000	0.011648	1.98	0.08	0.12
A1204-A1203	A1204	A1203	8	199	0.0291	0.006304	0.000000	0.002172	1.51	0.03	0.05	0.006304	0.000000	0.002172	1.51	0.03	0.05	0.006304	0.000000	0.002172	1.51	0.03	0.05
A1205-A1204	A1205	A1204	6	180	0.0053	0.003898	0.000000	0.001288	0.75	0.04	0.08	0.003898	0.000000	0.001288	0.75	0.04	0.08	0.003898	0.000000	0.001288	0.75	0.04	0.08
A1206-A1204	A1206	A1204	6	69	0.0159	0.001650	0.000000	0.000506	0.85	0.02	0.04	0.001650	0.000000	0.000506	0.85	0.02	0.04	0.001650	0.000000	0.000506	0.85	0.02	0.04
A1207-A1203	A1207	A1203	6	163	0.0106	0.023950	0.000000	0.009268	1.65	0.09	0.17	0.023950	0.000000	0.009268	1.65	0.09	0.17	0.023950	0.000000	0.009268	1.65	0.09	0.17
A1208-A1202	A1208	A1202	6	87	0.0343	0.002498	0.000000	0.000794	1.26	0.02	0.04	0.002498	0.000000	0.000794	1.26	0.02	0.04	0.002498	0.000000	0.000794	1.26	0.02	0.04
A1209-A1201	A1209	A1201	6	87	0.0482	0.001481	0.000000	0.000450	1.21	0.02	0.03	0.001481	0.000000	0.000450	1.21	0.02	0.03	0.001481	0.000000	0.000450	1.21	0.02	0.03
A1210-A1201	A1210	A1201	6	146	0.0651	0.004572	0.000000	0.001532	1.89	0.03	0.05	0.004572	0.000000	0.001532	1.89	0.03	0.05	0.004572	0.000000	0.001532	1.89	0.03	0.05
A1211-A1210	A1211	A1210	6	106	0.0125	0.002593	0.000000	0.000827	0.90	0.03	0.06	0.002593	0.000000	0.000827	0.90	0.03	0.06	0.002593	0.000000	0.000827	0.90	0.03	0.06
A1212-A1210	A1212	A1210	6	50	0.0242	0.001901	0.000000	0.000590	1.03	0.02	0.04	0.001901	0.000000	0.000590	1.03	0.02	0.04	0.001901	0.000000	0.000590	1.03	0.02	0.04
A13-A14	A13	A14	10	43	0.0123	0.466327	0.000000	0.233605	3.89	0.31	0.37	0.466327	0.000000	0.233605	3.89	0.31	0.37	0.466327	0.000000	0.233605	3.89	0.31	0.37
A14-A15	A14	A15	10	105	0.0219	0.466327	0.000000	0.233605	4.79	0.27	0.32	0.466327	0.000000	0.233605	4.79	0.27	0.32	0.466327	0.000000	0.233605	4.79	0.27	0.32
A15-A16	A15	A16	10	225	0.0134	0.542107	0.000000	0.275146	4.18	0.33	0.40	0.542107	0.000000	0.275146	4.18	0.33	0.40	0.542107	0.000000	0.275146	4.18	0.33	0.40
A16-A17	A16	A17	12	193	0.0100	0.542107	0.000000	0.275146	3.72	0.33	0.33	0.542107	0.000000	0.275146	3.72	0.33	0.33	0.542107	0.000000	0.275146	3.72	0.33	0.33
A17-A18	A17	A18	12	170	0.0100	0.542107	0.000000	0.275146	3.72	0.33	0.33	0.542107	0.000000	0.275146	3.72	0.33	0.33	0.542107	0.000000	0.275146	3.72	0.33	0.33
A18-A19	A18	A19	12	70	0.0286	0.542107	0.000000	0.275146	5.41	0.25	0.25	0.542107	0.000000	0.275146	5.41	0.25	0.25	0.542107	0.000000	0.275146	5.41	0.25	0.25
A19-A20	A19	A20	10	216	0.0130	0.542107	0.000000	0.275146	4.14	0.33	0.40	0.542107	0.000000	0.275146	4.14	0.33	0.40	0.542107	0.000000	0.275146	4.14	0.33	0.40
A20-A21	A20	A21	10	250	0.0140	0.542107	0.000000	0.275146	4.25	0.33	0.39	0.542107	0.000000	0.275146	4.25	0.33	0.39	0.542107	0.000000	0.275146	4.25	0.33	0.39
A21-A22	A21	A22	12	186	0.0115	0.620293	0.000000	0.318539	4.05	0.34	0.34	0.620293	0.000000	0.318539	4.05	0.34	0.34	0.620293	0.000000	0.318539	4.05	0.34	0.34
A2101-A21	A2101	A21	10	350	0.0096	0.098008	0.000000	0.042869	2.28	0.15	0.18	0.098008	0.000000	0.042869	2.28	0.15	0.18	0.098008	0.000000	0.042869	2.28	0.15	0.18

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Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
A2102-A2101	A2102	A2101	10	354	0.0160	0.096595	0.000000	0.042198	2.71	0.13	0.16	0.096595	0.000000	0.042198	2.71	0.13	0.16	0.096595	0.000000	0.042198	2.71	0.13	0.16
A2103-A2102	A2103	A2102	10	262	0.0108	0.085098	0.000000	0.036768	2.28	0.14	0.16	0.085098	0.000000	0.036768	2.28	0.14	0.16	0.085098	0.000000	0.036768	2.28	0.14	0.16
A2104-A2103	A2104	A2103	10	170	0.0112	0.083715	0.000000	0.036119	2.29	0.13	0.16	0.083715	0.000000	0.036119	2.29	0.13	0.16	0.083715	0.000000	0.036119	2.29	0.13	0.16
A2105-A2104	A2105	A2104	10	129	0.0177	0.081897	0.000000	0.035267	2.67	0.12	0.14	0.081897	0.000000	0.035267	2.67	0.12	0.14	0.081897	0.000000	0.035267	2.67	0.12	0.14
A2106-A2105	A2106	A2105	10	7	0.0143	0.080167	0.000000	0.034458	2.47	0.12	0.15	0.080167	0.000000	0.034458	2.47	0.12	0.15	0.080167	0.000000	0.034458	2.47	0.12	0.15
A2107-A2106	A2107	A2106	10	167	0.0169	0.080167	0.000000	0.034458	2.62	0.12	0.14	0.080167	0.000000	0.034458	2.62	0.12	0.14	0.080167	0.000000	0.034458	2.62	0.12	0.14
A2108-A2107	A2108	A2107	10	215	0.0169	0.080167	0.000000	0.034458	2.62	0.12	0.14	0.080167	0.000000	0.034458	2.62	0.12	0.14	0.080167	0.000000	0.034458	2.62	0.12	0.14
A2109D-A2108	A2109D	A2108	10	200	0.0170	0.053910	0.000000	0.022386	2.33	0.10	0.12	0.053910	0.000000	0.022386	2.33	0.10	0.12	0.053910	0.000000	0.022386	2.33	0.10	0.12
A2110-A2109D	A2110	A2109D	10	322	0.0272	0.053910	0.000000	0.022386	2.75	0.09	0.10	0.053910	0.000000	0.022386	2.75	0.09	0.10	0.053910	0.000000	0.022386	2.75	0.09	0.10
A2111-A2110	A2111	A2110	10	155	0.0113	0.053910	0.000000	0.022386	2.02	0.11	0.13	0.053910	0.000000	0.022386	2.02	0.11	0.13	0.053910	0.000000	0.022386	2.02	0.11	0.13
A2112-A2111	A2112	A2111	10	313	0.0130	0.043207	0.000000	0.017600	1.98	0.09	0.11	0.043207	0.000000	0.017600	1.98	0.09	0.11	0.043207	0.000000	0.017600	1.98	0.09	0.11
A2113-A2112	A2113	A2112	8	350	0.0261	0.042351	0.000000	0.017221	2.59	0.08	0.13	0.042351	0.000000	0.017221	2.59	0.08	0.13	0.042351	0.000000	0.017221	2.59	0.08	0.13
A2114-A2113	A2114	A2113	8	159	0.0236	0.034282	0.000000	0.013686	2.35	0.08	0.12	0.034282	0.000000	0.013686	2.35	0.08	0.12	0.034282	0.000000	0.013686	2.35	0.08	0.12
A2115-A2114	A2115	A2114	8	272	0.0479	0.019117	0.000000	0.007254	2.52	0.05	0.07	0.019117	0.000000	0.007254	2.52	0.05	0.07	0.019117	0.000000	0.007254	2.52	0.05	0.07
A2116S-A2115	A2116S	A2115	8	248	0.0463	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
A2117-A2115	A2117	A2115	8	300	0.0463	0.017102	0.000000	0.006427	2.41	0.05	0.07	0.017102	0.000000	0.006427	2.41	0.05	0.07	0.017102	0.000000	0.006427	2.41	0.05	0.07
A2118-A2117	A2118	A2117	8	316	0.0354	0.012608	0.000000	0.004614	2.00	0.04	0.07	0.012608	0.000000	0.004614	2.00	0.04	0.07	0.012608	0.000000	0.004614	2.00	0.04	0.07
A2119-A2118	A2119	A2118	8	316	0.0206	0.008062	0.000000	0.002838	1.45	0.04	0.06	0.008062	0.000000	0.002838	1.45	0.04	0.06	0.008062	0.000000	0.002838	1.45	0.04	0.06
A2120-A2114	A2120	A2114	8	350	0.0201	0.016784	0.000000	0.006297	1.79	0.06	0.09	0.016784	0.000000	0.006297	1.79	0.06	0.09	0.016784	0.000000	0.006297	1.79	0.06	0.09
A2121-A2120	A2121	A2120	8	346	0.0558	0.011821	0.000000	0.004302	2.30	0.04	0.06	0.011821	0.000000	0.004302	2.30	0.04	0.06	0.011821	0.000000	0.004302	2.30	0.04	0.06
A2122-A2121	A2122	A2121	8	161	0.0369	0.008070	0.000000	0.002841	1.77	0.04	0.05	0.008070	0.000000	0.002841	1.77	0.04	0.05	0.008070	0.000000	0.002841	1.77	0.04	0.05
A2123-A2122	A2123	A2122	8	221	0.0109	0.005105	0.000000	0.001727	1.01	0.04	0.06	0.005105	0.000000	0.001727	1.01	0.04	0.06	0.005105	0.000000	0.001727	1.01	0.04	0.06
A2124-A2113	A2124	A2113	8	350	0.0384	0.004468	0.000000	0.001494	1.50	0.03	0.04	0.004468	0.000000	0.001494	1.50	0.03	0.04	0.004468	0.000000	0.001494	1.50	0.03	0.04
A2125-A2124	A2125	A2124	8	120	0.0348	0.002851	0.000000	0.000917	1.26	0.02	0.03	0.002851	0.000000	0.000917	1.26	0.02	0.03	0.002851	0.000000	0.000917	1.26	0.02	0.03
A2126-A2125	A2126	A2125	8	230	0.0336	0.001761	0.000000	0.000543	1.08	0.02	0.03	0.001761	0.000000	0.000543	1.08	0.02	0.03	0.001761	0.000000	0.000543	1.08	0.02	0.03
A2127-A2126	A2127	A2126	8	350	0.0050	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
A2128-A2108	A2128	A2108	8	30	0.0647	0.030544	0.000000	0.012072	3.23	0.06	0.09	0.030544	0.000000	0.012072	3.23	0.06	0.09	0.030544	0.000000	0.012072	3.23	0.06	0.09
A2129-A2128	A2129	A2128	8	21	0.0586	0.029819	0.000000	0.011761	3.09	0.06	0.09	0.029819	0.000000	0.011761	3.09	0.06	0.09	0.029819	0.000000	0.011761	3.09	0.06	0.09
A2130-A2129	A2130	A2129	8	107	0.0119	0.029819	0.000000	0.011761	1.77	0.09	0.13	0.029819	0.000000	0.011761	1.77	0.09	0.13	0.029819	0.000000	0.011761	1.77	0.09	0.13
A2131-A2130	A2131	A2130	8	27	0.0252	0.018964	0.000000	0.007191	2.01	0.06	0.09	0.018964	0.000000	0.007191	2.01	0.06	0.09	0.018964	0.000000	0.007191	2.01	0.06	0.09
A2132-A2131	A2132	A2131	8	102	0.0132	0.018964	0.000000	0.007191	1.61	0.07	0.10	0.018964	0.000000	0.007191	1.61	0.07	0.10	0.018964	0.000000	0.007191	1.61	0.07	0.10
A2133-A2132	A2133	A2132	8	203	0.0220	0.011040	0.000000	0.003994	1.63	0.05	0.07	0.011040	0.000000	0.003994	1.63	0.05	0.07	0.011040	0.000000	0.003994	1.63	0.05	0.07
A2134-A2133	A2134	A2133	6	166	0.0669	0.002457	0.000000	0.000780	1.58	0.02	0.04	0.002457	0.000000	0.000780	1.58	0.02	0.04	0.002457	0.000000	0.000780	1.58	0.02	0.04
A2135-A2134	A2135	A2134	6	47	0.0162	0.001918	0.000000	0.000596	0.90	0.02	0.05	0.001918	0.000000	0.000596	0.90	0.02	0.05	0.001918	0.000000	0.000596	0.90	0.02	0.05
A2136-A2133	A2136	A2133	8	153	0.0412	0.006634	0.000000	0.002296	1.73	0.03	0.05	0.006634	0.000000	0.002296	1.73	0.03	0.05	0.006634	0.000000	0.002296	1.73	0.03	0.05
A2137-A2136	A2137	A2136	6	139	0.0347	0.001578	0.000000	0.000482	1.10	0.02	0.04	0.001578	0.000000	0.000482	1.10	0.02	0.04	0.001578	0.000000	0.000482	1.10	0.02	0.04
A2138-A2136	A2138	A2136	6	162	0.0538	0.004242	0.000000	0.001412	1.73	0.03	0.05	0.004242	0.000000	0.001412	1.73	0.03	0.05	0.004242	0.000000	0.001412	1.73	0.03	0.05
A2139-A2130	A2139	A2130	8	215	0.0623	0.012497	0.000000	0.004570	2.43	0.04	0.06	0.012497	0.000000	0.004570	2.43	0.04	0.06	0.012497	0.000000	0.004570	2.43	0.04	0.06
A2140-A2139	A2140	A2139	8	215	0.0331	0.010918	0.000000	0.003946	1.87	0.04	0.06	0.010918	0.000000	0.003946	1.87	0.04	0.06	0.010918	0.000000	0.003946	1.87	0.04	0.06
A2141-A2132	A2141	A2132	8	212	0.0246	0.007462	0.000000	0.002609	1.50	0.04	0.06	0.007462	0.000000	0.002609	1.50	0.04	0.06	0.007462	0.000000	0.002609	1.50	0.04	0.06
A2142-A2141	A2142	A2141	8	220	0.0080	0.006082	0.000000	0.002089	0.95	0.04	0.07	0.006082	0.000000	0.002089	0.95	0.04	0.07	0.006082	0.000000	0.002089	0.95	0.04	0.07
A2143-A2142	A2143	A2142	8	278	0.0254	0.005034	0.000000	0.001701	1.35	0.03	0.05	0.005034	0.000000	0.001701	1.35	0.03	0.05	0.005034	0.000000	0.001701	1.35	0.03	0.05
A2144-A2128	A2144	A2128	6	181	0.0384	0.001054	0.000000	0.000311	1.01	0.01	0.03	0.001054	0.000000	0.000311	1.01	0.01	0.03	0.001054	0.000000	0.000311	1.01	0.01	0.03
A2145-A2113	A2145	A2113	8	185	0.0058	0.005260	0.000000	0.001784	0.82	0.04	0.07	0.005260	0.000000	0.001784	0.82	0.04	0.07	0.005260	0.000000	0.001784	0.82	0.04	0.07
A2146AS-A2145	A2146AS	A2145	8	293	0.0381	0.002889	0.000000	0.000930	1.31	0.02	0.03	0.002889	0.000000	0.000930	1.31	0.02	0.03	0.002889	0.000000	0.000930	1.31	0.02	0.03
A2146BS-A2149	A2146BS	A2149	8	242	0.0067	0.004159	0.000000	0.001382	0.80	0.04	0.06	0.004159	0.000000	0.001382	0.80	0.04	0.06						

City of Brea - Sewer Master Plan (November 2021)

Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
A2147-A2145	A2147	A2145	8	125	0.0016	0.001838	0.000000	0.000569	0.38	0.04	0.05	0.001838	0.000000	0.000569	0.38	0.04	0.05	0.001838	0.000000	0.000569	0.38	0.04	0.05
A2148-A2111	A2148	A2111	8	361	0.0503	0.012708	0.000000	0.004654	2.27	0.04	0.06	0.012708	0.000000	0.004654	2.27	0.04	0.06	0.012708	0.000000	0.004654	2.27	0.04	0.06
A2149-A2148	A2149	A2148	8	188	0.0301	0.007895	0.000000	0.002774	1.64	0.04	0.05	0.007895	0.000000	0.002774	1.64	0.04	0.05	0.007895	0.000000	0.002774	1.64	0.04	0.05
A2150-A2146BS	A2150	A2146BS	8	30	0.0067	0.000735	0.000000	0.000210	0.47	0.02	0.03	0.000735	0.000000	0.000210	0.47	0.02	0.03	0.000735	0.000000	0.000210	0.47	0.02	0.03
A2151-A2102	A2151	A2102	8	127	0.0212	0.001713	0.000000	0.000527	0.91	0.02	0.03	0.001713	0.000000	0.000527	0.91	0.02	0.03	0.001713	0.000000	0.000527	0.91	0.02	0.03
A22-A23	A22	A23	10	247	0.0180	0.620293	0.000000	0.318539	4.83	0.33	0.39	0.620293	0.000000	0.318539	4.83	0.33	0.39	0.620293	0.000000	0.318539	4.83	0.33	0.39
A23-A24	A23	A24	10	317	0.0197	0.644013	0.000000	0.331801	5.04	0.33	0.39	0.644013	0.000000	0.331801	5.04	0.33	0.39	0.644013	0.000000	0.331801	5.04	0.33	0.39
A2301-A23	A2301	A23	8	200	0.0270	0.031861	0.000000	0.012639	2.41	0.07	0.11	0.031861	0.000000	0.012639	2.41	0.07	0.11	0.031861	0.000000	0.012639	2.41	0.07	0.11
A2302-A2301	A2302	A2301	8	235	0.0648	0.030697	0.000000	0.012138	3.23	0.06	0.09	0.030697	0.000000	0.012138	3.23	0.06	0.09	0.030697	0.000000	0.012138	3.23	0.06	0.09
A2303-A2302	A2303	A2302	8	265	0.0248	0.018617	0.000000	0.007048	1.99	0.06	0.09	0.018617	0.000000	0.007048	1.99	0.06	0.09	0.018617	0.000000	0.007048	1.99	0.06	0.09
A2304-A2303	A2304	A2303	8	347	0.0140	0.015054	0.000000	0.005595	1.53	0.06	0.09	0.015054	0.000000	0.005595	1.53	0.06	0.09	0.015054	0.000000	0.005595	1.53	0.06	0.09
A2305-A2304	A2305	A2304	8	350	0.0243	0.006346	0.000000	0.002188	1.42	0.03	0.05	0.006346	0.000000	0.002188	1.42	0.03	0.05	0.006346	0.000000	0.002188	1.42	0.03	0.05
A2306S-A2305	A2306S	A2305	8	131	0.0095	0.001844	0.000000	0.000571	0.70	0.02	0.04	0.001844	0.000000	0.000571	0.70	0.02	0.04	0.001844	0.000000	0.000571	0.70	0.02	0.04
A2307-A2302	A2307	A2302	8	202	0.0264	0.011310	0.000000	0.004100	1.75	0.04	0.07	0.011310	0.000000	0.004100	1.75	0.04	0.07	0.011310	0.000000	0.004100	1.75	0.04	0.07
A2308-A2307	A2308	A2307	8	180	0.0177	0.009061	0.000000	0.003222	1.42	0.04	0.07	0.009061	0.000000	0.003222	1.42	0.04	0.07	0.009061	0.000000	0.003222	1.42	0.04	0.07
A2309-A2308	A2309	A2308	8	323	0.0100	0.006703	0.000000	0.002322	1.06	0.04	0.07	0.006703	0.000000	0.002322	1.06	0.04	0.07	0.006703	0.000000	0.002322	1.06	0.04	0.07
A24-A25	A24	A25	10	312	0.0212	0.644013	0.000000	0.331801	5.18	0.32	0.38	0.644013	0.000000	0.331801	5.18	0.32	0.38	0.644013	0.000000	0.331801	5.18	0.32	0.38
A25-A26	A25	A26	10	324	0.0217	0.644013	0.000000	0.331801	5.23	0.32	0.38	0.644013	0.000000	0.331801	5.23	0.32	0.38	0.644013	0.000000	0.331801	5.23	0.32	0.38
A26-A27	A26	A27	12	350	0.0099	0.837112	0.000000	0.441235	4.17	0.42	0.42	0.837112	0.000000	0.441235	4.17	0.42	0.42	0.837112	0.000000	0.441235	4.17	0.42	0.42
A2601-A26	A2601	A26	8	192	0.0341	0.092504	0.000000	0.040259	3.59	0.11	0.17	0.092504	0.000000	0.040259	3.59	0.11	0.17	0.092504	0.000000	0.040259	3.59	0.11	0.17
A2602-A2601	A2602	A2601	8	221	0.0428	0.087875	0.000000	0.038074	3.83	0.11	0.16	0.087875	0.000000	0.038074	3.83	0.11	0.16	0.087875	0.000000	0.038074	3.83	0.11	0.16
A2603-A2602	A2603	A2602	8	285	0.0439	0.085911	0.000000	0.037150	3.84	0.10	0.16	0.085911	0.000000	0.037150	3.84	0.10	0.16	0.085911	0.000000	0.037150	3.84	0.10	0.16
A2604-A2603	A2604	A2603	8	232	0.0439	0.080851	0.000000	0.034778	3.77	0.10	0.15	0.080851	0.000000	0.034778	3.77	0.10	0.15	0.080851	0.000000	0.034778	3.77	0.10	0.15
A2605-A2604	A2605	A2604	8	250	0.0301	0.027664	0.000000	0.010840	2.40	0.07	0.10	0.027664	0.000000	0.010840	2.40	0.07	0.10	0.027664	0.000000	0.010840	2.40	0.07	0.10
A2606-A2605	A2606	A2605	8	279	0.0334	0.020813	0.000000	0.007956	2.28	0.06	0.08	0.020813	0.000000	0.007956	2.28	0.06	0.08	0.020813	0.000000	0.007956	2.28	0.06	0.08
A2607-A2606	A2607	A2606	8	274	0.0208	0.006788	0.000000	0.002354	1.38	0.04	0.06	0.006788	0.000000	0.002354	1.38	0.04	0.06	0.006788	0.000000	0.002354	1.38	0.04	0.06
A2608-A2607	A2608	A2607	8	159	0.0098	0.003360	0.000000	0.001096	0.86	0.03	0.05	0.003360	0.000000	0.001096	0.86	0.03	0.05	0.003360	0.000000	0.001096	0.86	0.03	0.05
A2609-A2601	A2609	A2601	8	260	0.0719	0.004476	0.000000	0.001497	1.87	0.02	0.03	0.004476	0.000000	0.001497	1.87	0.02	0.03	0.004476	0.000000	0.001497	1.87	0.02	0.03
A2610-A2603	A2610	A2603	8	111	0.0177	0.002019	0.000000	0.000630	0.90	0.02	0.03	0.002019	0.000000	0.000630	0.90	0.02	0.03	0.002019	0.000000	0.000630	0.90	0.02	0.03
A2611-A2605	A2611	A2605	8	239	0.0115	0.005273	0.000000	0.001789	1.04	0.04	0.06	0.005273	0.000000	0.001789	1.04	0.04	0.06	0.005273	0.000000	0.001789	1.04	0.04	0.06
A2612-A2606	A2612	A2606	8	265	0.0076	0.010799	0.000000	0.003899	1.12	0.06	0.09	0.010799	0.000000	0.003899	1.12	0.06	0.09	0.010799	0.000000	0.003899	1.12	0.06	0.09
A2613-A2612	A2613	A2612	8	273	0.0104	0.005474	0.000000	0.001863	1.01	0.04	0.06	0.005474	0.000000	0.001863	1.01	0.04	0.06	0.005474	0.000000	0.001863	1.01	0.04	0.06
A2614S-A2612	A2614S	A2612	8	266	0.0136	0.003873	0.000000	0.001279	1.00	0.03	0.05	0.003873	0.000000	0.001279	1.00	0.03	0.05	0.003873	0.000000	0.001279	1.00	0.03	0.05
A2615-A2604	A2615	A2604	8	286	0.0067	0.055456	0.000000	0.023085	1.74	0.13	0.20	0.055456	0.000000	0.023085	1.74	0.13	0.20	0.055456	0.000000	0.023085	1.74	0.13	0.20
A2616-A2615	A2616	A2615	8	333	0.0072	0.007011	0.000000	0.002438	0.96	0.05	0.07	0.007011	0.000000	0.002438	0.96	0.05	0.07	0.007011	0.000000	0.002438	0.96	0.05	0.07
A2617-A2615	A2617	A2615	8	300	0.0307	0.021498	0.000000	0.008241	2.24	0.06	0.09	0.021498	0.000000	0.008241	2.24	0.06	0.09	0.021498	0.000000	0.008241	2.24	0.06	0.09
A2618-A2617	A2618	A2617	8	225	0.0351	0.010260	0.000000	0.003688	1.87	0.04	0.06	0.010260	0.000000	0.003688	1.87	0.04	0.06	0.010260	0.000000	0.003688	1.87	0.04	0.06
A2619-A2618	A2619	A2618	8	278	0.0252	0.007399	0.000000	0.002585	1.51	0.04	0.06	0.007399	0.000000	0.002585	1.51	0.04	0.06	0.007399	0.000000	0.002585	1.51	0.04	0.06
A2620AS-A2619	A2620AS	A2619	8	131	0.0109	0.002341	0.000000	0.000740	0.80	0.03	0.04	0.002341	0.000000	0.000740	0.80	0.03	0.04	0.002341	0.000000	0.000740	0.80	0.03	0.04
A2620BS-A2626	A2620BS	A2626	8	128	0.0050	0.003303	0.000000	0.001076	0.67	0.04	0.06	0.003303	0.000000	0.001076	0.67	0.04	0.06	0.003303	0.000000	0.001076	0.67	0.04	0.06
A2621-A2615	A2621	A2615	8	308	0.0160	0.027957	0.000000	0.010965	1.93	0.08	0.12	0.027957	0.000000	0.010965	1.93	0.08	0.12	0.027957	0.000000	0.010965	1.93	0.08	0.12
A2622-A2621	A2622	A2621	8	330	0.0086	0.025572	0.000000	0.009952	1.51	0.09	0.13	0.025572	0.000000	0.009952	1.51	0.09	0.13	0.025572	0.000000	0.009952	1.51	0.09	0.13
A2623-A2622	A2623	A2622	8	320	0.0180	0.017002	0.000000	0.006386	1.73	0.06	0.09	0.017002	0.000000	0.006386	1.73	0.06	0.09	0.017002	0.000000	0.006386	1.73	0.06	0.09
A2624-A2623	A2624	A2623	8	324	0.0180	0.013473	0.000000	0.004959	1.61	0.05	0.08	0.013473	0.000000	0.004959	1.61	0.05	0.08	0.013473	0.000000	0.004959	1.61	0.05	0.08
A2625-A2624	A2625	A2624	8	71	0.0327	0.006929	0.000000	0.002407	1.62	0.03	0.05	0.006929	0.000000	0.002407	1.62	0.03	0.05	0.006929	0.000000	0.002407	1.62	0.03	0.05
A2626-A2625	A2626	A2625	8	161	0.0200	0.006421	0.000000	0.002216	1.34	0.04	0.05	0.006421	0.000000	0.002216	1.34	0.04	0.05	0.006421	0.000000	0.002216	1.34		

City of Brea - Sewer Master Plan (November 2021)

Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
A2627-A2624	A2627	A2624	8	127	0.0116	0.003492	0.000000	0.001143	0.92	0.03	0.05	0.003492	0.000000	0.001143	0.92	0.03	0.05	0.003492	0.000000	0.001143	0.92	0.03	0.05
A2628-A2622	A2628	A2622	8	76	0.0074	0.005512	0.000000	0.001877	0.90	0.04	0.06	0.005512	0.000000	0.001877	0.90	0.04	0.06	0.005512	0.000000	0.001877	0.90	0.04	0.06
A2629-A2617	A2629	A2617	8	373	0.0105	0.009801	0.000000	0.003509	1.21	0.05	0.08	0.009801	0.000000	0.003509	1.21	0.05	0.08	0.009801	0.000000	0.003509	1.21	0.05	0.08
A2630-A2629	A2630	A2629	8	172	0.0211	0.006464	0.000000	0.002232	1.36	0.04	0.05	0.006464	0.000000	0.002232	1.36	0.04	0.05	0.006464	0.000000	0.002232	1.36	0.04	0.05
A2631-A26	A2631	A26	8	300	0.0235	0.102141	0.000000	0.044838	3.25	0.13	0.20	0.102141	0.000000	0.044838	3.25	0.13	0.20	0.102141	0.000000	0.044838	3.25	0.13	0.20
A2632-A2631	A2632	A2631	8	90	0.0300	0.102141	0.000000	0.044838	3.54	0.12	0.19	0.102141	0.000000	0.044838	3.54	0.12	0.19	0.102141	0.000000	0.044838	3.54	0.12	0.19
A2633-A2632	A2633	A2632	8	353	0.0173	0.077483	0.000000	0.033206	2.68	0.12	0.19	0.077483	0.000000	0.033206	2.68	0.12	0.19	0.077483	0.000000	0.033206	2.68	0.12	0.19
A2634-A2633	A2634	A2633	8	180	0.0046	0.065449	0.000000	0.027640	1.59	0.16	0.24	0.065449	0.000000	0.027640	1.59	0.16	0.24	0.065449	0.000000	0.027640	1.59	0.16	0.24
A2635-A2634	A2635	A2634	8	59	0.0112	0.047190	0.000000	0.019370	1.99	0.11	0.16	0.047190	0.000000	0.019370	1.99	0.11	0.16	0.047190	0.000000	0.019370	1.99	0.11	0.16
A2636-A2635	A2636	A2635	8	258	0.0103	0.046714	0.000000	0.019158	1.93	0.11	0.16	0.046714	0.000000	0.019158	1.93	0.11	0.16	0.046714	0.000000	0.019158	1.93	0.11	0.16
A2637-A2636	A2637	A2636	8	216	0.0031	0.018947	0.000000	0.007184	0.97	0.09	0.14	0.018947	0.000000	0.007184	0.97	0.09	0.14	0.018947	0.000000	0.007184	0.97	0.09	0.14
A2638-A2637	A2638	A2637	8	85	0.0040	0.009252	0.000000	0.003296	0.85	0.06	0.09	0.009252	0.000000	0.003296	0.85	0.06	0.09	0.009252	0.000000	0.003296	0.85	0.06	0.09
A2639-A2638	A2639	A2638	8	250	0.0138	0.008248	0.000000	0.002909	1.27	0.04	0.07	0.008248	0.000000	0.002909	1.27	0.04	0.07	0.008248	0.000000	0.002909	1.27	0.04	0.07
A2640-A2639	A2640	A2639	8	255	0.0232	0.004742	0.000000	0.001594	1.28	0.03	0.05	0.004742	0.000000	0.001594	1.28	0.03	0.05	0.004742	0.000000	0.001594	1.28	0.03	0.05
A2641-A2632	A2641	A2632	8	120	0.0300	0.029518	0.000000	0.011632	2.44	0.07	0.10	0.029518	0.000000	0.011632	2.44	0.07	0.10	0.029518	0.000000	0.011632	2.44	0.07	0.10
A2642-A2641	A2642	A2641	8	124	0.0313	0.029518	0.000000	0.011632	2.48	0.07	0.10	0.029518	0.000000	0.011632	2.48	0.07	0.10	0.029518	0.000000	0.011632	2.48	0.07	0.10
A2643-A2642	A2643	A2642	8	246	0.0300	0.021646	0.000000	0.008303	2.22	0.06	0.09	0.021646	0.000000	0.008303	2.22	0.06	0.09	0.021646	0.000000	0.008303	2.22	0.06	0.09
A2644-A2643	A2644	A2643	8	313	0.0300	0.004184	0.000000	0.001391	1.35	0.03	0.04	0.004184	0.000000	0.001391	1.35	0.03	0.04	0.004184	0.000000	0.001391	1.35	0.03	0.04
A2645-A2642	A2645	A2642	8	208	0.0263	0.009032	0.000000	0.003211	1.63	0.04	0.06	0.009032	0.000000	0.003211	1.63	0.04	0.06	0.009032	0.000000	0.003211	1.63	0.04	0.06
A2646-A2645	A2646	A2645	8	217	0.0317	0.006889	0.000000	0.002392	1.60	0.03	0.05	0.006889	0.000000	0.002392	1.60	0.03	0.05	0.006889	0.000000	0.002392	1.60	0.03	0.05
A2647-A2646	A2647	A2646	8	225	0.0312	0.004228	0.000000	0.001407	1.37	0.03	0.04	0.004228	0.000000	0.001407	1.37	0.03	0.04	0.004228	0.000000	0.001407	1.37	0.03	0.04
A2648-A2633	A2648	A2633	8	265	0.0271	0.009024	0.000000	0.003208	1.65	0.04	0.06	0.009024	0.000000	0.003208	1.65	0.04	0.06	0.009024	0.000000	0.003208	1.65	0.04	0.06
A2649-A2648	A2649	A2648	8	289	0.0228	0.007114	0.000000	0.002477	1.44	0.04	0.06	0.007114	0.000000	0.002477	1.44	0.04	0.06	0.007114	0.000000	0.002477	1.44	0.04	0.06
A2650-A2649	A2650	A2649	8	255	0.0290	0.003873	0.000000	0.001279	1.30	0.03	0.04	0.003873	0.000000	0.001279	1.30	0.03	0.04	0.003873	0.000000	0.001279	1.30	0.03	0.04
A2651-A2634	A2651	A2634	8	283	0.0244	0.018352	0.000000	0.006939	1.97	0.06	0.09	0.018352	0.000000	0.006939	1.97	0.06	0.09	0.018352	0.000000	0.006939	1.97	0.06	0.09
A2652-A2651	A2652	A2651	8	350	0.0257	0.014668	0.000000	0.005439	1.87	0.05	0.08	0.014668	0.000000	0.005439	1.87	0.05	0.08	0.014668	0.000000	0.005439	1.87	0.05	0.08
A2653-A2652	A2653	A2652	8	342	0.0100	0.007483	0.000000	0.002617	1.10	0.05	0.07	0.007483	0.000000	0.002617	1.10	0.05	0.07	0.007483	0.000000	0.002617	1.10	0.05	0.07
A2654-A2636	A2654	A2636	8	176	0.0140	0.027702	0.000000	0.010856	1.84	0.08	0.12	0.027702	0.000000	0.010856	1.84	0.08	0.12	0.027702	0.000000	0.010856	1.84	0.08	0.12
A2655-A2654	A2655	A2654	8	223	0.0260	0.025078	0.000000	0.009743	2.21	0.07	0.10	0.025078	0.000000	0.009743	2.21	0.07	0.10	0.025078	0.000000	0.009743	2.21	0.07	0.10
A2656-A2655	A2656	A2655	8	215	0.0123	0.017097	0.000000	0.006425	1.52	0.06	0.10	0.017097	0.000000	0.006425	1.52	0.06	0.10	0.017097	0.000000	0.006425	1.52	0.06	0.10
A2657-A2656	A2657	A2656	8	318	0.0158	0.011614	0.000000	0.004220	1.47	0.05	0.08	0.011614	0.000000	0.004220	1.47	0.05	0.08	0.011614	0.000000	0.004220	1.47	0.05	0.08
A2658-A2657	A2658	A2657	8	108	0.0296	0.003464	0.000000	0.001133	1.27	0.02	0.04	0.003464	0.000000	0.001133	1.27	0.02	0.04	0.003464	0.000000	0.001133	1.27	0.02	0.04
A2659-A2657	A2659	A2657	8	190	0.0123	0.004871	0.000000	0.001641	1.04	0.04	0.05	0.004871	0.000000	0.001641	1.04	0.04	0.05	0.004871	0.000000	0.001641	1.04	0.04	0.05
A2660-A2656	A2660	A2656	8	225	0.0129	0.005072	0.000000	0.001715	1.07	0.04	0.05	0.005072	0.000000	0.001715	1.07	0.04	0.05	0.005072	0.000000	0.001715	1.07	0.04	0.05
A2661-A2655	A2661	A2655	8	324	0.0082	0.007259	0.000000	0.002532	1.02	0.05	0.07	0.007259	0.000000	0.002532	1.02	0.05	0.07	0.007259	0.000000	0.002532	1.02	0.05	0.07
A2662-A2661	A2662	A2661	8	172	0.0077	0.001972	0.000000	0.000614	0.67	0.03	0.04	0.001972	0.000000	0.000614	0.67	0.03	0.04	0.001972	0.000000	0.000614	0.67	0.03	0.04
A2663-A2637	A2663	A2637	8	250	0.0126	0.009234	0.000000	0.003289	1.27	0.05	0.07	0.009234	0.000000	0.003289	1.27	0.05	0.07	0.009234	0.000000	0.003289	1.27	0.05	0.07
A2664-A2663	A2664	A2663	8	253	0.0223	0.006490	0.000000	0.002242	1.39	0.04	0.05	0.006490	0.000000	0.002242	1.39	0.04	0.05	0.006490	0.000000	0.002242	1.39	0.04	0.05
A27-A28	A27	A28	12	400	0.0088	0.838676	0.000000	0.442131	3.99	0.43	0.43	0.838676	0.000000	0.442131	3.99	0.43	0.43	0.838676	0.000000	0.442131	3.99	0.43	0.43
A28-A29	A28	A29	12	367	0.0088	0.863093	0.000000	0.456140	4.03	0.44	0.44	0.863093	0.000000	0.456140	4.03	0.44	0.44	0.863093	0.000000	0.456140	4.03	0.44	0.44
A2801-A28	A2801	A28	8	194	0.0295	0.035025	0.000000	0.014009	2.56	0.07	0.11	0.035025	0.000000	0.014009	2.56	0.07	0.11	0.035025	0.000000	0.014009	2.56	0.07	0.11
A2802-A2801	A2802	A2801	8	190	0.0303	0.021243	0.000000	0.008135	2.22	0.06	0.09	0.021243	0.000000	0.008135	2.22	0.06	0.09	0.021243	0.000000	0.008135	2.22	0.06	0.09
A2803-A2802	A2803	A2802	8	316	0.0368	0.018998	0.000000	0.007205	2.30	0.05	0.08	0.018998	0.000000	0.007205	2.30	0.05	0.08	0.018998	0.000000	0.007205	2.30	0.05	0.08
A2804-A2803	A2804	A2803	8	316	0.0400	0.013782	0.000000	0.005083	2.14	0.04	0.07	0.013782	0.000000	0.005083	2.14	0.04	0.07	0.013782	0.000000	0.005083	2.14	0.04	0.07
A2805-A2804	A2805	A2804	8	317	0.0361	0.009531	0.000000	0.003404	1.85	0.04	0.06	0.009531	0.000000	0.003404	1.85	0.04	0.06	0.009531	0.000000	0.003404	1.85	0.04	0.06
A2806-A2805	A2806	A2805	8	151	0.0113	0.005146	0.000000	0.001742	1.02	0.04	0.06	0.005146	0.000000	0.001742	1.02	0.04	0.06	0.005146	0.000000	0.001742			

City of Brea - Sewer Master Plan (November 2021)

Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
A2807-A2801	A2807	A2801	8	155	0.0133	0.014417	0.000000	0.005338	1.48	0.06	0.09	0.014417	0.000000	0.005338	1.48	0.06	0.09	0.014417	0.000000	0.005338	1.48	0.06	0.09
A2808-A2807	A2808	A2807	8	260	0.0407	0.012663	0.000000	0.004636	2.10	0.04	0.06	0.012663	0.000000	0.004636	2.10	0.04	0.06	0.012663	0.000000	0.004636	2.10	0.04	0.06
A2809-A2808	A2809	A2808	8	371	0.0700	0.010209	0.000000	0.003668	2.38	0.03	0.05	0.010209	0.000000	0.003668	2.38	0.03	0.05	0.010209	0.000000	0.003668	2.38	0.03	0.05
A2810-A2809	A2810	A2809	8	371	0.0200	0.004816	0.000000	0.001621	1.22	0.03	0.05	0.004816	0.000000	0.001621	1.22	0.03	0.05	0.004816	0.000000	0.001621	1.22	0.03	0.05
A2811-A2807	A2811	A2807	8	234	0.0100	0.001433	0.000000	0.000434	0.66	0.02	0.03	0.001433	0.000000	0.000434	0.66	0.02	0.03	0.001433	0.000000	0.000434	0.66	0.02	0.03
A29-A30	A29	A30	12	140	0.0098	0.863093	0.000000	0.456140	4.19	0.43	0.43	0.863093	0.000000	0.456140	4.19	0.43	0.43	0.863093	0.000000	0.456140	4.19	0.43	0.43
A30-OUTLETA	A30	OUT_ASSOCIATED	12	245	0.0111	0.895326	0.000000	0.474686	4.43	0.42	0.42	0.966681	0.000000	0.515946	4.52	0.44	0.44	0.966681	0.000000	0.515946	4.52	0.44	0.44
B01-B02	B01	B02	8	313	0.0121	0.007979	0.000000	0.002806	1.20	0.05	0.07	0.007979	0.000000	0.002806	1.20	0.05	0.07	0.007979	0.000000	0.002806	1.20	0.05	0.07
B02-B03	B02	B03	8	237	0.0217	0.023910	0.000000	0.009251	2.05	0.07	0.10	0.023910	0.000000	0.009251	2.05	0.07	0.10	0.023910	0.000000	0.009251	2.05	0.07	0.10
B03-B04	B03	B04	8	274	0.0067	0.029845	0.000000	0.011772	1.45	0.10	0.15	0.029845	0.000000	0.011772	1.45	0.10	0.15	0.029845	0.000000	0.011772	1.45	0.10	0.15
B04-B05	B04	B05	8	182	0.0158	0.039876	0.000000	0.016130	2.14	0.09	0.14	0.039876	0.000000	0.016130	2.14	0.09	0.14	0.039876	0.000000	0.016130	2.14	0.09	0.14
B05-B06	B05	B06	8	182	0.0104	0.044180	0.000000	0.018031	1.90	0.11	0.16	0.044180	0.000000	0.018031	1.90	0.11	0.16	0.044180	0.000000	0.018031	1.90	0.11	0.16
B06-B07	B06	B07	8	216	0.0014	0.044180	0.000000	0.018031	0.93	0.18	0.26	0.044180	0.000000	0.018031	1.13	0.25	0.38	0.044180	0.000000	0.018031	1.13	0.25	0.38
B07-B08	B07	B08	8	148	0.0032	0.044180	0.000000	0.018031	1.26	0.14	0.21	0.044180	0.000000	0.018031	1.54	0.20	0.30	0.044180	0.000000	0.018031	1.54	0.20	0.30
B08-B09	B08	B09	8	48	0.0083	0.044180	0.000000	0.018031	1.76	0.11	0.17	0.044180	0.000000	0.018031	2.15	0.16	0.24	0.044180	0.000000	0.018031	2.15	0.16	0.24
B09-B10	B09	B10	8	43	0.0093	0.136239	0.000000	0.061323	2.54	0.19	0.29	0.136239	0.000000	0.061323	2.74	0.22	0.33	0.136239	0.000000	0.061323	2.74	0.22	0.33
B0901-B09	B0901	B09	8	179	0.0063	0.098897	0.000000	0.043292	2.02	0.18	0.27	0.098897	0.000000	0.043292	2.03	0.18	0.27	0.098897	0.000000	0.043292	2.03	0.18	0.27
B0902-B0901	B0902	B0901	8	308	0.0056	0.098018	0.000000	0.042874	1.93	0.18	0.28	0.098018	0.000000	0.042874	1.94	0.19	0.28	0.098018	0.000000	0.042874	1.94	0.19	0.28
B0903-B0902	B0903	B0902	8	420	0.0052	0.098018	0.000000	0.042874	1.88	0.19	0.28	0.098018	0.000000	0.042874	1.89	0.19	0.28	0.098018	0.000000	0.042874	1.89	0.19	0.28
B0904-B0903	B0904	B0903	8	366	0.0058	0.098018	0.000000	0.042874	1.95	0.18	0.27	0.098018	0.000000	0.042874	1.96	0.18	0.28	0.098018	0.000000	0.042874	1.96	0.18	0.28
B0905-B0904	B0905	B0904	8	217	0.0057	0.098018	0.000000	0.042874	1.94	0.18	0.28	0.098018	0.000000	0.042874	1.95	0.19	0.28	0.098018	0.000000	0.042874	1.95	0.19	0.28
B0906-B0905	B0906	B0905	8	179	0.0063	0.085928	0.000000	0.037158	1.93	0.17	0.25	0.085928	0.000000	0.037158	1.95	0.17	0.25	0.085928	0.000000	0.037158	1.95	0.17	0.25
B0907-B0906	B0907	B0906	8	500	0.0044	0.085928	0.000000	0.037158	1.70	0.18	0.28	0.085928	0.000000	0.037158	1.72	0.19	0.28	0.085928	0.000000	0.037158	1.72	0.19	0.28
B0908D-B0907	B0908D	B0907	8	248	0.0006	0.064555	0.000000	0.027230	0.77	0.27	0.40	0.064555	0.000000	0.027230	0.78	0.27	0.41	0.064555	0.000000	0.027230	0.78	0.27	0.41
B0909-B0908D	B0909	B0908D	8	19	0.0063	0.064555	0.000000	0.027230	1.78	0.14	0.22	0.064555	0.000000	0.027230	1.80	0.15	0.22	0.064555	0.000000	0.027230	1.80	0.15	0.22
B0911-B0920	B0911	B0920	8	151	0.0070	0.060687	0.000000	0.025461	1.81	0.14	0.21	0.060687	0.000000	0.025461	1.83	0.14	0.21	0.060687	0.000000	0.025461	1.83	0.14	0.21
B0912-B0911	B0912	B0911	8	20	0.0125	0.060129	0.000000	0.025207	2.22	0.12	0.18	0.060129	0.000000	0.025207	2.25	0.12	0.18	0.060129	0.000000	0.025207	2.25	0.12	0.18
B0913-B0912	B0913	B0912	8	337	0.0066	0.054107	0.000000	0.022475	1.72	0.13	0.20	0.054107	0.000000	0.022475	1.74	0.13	0.20	0.054107	0.000000	0.022475	1.74	0.13	0.20
B0914-B0913	B0914	B0913	8	6	0.0667	0.052250	0.000000	0.021638	3.83	0.07	0.11	0.052250	0.000000	0.021638	3.88	0.08	0.11	0.052250	0.000000	0.021638	3.88	0.08	0.11
B0915-B0914	B0915	B0914	8	378	0.0099	0.041672	0.000000	0.016921	1.84	0.10	0.16	0.041672	0.000000	0.016921	1.87	0.11	0.16	0.041672	0.000000	0.016921	1.87	0.11	0.16
B0916-B0915	B0916	B0915	8	371	0.0073	0.033643	0.000000	0.013409	1.55	0.10	0.15	0.033643	0.000000	0.013409	1.58	0.11	0.16	0.033643	0.000000	0.013409	1.58	0.11	0.16
B0917-B0914	B0917	B0914	8	213	0.0052	0.012866	0.000000	0.004717	1.03	0.07	0.10	0.012866	0.000000	0.004717	1.03	0.07	0.10	0.012866	0.000000	0.004717	1.03	0.07	0.10
B0918-B0917	B0918	B0917	8	268	0.0050	0.012866	0.000000	0.004717	1.02	0.07	0.11	0.012866	0.000000	0.004717	1.02	0.07	0.11	0.012866	0.000000	0.004717	1.02	0.07	0.11
B0919-B0914	B0919	B0914	6	172	0.0300	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
B0920-B0909	B0920	B0909	8	217	0.0067	0.064555	0.000000	0.027230	1.82	0.14	0.21	0.064555	0.000000	0.027230	1.84	0.15	0.22	0.064555	0.000000	0.027230	1.84	0.15	0.22
B0921-B0920	B0921	B0920	6	98	0.0626	0.004128	0.000000	0.001371	1.81	0.02	0.05	0.004128	0.000000	0.001371	1.81	0.02	0.05	0.004128	0.000000	0.001371	1.81	0.02	0.05
B0922-B0921	B0922	B0921	6	244	0.0148	0.003011	0.000000	0.000973	1.00	0.03	0.06	0.003011	0.000000	0.000973	1.00	0.03	0.06	0.003011	0.000000	0.000973	1.00	0.03	0.06
B10-B1001	B10	B1001	8	212	0.0057	0.156370	0.000000	0.071233	2.68	0.20	0.31	0.156370	0.000000	0.071233	2.86	0.23	0.35	0.156370	0.000000	0.071233	2.86	0.23	0.35
B1001-B11	B1001	B11	8	434	0.0073	0.160338	0.000000	0.073200	2.44	0.22	0.33	0.160338	0.000000	0.073200	2.60	0.25	0.38	0.160338	0.000000	0.073200	2.60	0.25	0.38
B11-B12	B11	B12	8	180	0.0258	0.244564	0.000000	0.115827	4.32	0.20	0.30	0.244564	0.000000	0.115827	4.54	0.22	0.33	0.244564	0.000000	0.115827	4.54	0.22	0.33
B1101-B11	B1101	B11	8	360	0.0083	0.085579	0.000000	0.036994	2.14	0.16	0.23	0.085579	0.000000	0.036994	2.19	0.16	0.24	0.085579	0.000000	0.036994	2.19	0.16	0.24
B1102-B1101	B1102	B1101	8	660	0.0099	0.080993	0.000000	0.034844	2.24	0.15	0.22	0.080993	0.000000	0.034844	2.30	0.15	0.23	0.080993	0.000000	0.034844	2.30	0.15	0.23
B1103-B1102	B1103	B1102	8	650	0.0072	0.070647	0.000000	0.030034	1.92	0.15	0.22	0.070647	0.000000	0.030034	1.98	0.15	0.23	0.070647	0.000000	0.030034	1.98	0.15	0.23
B1104-B1103	B1104	B1103	6	699	0.0068	0.047828	0.000000	0.019655	1.73	0.13	0.27	0.047828	0.000000	0.019655	1.73	0.13	0.27	0.047828	0.000000	0.019655	1.73	0.13	0.27
B1105-B1104	B1105	B1104	6	120	0.0070	0.019175	0.000000	0.007278	1.34	0.09	0.17	0.019175	0.000000	0.007278	1.34	0.09	0.17	0.019175	0.000000	0.007278	1.34	0.09	0.17

City of Brea - Sewer Master Plan (November 2021)

Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
B1106-B1110	B1106	B1110	8	296	0.0050	0.008261	0.000000	0.002914	0.89	0.06	0.09	0.008261	0.000000	0.002914	0.89	0.06	0.09	0.008261	0.000000	0.002914	0.89	0.06	0.09
B1109-IB1108	B1109	IB1108	8	101	0.0140	0.039869	0.000000	0.016127	2.05	0.09	0.14	0.039869	0.000000	0.016127	2.05	0.09	0.14	0.039869	0.000000	0.016127	2.05	0.09	0.14
B1110-B11	B1110	B11	8	330	0.0048	0.014846	0.000000	0.005511	1.05	0.08	0.11	0.014846	0.000000	0.005511	1.05	0.08	0.11	0.014846	0.000000	0.005511	1.05	0.08	0.11
B12-B13	B12	B13	8	332	0.0063	0.244564	0.000000	0.115827	2.59	0.29	0.44	0.292548	0.000000	0.140728	2.71	0.32	0.48	0.292548	0.000000	0.140728	2.71	0.32	0.48
B13-B14	B13	B14	8	314	0.0063	0.244564	0.000000	0.115827	2.59	0.29	0.44	0.292548	0.000000	0.140728	2.71	0.32	0.48	0.292548	0.000000	0.140728	2.71	0.32	0.48
B14-B15D	B14	B15D	8	38	0.0063	0.244564	0.000000	0.115827	2.59	0.29	0.44	0.292548	0.000000	0.140728	2.72	0.32	0.48	0.292548	0.000000	0.140728	2.72	0.32	0.48
B1501-B15D	B1501	B15D	10	210	0.0048	0.032869	0.000000	0.013074	1.29	0.10	0.13	0.032869	0.000000	0.013074	1.29	0.10	0.13	0.032869	0.000000	0.013074	1.29	0.10	0.13
B1502-B1501	B1502	B1501	6	630	0.0144	0.013964	0.000000	0.005156	1.57	0.06	0.12	0.013964	0.000000	0.005156	1.57	0.06	0.12	0.013964	0.000000	0.005156	1.57	0.06	0.12
B1503-B1501	B1503	B1501	10	695	0.0114	0.020721	0.000000	0.007918	1.52	0.07	0.08	0.020721	0.000000	0.007918	1.52	0.07	0.08	0.020721	0.000000	0.007918	1.52	0.07	0.08
B150301-B1503	B150301	B1503	8	310	0.0141	0.020721	0.000000	0.007918	2.03	0.06	0.09	0.020721	0.000000	0.007918	2.03	0.06	0.09	0.020721	0.000000	0.007918	2.03	0.06	0.09
B1504-B150301	B1504	B150301	8	268	0.0141	0.012180	0.000000	0.004444	1.73	0.05	0.07	0.012180	0.000000	0.004444	1.73	0.05	0.07	0.012180	0.000000	0.004444	1.73	0.05	0.07
B1505-B15D	B1505	B15D	8	173	0.0060	0.115604	0.000000	0.051297	2.07	0.20	0.30	0.115604	0.000000	0.051297	2.07	0.20	0.30	0.115604	0.000000	0.051297	2.07	0.20	0.30
B1506D-B1505	B1506D	B1505	8	175	0.0093	0.115604	0.000000	0.051297	2.42	0.18	0.26	0.115604	0.000000	0.051297	2.42	0.18	0.26	0.115604	0.000000	0.051297	2.42	0.18	0.26
B1507-B1506D	B1507	B1506D	8	185	0.0025	0.104323	0.000000	0.045880	1.47	0.24	0.35	0.104323	0.000000	0.045880	1.47	0.24	0.35	0.104323	0.000000	0.045880	1.47	0.24	0.35
B1508-B1507	B1508	B1507	8	183	0.0033	0.091373	0.000000	0.039724	1.57	0.20	0.30	0.091373	0.000000	0.039724	1.57	0.20	0.30	0.091373	0.000000	0.039724	1.57	0.20	0.30
B1509-B1508	B1509	B1508	8	180	0.0081	0.087966	0.000000	0.038117	2.13	0.16	0.24	0.087966	0.000000	0.038117	2.13	0.16	0.24	0.087966	0.000000	0.038117	2.13	0.16	0.24
B1510-B1509	B1510	B1509	8	311	0.0247	0.020352	0.000000	0.007765	2.04	0.06	0.09	0.020352	0.000000	0.007765	2.04	0.06	0.09	0.020352	0.000000	0.007765	2.04	0.06	0.09
B1511-B1510	B1511	B1510	8	376	0.0186	0.016396	0.000000	0.006139	1.73	0.06	0.09	0.016396	0.000000	0.006139	1.73	0.06	0.09	0.016396	0.000000	0.006139	1.73	0.06	0.09
B1512-B1511	B1512	B1511	8	338	0.0151	0.009811	0.000000	0.003513	1.38	0.05	0.07	0.009811	0.000000	0.003513	1.38	0.05	0.07	0.009811	0.000000	0.003513	1.38	0.05	0.07
B1513-B1506D	B1513	B1506D	8	194	0.0074	0.013690	0.000000	0.005046	1.19	0.07	0.10	0.013690	0.000000	0.005046	1.19	0.07	0.10	0.013690	0.000000	0.005046	1.19	0.07	0.10
B1514-B1513	B1514	B1513	8	200	0.0038	0.012001	0.000000	0.004373	0.90	0.07	0.11	0.012001	0.000000	0.004373	0.90	0.07	0.11	0.012001	0.000000	0.004373	0.90	0.07	0.11
B1515-B1514	B1515	B1514	8	286	0.0036	0.008747	0.000000	0.003101	0.81	0.06	0.09	0.008747	0.000000	0.003101	0.81	0.06	0.09	0.008747	0.000000	0.003101	0.81	0.06	0.09
B1516-B1506D	B1516	B1506D	8	316	0.0072	0.000605	0.000000	0.000170	0.45	0.02	0.02	0.000605	0.000000	0.000170	0.45	0.02	0.02	0.000605	0.000000	0.000170	0.45	0.02	0.02
B1517-B1516	B1517	B1516	8	316	0.0043	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
B1518-B1507	B1518	B1507	8	625	0.0221	0.016145	0.000000	0.006037	1.83	0.05	0.08	0.016145	0.000000	0.006037	1.83	0.05	0.08	0.016145	0.000000	0.006037	1.83	0.05	0.08
B1519-B1508	B1519	B1508	8	326	0.0169	0.003411	0.000000	0.001114	1.04	0.03	0.04	0.003411	0.000000	0.001114	1.04	0.03	0.04	0.003411	0.000000	0.001114	1.04	0.03	0.04
B1520-B1519	B1520	B1519	8	346	0.0152	0.000840	0.000000	0.000243	0.65	0.02	0.02	0.000840	0.000000	0.000243	0.65	0.02	0.02	0.000840	0.000000	0.000243	0.65	0.02	0.02
B1521-B1509	B1521	B1509	8	345	0.0035	0.069540	0.000000	0.029523	1.48	0.17	0.26	0.069540	0.000000	0.029523	1.48	0.17	0.26	0.069540	0.000000	0.029523	1.48	0.17	0.26
B1522-B1521	B1522	B1521	8	320	0.0033	0.064012	0.000000	0.026981	1.41	0.17	0.25	0.064012	0.000000	0.026981	1.41	0.17	0.25	0.064012	0.000000	0.026981	1.41	0.17	0.25
B1523-B1522	B1523	B1522	8	344	0.0033	0.057784	0.000000	0.024140	1.37	0.16	0.24	0.057784	0.000000	0.024140	1.37	0.16	0.24	0.057784	0.000000	0.024140	1.37	0.16	0.24
B1524-B1523	B1524	B1523	8	30	0.0423	0.050294	0.000000	0.020759	3.23	0.08	0.12	0.050294	0.000000	0.020759	3.23	0.08	0.12	0.050294	0.000000	0.020759	3.23	0.08	0.12
B1525-B1524	B1525	B1524	8	172	0.0203	0.050294	0.000000	0.020759	2.50	0.10	0.14	0.050294	0.000000	0.020759	2.50	0.10	0.14	0.050294	0.000000	0.020759	2.50	0.10	0.14
B1526-B1525	B1526	B1525	8	296	0.0039	0.005279	0.000000	0.001791	0.71	0.05	0.07	0.005279	0.000000	0.001791	0.71	0.05	0.07	0.005279	0.000000	0.001791	0.71	0.05	0.07
B1527-B1526	B1527	B1526	8	138	0.0043	0.002587	0.000000	0.000825	0.60	0.03	0.05	0.002587	0.000000	0.000825	0.60	0.03	0.05	0.002587	0.000000	0.000825	0.60	0.03	0.05
B1528-B1525	B1528	B1525	8	150	0.0117	0.035101	0.000000	0.014042	1.85	0.09	0.14	0.035101	0.000000	0.014042	1.85	0.09	0.14	0.035101	0.000000	0.014042	1.85	0.09	0.14
B1529-B1528	B1529	B1528	8	322	0.0116	0.023046	0.000000	0.008888	1.63	0.08	0.11	0.023046	0.000000	0.008888	1.63	0.08	0.11	0.023046	0.000000	0.008888	1.63	0.08	0.11
B1530-B1529	B1530	B1529	8	351	0.0198	0.007364	0.000000	0.002572	1.39	0.04	0.06	0.007364	0.000000	0.002572	1.39	0.04	0.06	0.007364	0.000000	0.002572	1.39	0.04	0.06
B1531-B1525	B1531	B1525	8	374	0.0206	0.012681	0.000000	0.004643	1.66	0.05	0.07	0.012681	0.000000	0.004643	1.66	0.05	0.07	0.012681	0.000000	0.004643	1.66	0.05	0.07
B1532AS-B1531	B1532AS	B1531	8	165	0.0038	0.010216	0.000000	0.003671	0.86	0.07	0.10	0.010216	0.000000	0.003671	0.86	0.07	0.10	0.010216	0.000000	0.003671	0.86	0.07	0.10
B1532BS-B1528	B1532BS	B1528	8	371	0.0178	0.007225	0.000000	0.002519	1.33	0.04	0.06	0.007225	0.000000	0.002519	1.33	0.04	0.06	0.007225	0.000000	0.002519	1.33	0.04	0.06
B1533-B1532AS	B1533	B1532AS	8	165	0.0037	0.002929	0.000000	0.000944	0.58	0.04	0.06	0.002929	0.000000	0.000944	0.58	0.04	0.06	0.002929	0.000000	0.000944	0.58	0.04	0.06
B1534-B1533	B1534	B1533	8	241	0.0032	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
B1535-B1529	B1535	B1529	8	325	0.0181	0.011096	0.000000	0.004016	1.52	0.05	0.07	0.011096	0.000000	0.004016	1.52	0.05	0.07	0.011096	0.000000	0.004016	1.52	0.05	0.07
B1536-B1528	B1536	B1528	8	268	0.0051	0.006218	0.000000	0.002140	0.82	0.05	0.07	0.006218	0.000000	0.002140	0.82	0.05	0.07	0.006218	0.000000	0.002140	0.82	0.05	0.07
B15D-B16	B15D	B16	10	431	0.0042	0.367263	0.000000	0.180198	2.46	0.37	0.44	0.413708	0.000000	0.205099	2.54	0.39	0.47	0.413708	0.000000	0.205099	2.54	0.39	0.47
B16-B20	B16	B20	10	220	0.0041	0.367263	0.000000	0.180198	2.44	0.37	0.44	0.413708	0.000000	0.205099	2.52	0.39	0.47	0.413708	0.000000	0.			

City of Brea - Sewer Master Plan (November 2021)

Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
B17-B18	B17	B18	10	550	0.0042	0.367674	0.000000	0.180417	2.46	0.37	0.44	0.414114	0.000000	0.205318	2.54	0.39	0.47	0.414114	0.000000	0.205318	2.54	0.39	0.47
B18-B19	B18	B19	10	450	0.0047	0.367884	0.000000	0.180529	2.56	0.36	0.43	0.414322	0.000000	0.205430	2.64	0.38	0.46	0.414322	0.000000	0.205430	2.64	0.38	0.46
B19-OUTLETB	B19	OUT_BREA	10	549	0.0036	0.367884	0.000000	0.180529	2.34	0.38	0.46	0.414322	0.000000	0.205430	2.41	0.41	0.49	0.414322	0.000000	0.205430	2.41	0.41	0.49
B20-B17	B20	B17	10	280	0.0042	0.367263	0.000000	0.180198	2.47	0.37	0.44	0.413708	0.000000	0.205099	2.54	0.39	0.47	0.413708	0.000000	0.205099	2.54	0.39	0.47
B21-B20	B21	B20	8	271	0.0321	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
B22-LC05	B22	LC05	8	159	0.0070	0.000815	0.000000	0.000235	0.49	0.02	0.03	0.000815	0.000000	0.000235	0.49	0.02	0.03	0.000815	0.000000	0.000235	0.49	0.02	0.03
C01-C02	C01	C02	12	110	0.0449	0.027976	0.000000	0.010973	2.61	0.05	0.05	0.027976	0.000000	0.010973	2.61	0.05	0.05	0.027976	0.000000	0.010973	2.61	0.05	0.05
C02-C03	C02	C03	12	487	0.0099	0.027976	0.000000	0.010973	1.54	0.08	0.08	0.027976	0.000000	0.010973	1.54	0.08	0.08	0.027976	0.000000	0.010973	1.54	0.08	0.08
C03-C04	C03	C04	12	161	0.0134	0.051263	0.000000	0.021194	2.06	0.10	0.10	0.051263	0.000000	0.021194	2.06	0.10	0.10	0.051263	0.000000	0.021194	2.06	0.10	0.10
C0301-C03	C0301	C03	8	138	0.0054	0.026207	0.000000	0.010221	1.30	0.10	0.15	0.026207	0.000000	0.010221	1.30	0.10	0.15	0.026207	0.000000	0.010221	1.30	0.10	0.15
C0302-C0301	C0302	C0301	12	31	0.2395	0.026207	0.000000	0.010221	4.58	0.04	0.04	0.026207	0.000000	0.010221	4.58	0.04	0.04	0.026207	0.000000	0.010221	4.58	0.04	0.04
C0303-C0302	C0303	C0302	12	180	0.0150	0.026207	0.000000	0.010221	1.75	0.07	0.07	0.026207	0.000000	0.010221	1.75	0.07	0.07	0.026207	0.000000	0.010221	1.75	0.07	0.07
C0304-C0303	C0304	C0303	8	208	0.0150	0.010595	0.000000	0.003819	1.41	0.05	0.07	0.010595	0.000000	0.003819	1.41	0.05	0.07	0.010595	0.000000	0.003819	1.41	0.05	0.07
C0305-C0304	C0305	C0304	8	305	0.0065	0.010595	0.000000	0.003819	1.05	0.06	0.09	0.010595	0.000000	0.003819	1.05	0.06	0.09	0.010595	0.000000	0.003819	1.05	0.06	0.09
C0306-C0305	C0306	C0305	8	288	0.0150	0.010595	0.000000	0.003819	1.41	0.05	0.07	0.010595	0.000000	0.003819	1.41	0.05	0.07	0.010595	0.000000	0.003819	1.41	0.05	0.07
C0307-C0306	C0307	C0306	8	289	0.0060	0.003953	0.000000	0.001308	0.76	0.04	0.06	0.003953	0.000000	0.001308	0.76	0.04	0.06	0.003953	0.000000	0.001308	0.76	0.04	0.06
C04-C05	C04	C05	15	228	0.0077	0.118667	0.000000	0.052776	2.12	0.15	0.12	0.118667	0.000000	0.052776	2.12	0.15	0.12	0.118667	0.000000	0.052776	2.12	0.15	0.12
C0401-C04	C0401	C04	8	40	0.3028	0.037806	0.000000	0.015222	5.89	0.04	0.07	0.037806	0.000000	0.015222	5.89	0.04	0.07	0.037806	0.000000	0.015222	5.89	0.04	0.07
C0402-C04	C0402	C04	8	70	0.1904	0.040399	0.000000	0.016360	5.12	0.05	0.08	0.040399	0.000000	0.016360	5.12	0.05	0.08	0.040399	0.000000	0.016360	5.12	0.05	0.08
C0403-C0402	C0403	C0402	8	160	0.0013	0.040399	0.000000	0.016360	0.88	0.17	0.26	0.040399	0.000000	0.016360	0.88	0.17	0.26	0.040399	0.000000	0.016360	0.88	0.17	0.26
C0404-C0403	C0404	C0403	8	331	0.0209	0.040399	0.000000	0.016360	2.36	0.09	0.13	0.040399	0.000000	0.016360	2.36	0.09	0.13	0.040399	0.000000	0.016360	2.36	0.09	0.13
C0405-C0404	C0405	C0404	8	310	0.0003	0.040399	0.000000	0.016360	0.54	0.24	0.37	0.040399	0.000000	0.016360	0.54	0.24	0.37	0.040399	0.000000	0.016360	0.54	0.24	0.37
C0406-C0405	C0406	C0405	8	313	0.0106	0.040399	0.000000	0.016360	1.87	0.10	0.15	0.040399	0.000000	0.016360	1.87	0.10	0.15	0.040399	0.000000	0.016360	1.87	0.10	0.15
C0407-C0406	C0407	C0406	8	310	0.0106	0.001802	0.000000	0.000557	0.73	0.02	0.03	0.001802	0.000000	0.000557	0.73	0.02	0.03	0.001802	0.000000	0.000557	0.73	0.02	0.03
C0408-C0407	C0408	C0407	8	100	0.0100	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
C0409-C0408	C0409	C0408	8	75	0.0107	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
C05-C06	C05	C06	16	63	0.0046	0.118667	0.000000	0.052776	1.86	0.16	0.12	0.118667	0.000000	0.052776	1.86	0.16	0.12	0.118667	0.000000	0.052776	1.86	0.16	0.12
C06-C07	C06	C07	16	179	0.0035	0.118667	0.000000	0.052776	1.68	0.18	0.13	0.118667	0.000000	0.052776	1.68	0.18	0.13	0.118667	0.000000	0.052776	1.68	0.18	0.13
C07-C08	C07	C08	16	324	0.0036	0.118667	0.000000	0.052776	1.70	0.17	0.13	0.118667	0.000000	0.052776	1.70	0.17	0.13	0.118667	0.000000	0.052776	1.70	0.17	0.13
C08-C09	C08	C09	16	389	0.0032	0.118667	0.000000	0.052776	1.63	0.18	0.13	0.118667	0.000000	0.052776	1.63	0.18	0.13	0.118667	0.000000	0.052776	1.63	0.18	0.13
C09-C10	C09	C10	16	241	0.0054	0.172739	0.000000	0.079374	2.19	0.19	0.14	0.172739	0.000000	0.079374	2.19	0.19	0.14	0.172739	0.000000	0.079374	2.19	0.19	0.14
C0901-C09	C0901	C09	8	36	0.2058	0.063175	0.000000	0.026598	6.02	0.06	0.09	0.063175	0.000000	0.026598	6.02	0.06	0.09	0.063175	0.000000	0.026598	6.02	0.06	0.09
C0902-C0901	C0902	C0901	8	62	0.2058	0.063175	0.000000	0.026598	7.23	0.05	0.08	0.063175	0.000000	0.026598	7.23	0.05	0.08	0.063175	0.000000	0.026598	7.23	0.05	0.08
C0903-C0902	C0903	C0902	8	104	0.0040	0.063175	0.000000	0.026598	1.60	0.15	0.23	0.063175	0.000000	0.026598	1.60	0.15	0.23	0.063175	0.000000	0.026598	1.60	0.15	0.23
C0904-C0903	C0904	C0903	8	225	0.0061	0.048301	0.000000	0.019866	1.62	0.13	0.19	0.048301	0.000000	0.019866	1.62	0.13	0.19	0.048301	0.000000	0.019866	1.62	0.13	0.19
C090401-C0904	C090401	C0904	8	247	0.0186	0.010107	0.000000	0.003628	1.49	0.05	0.07	0.010107	0.000000	0.003628	1.49	0.05	0.07	0.010107	0.000000	0.003628	1.49	0.05	0.07
C090402-C090401	C090402	C090401	8	206	0.0173	0.006084	0.000000	0.002200	1.25	0.04	0.06	0.006084	0.000000	0.002200	1.25	0.04	0.06	0.006084	0.000000	0.002200	1.25	0.04	0.06
C090402-C0910	C090402	C0910	8	293	0.0112	0.004905	0.000000	0.001774	1.01	0.04	0.06	0.004905	0.000000	0.001774	1.01	0.04	0.06	0.004905	0.000000	0.001774	1.01	0.04	0.06
C0905-C0904	C0905	C0904	8	200	0.0180	0.037742	0.000000	0.015194	2.20	0.09	0.13	0.037742	0.000000	0.015194	2.20	0.09	0.13	0.037742	0.000000	0.015194	2.20	0.09	0.13
C090501-C0905	C090501	C0905	8	225	0.0265	0.010816	0.000000	0.003906	1.73	0.04	0.07	0.010816	0.000000	0.003906	1.73	0.04	0.07	0.010816	0.000000	0.003906	1.73	0.04	0.07
C090502-C090501	C090502	C090501	8	231	0.0200	0.007304	0.000000	0.002549	1.39	0.04	0.06	0.007304	0.000000	0.002549	1.39	0.04	0.06	0.007304	0.000000	0.002549	1.39	0.04	0.06
C0906-C0905	C0906	C0905	8	184	0.0301	0.026011	0.000000	0.010138	2.35	0.06	0.10	0.026011	0.000000	0.010138	2.35	0.06	0.10	0.026011	0.000000	0.010138	2.35	0.06	0.10
C090601-C0906	C090601	C0906	8	154	0.0185	0.008970	0.000000	0.003187	1.44	0.04	0.07	0.008970	0.000000	0.003187	1.44	0.04	0.07	0.008970	0.000000	0.003187	1.44	0.04	0.07
C090602-C090601	C090602	C090601	8	296	0.0186	0.006442	0.000000	0.002224	1.30	0.04	0.06	0.006442	0.000000	0.002224	1.30	0.04	0.06	0.006442	0.000000	0.002224	1.30	0.04	0.06
C0907-C0906	C0907	C0906	8	79	0.0601	0.016573	0.000000	0.006211	2.61	0.04	0.07	0.016573	0.000000	0.006211	2.61	0.04	0.07	0.016573	0.000000	0.006211	2.61	0.04	0.07
C0908-C0903	C0908	C0903	8	215	0.0150	0.016014	0.000000	0.005984	1.59	0.06	0.09	0.016014	0.000000	0.005984	1.59	0.06	0.09	0.016014	0.000000	0.005984	1.59	0.06	0.09

City of Brea - Sewer Master Plan (November 2021)

Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
C0909-C0908	C0909	C0908	8	207	0.0177	0.011504	0.000000	0.004177	1.53	0.05	0.07	0.011504	0.000000	0.004177	1.53	0.05	0.07	0.011504	0.000000	0.004177	1.53	0.05	0.07
C0910-C0909	C0910	C0909	8	76	0.0187	0.007277	0.000000	0.002539	1.35	0.04	0.06	0.007277	0.000000	0.002539	1.35	0.04	0.06	0.007277	0.000000	0.002539	1.35	0.04	0.06
C10-C11	C10	C11	16	328	0.0062	0.185664	0.000000	0.085850	2.35	0.19	0.14	0.185664	0.000000	0.085850	2.35	0.19	0.14	0.185664	0.000000	0.085850	2.35	0.19	0.14
C1001-C10	C1001	C10	8	241	0.0418	0.017222	0.000000	0.006476	2.33	0.05	0.07	0.017222	0.000000	0.006476	2.33	0.05	0.07	0.017222	0.000000	0.006476	2.33	0.05	0.07
C1002-C1001	C1002	C1001	8	150	0.0417	0.017222	0.000000	0.006476	2.33	0.05	0.07	0.017222	0.000000	0.006476	2.33	0.05	0.07	0.017222	0.000000	0.006476	2.33	0.05	0.07
C1003-C1002	C1003	C1002	8	210	0.0417	0.017222	0.000000	0.006476	2.33	0.05	0.07	0.017222	0.000000	0.006476	2.33	0.05	0.07	0.017222	0.000000	0.006476	2.33	0.05	0.07
C1004-C1003	C1004	C1003	8	130	0.0417	0.017222	0.000000	0.006476	2.33	0.05	0.07	0.017222	0.000000	0.006476	2.33	0.05	0.07	0.017222	0.000000	0.006476	2.33	0.05	0.07
C11-C12	C11	C12	16	429	0.0286	0.185664	0.000000	0.085850	4.02	0.13	0.10	0.185664	0.000000	0.085850	4.02	0.13	0.10	0.185664	0.000000	0.085850	4.02	0.13	0.10
C12-OUTLETC	C12	OUT_CYPRES S	16	389	0.0039	0.185664	0.000000	0.085850	2.01	0.21	0.16	0.185664	0.000000	0.085850	2.01	0.21	0.16	0.185664	0.000000	0.085850	2.01	0.21	0.16
CC01-CC02	CC01	CC02	8	892	0.0579	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.448748	0.000000	0.224049	6.85	0.22	0.33
CC02-CC03	CC02	CC03	8	483	0.0035	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.448748	0.000000	0.224049	2.33	0.53	0.80
CC03-CC04	CC03	CC04	8	617	0.0047	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.448748	0.000000	0.224049	2.68	0.46	0.70
CC04-CC05	CC04	CC05	8	600	0.0332	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.448748	0.000000	0.224049	5.60	0.26	0.39
CC05-CC06	CC05	CC06	8	600	0.0458	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.639378	0.000000	0.329206	6.93	0.29	0.43
CC06-CC07	CC06	CC07	8	1400	0.0081	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.639378	0.000000	0.329206	3.53	0.50	0.75
CC07-CC08	CC07	CC08	8	450	0.0322	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.639378	0.000000	0.329206	6.08	0.32	0.47
CC08-CC09	CC08	CC09	8	41	0.0829	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.639378	0.000000	0.329206	8.60	0.24	0.36
CC09-CC10	CC09	CC10	8	99	0.0046	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.639378	0.000000	0.329206	2.83	0.67	1.00
CC091-CC09	CC091	CC09	8	99	0.0030	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
CC092D-CC091	CC092D	CC091	8	101	0.0051	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
CC093-CC092D	CC093	CC092D	8	129	0.0316	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
CC094-CC093	CC094	CC093	8	263	0.0102	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
CC095-CC094	CC095	CC094	8	128	0.0100	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
CC10-CC11	CC10	CC11	8	335	0.0171	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.639378	0.000000	0.329206	4.79	0.38	0.57
CC11-CC12D	CC11	CC12D	8	511	0.0200	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.639378	0.000000	0.329206	5.09	0.36	0.54
CC12D-CC13	CC12D	CC13	8	510	0.0072	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.639378	0.000000	0.329206	3.35	0.53	0.79
CC13-CC14	CC13	CC14	8	340	0.0072	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	2.261204	0.000000	1.299429	10.02	0.67	1.00
CC14-CC15	CC14	CC15	8	399	0.0180	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	2.261204	0.000000	1.299429	10.02	0.67	1.00
CC15-CC16	CC15	CC16	8	398	0.0173	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	2.261204	0.000000	1.299429	10.02	0.67	1.00
CC16-CC17	CC16	CC17	8	14	0.0186	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	2.261204	0.000000	1.299429	10.02	0.67	1.00
CC17-CC18D	CC17	CC18D	8	393	0.0177	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	2.261204	0.000000	1.299429	10.02	0.67	1.00
CC1801D-CC18D	CC1801D	CC18D	8	162	0.0348	0.228145	0.000000	0.107400	4.71	0.18	0.27	0.244684	0.000000	0.115889	4.81	0.18	0.28	0.244684	0.000000	0.115889	4.81	0.18	0.28
CC1802-CC1801D	CC1802	CC1801D	8	300	0.0623	0.228145	0.000000	0.107400	5.79	0.15	0.23	0.244684	0.000000	0.115889	5.91	0.16	0.24	0.244684	0.000000	0.115889	5.91	0.16	0.24
CC1803-CC1802	CC1803	CC1802	8	72	0.0694	0.034551	0.000000	0.013803	3.43	0.06	0.09	0.034551	0.000000	0.013803	3.43	0.06	0.09	0.034551	0.000000	0.013803	3.43	0.06	0.09
CC1804-CC1803	CC1804	CC1803	8	61	0.5080	0.034551	0.000000	0.013803	6.87	0.04	0.06	0.034551	0.000000	0.013803	6.87	0.04	0.06	0.034551	0.000000	0.013803	6.87	0.04	0.06
CC1805-CC1804	CC1805	CC1804	8	153	0.0328	0.034551	0.000000	0.013803	2.64	0.07	0.11	0.034551	0.000000	0.013803	2.64	0.07	0.11	0.034551	0.000000	0.013803	2.64	0.07	0.11
CC1806-CC1805	CC1806	CC1805	8	230	0.0522	0.033996	0.000000	0.013562	3.09	0.06	0.10	0.033996	0.000000	0.013562	3.09	0.06	0.10	0.033996	0.000000	0.013562	3.09	0.06	0.10
CC1807-CC1806	CC1807	CC1806	8	342	0.1000	0.026049	0.000000	0.010154	3.58	0.05	0.07	0.026049	0.000000	0.010154	3.58	0.05	0.07	0.026049	0.000000	0.010154	3.58	0.05	0.07
CC1808-CC1807	CC1808	CC1807	8	342	0.0900	0.021550	0.000000	0.008263	3.26	0.05	0.07	0.021550	0.000000	0.008263	3.26	0.05	0.07	0.021550	0.000000	0.008263	3.26	0.05	0.07
CC1809-CC1808	CC1809	CC1808	8	133	0.1129	0.019853	0.000000	0.007558	3.44	0.04	0.06	0.019853	0.000000	0.007558	3.44	0.04	0.06	0.019853	0.000000	0.007558	3.44	0.04	0.06
CC1810-CC1809	CC1810	CC1809	8	172	0.0560	0.018838	0.000000	0.007139	2.65	0.05	0.07	0.018838	0.000000	0.007139	2.65	0.05	0.07	0.018838	0.000000	0.007139	2.65	0.05	0.07
CC1811D-CC1810	CC1811D	CC1810	8	132	0.1390	0.017450	0.000000	0.006569	3.55	0.04	0.06	0.017450	0.000000	0.006569	3.55	0.04	0.06	0.017450	0.000000	0.006569	3.55	0.04	0.06
CC1812D-CC1811D	CC1812D	CC1811D	8	114	0.1498	0.016145	0.000000	0.006037	3.56	0.03	0.05	0.016145	0.000000	0.006037	3.56	0.03	0.05	0.016145	0.000000	0.006037	3.56	0.03	0.05
CC1813-CC1812D	CC1813	CC1812D	8	119	0.1344	0.015403	0.000000	0.005736	3.38	0.04	0.05	0.015403	0.000000	0.005736	3.38	0.04	0.05	0.015403	0.000000	0.005736	3.38	0.04	0.05
CC1814-CC1813	CC1814	CC1813	8	300	0.1412	0.014501	0.000000	0.005372	3.38	0.03	0.05	0.014501	0.000000	0.005372	3.38	0.03	0.05	0.014501	0.000000	0.005372	3.38	0.03	0.05

City of Brea - Sewer Master Plan (November 2021)

Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
CC1815-CC1814	CC1815	CC1814	8	284	0.1498	0.010262	0.000000	0.003689	3.10	0.03	0.04	0.010262	0.000000	0.003689	3.10	0.03	0.04	0.010262	0.000000	0.003689	3.10	0.03	0.04
CC1816-CC1815	CC1816	CC1815	8	150	0.0517	0.001442	0.000000	0.000437	1.18	0.01	0.02	0.001442	0.000000	0.000437	1.18	0.01	0.02	0.001442	0.000000	0.000437	1.18	0.01	0.02
CC1817-CC1802	CC1817	CC1802	8	187	0.0271	0.201024	0.000000	0.093597	4.15	0.18	0.27	0.217739	0.000000	0.102086	4.25	0.19	0.28	0.217739	0.000000	0.102086	4.25	0.19	0.28
CC1818-CC1817	CC1818	CC1817	8	441	0.0684	0.197922	0.000000	0.092028	5.75	0.14	0.21	0.214658	0.000000	0.100517	5.88	0.15	0.22	0.214658	0.000000	0.100517	5.88	0.15	0.22
CC1819-CC1818	CC1819	CC1818	8	80	0.2483	0.183787	0.000000	0.084907	8.85	0.10	0.15	0.200627	0.000000	0.093396	9.09	0.10	0.15	0.200627	0.000000	0.093396	9.09	0.10	0.15
CC1820-CC1819	CC1820	CC1819	8	150	0.0117	0.183787	0.000000	0.084907	3.00	0.21	0.32	0.200627	0.000000	0.093396	3.07	0.22	0.33	0.200627	0.000000	0.093396	3.07	0.22	0.33
CC1821-CC1820	CC1821	CC1820	8	368	0.0618	0.151245	0.000000	0.068699	5.12	0.13	0.19	0.168358	0.000000	0.077188	5.29	0.13	0.20	0.168358	0.000000	0.077188	5.29	0.13	0.20
CC1822-CC1821	CC1822	CC1821	8	217	0.0099	0.144089	0.000000	0.065173	2.64	0.19	0.29	0.161269	0.000000	0.073662	2.72	0.21	0.31	0.161269	0.000000	0.073662	2.72	0.21	0.31
CC1823-CC1822	CC1823	CC1822	8	307	0.0822	0.140817	0.000000	0.063566	5.55	0.11	0.17	0.158030	0.000000	0.072055	5.74	0.12	0.18	0.158030	0.000000	0.072055	5.74	0.12	0.18
CC1824-CC1823	CC1824	CC1823	8	311	0.0919	0.139159	0.000000	0.062753	5.75	0.11	0.16	0.156388	0.000000	0.071242	5.95	0.12	0.17	0.156388	0.000000	0.071242	5.95	0.12	0.17
CC1825-CC1824	CC1825	CC1824	8	146	0.0688	0.125645	0.000000	0.056158	5.04	0.11	0.17	0.143018	0.000000	0.064647	5.24	0.12	0.18	0.143018	0.000000	0.064647	5.24	0.12	0.18
CC1826-CC1825	CC1826	CC1825	8	132	0.0602	0.124329	0.000000	0.055519	4.79	0.11	0.17	0.141717	0.000000	0.064008	4.98	0.12	0.18	0.141717	0.000000	0.064008	4.98	0.12	0.18
CC1827-CC1826	CC1827	CC1826	8	400	0.0600	0.087476	0.000000	0.037886	4.31	0.10	0.15	0.105358	0.000000	0.046375	4.56	0.11	0.16	0.105358	0.000000	0.046375	4.56	0.11	0.16
CC1828-CC1827	CC1828	CC1827	8	405	0.0520	0.078311	0.000000	0.033592	3.97	0.10	0.14	0.096349	0.000000	0.042081	4.22	0.11	0.16	0.096349	0.000000	0.042081	4.22	0.11	0.16
CC1829-CC1828	CC1829	CC1828	8	380	0.0240	0.066039	0.000000	0.027911	2.87	0.11	0.16	0.084314	0.000000	0.036400	3.09	0.12	0.18	0.084314	0.000000	0.036400	3.09	0.12	0.18
CC1830-CC1829	CC1830	CC1829	8	154	0.0101	0.033756	0.000000	0.013458	1.73	0.09	0.14	0.033756	0.000000	0.013458	1.73	0.09	0.14	0.033756	0.000000	0.013458	1.73	0.09	0.14
CC1831-CC1830	CC1831	CC1830	8	267	0.0060	0.030150	0.000000	0.011903	1.40	0.10	0.15	0.030150	0.000000	0.011903	1.40	0.10	0.15	0.030150	0.000000	0.011903	1.40	0.10	0.15
CC1832-CC1831	CC1832	CC1831	8	305	0.0071	0.028056	0.000000	0.011007	1.45	0.09	0.14	0.028056	0.000000	0.011007	1.45	0.09	0.14	0.028056	0.000000	0.011007	1.45	0.09	0.14
CC1833-CC1832	CC1833	CC1832	8	250	0.1739	0.025726	0.000000	0.010017	4.32	0.04	0.06	0.025726	0.000000	0.010017	4.32	0.04	0.06	0.025726	0.000000	0.010017	4.32	0.04	0.06
CC1834-CC1833	CC1834	CC1833	8	228	0.1854	0.019638	0.000000	0.007469	4.07	0.04	0.05	0.019638	0.000000	0.007469	4.07	0.04	0.05	0.019638	0.000000	0.007469	4.07	0.04	0.05
CC1835-CC1834	CC1835	CC1834	8	49	0.1712	0.015173	0.000000	0.005643	3.66	0.03	0.05	0.015173	0.000000	0.005643	3.66	0.03	0.05	0.015173	0.000000	0.005643	3.66	0.03	0.05
CC1836-CC1818	CC1836	CC1818	8	55	0.0842	0.010546	0.000000	0.003800	2.56	0.03	0.05	0.010546	0.000000	0.003800	2.56	0.03	0.05	0.010546	0.000000	0.003800	2.56	0.03	0.05
CC1837-CC1836	CC1837	CC1836	8	252	0.0783	0.008159	0.000000	0.002875	2.31	0.03	0.04	0.008159	0.000000	0.002875	2.31	0.03	0.04	0.008159	0.000000	0.002875	2.31	0.03	0.04
CC1838-CC1837	CC1838	CC1837	8	382	0.0587	0.006405	0.000000	0.002210	1.94	0.03	0.04	0.006405	0.000000	0.002210	1.94	0.03	0.04	0.006405	0.000000	0.002210	1.94	0.03	0.04
CC1839-CC1820	CC1839	CC1820	8	153	0.0345	0.037699	0.000000	0.015175	2.76	0.07	0.11	0.037699	0.000000	0.015175	2.76	0.07	0.11	0.037699	0.000000	0.015175	2.76	0.07	0.11
CC1840-CC1839	CC1840	CC1839	8	225	0.0240	0.037699	0.000000	0.015175	2.43	0.08	0.12	0.037699	0.000000	0.015175	2.43	0.08	0.12	0.037699	0.000000	0.015175	2.43	0.08	0.12
CC1841-CC1840	CC1841	CC1840	8	200	0.0600	0.032665	0.000000	0.012986	3.21	0.06	0.09	0.032665	0.000000	0.012986	3.21	0.06	0.09	0.032665	0.000000	0.012986	3.21	0.06	0.09
CC1842-CC1841	CC1842	CC1841	8	125	0.0600	0.023803	0.000000	0.009206	2.91	0.05	0.08	0.023803	0.000000	0.009206	2.91	0.05	0.08	0.023803	0.000000	0.009206	2.91	0.05	0.08
CC1843-CC1842	CC1843	CC1842	8	388	0.0360	0.023803	0.000000	0.009206	2.44	0.06	0.09	0.023803	0.000000	0.009206	2.44	0.06	0.09	0.023803	0.000000	0.009206	2.44	0.06	0.09
CC1844D-CC1843	CC1844D	CC1843	8	337	0.1102	0.006536	0.000000	0.002259	2.43	0.02	0.04	0.006536	0.000000	0.002259	2.43	0.02	0.04	0.006536	0.000000	0.002259	2.43	0.02	0.04
CC1845-CC1844D	CC1845	CC1844D	8	184	0.0399	0.003613	0.000000	0.001186	1.43	0.02	0.04	0.003613	0.000000	0.001186	1.43	0.02	0.04	0.003613	0.000000	0.001186	1.43	0.02	0.04
CC1846-CC1843	CC1846	CC1843	8	150	0.0296	0.007785	0.000000	0.002732	1.62	0.04	0.05	0.007785	0.000000	0.002732	1.62	0.04	0.05	0.007785	0.000000	0.002732	1.62	0.04	0.05
CC1847-CC1846	CC1847	CC1846	8	346	0.0080	0.005889	0.000000	0.002017	0.94	0.04	0.07	0.005889	0.000000	0.002017	0.94	0.04	0.07	0.005889	0.000000	0.002017	0.94	0.04	0.07
CC1848-CC1824	CC1848	CC1824	8	179	0.0259	0.013004	0.000000	0.004772	1.81	0.05	0.07	0.013004	0.000000	0.004772	1.81	0.05	0.07	0.013004	0.000000	0.004772	1.81	0.05	0.07
CC1849-CC1848	CC1849	CC1848	8	41	0.0234	0.010704	0.000000	0.003862	1.65	0.04	0.07	0.010704	0.000000	0.003862	1.65	0.04	0.07	0.010704	0.000000	0.003862	1.65	0.04	0.07
CC1850-CC1849	CC1850	CC1849	8	187	0.0100	0.010704	0.000000	0.003862	1.23	0.05	0.08	0.010704	0.000000	0.003862	1.23	0.05	0.08	0.010704	0.000000	0.003862	1.23	0.05	0.08
CC1851-CC1850	CC1851	CC1850	8	76	0.0628	0.006971	0.000000	0.002423	2.04	0.03	0.04	0.006971	0.000000	0.002423	2.04	0.03	0.04	0.006971	0.000000	0.002423	2.04	0.03	0.04
CC1852-CC1826	CC1852	CC1826	8	360	0.0180	0.039694	0.000000	0.016050	2.23	0.09	0.13	0.039694	0.000000	0.016050	2.23	0.09	0.13	0.039694	0.000000	0.016050	2.23	0.09	0.13
CC1853-CC1852	CC1853	CC1852	8	445	0.0680	0.033777	0.000000	0.013467	3.38	0.06	0.09	0.033777	0.000000	0.013467	3.38	0.06	0.09	0.033777	0.000000	0.013467	3.38	0.06	0.09
CC1854-CC1853	CC1854	CC1853	8	440	0.0600	0.021646	0.000000	0.008303	2.83	0.05	0.07	0.021646	0.000000	0.008303	2.83	0.05	0.07	0.021646	0.000000	0.008303	2.83	0.05	0.07
CC1855-CC1829	CC1855	CC1829	8	157	0.0401	0.015087	0.000000	0.005608	2.20	0.05	0.07	0.035228	0.000000	0.014097	2.85	0.07	0.10	0.035228	0.000000	0.014097	2.85	0.07	0.10
CC1856-CC1855	CC1856	CC1855	8	140	0.0400	0.011945	0.000000	0.004351	2.05	0.04	0.06	0.032327	0.000000	0.012840	2.78	0.07	0.10	0.032327	0.000000	0.012840	2.78	0.07	0.10
CC1857-CC1829	CC1857	CC1829	8	239	0.0200	0.016926	0.000000	0.006355	1.79	0.06	0.09	0.016926	0.000000	0.006355	1.79	0.06	0.09	0.016926	0.000000	0.006355	1.79	0.06	0.09
CC1858-CC1857	CC1858	CC1857	8	191	0.0199	0.009502	0.000000	0.003393	1.50	0.04	0.07	0.009502	0.000000	0.003393	1.50	0.04	0.07	0.009502	0.000000	0.003393	1.50	0.04	0.07
CC1859-CC1835	CC1859	CC1835	8	267	0.0720	0.015173	0.000000	0.005643	2.71	0.04	0.06	0.015173	0.000000	0.005643	2.71	0.04	0.06	0.015173	0.000000	0.005643	2.71	0.04	0.06
CC18D-CC19	CC18D																						

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Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
CC19-CC20	CC19	CC20	8	258	0.0120	0.228145	0.000000	0.107400	3.21	0.23	0.35	0.244684	0.000000	0.115889	3.28	0.24	0.37	2.446094	0.000000	1.415318	10.84	0.67	1.00
CC20-CC21	CC20	CC21	8	303	0.0120	0.228145	0.000000	0.107400	3.22	0.23	0.35	0.244684	0.000000	0.115889	3.28	0.24	0.37	2.446094	0.000000	1.415318	10.84	0.67	1.00
CC21-CC22	CC21	CC22	8	85	0.0120	0.228145	0.000000	0.107400	3.22	0.23	0.35	0.244684	0.000000	0.115889	3.28	0.24	0.37	2.446094	0.000000	1.415318	10.84	0.67	1.00
CC22-CC23	CC22	CC23	8	133	0.0120	0.228145	0.000000	0.107400	3.21	0.23	0.35	0.244684	0.000000	0.115889	3.27	0.24	0.37	2.446094	0.000000	1.415318	10.84	0.67	1.00
CC23-CC24	CC23	CC24	8	294	0.0160	0.228145	0.000000	0.107400	3.57	0.22	0.33	0.244684	0.000000	0.115889	3.64	0.23	0.34	2.464126	0.000000	1.426662	10.92	0.67	1.00
CC24-CC25	CC24	CC25	8	121	0.0160	0.228145	0.000000	0.107400	3.56	0.22	0.33	0.244684	0.000000	0.115889	3.63	0.23	0.34	2.464126	0.000000	1.426662	10.92	0.67	1.00
CC25-CC26D	CC25	CC26D	8	190	0.0499	0.228145	0.000000	0.107400	5.36	0.16	0.24	0.244684	0.000000	0.115889	5.47	0.17	0.25	2.464126	0.000000	1.426662	10.92	0.67	1.00
CC26D-CC27	CC26D	CC27	12	595	0.0037	0.228145	0.000000	0.107400	2.04	0.27	0.27	0.244684	0.000000	0.115889	2.08	0.28	0.28	2.464126	0.000000	1.426662	4.85	1.00	1.00
CC27-CC28	CC27	CC28	12	110	0.0117	0.228145	0.000000	0.107400	3.07	0.20	0.20	0.244684	0.000000	0.115889	3.13	0.21	0.21	2.464126	0.000000	1.426662	5.61	0.81	0.81
CC28-CC29	CC28	CC29	8	284	0.0379	0.277697	0.000000	0.132980	5.14	0.19	0.29	0.293965	0.000000	0.141469	5.22	0.20	0.30	2.589791	0.000000	1.505918	11.48	0.67	1.00
CC281-CC28	CC281	CC28	8	421	0.0050	0.060948	0.000000	0.025580	1.62	0.15	0.22	0.060948	0.000000	0.025580	1.62	0.15	0.22	0.060948	0.000000	0.025580	1.62	0.15	0.22
CC282-CC281	CC282	CC281	8	274	0.0051	0.060948	0.000000	0.025580	1.62	0.15	0.22	0.060948	0.000000	0.025580	1.62	0.15	0.22	0.060948	0.000000	0.025580	1.62	0.15	0.22
CC29-CC30	CC29	CC30	10	182	0.0100	0.277697	0.000000	0.132980	3.12	0.25	0.30	0.293965	0.000000	0.141469	3.18	0.26	0.31	2.589791	0.000000	1.505918	7.35	0.83	1.00
CC30-CC31	CC30	CC31	10	135	0.0300	0.277697	0.000000	0.132980	4.62	0.19	0.23	0.293965	0.000000	0.141469	4.70	0.19	0.23	2.589791	0.000000	1.505918	7.35	0.83	1.00
CC31-CC32	CC31	CC32	10	399	0.0070	0.277697	0.000000	0.132980	2.75	0.27	0.33	0.293965	0.000000	0.141469	2.79	0.28	0.34	2.589791	0.000000	1.505918	7.35	0.83	1.00
CC32-CC33	CC32	CC33	10	171	0.0439	0.277697	0.000000	0.132980	5.29	0.17	0.21	0.293965	0.000000	0.141469	5.38	0.18	0.21	2.589791	0.000000	1.505918	9.51	0.60	0.72
CC33-CC34	CC33	CC34	10	148	0.0440	0.277697	0.000000	0.132980	5.29	0.17	0.21	0.293965	0.000000	0.141469	5.38	0.18	0.21	2.589791	0.000000	1.505918	9.52	0.60	0.72
CC34-CC35	CC34	CC35	10	382	0.0050	0.277697	0.000000	0.132980	2.43	0.30	0.36	0.293965	0.000000	0.141469	2.47	0.31	0.37	2.589791	0.000000	1.505918	7.35	0.83	1.00
CC35-CC36	CC35	CC36	10	366	0.0200	0.277697	0.000000	0.132980	4.00	0.21	0.25	0.293965	0.000000	0.141469	4.07	0.22	0.26	2.589791	0.000000	1.505918	7.35	0.83	1.00
CC36-CC37	CC36	CC37	10	147	0.0485	0.277697	0.000000	0.132980	5.48	0.17	0.20	0.293965	0.000000	0.141469	5.57	0.17	0.21	2.589791	0.000000	1.505918	9.92	0.58	0.69
CC37-CC38	CC37	CC38	10	187	0.0483	0.277697	0.000000	0.132980	5.47	0.17	0.20	0.293965	0.000000	0.141469	5.56	0.17	0.21	2.589791	0.000000	1.505918	9.90	0.58	0.70
CC38-CC39	CC38	CC39	10	186	0.0088	0.277697	0.000000	0.132980	2.99	0.26	0.31	0.293965	0.000000	0.141469	3.04	0.27	0.32	2.589791	0.000000	1.505918	7.35	0.83	1.00
CC39-CC40D	CC39	CC40D	10	264	0.0088	0.277697	0.000000	0.132980	2.98	0.26	0.31	0.293965	0.000000	0.141469	3.03	0.27	0.32	2.589791	0.000000	1.505918	7.35	0.83	1.00
CC40D-CC41	CC40D	CC41	10	121	0.0050	0.277697	0.000000	0.132980	2.44	0.30	0.36	0.293965	0.000000	0.141469	2.48	0.31	0.37	2.589791	0.000000	1.505918	7.35	0.83	1.00
CC41-CC42	CC41	CC42	10	505	0.0049	0.277697	0.000000	0.132980	2.42	0.30	0.36	0.293965	0.000000	0.141469	2.46	0.31	0.37	2.811165	0.000000	1.646344	7.97	0.83	1.00
CC42-CC43	CC42	CC43	15	28	0.0071	0.277697	0.000000	0.132980	2.66	0.24	0.19	0.293965	0.000000	0.141469	2.70	0.24	0.19	2.811165	0.000000	1.646344	4.95	0.84	0.67
CC43-CC44	CC43	CC44	15	222	0.0048	0.277697	0.000000	0.132980	2.30	0.26	0.21	0.293965	0.000000	0.141469	2.34	0.27	0.22	2.811165	0.000000	1.646344	4.16	0.99	0.80
CC44-CC45	CC44	CC45	15	320	0.0043	0.277697	0.000000	0.132980	2.22	0.27	0.21	0.293965	0.000000	0.141469	2.26	0.28	0.22	2.811165	0.000000	1.646344	3.54	1.25	1.00
CC45-CC46	CC45	CC46	15	155	0.0046	0.277697	0.000000	0.132980	2.28	0.26	0.21	0.293965	0.000000	0.141469	2.32	0.27	0.22	2.811165	0.000000	1.646344	4.10	1.01	0.81
CC46-CC47	CC46	CC47	15	175	0.0046	0.277697	0.000000	0.132980	2.27	0.26	0.21	0.293965	0.000000	0.141469	2.31	0.27	0.22	2.811165	0.000000	1.646344	4.07	1.02	0.81
CC47-CC48	CC47	CC48	15	276	0.0104	0.277697	0.000000	0.132980	3.03	0.22	0.17	0.293965	0.000000	0.141469	3.08	0.22	0.18	2.811165	0.000000	1.646344	5.74	0.74	0.59
CC48-CC49	CC48	CC49	15	280	0.0044	0.277697	0.000000	0.132980	2.23	0.27	0.21	0.293965	0.000000	0.141469	2.27	0.28	0.22	2.811165	0.000000	1.646344	3.54	1.25	1.00
CC49-CC50	CC49	CC50	15	310	0.0143	0.277697	0.000000	0.132980	3.39	0.20	0.16	0.293965	0.000000	0.141469	3.45	0.21	0.16	2.811165	0.000000	1.646344	6.50	0.67	0.54
CC50-CC51	CC50	CC51	15	190	0.0305	0.277697	0.000000	0.132980	4.43	0.17	0.13	0.293965	0.000000	0.141469	4.50	0.17	0.14	2.811165	0.000000	1.646344	8.62	0.54	0.43
CC51-CC52	CC51	CC52	15	260	0.0084	0.277697	0.000000	0.132980	2.82	0.23	0.18	0.293965	0.000000	0.141469	2.86	0.23	0.19	2.811165	0.000000	1.646344	5.29	0.79	0.64
CC52-CC53	CC52	CC53	15	301	0.0103	0.277697	0.000000	0.132980	3.03	0.22	0.17	0.293965	0.000000	0.141469	3.08	0.22	0.18	2.811165	0.000000	1.646344	5.73	0.74	0.59
CC53-CC54	CC53	CC54	15	300	0.0143	0.277697	0.000000	0.132980	3.40	0.20	0.16	0.293965	0.000000	0.141469	3.45	0.21	0.16	3.270934	0.000000	1.941004	6.73	0.74	0.59
CC54-CC55	CC54	CC55	15	476	0.0082	0.277697	0.000000	0.132980	2.79	0.23	0.18	0.293965	0.000000	0.141469	2.84	0.24	0.19	3.270934	0.000000	1.941004	5.38	0.90	0.72
CC55-CC56	CC55	CC56	15	224	0.0103	0.277697	0.000000	0.132980	3.02	0.22	0.17	0.293965	0.000000	0.141469	3.07	0.22	0.18	3.270934	0.000000	1.941004	5.90	0.82	0.66
CC56-CC57	CC56	CC57	15	761	0.0261	0.277697	0.000000	0.132980	4.19	0.17	0.14	0.293965	0.000000	0.141469	4.26	0.18	0.14	3.270934	0.000000	1.941004	8.45	0.61	0.49
CC57-CC58	CC57	CC58	15	304	0.0114	0.277697	0.000000	0.132980	3.13	0.21	0.17	0.293965	0.000000	0.141469	3.19	0.22	0.17	3.270934	0.000000	1.941004	6.16	0.79	0.64
CC58-CC59	CC58	CC59	21	550	0.0053	0.277697	0.000000	0.132980	2.29	0.23	0.13	0.293965	0.000000	0.141469	2.33	0.24	0.14	3.270934	0.000000	1.941004	4.64	0.81	0.46
CC59-CC60	CC59	CC60	21	800	0.0088	0.277697	0.000000	0.132980	2.73	0.20	0.12	0.293965	0.000000	0.141469	2.78	0.21	0.12	3.270934	0.000000	1.941004	5.59	0.70	0.40
CC60-CC61	CC60	CC61	21	540	0.0042	0.277697	0.000000	0.132980	2.11	0.24	0.14	0.293965	0.000000	0.141469	2.14	0.25	0.14	3.270934	0.000000	1.941004	4.25	0.87	0.50
CC61-CC62	CC61	CC62	21	114	0.0058	0.277697	0.000000	0.132980	2.37	0.23	0.13	0.293965	0.000000	0.141469	2.41	0.23	0.13	3.270934	0.000000	1.941004	4.80	0.79	0.45
CC62-CC63	CC62	CC63	21	194	0.0057	0.277697	0.000000	0.132980	2.35	0.23	0.13	0.293965	0.000000	0.141469	2.39	0.23	0.13	3.270934	0.000000	1.941004	4.77	0.79	0.45

City of Brea - Sewer Master Plan (November 2021)

Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
CC63-CC64	CC63	CC64	21	340	0.0039	0.277697	0.000000	0.132980	2.05	0.25	0.14	0.293965	0.000000	0.141469	2.09	0.26	0.15	3.270934	0.000000	1.941004	4.13	0.89	0.51
CC64-CC69	CC64	CC69	24	218	0.0068	0.277697	0.000000	0.132980	2.46	0.21	0.10	0.293965	0.000000	0.141469	2.51	0.21	0.11	3.270934	0.000000	1.941004	5.07	0.71	0.35
CC65-CC66	CC65	CC66	24	383	0.0046	0.321012	0.000000	0.155672	2.25	0.25	0.12	0.337082	0.000000	0.164161	2.28	0.25	0.13	3.306098	0.000000	1.963696	4.42	0.79	0.40
CC66-CC67	CC66	CC67	24	380	0.0046	0.321012	0.000000	0.155672	2.24	0.25	0.12	0.337082	0.000000	0.164161	2.27	0.25	0.13	3.306098	0.000000	1.963696	4.40	0.79	0.40
CC67-CC68	CC67	CC68	24	354	0.0049	0.321012	0.000000	0.155672	2.30	0.24	0.12	0.337082	0.000000	0.164161	2.33	0.25	0.12	3.306098	0.000000	1.963696	4.52	0.78	0.39
CC68-OUTLETCC	CC68	OUT_CARBO N_CANYON	24	354	0.0046	0.815856	0.193000	0.319970	2.96	0.39	0.19	0.974724	0.308200	0.344426	3.12	0.42	0.21	3.892521	0.308200	2.143961	4.61	0.87	0.43
CC6801-CC68	CC6801	CC68	15	189	0.0295	0.530341	0.193000	0.164298	5.61	0.22	0.18	0.675589	0.308200	0.180265	6.03	0.25	0.20	0.675589	0.308200	0.180265	6.03	0.25	0.20
CC6802-CC6801	CC6802	CC6801	15	134	0.0291	0.530341	0.193000	0.164298	5.58	0.22	0.18	0.675589	0.308200	0.180265	5.99	0.25	0.20	0.675589	0.308200	0.180265	5.99	0.25	0.20
CC6803-CC6802	CC6803	CC6802	15	333	0.0040	0.478330	0.193000	0.136958	2.53	0.36	0.29	0.623997	0.308200	0.152925	2.73	0.41	0.33	0.623997	0.308200	0.152925	2.73	0.41	0.33
CC6804-CC6803	CC6804	CC6803	15	224	0.0040	0.478330	0.193000	0.136958	2.54	0.36	0.29	0.623997	0.308200	0.152925	2.73	0.41	0.33	0.623997	0.308200	0.152925	2.73	0.41	0.33
CC6805-CC6804	CC6805	CC6804	15	310	0.0040	0.478330	0.193000	0.136958	2.53	0.36	0.29	0.623997	0.308200	0.152925	2.73	0.41	0.33	0.623997	0.308200	0.152925	2.73	0.41	0.33
CC6806-CC6805	CC6806	CC6805	15	326	0.0040	0.478330	0.193000	0.136958	2.53	0.36	0.29	0.623997	0.308200	0.152925	2.73	0.41	0.33	0.623997	0.308200	0.152925	2.73	0.41	0.33
CC6807-CC6806	CC6807	CC6806	15	339	0.0040	0.478330	0.193000	0.136958	2.68	0.35	0.28	0.623997	0.308200	0.152925	2.89	0.40	0.32	0.623997	0.308200	0.152925	2.89	0.40	0.32
CC6808-CC6807	CC6808	CC6807	12	361	0.0479	0.378575	0.193000	0.085805	5.85	0.19	0.19	0.525323	0.308200	0.101772	6.44	0.22	0.22	0.525323	0.308200	0.101772	6.44	0.22	0.22
CC6809-CC6808	CC6809	CC6808	10	252	0.0483	0.229730	0.169000	0.025481	5.17	0.15	0.18	0.379215	0.284200	0.041448	5.99	0.20	0.24	0.379215	0.284200	0.041448	5.99	0.20	0.24
CC6810-CC6809	CC6810	CC6809	10	297	0.0317	0.229730	0.169000	0.025481	4.46	0.17	0.20	0.379215	0.284200	0.041448	5.16	0.22	0.26	0.379215	0.284200	0.041448	5.16	0.22	0.26
CC68100-CC6899	CC68100	CC6899	8	261	0.0100	0.014171	0.000000	0.005239	1.33	0.06	0.09	0.014171	0.000000	0.005239	1.33	0.06	0.09	0.014171	0.000000	0.005239	1.33	0.06	0.09
CC68101-CC68100	CC68101	CC68100	8	189	0.0176	0.006557	0.000000	0.002267	1.29	0.04	0.06	0.006557	0.000000	0.002267	1.29	0.04	0.06	0.006557	0.000000	0.002267	1.29	0.04	0.06
CC68102-CC68101	CC68102	CC68101	8	167	0.0100	0.003051	0.000000	0.000987	0.84	0.03	0.05	0.003051	0.000000	0.000987	0.84	0.03	0.05	0.003051	0.000000	0.000987	0.84	0.03	0.05
CC68103-CC6885	CC68103	CC6885	8	43	0.0149	0.105375	0.024000	0.035023	2.78	0.15	0.22	0.105375	0.024000	0.035023	2.78	0.15	0.22	0.081375	0.000000	0.035023	2.58	0.13	0.20
CC68104-CC68103	CC68104	CC68103	8	130	0.0149	0.096024	0.024000	0.030671	2.71	0.14	0.21	0.096024	0.024000	0.030671	2.71	0.14	0.21	0.072024	0.000000	0.030671	2.49	0.12	0.19
CC68105-CC68104	CC68105	CC68104	8	266	0.0181	0.095540	0.024000	0.030447	2.90	0.14	0.20	0.095540	0.024000	0.030447	2.90	0.14	0.20	0.071540	0.000000	0.030447	2.66	0.12	0.18
CC68106-CC68105	CC68106	CC68105	8	117	0.0309	0.033901	0.000000	0.013521	2.57	0.07	0.11	0.033901	0.000000	0.013521	2.57	0.07	0.11	0.033901	0.000000	0.013521	2.57	0.07	0.11
CC68107-CC68106	CC68107	CC68106	8	197	0.0100	0.032167	0.000000	0.012771	1.71	0.09	0.14	0.032167	0.000000	0.012771	1.71	0.09	0.14	0.032167	0.000000	0.012771	1.71	0.09	0.14
CC68108-CC68107	CC68108	CC68107	8	253	0.0103	0.029343	0.000000	0.011557	1.68	0.09	0.13	0.029343	0.000000	0.011557	1.68	0.09	0.13	0.029343	0.000000	0.011557	1.68	0.09	0.13
CC68109-CC68108	CC68109	CC68108	8	266	0.0100	0.019417	0.000000	0.007378	1.47	0.07	0.11	0.019417	0.000000	0.007378	1.47	0.07	0.11	0.019417	0.000000	0.007378	1.47	0.07	0.11
CC6811-CC6810	CC6811	CC6810	10	275	0.0310	0.229730	0.169000	0.025481	4.42	0.17	0.20	0.379215	0.284200	0.041448	5.12	0.22	0.26	0.379215	0.284200	0.041448	5.12	0.22	0.26
CC68110-CC68109	CC68110	CC68109	8	249	0.0100	0.018016	0.000000	0.006801	1.43	0.07	0.10	0.018016	0.000000	0.006801	1.43	0.07	0.10	0.018016	0.000000	0.006801	1.43	0.07	0.10
CC68111-CC68110	CC68111	CC68110	8	138	0.0099	0.014603	0.000000	0.005413	1.34	0.06	0.09	0.014603	0.000000	0.005413	1.34	0.06	0.09	0.014603	0.000000	0.005413	1.34	0.06	0.09
CC68112-CC68111	CC68112	CC68111	8	213	0.0096	0.013240	0.000000	0.004866	1.29	0.06	0.09	0.013240	0.000000	0.004866	1.29	0.06	0.09	0.013240	0.000000	0.004866	1.29	0.06	0.09
CC68113-CC68112	CC68113	CC68112	8	180	0.0100	0.010290	0.000000	0.003700	1.21	0.05	0.08	0.010290	0.000000	0.003700	1.21	0.05	0.08	0.010290	0.000000	0.003700	1.21	0.05	0.08
CC68114-CC68113	CC68114	CC68113	8	283	0.0113	0.006076	0.000000	0.002087	1.08	0.04	0.06	0.006076	0.000000	0.002087	1.08	0.04	0.06	0.006076	0.000000	0.002087	1.08	0.04	0.06
CC68115-CC68108	CC68115	CC68108	8	246	0.0116	0.008848	0.000000	0.003140	1.22	0.05	0.07	0.008848	0.000000	0.003140	1.22	0.05	0.07	0.008848	0.000000	0.003140	1.22	0.05	0.07
CC68116-CC68115	CC68116	CC68115	8	245	0.0100	0.003207	0.000000	0.001042	0.85	0.03	0.05	0.003207	0.000000	0.001042	0.85	0.03	0.05	0.003207	0.000000	0.001042	0.85	0.03	0.05
CC68117-CC6890	CC68117	CC6890	8	187	0.0448	0.009801	0.000000	0.003509	2.01	0.04	0.06	0.009801	0.000000	0.003509	2.01	0.04	0.06	0.009801	0.000000	0.003509	2.01	0.04	0.06
CC68118-CC68117	CC68118	CC68117	8	211	0.0167	0.006087	0.000000	0.002091	1.23	0.04	0.06	0.006087	0.000000	0.002091	1.23	0.04	0.06	0.006087	0.000000	0.002091	1.23	0.04	0.06
CC68119-CC68105	CC68119	CC68105	8	141	0.0101	0.062048	0.024000	0.015328	2.08	0.13	0.19	0.062048	0.024000	0.015328	2.08	0.13	0.19	0.038048	0.000000	0.015328	1.80	0.10	0.15
CC6812-CC6811	CC6812	CC6811	10	293	0.0103	0.229730	0.169000	0.025481	2.99	0.22	0.27	0.379215	0.284200	0.041448	3.45	0.29	0.35	0.379215	0.284200	0.041448	3.45	0.29	0.35
CC68120-CC68119	CC68120	CC68119	8	50	0.0102	0.059377	0.024000	0.014162	2.06	0.12	0.19	0.059377	0.024000	0.014162	2.06	0.12	0.19	0.035377	0.000000	0.014162	1.76	0.10	0.14
CC68121-CC68120	CC68121	CC68120	8	164	0.0243	0.024278	0.000000	0.009406	2.14	0.07	0.10	0.024278	0.000000	0.009406	2.14	0.07	0.10	0.024278	0.000000	0.009406	2.14	0.07	0.10
CC68122-CC68121	CC68122	CC68121	8	187	0.0304	0.014742	0.000000	0.005469	1.99	0.05	0.07	0.014742	0.000000	0.005469	1.99	0.05	0.07	0.014742	0.000000	0.005469	1.99	0.05	0.07
CC68123-CC68122	CC68123	CC68122	8	148	0.0193	0.002419	0.000000	0.000767	0.98	0.02	0.03	0.002419	0.000000	0.000767	0.98	0.02	0.03	0.002419	0.000000	0.000767	0.98	0.02	0.03
CC68124-CC68120	CC68124	CC68120	8	264	0.0100	0.035999	0.024000	0.004372	1.76	0.10	0.15	0.035999	0.024000	0.004372	1.76	0.10	0.15	0.011999	0.000000	0.004372	1.27	0.06	0.09
CC68125-CC68124	CC68125	CC68124	8	198	0.0279	0.031807	0.024000	0.002740	2.44	0.07	0.11	0.031807	0.024000	0.002740	2.44	0.07	0.11	0.007807	0.000000	0.002740	1.59	0.04	0.06

City of Brea - Sewer Master Plan (November 2021)

Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
CC68126-CC68125	CC68126	CC68125	8	73	0.0454	0.025892	0.024000	0.000587	2.71	0.06	0.09	0.025892	0.024000	0.000587	2.71	0.06	0.09	0.001892	0.000000	0.000587	1.22	0.02	0.03
CC68127-CC68125	CC68127	CC68125	8	185	0.0100	0.003418	0.000000	0.001199	0.87	0.03	0.05	0.003418	0.000000	0.001199	0.87	0.03	0.05	0.003418	0.000000	0.001199	0.87	0.03	0.05
CC68127-CC68128	CC68127	CC68128	8	231	0.0162	0.004343	0.000000	0.001524	1.10	0.03	0.05	0.004343	0.000000	0.001524	1.10	0.03	0.05	0.004343	0.000000	0.001524	1.10	0.03	0.05
CC68128-CC68121	CC68128	CC68121	8	231	0.0100	0.008022	0.000000	0.002823	1.12	0.05	0.07	0.008022	0.000000	0.002823	1.12	0.05	0.07	0.008022	0.000000	0.002823	1.12	0.05	0.07
CC68129-CC68122	CC68129	CC68122	8	230	0.0238	0.009839	0.000000	0.003524	1.61	0.04	0.06	0.009839	0.000000	0.003524	1.61	0.04	0.06	0.009839	0.000000	0.003524	1.61	0.04	0.06
CC6813-CC6812	CC6813	CC6812	10	278	0.0103	0.229730	0.169000	0.025481	2.99	0.23	0.27	0.379215	0.284200	0.041448	3.44	0.29	0.35	0.379215	0.284200	0.041448	3.44	0.29	0.35
CC68130-CC68129	CC68130	CC68129	8	230	0.0150	0.007333	0.000000	0.002560	1.26	0.04	0.06	0.007333	0.000000	0.002560	1.26	0.04	0.06	0.007333	0.000000	0.002560	1.26	0.04	0.06
CC68131-CC68130	CC68131	CC68130	8	157	0.0100	0.003153	0.000000	0.001023	0.85	0.03	0.05	0.003153	0.000000	0.001023	0.85	0.03	0.05	0.003153	0.000000	0.001023	0.85	0.03	0.05
CC68132-CC6823	CC68132	CC6823	8	55	0.0100	0.024005	0.000000	0.009291	1.56	0.08	0.12	0.024005	0.000000	0.009291	1.56	0.08	0.12	0.024005	0.000000	0.009291	1.56	0.08	0.12
CC6814-CC6813	CC6814	CC6813	8	296	0.0103	0.229730	0.169000	0.025481	3.04	0.25	0.37	0.379215	0.284200	0.041448	3.48	0.32	0.49	0.379215	0.284200	0.041448	3.48	0.32	0.49
CC6815-CC6814	CC6815	CC6814	8	296	0.0103	0.229730	0.169000	0.025481	3.05	0.25	0.37	0.379215	0.284200	0.041448	3.48	0.32	0.49	0.379215	0.284200	0.041448	3.48	0.32	0.49
CC6816-CC6815	CC6816	CC6815	8	296	0.0100	0.229730	0.169000	0.025481	3.01	0.25	0.37	0.379215	0.284200	0.041448	3.44	0.33	0.49	0.379215	0.284200	0.041448	3.44	0.33	0.49
CC6817-CC6816	CC6817	CC6816	8	296	0.0277	0.229730	0.169000	0.025481	4.35	0.19	0.28	0.229730	0.169000	0.025481	4.35	0.19	0.28	0.229730	0.169000	0.025481	4.35	0.19	0.28
CC6818-CC6817	CC6818	CC6817	8	128	0.0420	0.229730	0.169000	0.025481	5.05	0.17	0.26	0.229730	0.169000	0.025481	5.05	0.17	0.26	0.229730	0.169000	0.025481	5.05	0.17	0.26
CC681801-CC68180101	CC681801	CC68180101	8	27	0.0045	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
CC68180101-CC6818	CC68180101	CC6818	8	15	0.0086	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
CC681802-CC681801	CC681802	CC681801	8	238	0.0050	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
CC6819-CC6818	CC6819	CC6818	8	92	0.0686	0.229730	0.169000	0.025481	6.01	0.15	0.23	0.229730	0.169000	0.025481	6.01	0.15	0.23	0.229730	0.169000	0.025481	6.01	0.15	0.23
CC6820-CC6819	CC6820	CC6819	8	208	0.0619	0.208387	0.169000	0.015915	5.63	0.15	0.22	0.208387	0.169000	0.015915	5.63	0.15	0.22	0.208387	0.169000	0.015915	5.63	0.15	0.22
CC6821-CC6820	CC6821	CC6820	8	208	0.0699	0.207708	0.169000	0.015617	5.87	0.14	0.21	0.207708	0.169000	0.015617	5.87	0.14	0.21	0.207708	0.169000	0.015617	5.87	0.14	0.21
CC6822-CC6821	CC6822	CC6821	8	304	0.0695	0.192222	0.169000	0.008962	5.73	0.14	0.21	0.192222	0.169000	0.008962	5.73	0.14	0.21	0.192222	0.169000	0.008962	5.73	0.14	0.21
CC6823-CC6802	CC6823	CC6802	8	222	0.0710	0.064795	0.000000	0.027340	4.18	0.08	0.12	0.064795	0.000000	0.027340	4.18	0.08	0.12	0.064795	0.000000	0.027340	4.18	0.08	0.12
CC6824-CC6823	CC6824	CC6823	8	192	0.0683	0.044221	0.000000	0.018049	3.68	0.07	0.10	0.044221	0.000000	0.018049	3.68	0.07	0.10	0.044221	0.000000	0.018049	3.68	0.07	0.10
CC6825-CC6807	CC6825	CC6807	8	155	0.0080	0.115305	0.000000	0.051153	2.29	0.18	0.27	0.115305	0.000000	0.051153	2.29	0.18	0.27	0.115305	0.000000	0.051153	2.29	0.18	0.27
CC6826-CC6825	CC6826	CC6825	8	90	0.2624	0.115305	0.000000	0.051153	7.85	0.08	0.12	0.115305	0.000000	0.051153	7.85	0.08	0.12	0.115305	0.000000	0.051153	7.85	0.08	0.12
CC6827-CC6826	CC6827	CC6826	8	271	0.0258	0.115021	0.000000	0.051016	3.47	0.14	0.20	0.115021	0.000000	0.051016	3.47	0.14	0.20	0.115021	0.000000	0.051016	3.47	0.14	0.20
CC6828-CC6827	CC6828	CC6827	8	181	0.0510	0.095506	0.000000	0.041681	4.18	0.11	0.16	0.095506	0.000000	0.041681	4.18	0.11	0.16	0.095506	0.000000	0.041681	4.18	0.11	0.16
CC6829-CC6828	CC6829	CC6828	8	170	0.0765	0.092954	0.000000	0.040472	4.78	0.09	0.14	0.092954	0.000000	0.040472	4.78	0.09	0.14	0.092954	0.000000	0.040472	4.78	0.09	0.14
CC6830-CC6829	CC6830	CC6829	8	87	0.1385	0.050044	0.000000	0.020647	4.89	0.06	0.09	0.050044	0.000000	0.020647	4.89	0.06	0.09	0.050044	0.000000	0.020647	4.89	0.06	0.09
CC6831-CC68132	CC6831	CC68132	8	93	0.0243	0.024005	0.000000	0.009291	2.13	0.06	0.10	0.024005	0.000000	0.009291	2.13	0.06	0.10	0.024005	0.000000	0.009291	2.13	0.06	0.10
CC6832-CC6831	CC6832	CC6831	8	44	0.0041	0.022862	0.000000	0.008811	1.13	0.10	0.15	0.022862	0.000000	0.008811	1.13	0.10	0.15	0.022862	0.000000	0.008811	1.13	0.10	0.15
CC6833-CC6832	CC6833	CC6832	8	169	0.0040	0.022862	0.000000	0.008811	1.12	0.10	0.15	0.022862	0.000000	0.008811	1.12	0.10	0.15	0.022862	0.000000	0.008811	1.12	0.10	0.15
CC6834-CC6833	CC6834	CC6833	8	296	0.0043	0.012686	0.000000	0.004645	0.96	0.07	0.11	0.012686	0.000000	0.004645	0.96	0.07	0.11	0.012686	0.000000	0.004645	0.96	0.07	0.11
CC6835-CC6834	CC6835	CC6834	8	147	0.0492	0.004679	0.000000	0.001571	1.66	0.03	0.04	0.004679	0.000000	0.001571	1.66	0.03	0.04	0.004679	0.000000	0.001571	1.66	0.03	0.04
CC6836-CC6833	CC6836	CC6833	8	196	0.0486	0.007861	0.000000	0.002761	1.93	0.03	0.05	0.007861	0.000000	0.002761	1.93	0.03	0.05	0.007861	0.000000	0.002761	1.93	0.03	0.05
CC6837-CC6827	CC6837	CC6827	8	44	0.0266	0.015687	0.000000	0.005851	1.93	0.05	0.08	0.015687	0.000000	0.005851	1.93	0.05	0.08	0.015687	0.000000	0.005851	1.93	0.05	0.08
CC6838-CC6837	CC6838	CC6837	8	243	0.0160	0.015687	0.000000	0.005851	1.62	0.06	0.09	0.015687	0.000000	0.005851	1.62	0.06	0.09	0.015687	0.000000	0.005851	1.62	0.06	0.09
CC6839-CC6838	CC6839	CC6838	8	195	0.0102	0.012079	0.000000	0.004404	1.28	0.06	0.09	0.012079	0.000000	0.004404	1.28	0.06	0.09	0.012079	0.000000	0.004404	1.28	0.06	0.09
CC6840-CC6839	CC6840	CC6839	8	260	0.0100	0.007659	0.000000	0.002684	1.11	0.05	0.07	0.007659	0.000000	0.002684	1.11	0.05	0.07	0.007659	0.000000	0.002684	1.11	0.05	0.07
CC6841-CC6829	CC6841	CC6829	8	217	0.0427	0.029626	0.000000	0.011678	2.77	0.06	0.09	0.029626	0.000000	0.011678	2.77	0.06	0.09	0.029626	0.000000	0.011678	2.77	0.06	0.09
CC6842-CC6841	CC6842	CC6841	8	346	0.0100	0.027591	0.000000	0.010809	1.63	0.09	0.13	0.027591	0.000000	0.010809	1.63	0.09	0.13	0.027591	0.000000	0.010809	1.63	0.09	0.13
CC6843-CC6842	CC6843	CC6842	8	346	0.0100	0.021514	0.000000	0.008248	1.51	0.08	0.11	0.021514	0.000000	0.008248	1.51	0.08	0.11	0.021514	0.000000	0.008248	1.51	0.08	0.11
CC6844-CC6843	CC6844	CC6843	8	224	0.0100	0.014377	0.000000	0.005322	1.34	0.06	0.09	0.014377	0.000000	0.005322	1.34	0.06	0.09	0.014377	0.000000	0.005322	1.34	0.06	0.09
CC6845-CC6844	CC6845	CC6844	8	244	0.0054	0.007625	0.000000	0.002671	0.89	0.05	0.08	0.007625	0.000000	0.002671	0.89	0.05	0.08	0.007625	0.000000	0.002671	0.89	0.05	0.08
CC6846-CC6824	CC6846	CC6824	8	183	0.0523	0.044221	0.000000	0.018049	3.35	0.07	0.11	0.044221	0.000000	0.018049	3.35	0.07	0.11	0.044221	0.000000	0.018049			

City of Brea - Sewer Master Plan (November 2021)

Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
CC6848-CC6846	CC6848	CC6846	8	170	0.0300	0.035207	0.000000	0.014088	2.58	0.07	0.11	0.035207	0.000000	0.014088	2.58	0.07	0.11	0.035207	0.000000	0.014088	2.58	0.07	0.11
CC6849-CC6848	CC6849	CC6848	8	289	0.0972	0.032499	0.000000	0.012914	3.79	0.05	0.08	0.032499	0.000000	0.012914	3.79	0.05	0.08	0.032499	0.000000	0.012914	3.79	0.05	0.08
CC6850-CC6849	CC6850	CC6849	8	246	0.1017	0.025447	0.000000	0.009899	3.57	0.05	0.07	0.025447	0.000000	0.009899	3.57	0.05	0.07	0.025447	0.000000	0.009899	3.57	0.05	0.07
CC6851-CC6850	CC6851	CC6850	8	285	0.0484	0.012552	0.000000	0.004592	2.23	0.04	0.06	0.012552	0.000000	0.004592	2.23	0.04	0.06	0.012552	0.000000	0.004592	2.23	0.04	0.06
CC6852-CC6851	CC6852	CC6851	8	172	0.0100	0.006154	0.000000	0.002116	1.04	0.04	0.06	0.006154	0.000000	0.002116	1.04	0.04	0.06	0.006154	0.000000	0.002116	1.04	0.04	0.06
CC6853-CC6850	CC6853	CC6850	8	265	0.0563	0.009453	0.000000	0.003374	2.15	0.03	0.05	0.009453	0.000000	0.003374	2.15	0.03	0.05	0.009453	0.000000	0.003374	2.15	0.03	0.05
CC6854-CC6819	CC6854	CC6819	8	227	0.0126	0.024658	0.000000	0.009566	1.71	0.08	0.12	0.024658	0.000000	0.009566	1.71	0.08	0.12	0.024658	0.000000	0.009566	1.71	0.08	0.12
CC6855-CC6854	CC6855	CC6854	8	262	0.0106	0.021721	0.000000	0.008334	1.55	0.08	0.11	0.021721	0.000000	0.008334	1.55	0.08	0.11	0.021721	0.000000	0.008334	1.55	0.08	0.11
CC6856-CC6855	CC6856	CC6855	8	271	0.0100	0.015633	0.000000	0.005829	1.37	0.07	0.10	0.015633	0.000000	0.005829	1.37	0.07	0.10	0.015633	0.000000	0.005829	1.37	0.07	0.10
CC6857-CC6821	CC6857	CC6821	8	86	0.0130	0.017325	0.000000	0.006518	1.55	0.06	0.10	0.017325	0.000000	0.006518	1.55	0.06	0.10	0.017325	0.000000	0.006518	1.55	0.06	0.10
CC6858-CC6857	CC6858	CC6857	8	334	0.0100	0.017325	0.000000	0.006518	1.42	0.07	0.10	0.017325	0.000000	0.006518	1.42	0.07	0.10	0.017325	0.000000	0.006518	1.42	0.07	0.10
CC6859-CC6858	CC6859	CC6858	8	345	0.0100	0.009162	0.000000	0.003261	1.17	0.05	0.08	0.009162	0.000000	0.003261	1.17	0.05	0.08	0.009162	0.000000	0.003261	1.17	0.05	0.08
CC6860-CC6822	CC6860	CC6822	8	97	0.0050	0.022499	0.000000	0.008659	1.20	0.09	0.14	0.022499	0.000000	0.008659	1.20	0.09	0.14	0.022499	0.000000	0.008659	1.20	0.09	0.14
CC6861-CC6860	CC6861	CC6860	8	140	0.0100	0.022499	0.000000	0.008659	1.53	0.08	0.12	0.022499	0.000000	0.008659	1.53	0.08	0.12	0.022499	0.000000	0.008659	1.53	0.08	0.12
CC6862-CC6861	CC6862	CC6861	8	293	0.0100	0.015591	0.000000	0.005812	1.37	0.07	0.10	0.015591	0.000000	0.005812	1.37	0.07	0.10	0.015591	0.000000	0.005812	1.37	0.07	0.10
CC6863-CC6862	CC6863	CC6862	8	296	0.0100	0.010175	0.000000	0.003655	1.21	0.05	0.08	0.010175	0.000000	0.003655	1.21	0.05	0.08	0.010175	0.000000	0.003655	1.21	0.05	0.08
CC6864-CC6861	CC6864	CC6861	8	196	0.0183	0.005368	0.000000	0.001824	1.23	0.03	0.05	0.005368	0.000000	0.001824	1.23	0.03	0.05	0.005368	0.000000	0.001824	1.23	0.03	0.05
CC6865-CC6829	CC6865	CC6829	8	272	0.0100	0.020143	0.000000	0.007678	1.48	0.07	0.11	0.020143	0.000000	0.007678	1.48	0.07	0.11	0.020143	0.000000	0.007678	1.48	0.07	0.11
CC6866-CC6865	CC6866	CC6865	8	252	0.0100	0.016389	0.000000	0.006136	1.39	0.07	0.10	0.016389	0.000000	0.006136	1.39	0.07	0.10	0.016389	0.000000	0.006136	1.39	0.07	0.10
CC6867-CC6866	CC6867	CC6866	6	129	0.0060	0.010339	0.000000	0.003719	1.05	0.07	0.13	0.010339	0.000000	0.003719	1.05	0.07	0.13	0.010339	0.000000	0.003719	1.05	0.07	0.13
CC6868-CC6830	CC6868	CC6830	8	158	0.0450	0.048314	0.000000	0.019872	3.26	0.08	0.12	0.048314	0.000000	0.019872	3.26	0.08	0.12	0.048314	0.000000	0.019872	3.26	0.08	0.12
CC6869-CC6868	CC6869	CC6868	8	161	0.0801	0.048314	0.000000	0.019872	3.99	0.07	0.10	0.048314	0.000000	0.019872	3.99	0.07	0.10	0.048314	0.000000	0.019872	3.99	0.07	0.10
CC6870-CC6869	CC6870	CC6869	8	131	0.0158	0.019630	0.000000	0.007466	1.73	0.07	0.10	0.019630	0.000000	0.007466	1.73	0.07	0.10	0.019630	0.000000	0.007466	1.73	0.07	0.10
CC6871-CC6870	CC6871	CC6870	8	385	0.0221	0.010628	0.000000	0.003832	1.61	0.05	0.07	0.010628	0.000000	0.003832	1.61	0.05	0.07	0.010628	0.000000	0.003832	1.61	0.05	0.07
CC6872-CC6869	CC6872	CC6869	8	215	0.0395	0.030747	0.000000	0.012159	2.72	0.06	0.10	0.030747	0.000000	0.012159	2.72	0.06	0.10	0.030747	0.000000	0.012159	2.72	0.06	0.10
CC6873-CC6872	CC6873	CC6872	8	295	0.0216	0.026599	0.000000	0.010387	2.11	0.07	0.10	0.026599	0.000000	0.010387	2.11	0.07	0.10	0.026599	0.000000	0.010387	2.11	0.07	0.10
CC6874-CC6873	CC6874	CC6873	8	266	0.0332	0.020558	0.000000	0.007850	2.27	0.06	0.08	0.020558	0.000000	0.007850	2.27	0.06	0.08	0.020558	0.000000	0.007850	2.27	0.06	0.08
CC6875-CC6874	CC6875	CC6874	8	184	0.0644	0.016834	0.000000	0.006317	2.69	0.04	0.07	0.016834	0.000000	0.006317	2.69	0.04	0.07	0.016834	0.000000	0.006317	2.69	0.04	0.07
CC6876-CC6875	CC6876	CC6875	8	127	0.0676	0.010649	0.000000	0.003840	2.38	0.03	0.05	0.010649	0.000000	0.003840	2.38	0.03	0.05	0.010649	0.000000	0.003840	2.38	0.03	0.05
CC6877-CC6876	CC6877	CC6876	8	167	0.0312	0.006652	0.000000	0.002438	1.58	0.03	0.05	0.006652	0.000000	0.002438	1.58	0.03	0.05	0.006652	0.000000	0.002438	1.58	0.03	0.05
CC6877-CC6881	CC6877	CC6881	8	273	0.0270	0.006181	0.000000	0.002266	1.46	0.03	0.05	0.006181	0.000000	0.002266	1.46	0.03	0.05	0.006181	0.000000	0.002266	1.46	0.03	0.05
CC6878-CC6870	CC6878	CC6870	8	140	0.0600	0.009581	0.000000	0.003424	2.21	0.03	0.05	0.009581	0.000000	0.003424	2.21	0.03	0.05	0.009581	0.000000	0.003424	2.21	0.03	0.05
CC6879-CC6878	CC6879	CC6878	8	62	0.2260	0.008565	0.000000	0.003031	3.58	0.02	0.03	0.008565	0.000000	0.003031	3.58	0.02	0.03	0.008565	0.000000	0.003031	3.58	0.02	0.03
CC6880-CC6879	CC6880	CC6879	8	204	0.0655	0.008565	0.000000	0.003031	2.20	0.03	0.05	0.008565	0.000000	0.003031	2.20	0.03	0.05	0.008565	0.000000	0.003031	2.20	0.03	0.05
CC6881-CC6880	CC6881	CC6880	8	131	0.0309	0.008565	0.000000	0.003031	1.70	0.04	0.06	0.008565	0.000000	0.003031	1.70	0.04	0.06	0.008565	0.000000	0.003031	1.70	0.04	0.06
CC6882-CC6808	CC6882	CC6808	12	198	0.0050	0.158196	0.024000	0.060324	2.04	0.21	0.21	0.158196	0.024000	0.060324	2.04	0.21	0.21	0.158196	0.024000	0.060324	2.04	0.21	0.21
CC6883-CC6882	CC6883	CC6882	8	177	0.1000	0.158196	0.024000	0.060324	6.15	0.11	0.17	0.158196	0.024000	0.060324	6.15	0.11	0.17	0.134196	0.000000	0.060324	5.86	0.11	0.16
CC6884-CC6883	CC6884	CC6883	8	77	0.1000	0.158196	0.024000	0.060324	6.15	0.11	0.17	0.158196	0.024000	0.060324	6.15	0.11	0.17	0.134196	0.000000	0.060324	5.86	0.11	0.16
CC6885-CC6884	CC6885	CC6884	8	56	0.0621	0.158196	0.024000	0.060324	5.20	0.13	0.19	0.158196	0.024000	0.060324	5.20	0.13	0.19	0.134196	0.000000	0.060324	4.95	0.12	0.18
CC6886-CC6885	CC6886	CC6885	8	124	0.0100	0.059963	0.000000	0.025131	2.05	0.12	0.19	0.059963	0.000000	0.025131	2.05	0.12	0.19	0.059963	0.000000	0.025131	2.05	0.12	0.19
CC6887-CC6886	CC6887	CC6886	8	149	0.0475	0.007509	0.000000	0.002627	1.89	0.03	0.05	0.007509	0.000000	0.002627	1.89	0.03	0.05	0.007509	0.000000	0.002627	1.89	0.03	0.05
CC6888-CC6887	CC6888	CC6887	8	218	0.0150	0.005606	0.000000	0.001912	1.16	0.04	0.05	0.005606	0.000000	0.001912	1.16	0.04	0.05	0.005606	0.000000	0.001912	1.16	0.04	0.05
CC6889-CC6886	CC6889	CC6886	8	52	0.0100	0.054171	0.000000	0.022504	1.99	0.12	0.18	0.054171	0.000000	0.022504	1.99	0.12	0.18	0.054171	0.000000	0.022504	1.99	0.12	0.18
CC6890-CC6889	CC6890	CC6889	8	153	0.0101	0.054171	0.000000	0.022504	2.00	0.12	0.18	0.054171	0.000000	0.022504	2.00	0.12	0.18	0.054171	0.000000	0.022504	2.00	0.12	0.18
CC6891-CC6890	CC6891	CC6890	8	94	0.0100	0.042665	0.000000	0.017360	1.86	0.11	0.16	0.042665	0.000000	0.017360	1.86	0.11	0.16	0.042665	0.000000	0.017360	1.86	0.11	0.16
CC6892-CC6891	CC6892																						

City of Brea - Sewer Master Plan (November 2021)

Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
CC6893-CC6892	CC6893	CC6892	8	69	0.0391	0.006365	0.000000	0.002195	1.68	0.03	0.05	0.006365	0.000000	0.002195	1.68	0.03	0.05	0.006365	0.000000	0.002195	1.68	0.03	0.05
CC6894-CC6893	CC6894	CC6893	8	263	0.0288	0.005590	0.000000	0.001906	1.45	0.03	0.05	0.005590	0.000000	0.001906	1.45	0.03	0.05	0.005590	0.000000	0.001906	1.45	0.03	0.05
CC6895-CC6892	CC6895	CC6892	8	168	0.0100	0.034346	0.000000	0.013714	1.74	0.10	0.14	0.034346	0.000000	0.013714	1.74	0.10	0.14	0.034346	0.000000	0.013714	1.74	0.10	0.14
CC6896-CC6895	CC6896	CC6895	8	128	0.0099	0.031151	0.000000	0.012333	1.69	0.09	0.14	0.031151	0.000000	0.012333	1.69	0.09	0.14	0.031151	0.000000	0.012333	1.69	0.09	0.14
CC6897-CC6896	CC6897	CC6896	8	99	0.0100	0.027105	0.000000	0.010602	1.62	0.08	0.13	0.027105	0.000000	0.010602	1.62	0.08	0.13	0.027105	0.000000	0.010602	1.62	0.08	0.13
CC6898-CC6897	CC6898	CC6897	8	169	0.0100	0.025908	0.000000	0.010094	1.60	0.08	0.12	0.025908	0.000000	0.010094	1.60	0.08	0.12	0.025908	0.000000	0.010094	1.60	0.08	0.12
CC6899-CC6898	CC6899	CC6898	8	240	0.0100	0.021893	0.000000	0.008406	1.52	0.08	0.11	0.021893	0.000000	0.008406	1.52	0.08	0.11	0.021893	0.000000	0.008406	1.52	0.08	0.11
CC69-CC65	CC69	CC65	24	162	0.0036	0.321012	0.000000	0.155672	2.05	0.26	0.13	0.337082	0.000000	0.164161	2.08	0.27	0.13	3.306098	0.000000	1.963696	4.01	0.85	0.43
CC6901-CC69	CC6901	CC69	8	251	0.0446	0.054587	0.000000	0.022692	3.37	0.08	0.12	0.054587	0.000000	0.022692	3.37	0.08	0.12	0.054587	0.000000	0.022692	3.37	0.08	0.12
CC6902-CC6901	CC6902	CC6901	8	254	0.0529	0.054587	0.000000	0.022692	3.58	0.08	0.12	0.054587	0.000000	0.022692	3.58	0.08	0.12	0.054587	0.000000	0.022692	3.58	0.08	0.12
CC6903-CC6902	CC6903	CC6902	8	228	0.0820	0.044126	0.000000	0.018007	3.92	0.06	0.10	0.044126	0.000000	0.018007	3.92	0.06	0.10	0.044126	0.000000	0.018007	3.92	0.06	0.10
CC6904-CC6903	CC6904	CC6903	8	185	0.0807	0.037792	0.000000	0.015216	3.72	0.06	0.09	0.037792	0.000000	0.015216	3.72	0.06	0.09	0.037792	0.000000	0.015216	3.72	0.06	0.09
CC6905-CC6904	CC6905	CC6904	8	155	0.0485	0.014916	0.000000	0.005539	2.35	0.04	0.07	0.014916	0.000000	0.005539	2.35	0.04	0.07	0.014916	0.000000	0.005539	2.35	0.04	0.07
CC6906-CC6905	CC6906	CC6905	8	172	0.0100	0.010697	0.000000	0.003859	1.22	0.05	0.08	0.010697	0.000000	0.003859	1.22	0.05	0.08	0.010697	0.000000	0.003859	1.22	0.05	0.08
CC6907-CC6906	CC6907	CC6906	8	165	0.0206	0.005873	0.000000	0.002011	1.31	0.03	0.05	0.005873	0.000000	0.002011	1.31	0.03	0.05	0.005873	0.000000	0.002011	1.31	0.03	0.05
CC6908-CC6907	CC6908	CC6907	8	175	0.0325	0.003920	0.000000	0.001296	1.36	0.03	0.04	0.003920	0.000000	0.001296	1.36	0.03	0.04	0.003920	0.000000	0.001296	1.36	0.03	0.04
CC6909-CC6904	CC6909	CC6904	8	234	0.0782	0.017867	0.000000	0.006740	2.93	0.04	0.06	0.017867	0.000000	0.006740	2.93	0.04	0.06	0.017867	0.000000	0.006740	2.93	0.04	0.06
CC6910-CC6909	CC6910	CC6909	8	255	0.0577	0.012759	0.000000	0.004674	2.38	0.04	0.06	0.012759	0.000000	0.004674	2.38	0.04	0.06	0.012759	0.000000	0.004674	2.38	0.04	0.06
FA01-FA02	FA01	FA02	8	349	0.0030	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	1.807996	0.000000	1.018974	8.01	0.67	1.00
FA0101-FA01	FA0101	FA01	8	125	0.0030	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	1.807996	0.000000	1.018974	8.01	0.67	1.00
FA02-FA03	FA02	FA03	8	395	0.0030	0.070826	0.000000	0.030117	1.41	0.18	0.27	0.070826	0.000000	0.030117	1.41	0.18	0.27	1.857101	0.000000	1.049091	8.23	0.67	1.00
FA0201-FA02	FA0201	FA02	8	200	0.0491	0.068619	0.000000	0.029098	3.74	0.09	0.14	0.068619	0.000000	0.029098	3.74	0.09	0.14	0.068619	0.000000	0.029098	3.74	0.09	0.14
FA0202-FA0201	FA0202	FA0201	8	277	0.1144	0.058367	0.000000	0.024405	4.79	0.07	0.10	0.058367	0.000000	0.024405	4.79	0.07	0.10	0.058367	0.000000	0.024405	4.79	0.07	0.10
FA0203-FA0202	FA0203	FA0202	8	79	0.0919	0.053327	0.000000	0.022123	4.32	0.07	0.10	0.053327	0.000000	0.022123	4.32	0.07	0.10	0.053327	0.000000	0.022123	4.32	0.07	0.10
FA0204-FA0203	FA0204	FA0203	8	325	0.1015	0.048951	0.000000	0.020157	4.35	0.06	0.10	0.048951	0.000000	0.020157	4.35	0.06	0.10	0.048951	0.000000	0.020157	4.35	0.06	0.10
FA0205-FA0204	FA0205	FA0204	8	200	0.1012	0.044523	0.000000	0.018183	4.23	0.06	0.09	0.044523	0.000000	0.018183	4.23	0.06	0.09	0.044523	0.000000	0.018183	4.23	0.06	0.09
FA0206-FA0205	FA0206	FA0205	8	200	0.0993	0.044523	0.000000	0.018183	4.20	0.06	0.09	0.044523	0.000000	0.018183	4.20	0.06	0.09	0.044523	0.000000	0.018183	4.20	0.06	0.09
FA0207-FA0206	FA0207	FA0206	8	289	0.0970	0.038117	0.000000	0.015358	3.97	0.06	0.09	0.038117	0.000000	0.015358	3.97	0.06	0.09	0.038117	0.000000	0.015358	3.97	0.06	0.09
FA0208-FA0207	FA0208	FA0207	8	84	0.0974	0.013872	0.000000	0.005119	2.93	0.04	0.05	0.013872	0.000000	0.005119	2.93	0.04	0.05	0.013872	0.000000	0.005119	2.93	0.04	0.05
FA0209-FA0208	FA0209	FA0208	8	276	0.0764	0.009337	0.000000	0.003329	2.39	0.03	0.05	0.009337	0.000000	0.003329	2.39	0.03	0.05	0.009337	0.000000	0.003329	2.39	0.03	0.05
FA0210-FA0209	FA0210	FA0209	8	328	0.0565	0.008216	0.000000	0.002897	2.07	0.03	0.05	0.008216	0.000000	0.002897	2.07	0.03	0.05	0.008216	0.000000	0.002897	2.07	0.03	0.05
FA0211-FA0210	FA0211	FA0210	8	112	0.0082	0.000654	0.000000	0.000185	0.49	0.02	0.02	0.000654	0.000000	0.000185	0.49	0.02	0.02	0.000654	0.000000	0.000185	0.49	0.02	0.02
FA0212-FA0211	FA0212	FA0211	8	123	0.1498	0.000654	0.000000	0.000185	1.33	0.01	0.01	0.000654	0.000000	0.000185	1.33	0.01	0.01	0.000654	0.000000	0.000185	1.33	0.01	0.01
FA0213-FA0208	FA0213	FA0208	8	254	0.0236	0.005276	0.000000	0.001790	1.33	0.03	0.05	0.005276	0.000000	0.001790	1.33	0.03	0.05	0.005276	0.000000	0.001790	1.33	0.03	0.05
FA0214-FA0207	FA0214	FA0207	8	146	0.0431	0.026250	0.000000	0.010239	2.67	0.06	0.09	0.026250	0.000000	0.010239	2.67	0.06	0.09	0.026250	0.000000	0.010239	2.67	0.06	0.09
FA0215-FA0214	FA0215	FA0214	8	192	0.0441	0.023882	0.000000	0.009239	2.62	0.06	0.08	0.023882	0.000000	0.009239	2.62	0.06	0.08	0.023882	0.000000	0.009239	2.62	0.06	0.08
FA0216-FA0215	FA0216	FA0215	8	236	0.0180	0.010446	0.000000	0.003761	1.49	0.05	0.07	0.010446	0.000000	0.003761	1.49	0.05	0.07	0.010446	0.000000	0.003761	1.49	0.05	0.07
FA0217-FA0216	FA0217	FA0216	8	240	0.0124	0.007132	0.000000	0.002484	1.17	0.04	0.06	0.007132	0.000000	0.002484	1.17	0.04	0.06	0.007132	0.000000	0.002484	1.17	0.04	0.06
FA0218-FA0214	FA0218	FA0214	6	44	0.0148	0.001915	0.000000	0.000595	0.87	0.02	0.05	0.001915	0.000000	0.000595	0.87	0.02	0.05	0.001915	0.000000	0.000595	0.87	0.02	0.05
FA0219-FA0206	FA0219	FA0206	6	69	0.0825	0.005089	0.000000	0.001721	2.12	0.03	0.05	0.005089	0.000000	0.001721	2.12	0.03	0.05	0.005089	0.000000	0.001721	2.12	0.03	0.05
FA0220-FA0219	FA0220	FA0219	6	94	0.1026	0.003408	0.000000	0.001113	2.03	0.02	0.04	0.003408	0.000000	0.001113	2.03	0.02	0.04	0.003408	0.000000	0.001113	2.03	0.02	0.04
FA0221-FA0204	FA0221	FA0204	6	89	0.0342	0.003433	0.000000	0.001122	1.39	0.03	0.05	0.003433	0.000000	0.001122	1.39	0.03	0.05	0.003433	0.000000	0.001122	1.39	0.03	0.05
FA0222-FA0221	FA0222	FA0221	6	157	0.1036	0.003433	0.000000	0.001122	2.04	0.02	0.04	0.003433	0.000000	0.001122	2.04	0.02	0.04	0.003433	0.000000	0.001122	2.04	0.02	0.04
FA0223-FA0203	FA0223	FA0203	6	157	0.0583	0.005752	0.000000	0.001966	1.95	0.03	0.06	0.005752	0.000000	0.001966	1.95	0.03	0.06	0.005752	0.000000	0.001966	1.95	0.03	0.06
FA0224-FA0223	FA0224	FA0223	6	103	0.0242	0.004269	0.000000	0.001422	1.31	0.03	0.06	0.004269	0.000000	0.001422	1.31	0.03	0.06	0.004269	0.000000	0.001422	1.31	0.03	0.06
FA0225-FA0224	FA0225	FA0224	6	98	0.0489	0.																	

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Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
FA0226-FA0202	FA0226	FA0202	6	136	0.0676	0.005097	0.000000	0.001724	1.98	0.03	0.05	0.005097	0.000000	0.001724	1.98	0.03	0.05	0.005097	0.000000	0.001724	1.98	0.03	0.05
FA0227-FA0201	FA0227	FA0201	8	341	0.0690	0.012328	0.000000	0.004503	2.51	0.04	0.06	0.012328	0.000000	0.004503	2.51	0.04	0.06	0.012328	0.000000	0.004503	2.51	0.04	0.06
FA0228-FA0215	FA0228	FA0215	6	26	0.1569	0.013085	0.000000	0.004804	3.54	0.03	0.07	0.013085	0.000000	0.004804	3.54	0.03	0.07	0.013085	0.000000	0.004804	3.54	0.03	0.07
FA03-FA04	FA03	FA04	8	404	0.0025	0.072281	0.000000	0.030790	1.32	0.19	0.29	0.072281	0.000000	0.030790	1.32	0.19	0.29	1.858197	0.000000	1.049764	8.24	0.67	1.00
FA04-FA05	FA04	FA05	8	336	0.0036	0.120792	0.000000	0.053804	1.74	0.23	0.35	0.120792	0.000000	0.053804	1.74	0.23	0.35	1.895643	0.000000	1.072778	8.40	0.67	1.00
FA0401-FA04	FA0401	FA04	8	161	0.0043	0.053666	0.000000	0.022276	1.48	0.15	0.22	0.053666	0.000000	0.022276	1.48	0.15	0.22	0.053666	0.000000	0.022276	1.48	0.15	0.22
FA0402-FA0401	FA0402	FA0401	8	200	0.0376	0.013672	0.000000	0.005039	2.09	0.04	0.07	0.013672	0.000000	0.005039	2.09	0.04	0.07	0.013672	0.000000	0.005039	2.09	0.04	0.07
FA0403-FA0402	FA0403	FA0402	8	77	0.0378	0.011086	0.000000	0.004012	1.97	0.04	0.06	0.011086	0.000000	0.004012	1.97	0.04	0.06	0.011086	0.000000	0.004012	1.97	0.04	0.06
FA0404-FA0403	FA0404	FA0403	8	346	0.0045	0.004440	0.000000	0.001484	0.71	0.04	0.07	0.004440	0.000000	0.001484	0.71	0.04	0.07	0.004440	0.000000	0.001484	0.71	0.04	0.07
FA0405-FA0404	FA0405	FA0404	8	121	0.0373	0.002198	0.000000	0.000691	1.20	0.02	0.03	0.002198	0.000000	0.000691	1.20	0.02	0.03	0.002198	0.000000	0.000691	1.20	0.02	0.03
FA0406S-FA0403	FA0406S	FA0403	8	238	0.0226	0.007248	0.000000	0.002528	1.45	0.04	0.06	0.007248	0.000000	0.002528	1.45	0.04	0.06	0.007248	0.000000	0.002528	1.45	0.04	0.06
FA0407-FA0401	FA0407	FA0401	8	261	0.0048	0.041656	0.000000	0.016914	1.42	0.13	0.19	0.041656	0.000000	0.016914	1.42	0.13	0.19	0.041656	0.000000	0.016914	1.42	0.13	0.19
FA0408-FA0407	FA0408	FA0407	8	254	0.0040	0.022630	0.000000	0.008714	1.12	0.10	0.15	0.022630	0.000000	0.008714	1.12	0.10	0.15	0.022630	0.000000	0.008714	1.12	0.10	0.15
FA0409-FA0408	FA0409	FA0408	8	67	0.0055	0.020186	0.000000	0.007696	1.21	0.08	0.13	0.020186	0.000000	0.007696	1.21	0.08	0.13	0.020186	0.000000	0.007696	1.21	0.08	0.13
FA0410-FA0409	FA0410	FA0409	8	336	0.0354	0.018293	0.000000	0.006915	2.24	0.05	0.08	0.018293	0.000000	0.006915	2.24	0.05	0.08	0.018293	0.000000	0.006915	2.24	0.05	0.08
FA0411-FA0410	FA0411	FA0410	8	59	0.0522	0.013652	0.000000	0.005031	2.35	0.04	0.06	0.013652	0.000000	0.005031	2.35	0.04	0.06	0.013652	0.000000	0.005031	2.35	0.04	0.06
FA0412-FA0411	FA0412	FA0411	8	161	0.0150	0.011525	0.000000	0.004185	1.44	0.05	0.08	0.011525	0.000000	0.004185	1.44	0.05	0.08	0.011525	0.000000	0.004185	1.44	0.05	0.08
FA0413-FA0412	FA0413	FA0412	8	116	0.0285	0.009549	0.000000	0.003411	1.71	0.04	0.06	0.009549	0.000000	0.003411	1.71	0.04	0.06	0.009549	0.000000	0.003411	1.71	0.04	0.06
FA0414-FA0413	FA0414	FA0413	8	94	0.4255	0.007942	0.000000	0.002792	4.12	0.02	0.03	0.007942	0.000000	0.002792	4.12	0.02	0.03	0.007942	0.000000	0.002792	4.12	0.02	0.03
FA0415-FA0414	FA0415	FA0414	8	110	0.0699	0.007942	0.000000	0.002792	2.20	0.03	0.05	0.007942	0.000000	0.002792	2.20	0.03	0.05	0.007942	0.000000	0.002792	2.20	0.03	0.05
FA0416-FA0415	FA0416	FA0415	8	261	0.1224	0.005083	0.000000	0.001719	2.33	0.02	0.03	0.005083	0.000000	0.001719	2.33	0.02	0.03	0.005083	0.000000	0.001719	2.33	0.02	0.03
FA0417-FA0407	FA0417	FA0407	8	59	0.0768	0.019809	0.000000	0.007540	3.00	0.05	0.07	0.019809	0.000000	0.007540	3.00	0.05	0.07	0.019809	0.000000	0.007540	3.00	0.05	0.07
FA0418-FA0417	FA0418	FA0417	8	202	0.0409	0.019809	0.000000	0.007540	2.41	0.05	0.08	0.019809	0.000000	0.007540	2.41	0.05	0.08	0.019809	0.000000	0.007540	2.41	0.05	0.08
FA0419S-FA0418	FA0419S	FA0418	8	343	0.0052	0.008034	0.000000	0.002827	0.90	0.06	0.08	0.008034	0.000000	0.002827	0.90	0.06	0.08	0.008034	0.000000	0.002827	0.90	0.06	0.08
FA0420-FA0418	FA0420	FA0418	8	153	0.0438	0.009716	0.000000	0.003476	1.99	0.04	0.06	0.009716	0.000000	0.003476	1.99	0.04	0.06	0.009716	0.000000	0.003476	1.99	0.04	0.06
FA0421-FA0420	FA0421	FA0420	8	112	0.0142	0.008472	0.000000	0.002995	1.29	0.04	0.07	0.008472	0.000000	0.002995	1.29	0.04	0.07	0.008472	0.000000	0.002995	1.29	0.04	0.07
FA0422-FA0421	FA0422	FA0421	8	118	0.3798	0.006242	0.000000	0.002149	3.68	0.02	0.03	0.006242	0.000000	0.002149	3.68	0.02	0.03	0.006242	0.000000	0.002149	3.68	0.02	0.03
FA0423-FA0422	FA0423	FA0422	8	156	0.0678	0.006242	0.000000	0.002149	2.02	0.03	0.04	0.006242	0.000000	0.002149	2.02	0.03	0.04	0.006242	0.000000	0.002149	2.02	0.03	0.04
FA0424-FA0423	FA0424	FA0423	6	194	0.1537	0.003923	0.000000	0.001297	2.43	0.02	0.04	0.003923	0.000000	0.001297	2.43	0.02	0.04	0.003923	0.000000	0.001297	2.43	0.02	0.04
FA0425-FA0424	FA0425	FA0424	6	103	0.0128	0.002570	0.000000	0.000819	0.90	0.03	0.06	0.002570	0.000000	0.000819	0.90	0.03	0.06	0.002570	0.000000	0.000819	0.90	0.03	0.06
FA05-FA06	FA05	FA06	8	336	0.0030	0.121070	0.000000	0.053939	1.64	0.24	0.36	0.121070	0.000000	0.053939	1.64	0.24	0.36	1.895862	0.000000	1.072913	8.40	0.67	1.00
FA06-FA07	FA06	FA07	8	131	0.0224	0.121070	0.000000	0.053939	3.35	0.14	0.22	0.121070	0.000000	0.053939	3.35	0.14	0.22	1.895862	0.000000	1.072913	8.40	0.67	1.00
FA07-FA08	FA07	FA08	8	353	0.0035	0.185629	0.000000	0.085832	1.94	0.29	0.44	0.185629	0.000000	0.085832	1.94	0.29	0.44	1.947648	0.000000	1.104806	8.63	0.67	1.00
FA0701-FA07	FA0701	FA07	8	205	0.0375	0.071674	0.000000	0.030509	3.44	0.10	0.15	0.071674	0.000000	0.030509	3.44	0.10	0.15	0.071674	0.000000	0.030509	3.44	0.10	0.15
FA0702-FA0701	FA0702	FA0701	8	277	0.0405	0.071051	0.000000	0.030221	3.53	0.10	0.14	0.071051	0.000000	0.030221	3.53	0.10	0.14	0.071051	0.000000	0.030221	3.53	0.10	0.14
FA0703-FA0702	FA0703	FA0702	8	358	0.0607	0.057731	0.000000	0.024116	3.82	0.08	0.12	0.057731	0.000000	0.024116	3.82	0.08	0.12	0.057731	0.000000	0.024116	3.82	0.08	0.12
FA0704-FA0703	FA0704	FA0703	8	267	0.0840	0.051599	0.000000	0.021345	4.14	0.07	0.10	0.051599	0.000000	0.021345	4.14	0.07	0.10	0.051599	0.000000	0.021345	4.14	0.07	0.10
FA0705-FA0704	FA0705	FA0704	8	315	0.0248	0.045155	0.000000	0.018464	2.60	0.09	0.13	0.045155	0.000000	0.018464	2.60	0.09	0.13	0.045155	0.000000	0.018464	2.60	0.09	0.13
FA0706-FA0705	FA0706	FA0705	8	264	0.0420	0.039305	0.000000	0.015879	2.99	0.07	0.11	0.039305	0.000000	0.015879	2.99	0.07	0.11	0.039305	0.000000	0.015879	2.99	0.07	0.11
FA0707-FA0706	FA0707	FA0706	8	330	0.0096	0.026431	0.000000	0.010316	1.58	0.08	0.13	0.026431	0.000000	0.010316	1.58	0.08	0.13	0.026431	0.000000	0.010316	1.58	0.08	0.13
FA0708-FA0707	FA0708	FA0707	8	290	0.0081	0.021833	0.000000	0.008381	1.41	0.08	0.12	0.021833	0.000000	0.008381	1.41	0.08	0.12	0.021833	0.000000	0.008381	1.41	0.08	0.12
FA0709-FA0708	FA0709	FA0708	8	102	0.0040	0.016732	0.000000	0.006276	1.02	0.08	0.13	0.016732	0.000000	0.006276	1.02	0.08	0.13	0.016732	0.000000	0.006276	1.02	0.08	0.13
FA0710-FA0709	FA0710	FA0709	8	174	0.0674	0.013757	0.000000	0.005073	2.57	0.04	0.06	0.013757	0.000000	0.005073	2.57	0.04	0.06	0.013757	0.000000	0.005073	2.57	0.04	0.06
FA0711-FA0710	FA0711	FA0710	8	128	0.0153	0.010487	0.000000	0.003777	1.41	0.05	0.07	0.010487	0.000000	0.003777	1.41	0.05	0.07	0.010487	0.000000	0.003777	1.41	0.05	0.07
FA0712-FA0711	FA0712	FA0711	8	333	0.1439	0.008949	0.000000	0.003179	2.93	0.03	0.04	0.008949	0.000000	0.003179	2.93	0.03	0.04	0.008949	0.000000	0.003179	2.93	0.03	0.04
FA0713-FA0712	FA0713	FA0712	8	213	0.0722	0.004876																	

City of Brea - Sewer Master Plan (November 2021)

Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
FA0714-FA0711	FA0714	FA0711	6	179	0.0415	0.001344	0.000000	0.000405	1.11	0.02	0.03	0.001344	0.000000	0.000405	1.11	0.02	0.03	0.001344	0.000000	0.000405	1.11	0.02	0.03
FA0715-FA0710	FA0715	FA0710	6	39	0.0408	0.001761	0.000000	0.000543	1.20	0.02	0.04	0.001761	0.000000	0.000543	1.20	0.02	0.04	0.001761	0.000000	0.000543	1.20	0.02	0.04
FA0716-FA0709	FA0716	FA0709	6	43	0.0107	0.003233	0.000000	0.001051	0.91	0.03	0.07	0.003233	0.000000	0.001051	0.91	0.03	0.07	0.003233	0.000000	0.001051	0.91	0.03	0.07
FA0717-FA0706	FA0717	FA0706	8	277	0.0047	0.011677	0.000000	0.004245	0.97	0.07	0.10	0.011677	0.000000	0.004245	0.97	0.07	0.10	0.011677	0.000000	0.004245	0.97	0.07	0.10
FA0718-FA0717	FA0718	FA0717	8	100	0.0039	0.007856	0.000000	0.002759	0.80	0.06	0.09	0.007856	0.000000	0.002759	0.80	0.06	0.09	0.007856	0.000000	0.002759	0.80	0.06	0.09
FA0719-FA0718	FA0719	FA0718	8	353	0.0245	0.004125	0.000000	0.001370	1.25	0.03	0.04	0.004125	0.000000	0.001370	1.25	0.03	0.04	0.004125	0.000000	0.001370	1.25	0.03	0.04
FA0720S-FA0705	FA0720S	FA0705	8	249	0.0210	0.002128	0.000000	0.000667	0.97	0.02	0.03	0.002128	0.000000	0.000667	0.97	0.02	0.03	0.002128	0.000000	0.000667	0.97	0.02	0.03
FA0721S-FA0704	FA0721S	FA0704	8	262	0.0057	0.004330	0.000000	0.001444	0.76	0.04	0.06	0.004330	0.000000	0.001444	0.76	0.04	0.06	0.004330	0.000000	0.001444	0.76	0.04	0.06
FA0722-FA0703	FA0722	FA0703	8	236	0.0397	0.005854	0.000000	0.002004	1.65	0.03	0.04	0.005854	0.000000	0.002004	1.65	0.03	0.04	0.005854	0.000000	0.002004	1.65	0.03	0.04
FA0723-FA0722	FA0723	FA0722	8	171	0.1080	0.003408	0.000000	0.001113	1.98	0.02	0.03	0.003408	0.000000	0.001113	1.98	0.02	0.03	0.003408	0.000000	0.001113	1.98	0.02	0.03
FA0724-FA0702	FA0724	FA0702	8	287	0.0694	0.010096	0.000000	0.003624	2.36	0.03	0.05	0.010096	0.000000	0.003624	2.36	0.03	0.05	0.010096	0.000000	0.003624	2.36	0.03	0.05
FA0725-FA0724	FA0725	FA0724	8	171	0.1019	0.005490	0.000000	0.001869	2.24	0.02	0.03	0.005490	0.000000	0.001869	2.24	0.02	0.03	0.005490	0.000000	0.001869	2.24	0.02	0.03
FA08-FA09	FA08	FA09	8	271	0.0030	0.193596	0.000000	0.089844	1.84	0.32	0.47	0.193596	0.000000	0.089844	1.84	0.32	0.47	1.954154	0.000000	1.108818	8.66	0.67	1.00
FA09-FA10	FA09	FA10	8	80	0.0048	0.210484	0.000000	0.098394	2.24	0.29	0.43	0.210484	0.000000	0.098394	2.24	0.29	0.43	1.968013	0.000000	1.117368	8.72	0.67	1.00
FA0901-FA09	FA0901	FA09	6	110	0.0204	0.022238	0.000000	0.008550	2.04	0.07	0.14	0.022238	0.000000	0.008550	2.04	0.07	0.14	0.022238	0.000000	0.008550	2.04	0.07	0.14
FA0902-FA0901	FA0902	FA0901	8	213	0.0087	0.022238	0.000000	0.008550	1.46	0.08	0.12	0.022238	0.000000	0.008550	1.46	0.08	0.12	0.022238	0.000000	0.008550	1.46	0.08	0.12
FA0903-FA0902	FA0903	FA0902	8	108	0.0041	0.022238	0.000000	0.008550	1.12	0.10	0.14	0.022238	0.000000	0.008550	1.12	0.10	0.14	0.022238	0.000000	0.008550	1.12	0.10	0.14
FA10-FA11	FA10	FA11	8	264	0.0036	0.211340	0.000000	0.098829	2.02	0.31	0.47	0.211340	0.000000	0.098829	2.02	0.31	0.47	1.968718	0.000000	1.117803	8.73	0.67	1.00
FA11-FA12	FA11	FA12	8	292	0.0039	0.211340	0.000000	0.098829	2.08	0.31	0.46	0.211340	0.000000	0.098829	2.08	0.31	0.46	1.968718	0.000000	1.117803	8.73	0.67	1.00
FA12-FA13	FA12	FA13	8	156	0.0090	0.312809	0.000000	0.151353	3.15	0.30	0.45	0.312809	0.000000	0.151353	3.15	0.30	0.45	2.053667	0.000000	1.170327	9.10	0.67	1.00
FA1201-FA12	FA1201	FA12	8	192	0.0216	0.118145	0.000000	0.052524	3.29	0.14	0.22	0.118145	0.000000	0.052524	3.29	0.14	0.22	0.118145	0.000000	0.052524	3.29	0.14	0.22
FA1202-FA1201	FA1202	FA1201	8	31	0.3000	0.071432	0.000000	0.030397	7.12	0.06	0.09	0.071432	0.000000	0.030397	7.12	0.06	0.09	0.071432	0.000000	0.030397	7.12	0.06	0.09
FA1203-FA1202	FA1203	FA1202	8	218	0.0040	0.071432	0.000000	0.030397	1.56	0.17	0.26	0.071432	0.000000	0.030397	1.56	0.17	0.26	0.071432	0.000000	0.030397	1.56	0.17	0.26
FA1204-FA1203	FA1204	FA1203	8	110	0.0555	0.047649	0.000000	0.019575	3.50	0.07	0.11	0.047649	0.000000	0.019575	3.50	0.07	0.11	0.047649	0.000000	0.019575	3.50	0.07	0.11
FA1205-FA1204	FA1205	FA1204	8	75	0.0105	0.043449	0.000000	0.017707	1.90	0.11	0.16	0.043449	0.000000	0.017707	1.90	0.11	0.16	0.043449	0.000000	0.017707	1.90	0.11	0.16
FA1206-FA1205	FA1206	FA1205	8	176	0.0457	0.039760	0.000000	0.016079	3.09	0.07	0.11	0.039760	0.000000	0.016079	3.09	0.07	0.11	0.039760	0.000000	0.016079	3.09	0.07	0.11
FA1207-FA1206	FA1207	FA1206	8	61	0.1146	0.036953	0.000000	0.014849	4.17	0.06	0.08	0.036953	0.000000	0.014849	4.17	0.06	0.08	0.036953	0.000000	0.014849	4.17	0.06	0.08
FA1208-FA1207	FA1208	FA1207	8	161	0.0713	0.031142	0.000000	0.012329	3.36	0.06	0.09	0.031142	0.000000	0.012329	3.36	0.06	0.09	0.031142	0.000000	0.012329	3.36	0.06	0.09
FA1209-FA1208	FA1209	FA1208	8	325	0.0043	0.029553	0.000000	0.011647	1.24	0.11	0.16	0.029553	0.000000	0.011647	1.24	0.11	0.16	0.029553	0.000000	0.011647	1.24	0.11	0.16
FA1210-FA1209	FA1210	FA1209	8	315	0.0040	0.021248	0.000000	0.008137	1.09	0.09	0.14	0.021248	0.000000	0.008137	1.09	0.09	0.14	0.021248	0.000000	0.008137	1.09	0.09	0.14
FA1211-FA1208	FA1211	FA1208	8	135	0.0069	0.002172	0.000000	0.000682	0.66	0.03	0.04	0.002172	0.000000	0.000682	0.66	0.03	0.04	0.002172	0.000000	0.000682	0.66	0.03	0.04
FA1212-FA1207	FA1212	FA1207	8	120	0.0079	0.002797	0.000000	0.000898	0.75	0.03	0.05	0.002797	0.000000	0.000898	0.75	0.03	0.05	0.002797	0.000000	0.000898	0.75	0.03	0.05
FA1213-FA1207	FA1213	FA1207	8	200	0.0093	0.004819	0.000000	0.001622	0.94	0.04	0.06	0.004819	0.000000	0.001622	0.94	0.04	0.06	0.004819	0.000000	0.001622	0.94	0.04	0.06
FA1214-FA1206	FA1214	FA1206	8	176	0.0045	0.003736	0.000000	0.001230	0.68	0.04	0.06	0.003736	0.000000	0.001230	0.68	0.04	0.06	0.003736	0.000000	0.001230	0.68	0.04	0.06
FA1215-FA1205	FA1215	FA1205	8	190	0.0046	0.004835	0.000000	0.001628	0.73	0.05	0.07	0.004835	0.000000	0.001628	0.73	0.05	0.07	0.004835	0.000000	0.001628	0.73	0.05	0.07
FA1216-FA1204	FA1216	FA1204	8	184	0.0238	0.005487	0.000000	0.001868	1.35	0.03	0.05	0.005487	0.000000	0.001868	1.35	0.03	0.05	0.005487	0.000000	0.001868	1.35	0.03	0.05
FA1217-FA1203	FA1217	FA1203	8	69	0.0054	0.024660	0.000000	0.009567	1.27	0.09	0.14	0.024660	0.000000	0.009567	1.27	0.09	0.14	0.024660	0.000000	0.009567	1.27	0.09	0.14
FA1218-FA1217	FA1218	FA1217	8	120	0.0108	0.017362	0.000000	0.006533	1.45	0.07	0.10	0.017362	0.000000	0.006533	1.45	0.07	0.10	0.017362	0.000000	0.006533	1.45	0.07	0.10
FA1219-FA1218	FA1219	FA1218	8	184	0.0276	0.017362	0.000000	0.006533	2.02	0.05	0.08	0.017362	0.000000	0.006533	2.02	0.05	0.08	0.017362	0.000000	0.006533	2.02	0.05	0.08
FA1220-FA1219	FA1220	FA1219	8	172	0.0210	0.015393	0.000000	0.005732	1.77	0.05	0.08	0.015393	0.000000	0.005732	1.77	0.05	0.08	0.015393	0.000000	0.005732	1.77	0.05	0.08
FA1221-FA1220	FA1221	FA1220	8	184	0.0094	0.012786	0.000000	0.004685	1.27	0.06	0.09	0.012786	0.000000	0.004685	1.27	0.06	0.09	0.012786	0.000000	0.004685	1.27	0.06	0.09
FA1222-FA1221	FA1222	FA1221	8	121	0.0040	0.010421	0.000000	0.003751	0.88	0.07	0.10	0.010421	0.000000	0.003751	0.88	0.07	0.10	0.010421	0.000000	0.003751	0.88	0.07	0.10
FA1223-FA1222	FA1223	FA1222	8	154	0.0090	0.009043	0.000000	0.003215	1.12	0.05	0.08	0.009043	0.000000	0.003215	1.12	0.05	0.08	0.009043	0.000000	0.003215	1.12	0.05	0.08
FA1224-FA1223	FA1224	FA1223	8	57	0.0358	0.005374	0.000000	0.001826	1.55	0.03	0.04	0.005374	0.000000	0.001826	1.55	0.03	0.04	0.005374	0.000000	0.001826	1.55	0.03	0.04
FA1225-FA1224	FA1225	FA1224	8	266	0.0132	0.004641	0.000000	0.001557	1.05	0.03	0.05	0.004641	0.000000	0.001557	1.05	0.03	0.05	0.004641	0.000000	0.001557	1.05	0.03	0.05
FA1226-FA1222	FA1226	FA1222	8	69	0.0055	0.000992																	

City of Brea - Sewer Master Plan (November 2021)

Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
FA1227-FA1217	FA1227	FA1217	8	103	0.0050	0.008573	0.000000	0.003034	0.90	0.06	0.09	0.008573	0.000000	0.003034	0.90	0.06	0.09	0.008573	0.000000	0.003034	0.90	0.06	0.09
FA1228-FA1227	FA1228	FA1227	8	62	0.0590	0.006783	0.000000	0.002352	1.98	0.03	0.04	0.006783	0.000000	0.002352	1.98	0.03	0.04	0.006783	0.000000	0.002352	1.98	0.03	0.04
FA1229-FA1228	FA1229	FA1228	8	107	0.0078	0.004780	0.000000	0.001608	0.88	0.04	0.06	0.004780	0.000000	0.001608	0.88	0.04	0.06	0.004780	0.000000	0.001608	0.88	0.04	0.06
FA1230-FA1229	FA1230	FA1229	8	176	0.0048	0.003842	0.000000	0.001268	0.70	0.04	0.06	0.003842	0.000000	0.001268	0.70	0.04	0.06	0.003842	0.000000	0.001268	0.70	0.04	0.06
FA1231-FA1228	FA1231	FA1228	8	190	0.0069	0.002353	0.000000	0.000744	0.68	0.03	0.04	0.002353	0.000000	0.000744	0.68	0.03	0.04	0.002353	0.000000	0.000744	0.68	0.03	0.04
FA1232-FA1227	FA1232	FA1227	8	182	0.0201	0.002172	0.000000	0.000682	0.96	0.02	0.03	0.002172	0.000000	0.000682	0.96	0.02	0.03	0.002172	0.000000	0.000682	0.96	0.02	0.03
FA1233-FA12	FA1233	FA12	8	404	0.0057	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
FA13-FA14	FA13	FA14	8	300	0.0184	0.316733	0.000000	0.153418	4.11	0.25	0.37	0.316733	0.000000	0.153418	4.11	0.25	0.37	2.057001	0.000000	1.172392	9.12	0.67	1.00
FA14-FA15	FA14	FA15	8	244	0.0160	0.320202	0.000000	0.155245	3.92	0.26	0.39	0.320202	0.000000	0.155245	3.92	0.26	0.39	2.059950	0.000000	1.174219	9.13	0.67	1.00
FA15-FA16	FA15	FA16	8	253	0.0119	0.326775	0.000000	0.158712	3.54	0.29	0.43	0.326775	0.000000	0.158712	3.54	0.29	0.43	2.065545	0.000000	1.177686	9.16	0.67	1.00
FA1501-FA15	FA1501	FA15	8	136	0.0513	0.006034	0.000000	0.002071	1.82	0.03	0.04	0.006034	0.000000	0.002071	1.82	0.03	0.04	0.006034	0.000000	0.002071	1.82	0.03	0.04
FA1502-FA1501	FA1502	FA1501	8	190	0.0080	0.004228	0.000000	0.001407	0.85	0.04	0.06	0.004228	0.000000	0.001407	0.85	0.04	0.06	0.004228	0.000000	0.001407	0.85	0.04	0.06
FA16-FA17	FA16	FA17	8	179	0.0313	0.332839	0.000000	0.161916	5.05	0.22	0.33	0.332839	0.000000	0.161916	5.05	0.22	0.33	2.070714	0.000000	1.180890	9.18	0.67	1.00
FA1601-FA16	FA1601	FA16	8	200	0.0405	0.007283	0.000000	0.002541	1.77	0.03	0.05	0.007283	0.000000	0.002541	1.77	0.03	0.05	0.007283	0.000000	0.002541	1.77	0.03	0.05
FA1602-FA1601	FA1602	FA1601	8	194	0.0032	0.004676	0.000000	0.001570	0.64	0.05	0.07	0.004676	0.000000	0.001570	0.64	0.05	0.07	0.004676	0.000000	0.001570	0.64	0.05	0.07
FA17-FA18D	FA17	FA18D	10	133	0.0623	0.357642	0.000000	0.175073	6.45	0.18	0.21	0.357642	0.000000	0.175073	6.45	0.18	0.21	2.091930	0.000000	1.194047	10.47	0.46	0.55
FA1701-FA17	FA1701	FA17	8	115	0.0268	0.031652	0.000000	0.012549	2.40	0.07	0.11	0.031652	0.000000	0.012549	2.40	0.07	0.11	0.031652	0.000000	0.012549	2.40	0.07	0.11
FA1702-FA1701	FA1702	FA1701	8	290	0.0188	0.024183	0.000000	0.009366	1.95	0.07	0.10	0.024183	0.000000	0.009366	1.95	0.07	0.10	0.024183	0.000000	0.009366	1.95	0.07	0.10
FA1703-FA1702	FA1703	FA1702	8	243	0.0102	0.008776	0.000000	0.003112	1.16	0.05	0.07	0.008776	0.000000	0.003112	1.16	0.05	0.07	0.008776	0.000000	0.003112	1.16	0.05	0.07
FA1704-FA1703	FA1704	FA1703	8	243	0.0101	0.005178	0.000000	0.001754	0.99	0.04	0.06	0.005178	0.000000	0.001754	0.99	0.04	0.06	0.005178	0.000000	0.001754	0.99	0.04	0.06
FA1705-FA1702	FA1705	FA1702	8	185	0.0224	0.013142	0.000000	0.004827	1.73	0.05	0.07	0.013142	0.000000	0.004827	1.73	0.05	0.07	0.013142	0.000000	0.004827	1.73	0.05	0.07
FA1706-FA1705	FA1706	FA1705	8	171	0.0110	0.011086	0.000000	0.004012	1.28	0.05	0.08	0.011086	0.000000	0.004012	1.28	0.05	0.08	0.011086	0.000000	0.004012	1.28	0.05	0.08
FA1707-FA1706	FA1707	FA1706	8	161	0.0109	0.005452	0.000000	0.001855	1.03	0.04	0.06	0.005452	0.000000	0.001855	1.03	0.04	0.06	0.005452	0.000000	0.001855	1.03	0.04	0.06
FA1708-FA1707	FA1708	FA1707	8	200	0.0689	0.003951	0.000000	0.001307	1.77	0.02	0.03	0.003951	0.000000	0.001307	1.77	0.02	0.03	0.003951	0.000000	0.001307	1.77	0.02	0.03
FA1709-FA1706	FA1709	FA1706	8	187	0.0055	0.004487	0.000000	0.001501	0.76	0.04	0.06	0.004487	0.000000	0.001501	0.76	0.04	0.06	0.004487	0.000000	0.001501	0.76	0.04	0.06
FA1710-FA1701	FA1710	FA1701	8	143	0.0144	0.007882	0.000000	0.002769	1.27	0.04	0.06	0.007882	0.000000	0.002769	1.27	0.04	0.06	0.007882	0.000000	0.002769	1.27	0.04	0.06
FA1711-FA1710	FA1711	FA1710	8	348	0.0142	0.007193	0.000000	0.002507	1.23	0.04	0.06	0.007193	0.000000	0.002507	1.23	0.04	0.06	0.007193	0.000000	0.002507	1.23	0.04	0.06
FA18D-FA19D	FA18D	FA19D	15	78	0.0030	0.357642	0.000000	0.175073	2.09	0.34	0.27	0.357642	0.000000	0.175073	2.09	0.34	0.27	2.091930	0.000000	1.194047	3.25	0.94	0.76
FA1901-FA19D	FA1901	FA19D	10	635	0.0052	0.386628	0.000000	0.190549	2.70	0.35	0.43	0.386628	0.000000	0.190549	2.70	0.35	0.43	0.386628	0.000000	0.190549	2.70	0.35	0.43
FA1902-FA1901	FA1902	FA1901	10	149	0.0066	0.369297	0.000000	0.181283	2.92	0.32	0.39	0.369297	0.000000	0.181283	2.92	0.32	0.39	0.369297	0.000000	0.181283	2.92	0.32	0.39
FA1903-FA1902	FA1903	FA1902	10	110	0.0065	0.369297	0.000000	0.181283	2.89	0.33	0.39	0.369297	0.000000	0.181283	2.89	0.33	0.39	0.369297	0.000000	0.181283	2.89	0.33	0.39
FA1904-FA1903	FA1904	FA1903	10	295	0.0047	0.333278	0.000000	0.162148	2.51	0.34	0.40	0.333278	0.000000	0.162148	2.51	0.34	0.40	0.333278	0.000000	0.162148	2.51	0.34	0.40
FA1905-FA1904	FA1905	FA1904	10	569	0.0021	0.333278	0.000000	0.162148	1.86	0.42	0.51	0.333278	0.000000	0.162148	1.86	0.42	0.51	0.333278	0.000000	0.162148	1.86	0.42	0.51
FA1906D-FA1905	FA1906D	FA1905	8	18	0.0133	0.242218	0.000000	0.114620	3.40	0.24	0.35	0.242218	0.000000	0.114620	3.40	0.24	0.35	0.242218	0.000000	0.114620	3.40	0.24	0.35
FA1907-FA1906D	FA1907	FA1906D	8	377	0.0100	0.191423	0.000000	0.088748	2.87	0.22	0.34	0.191423	0.000000	0.088748	2.87	0.22	0.34	0.191423	0.000000	0.088748	2.87	0.22	0.34
FA1908-FA1907	FA1908	FA1907	8	156	0.0526	0.191423	0.000000	0.088748	5.18	0.15	0.22	0.191423	0.000000	0.088748	5.18	0.15	0.22	0.191423	0.000000	0.088748	5.18	0.15	0.22
FA1909-FA1908	FA1909	FA1908	8	151	0.0062	0.128117	0.000000	0.057360	2.15	0.21	0.31	0.128117	0.000000	0.057360	2.15	0.21	0.31	0.128117	0.000000	0.057360	2.15	0.21	0.31
FA1910-FA1909	FA1910	FA1909	8	218	0.0049	0.126695	0.000000	0.056668	1.98	0.22	0.33	0.126695	0.000000	0.056668	1.98	0.22	0.33	0.126695	0.000000	0.056668	1.98	0.22	0.33
FA19100-FA1903	FA19100	FA1903	8	95	0.0221	0.046663	0.000000	0.019135	2.52	0.09	0.14	0.046663	0.000000	0.019135	2.52	0.09	0.14	0.046663	0.000000	0.019135	2.52	0.09	0.14
FA19101-FA19100	FA19101	FA19100	8	80	0.0653	0.046663	0.000000	0.019135	3.68	0.07	0.11	0.046663	0.000000	0.019135	3.68	0.07	0.11	0.046663	0.000000	0.019135	3.68	0.07	0.11
FA19103-FA19127	FA19103	FA19127	8	232	0.0199	0.022933	0.000000	0.008841	2.35	0.06	0.09	0.022933	0.000000	0.008841	2.35	0.06	0.09	0.022933	0.000000	0.008841	2.35	0.06	0.09
FA19104-FA19103	FA19104	FA19103	8	183	0.0199	0.022933	0.000000	0.008841	2.35	0.06	0.09	0.022933	0.000000	0.008841	2.35	0.06	0.09	0.022933	0.000000	0.008841	2.35	0.06	0.09
FA19105-FA19104	FA19105	FA19104	8	32	0.0070	0.022642	0.000000	0.008719	1.63	0.07	0.11	0.022642	0.000000	0.008719	1.63	0.07	0.11	0.022642	0.000000	0.008719	1.63	0.07	0.11
FA19106-FA19105	FA19106	FA19105	8	72	0.0071	0.022642	0.000000	0.008719	1.64	0.07	0.11	0.022642	0.000000	0.008719	1.64	0.07	0.11	0.022642	0.000000	0.008719	1.64	0.07	0.11
FA19107-FA19106	FA19107	FA19106	8	142	0.0072	0.021699	0.000000	0.008325	1.62	0.07	0.11	0.021699	0.000000	0.008325	1.62	0.07	0.11	0.021699	0.000000	0.008325	1.62	0.07	0.11
FA19108-FA19107	FA19108	FA19107	8	67																			

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Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
FA19109-FA19108	FA19109	FA19108	8	41	0.0070	0.017269	0.000000	0.006495	1.50	0.07	0.10	0.017269	0.000000	0.006495	1.50	0.07	0.10	0.017269	0.000000	0.006495	1.50	0.07	0.10
FA19111-FA19110	FA19111	FA19110	8	325	0.0640	0.124000	0.000000	0.055359	4.89	0.11	0.17	0.124000	0.000000	0.055359	4.89	0.11	0.17	0.124000	0.000000	0.055359	4.89	0.11	0.17
FA19110-FA19109	FA19110	FA19109	8	80	0.0076	0.017269	0.000000	0.006495	1.55	0.06	0.10	0.017269	0.000000	0.006495	1.55	0.06	0.10	0.017269	0.000000	0.006495	1.55	0.06	0.10
FA19111-FA19110	FA19111	FA19110	8	125	0.0076	0.010232	0.000000	0.003677	1.32	0.05	0.08	0.010232	0.000000	0.003677	1.32	0.05	0.08	0.010232	0.000000	0.003677	1.32	0.05	0.08
FA19112-FA19111	FA19112	FA19111	8	37	0.0100	0.006493	0.000000	0.002243	1.26	0.04	0.06	0.006493	0.000000	0.002243	1.26	0.04	0.06	0.006493	0.000000	0.002243	1.26	0.04	0.06
FA19113-FA19112	FA19113	FA19112	8	59	0.0109	0.006493	0.000000	0.002243	1.30	0.04	0.06	0.006493	0.000000	0.002243	1.30	0.04	0.06	0.006493	0.000000	0.002243	1.30	0.04	0.06
FA19114-FA19113	FA19114	FA19113	8	148	0.0109	0.004017	0.000000	0.001331	1.13	0.03	0.04	0.004017	0.000000	0.001331	1.13	0.03	0.04	0.004017	0.000000	0.001331	1.13	0.03	0.04
FA19115-FA19114	FA19115	FA19114	8	103	0.0110	0.001530	0.000000	0.000466	0.84	0.02	0.03	0.001530	0.000000	0.000466	0.84	0.02	0.03	0.001530	0.000000	0.000466	0.84	0.02	0.03
FA19116-FA19114	FA19116	FA19114	6	122	0.0099	0.001983	0.000000	0.000618	0.92	0.02	0.05	0.001983	0.000000	0.000618	0.92	0.02	0.05	0.001983	0.000000	0.000618	0.92	0.02	0.05
FA19117-FA19113	FA19117	FA19113	6	122	0.0102	0.002172	0.000000	0.000682	0.95	0.02	0.05	0.002172	0.000000	0.000682	0.95	0.02	0.05	0.002172	0.000000	0.000682	0.95	0.02	0.05
FA19118-FA19111	FA19118	FA19111	6	22	0.0373	0.003995	0.000000	0.001323	1.80	0.02	0.05	0.003995	0.000000	0.001323	1.80	0.02	0.05	0.003995	0.000000	0.001323	1.80	0.02	0.05
FA19119-FA19118	FA19119	FA19118	6	103	0.0375	0.003652	0.000000	0.001200	1.75	0.02	0.05	0.003652	0.000000	0.001200	1.75	0.02	0.05	0.003652	0.000000	0.001200	1.75	0.02	0.05
FA1912-FA1911	FA1912	FA1911	8	300	0.0360	0.118768	0.000000	0.052825	3.94	0.13	0.19	0.118768	0.000000	0.052825	3.94	0.13	0.19	0.118768	0.000000	0.052825	3.94	0.13	0.19
FA19120-FA19110	FA19120	FA19110	6	109	0.0260	0.007599	0.000000	0.002661	1.93	0.04	0.07	0.007599	0.000000	0.002661	1.93	0.04	0.07	0.007599	0.000000	0.002661	1.93	0.04	0.07
FA19121-FA19108	FA19121	FA19108	6	25	0.0223	0.003413	0.000000	0.001115	1.43	0.03	0.05	0.003413	0.000000	0.001115	1.43	0.03	0.05	0.003413	0.000000	0.001115	1.43	0.03	0.05
FA19122-FA19121	FA19122	FA19121	6	108	0.0222	0.003074	0.000000	0.000995	1.38	0.02	0.05	0.003074	0.000000	0.000995	1.38	0.02	0.05	0.003074	0.000000	0.000995	1.38	0.02	0.05
FA19123-FA1912301	FA19123	FA1912301	6	4	0.4282	0.001197	0.000000	0.000357	2.90	0.01	0.02	0.001197	0.000000	0.000357	2.90	0.01	0.02	0.001197	0.000000	0.000357	2.90	0.01	0.02
FA1912301-FA19107	FA1912301	FA19107	6	11	0.0123	0.001197	0.000000	0.000357	0.84	0.02	0.04	0.001197	0.000000	0.000357	0.84	0.02	0.04	0.001197	0.000000	0.000357	0.84	0.02	0.04
FA19124-FA19123	FA19124	FA19123	6	77	0.0150	0.001197	0.000000	0.000357	0.91	0.02	0.03	0.001197	0.000000	0.000357	0.91	0.02	0.03	0.001197	0.000000	0.000357	0.91	0.02	0.03
FA19125-FA1910501	FA19125	FA1912501	6	6	0.4279	0.001311	0.000000	0.000394	2.98	0.01	0.02	0.001311	0.000000	0.000394	2.98	0.01	0.02	0.001311	0.000000	0.000394	2.98	0.01	0.02
FA1912501-FA19106	FA1912501	FA19106	6	8	0.0119	0.001311	0.000000	0.000394	0.86	0.02	0.04	0.001311	0.000000	0.000394	0.86	0.02	0.04	0.001311	0.000000	0.000394	0.86	0.02	0.04
FA19126-FA19125	FA19126	FA19125	6	77	0.0150	0.001311	0.000000	0.000394	0.93	0.02	0.04	0.001311	0.000000	0.000394	0.93	0.02	0.04	0.001311	0.000000	0.000394	0.93	0.02	0.04
FA19127-FA1985	FA19127	FA1985	6	359	0.0248	0.029917	0.000000	0.011803	2.38	0.08	0.16	0.029917	0.000000	0.011803	2.38	0.08	0.16	0.029917	0.000000	0.011803	2.38	0.08	0.16
FA1913-FA1912	FA1913	FA1912	8	207	0.0504	0.116124	0.000000	0.051548	4.41	0.12	0.17	0.116124	0.000000	0.051548	4.41	0.12	0.17	0.116124	0.000000	0.051548	4.41	0.12	0.17
FA1914-FA1913	FA1914	FA1913	8	259	0.0052	0.072288	0.000000	0.030793	1.72	0.16	0.24	0.072288	0.000000	0.030793	1.72	0.16	0.24	0.072288	0.000000	0.030793	1.72	0.16	0.24
FA1915-FA1914	FA1915	FA1914	8	190	0.0439	0.070493	0.000000	0.029963	3.62	0.09	0.14	0.070493	0.000000	0.029963	3.62	0.09	0.14	0.070493	0.000000	0.029963	3.62	0.09	0.14
FA1916-FA1915	FA1916	FA1915	8	161	0.0875	0.069898	0.000000	0.029688	4.60	0.08	0.12	0.069898	0.000000	0.029688	4.60	0.08	0.12	0.069898	0.000000	0.029688	4.60	0.08	0.12
FA1917D-FA1916	FA1917D	FA1916	8	190	0.0027	0.068106	0.000000	0.028862	1.34	0.18	0.28	0.068106	0.000000	0.028862	1.34	0.18	0.28	0.068106	0.000000	0.028862	1.34	0.18	0.28
FA1918-FA1917D	FA1918	FA1917D	8	349	0.0032	0.066444	0.000000	0.028097	1.42	0.17	0.26	0.066444	0.000000	0.028097	1.42	0.17	0.26	0.066444	0.000000	0.028097	1.42	0.17	0.26
FA1919-FA1918	FA1919	FA1918	8	299	0.0027	0.061046	0.000000	0.025625	1.30	0.17	0.26	0.061046	0.000000	0.025625	1.30	0.17	0.26	0.061046	0.000000	0.025625	1.30	0.17	0.26
FA1920-FA1919	FA1920	FA1919	8	148	0.0111	0.057471	0.000000	0.023998	2.11	0.12	0.18	0.057471	0.000000	0.023998	2.11	0.12	0.18	0.057471	0.000000	0.023998	2.11	0.12	0.18
FA1921-FA1920	FA1921	FA1920	8	100	0.0531	0.056799	0.000000	0.023693	3.63	0.08	0.12	0.056799	0.000000	0.023693	3.63	0.08	0.12	0.056799	0.000000	0.023693	3.63	0.08	0.12
FA1922-FA1921	FA1922	FA1921	8	349	0.0749	0.031279	0.000000	0.012388	3.42	0.06	0.08	0.031279	0.000000	0.012388	3.42	0.06	0.08	0.031279	0.000000	0.012388	3.42	0.06	0.08
FA1923-FA1922	FA1923	FA1922	8	156	0.0501	0.025492	0.000000	0.009918	2.79	0.06	0.08	0.025492	0.000000	0.009918	2.79	0.06	0.08	0.025492	0.000000	0.009918	2.79	0.06	0.08
FA1924-FA1923	FA1924	FA1923	8	349	0.0070	0.021452	0.000000	0.008222	1.33	0.08	0.12	0.021452	0.000000	0.008222	1.33	0.08	0.12	0.021452	0.000000	0.008222	1.33	0.08	0.12
FA1925-FA1924	FA1925	FA1924	8	153	0.0682	0.016578	0.000000	0.006213	2.73	0.04	0.06	0.016578	0.000000	0.006213	2.73	0.04	0.06	0.016578	0.000000	0.006213	2.73	0.04	0.06
FA1926-FA1925	FA1926	FA1925	8	180	0.1642	0.013490	0.000000	0.004966	3.48	0.03	0.05	0.013490	0.000000	0.004966	3.48	0.03	0.05	0.013490	0.000000	0.004966	3.48	0.03	0.05
FA1927-FA1926	FA1927	FA1926	8	180	0.1502	0.011170	0.000000	0.004045	3.19	0.03	0.04	0.011170	0.000000	0.004045	3.19	0.03	0.04	0.011170	0.000000	0.004045	3.19	0.03	0.04
FA1928-FA1927	FA1928	FA1927	8	231	0.1317	0.007462	0.000000	0.002609	2.69	0.03	0.04	0.007462	0.000000	0.002609	2.69	0.03	0.04	0.007462	0.000000	0.002609	2.69	0.03	0.04
FA1929-FA1928	FA1929	FA1928	8	210	0.0520	0.005303	0.000000	0.001800	1.76	0.03	0.04	0.005303	0.000000	0.001800	1.76	0.03	0.04	0.005303	0.000000	0.001800	1.76	0.03	0.04
FA1930-FA1921	FA1930	FA1921	8	256	0.0852	0.027669	0.000000	0.010842	3.45	0.05	0.08	0.027669	0.000000	0.010842	3.45	0.05	0.08	0.027669	0.000000	0.010842	3.45	0.05	0.08
FA1931-FA1930	FA1931	FA1930	8	189	0.0611	0.019855	0.000000	0.007559	2.78	0.05	0.07	0.019855	0.000000	0.007559	2.78	0.05	0.07	0.019855	0.000000	0.007559	2.78	0.05	0.07
FA1932-FA1931	FA1932	FA1931	8	231	0.0967	0.017831	0.000000	0.006725	3.15	0.04	0.06	0.017831	0.000000	0.006725	3.15	0.04	0.06	0.017831	0.000000	0.006725	3.15	0.04	0.06
FA1933-FA1932	FA1933	FA1932	8	138	0.0425	0.015648	0.000000	0.005835	2.28	0.05	0.07	0.015648	0.000000	0.005835	2.28	0.05	0.07	0.015648	0.000000	0.005835	2.28	0.05	0.07
FA1934-FA1933	FA1934	FA1933	8	146	0.0708	0.008698	0.000000	0.003082	2.27	0.03	0.05	0.008698	0.000000	0.003082	2.27	0.03	0.05						

City of Brea - Sewer Master Plan (November 2021)

Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
FA1936-FA1935	FA1936	FA1935	8	267	0.0994	0.004311	0.000000	0.001437	2.06	0.02	0.03	0.004311	0.000000	0.001437	2.06	0.02	0.03	0.004311	0.000000	0.001437	2.06	0.02	0.03
FA1937-FA1933	FA1937	FA1933	8	274	0.1083	0.006485	0.000000	0.002240	2.41	0.02	0.04	0.006485	0.000000	0.002240	2.41	0.02	0.04	0.006485	0.000000	0.002240	2.41	0.02	0.04
FA1938-FA1937	FA1938	FA1937	8	126	0.1287	0.003596	0.000000	0.001180	2.14	0.02	0.03	0.003596	0.000000	0.001180	2.14	0.02	0.03	0.003596	0.000000	0.001180	2.14	0.02	0.03
FA1939-FA1930	FA1939	FA1930	8	207	0.0911	0.008015	0.000000	0.002820	2.42	0.03	0.04	0.008015	0.000000	0.002820	2.42	0.03	0.04	0.008015	0.000000	0.002820	2.42	0.03	0.04
FA1940-FA1939	FA1940	FA1939	8	171	0.0275	0.004426	0.000000	0.001479	1.33	0.03	0.04	0.004426	0.000000	0.001479	1.33	0.03	0.04	0.004426	0.000000	0.001479	1.33	0.03	0.04
FA1941-FA1917D	FA1941	FA1917D	8	103	0.0217	0.001509	0.000000	0.000459	0.88	0.02	0.03	0.001509	0.000000	0.000459	0.88	0.02	0.03	0.001509	0.000000	0.000459	0.88	0.02	0.03
FA1942-FA1913	FA1942	FA1913	8	315	0.0790	0.047980	0.000000	0.019723	3.96	0.07	0.10	0.047980	0.000000	0.019723	3.96	0.07	0.10	0.047980	0.000000	0.019723	3.96	0.07	0.10
FA1943-FA1942	FA1943	FA1942	8	313	0.0808	0.045189	0.000000	0.018479	3.92	0.07	0.10	0.045189	0.000000	0.018479	3.92	0.07	0.10	0.045189	0.000000	0.018479	3.92	0.07	0.10
FA1944-FA1943	FA1944	FA1943	8	162	0.0788	0.041733	0.000000	0.016948	3.80	0.06	0.10	0.041733	0.000000	0.016948	3.80	0.06	0.10	0.041733	0.000000	0.016948	3.80	0.06	0.10
FA1945-FA1944	FA1945	FA1944	8	285	0.0808	0.035276	0.000000	0.014118	3.64	0.06	0.09	0.035276	0.000000	0.014118	3.64	0.06	0.09	0.035276	0.000000	0.014118	3.64	0.06	0.09
FA1946-FA1945	FA1946	FA1945	8	149	0.0826	0.032272	0.000000	0.012816	3.57	0.06	0.08	0.032272	0.000000	0.012816	3.57	0.06	0.08	0.032272	0.000000	0.012816	3.57	0.06	0.08
FA1947-FA1946	FA1947	FA1946	8	149	0.0805	0.029894	0.000000	0.011793	3.46	0.05	0.08	0.029894	0.000000	0.011793	3.46	0.05	0.08	0.029894	0.000000	0.011793	3.46	0.05	0.08
FA1948-FA1947	FA1948	FA1947	8	112	0.0779	0.028201	0.000000	0.011069	3.36	0.05	0.08	0.028201	0.000000	0.011069	3.36	0.05	0.08	0.028201	0.000000	0.011069	3.36	0.05	0.08
FA1949-FA1948	FA1949	FA1948	8	281	0.0797	0.015694	0.000000	0.005854	2.84	0.04	0.06	0.015694	0.000000	0.005854	2.84	0.04	0.06	0.015694	0.000000	0.005854	2.84	0.04	0.06
FA1950-FA1949	FA1950	FA1949	8	190	0.0805	0.006844	0.000000	0.002375	2.21	0.03	0.04	0.006844	0.000000	0.002375	2.21	0.03	0.04	0.006844	0.000000	0.002375	2.21	0.03	0.04
FA1951-FA1950	FA1951	FA1950	8	153	0.0802	0.004360	0.000000	0.001455	1.92	0.02	0.03	0.004360	0.000000	0.001455	1.92	0.02	0.03	0.004360	0.000000	0.001455	1.92	0.02	0.03
FA1952-FA1951	FA1952	FA1951	8	153	0.0559	0.002431	0.000000	0.000771	1.42	0.02	0.03	0.002431	0.000000	0.000771	1.42	0.02	0.03	0.002431	0.000000	0.000771	1.42	0.02	0.03
FA1953-FA1949	FA1953	FA1949	8	225	0.0359	0.007066	0.000000	0.002459	1.68	0.03	0.05	0.007066	0.000000	0.002459	1.68	0.03	0.05	0.007066	0.000000	0.002459	1.68	0.03	0.05
FA1954-FA1953	FA1954	FA1953	8	225	0.0360	0.005344	0.000000	0.001815	1.55	0.03	0.04	0.005344	0.000000	0.001815	1.55	0.03	0.04	0.005344	0.000000	0.001815	1.55	0.03	0.04
FA1955-FA1948	FA1955	FA1948	8	264	0.0698	0.013082	0.000000	0.004803	2.56	0.04	0.06	0.013082	0.000000	0.004803	2.56	0.04	0.06	0.013082	0.000000	0.004803	2.56	0.04	0.06
FA1956-FA1955	FA1956	FA1955	8	123	0.0549	0.009487	0.000000	0.003387	2.14	0.03	0.05	0.009487	0.000000	0.003387	2.14	0.03	0.05	0.009487	0.000000	0.003387	2.14	0.03	0.05
FA1957-FA1956	FA1957	FA1956	8	295	0.0084	0.007863	0.000000	0.002762	1.05	0.05	0.07	0.007863	0.000000	0.002762	1.05	0.05	0.07	0.007863	0.000000	0.002762	1.05	0.05	0.07
FA1958-FA1944	FA1958	FA1944	8	189	0.0378	0.007599	0.000000	0.002661	1.75	0.03	0.05	0.007599	0.000000	0.002661	1.75	0.03	0.05	0.007599	0.000000	0.002661	1.75	0.03	0.05
FA1959-FA1958	FA1959	FA1958	8	217	0.0359	0.005083	0.000000	0.001719	1.52	0.03	0.04	0.005083	0.000000	0.001719	1.52	0.03	0.04	0.005083	0.000000	0.001719	1.52	0.03	0.04
FA1960-FA1908	FA1960	FA1908	8	354	0.0124	0.071654	0.000000	0.030500	2.33	0.13	0.19	0.071654	0.000000	0.030500	2.33	0.13	0.19	0.071654	0.000000	0.030500	2.33	0.13	0.19
FA1961-FA1960	FA1961	FA1960	8	359	0.0093	0.066727	0.000000	0.028227	2.06	0.13	0.20	0.066727	0.000000	0.028227	2.06	0.13	0.20	0.066727	0.000000	0.028227	2.06	0.13	0.20
FA1962-FA1961	FA1962	FA1961	8	300	0.0778	0.055501	0.000000	0.023105	4.12	0.07	0.11	0.055501	0.000000	0.023105	4.12	0.07	0.11	0.055501	0.000000	0.023105	4.12	0.07	0.11
FA1963-FA1962	FA1963	FA1962	8	353	0.0125	0.009433	0.000000	0.003366	1.27	0.05	0.07	0.009433	0.000000	0.003366	1.27	0.05	0.07	0.009433	0.000000	0.003366	1.27	0.05	0.07
FA1964-FA1963	FA1964	FA1963	8	197	0.0057	0.006997	0.000000	0.002433	0.89	0.05	0.08	0.006997	0.000000	0.002433	0.89	0.05	0.08	0.006997	0.000000	0.002433	0.89	0.05	0.08
FA1965-FA1964	FA1965	FA1964	8	266	0.0056	0.004759	0.000000	0.001600	0.78	0.04	0.06	0.004759	0.000000	0.001600	0.78	0.04	0.06	0.004759	0.000000	0.001600	0.78	0.04	0.06
FA1966-FA1965	FA1966	FA1965	8	349	0.0053	0.002768	0.000000	0.000888	0.65	0.03	0.05	0.002768	0.000000	0.000888	0.65	0.03	0.05	0.002768	0.000000	0.000888	0.65	0.03	0.05
FA1967-FA1962	FA1967	FA1962	8	261	0.1067	0.037049	0.000000	0.014891	4.07	0.06	0.08	0.037049	0.000000	0.014891	4.07	0.06	0.08	0.037049	0.000000	0.014891	4.07	0.06	0.08
FA1968-FA1967	FA1968	FA1967	8	176	0.0957	0.035156	0.000000	0.014066	3.86	0.06	0.08	0.035156	0.000000	0.014066	3.86	0.06	0.08	0.035156	0.000000	0.014066	3.86	0.06	0.08
FA1969-FA1968	FA1969	FA1968	8	349	0.0875	0.015237	0.000000	0.005669	2.90	0.04	0.06	0.015237	0.000000	0.005669	2.90	0.04	0.06	0.015237	0.000000	0.005669	2.90	0.04	0.06
FA1970-FA1969	FA1970	FA1969	8	203	0.0721	0.013360	0.000000	0.004914	2.61	0.04	0.06	0.013360	0.000000	0.004914	2.61	0.04	0.06	0.013360	0.000000	0.004914	2.61	0.04	0.06
FA1971-FA1970	FA1971	FA1970	8	241	0.0680	0.003419	0.000000	0.001117	1.69	0.02	0.03	0.003419	0.000000	0.001117	1.69	0.02	0.03	0.003419	0.000000	0.001117	1.69	0.02	0.03
FA1972-FA1970	FA1972	FA1970	8	397	0.0123	0.008986	0.000000	0.003193	1.25	0.05	0.07	0.008986	0.000000	0.003193	1.25	0.05	0.07	0.008986	0.000000	0.003193	1.25	0.05	0.07
FA1973-FA1968	FA1973	FA1968	8	172	0.0286	0.007577	0.000000	0.002653	1.59	0.04	0.05	0.007577	0.000000	0.002653	1.59	0.04	0.05	0.007577	0.000000	0.002653	1.59	0.04	0.05
FA1974-FA1973	FA1974	FA1973	8	221	0.0560	0.005999	0.000000	0.002058	1.87	0.03	0.04	0.005999	0.000000	0.002058	1.87	0.03	0.04	0.005999	0.000000	0.002058	1.87	0.03	0.04
FA1975-FA1962	FA1975	FA1962	8	297	0.0538	0.011147	0.000000	0.004036	2.23	0.04	0.06	0.011147	0.000000	0.004036	2.23	0.04	0.06	0.011147	0.000000	0.004036	2.23	0.04	0.06
FA1976-FA1975	FA1976	FA1975	8	297	0.0434	0.007669	0.000000	0.002688	1.84	0.03	0.05	0.007669	0.000000	0.002688	1.84	0.03	0.05	0.007669	0.000000	0.002688	1.84	0.03	0.05
FA1977-FA1976	FA1977	FA1976	8	197	0.0299	0.003374	0.000000	0.001101	1.26	0.02	0.04	0.003374	0.000000	0.001101	1.26	0.02	0.04	0.003374	0.000000	0.001101	1.26	0.02	0.04
FA1978-FA1961	FA1978	FA1961	8	349	0.0247	0.009371	0.000000	0.003342	1.61	0.04	0.06	0.009371	0.000000	0.003342	1.61	0.04	0.06	0.009371	0.000000	0.003342	1.61	0.04	0.06
FA1979-FA1978	FA1979	FA1978	8	180	0.0212	0.004838	0.000000	0.001629	1.25	0.03	0.05	0.004838	0.000000	0.001629	1.25	0.03	0.05	0.004838	0.000000	0.001629	1.25	0.03	0.05
FA1980-FA1906D	FA1980	FA1906D	8	338	0.0276	0.061587	0.000000	0.025872	2.96	0.10	0.15	0.061587	0.000000	0.025872	2.96	0.10	0.15	0.061587	0.000000	0.025872	2.96	0.10	0.15
FA1981-FA1980																							

City of Brea - Sewer Master Plan (November 2021)

Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
FA1982-FA1981	FA1982	FA1981	8	346	0.0176	0.057760	0.000000	0.024129	2.48	0.11	0.16	0.057760	0.000000	0.024129	2.48	0.11	0.16	0.057760	0.000000	0.024129	2.48	0.11	0.16
FA1983-FA1982	FA1983	FA1982	8	190	0.0217	0.038003	0.000000	0.015308	2.35	0.08	0.12	0.038003	0.000000	0.015308	2.35	0.08	0.12	0.038003	0.000000	0.015308	2.35	0.08	0.12
FA1984-FA1983	FA1984	FA1983	6	57	0.0389	0.038003	0.000000	0.015308	3.00	0.08	0.16	0.038003	0.000000	0.015308	3.00	0.08	0.16	0.038003	0.000000	0.015308	3.00	0.08	0.16
FA1985-FA1984	FA1985	FA1984	6	371	0.0299	0.036731	0.000000	0.014752	2.70	0.08	0.16	0.036731	0.000000	0.014752	2.70	0.08	0.16	0.036731	0.000000	0.014752	2.70	0.08	0.16
FA1986-FA19127	FA1986	FA19127	6	12	0.7177	0.000805	0.000000	0.000232	2.56	0.01	0.01	0.000805	0.000000	0.000232	2.56	0.01	0.01	0.000805	0.000000	0.000232	2.56	0.01	0.01
FA1987-FA1984	FA1987	FA1984	6	167	0.0402	0.001800	0.000000	0.000556	1.20	0.02	0.04	0.001800	0.000000	0.000556	1.20	0.02	0.04	0.001800	0.000000	0.000556	1.20	0.02	0.04
FA1988-FA1905	FA1988	FA1905	12	79	0.0030	0.074410	0.000000	0.031777	1.45	0.16	0.16	0.074410	0.000000	0.031777	1.45	0.16	0.16	0.074410	0.000000	0.031777	1.45	0.16	0.16
FA1989D-FA1988	FA1989D	FA1988	8	18	0.0539	0.074410	0.000000	0.031777	3.96	0.09	0.14	0.074410	0.000000	0.031777	3.96	0.09	0.14	0.074410	0.000000	0.031777	3.96	0.09	0.14
FA1990-FA1989D	FA1990	FA1989D	8	220	0.0039	0.072696	0.000000	0.030982	1.56	0.17	0.26	0.072696	0.000000	0.030982	1.56	0.17	0.26	0.072696	0.000000	0.030982	1.56	0.17	0.26
FA1991-FA1990	FA1991	FA1990	8	220	0.0053	0.072696	0.000000	0.030982	1.74	0.16	0.24	0.072696	0.000000	0.030982	1.74	0.16	0.24	0.072696	0.000000	0.030982	1.74	0.16	0.24
FA1992-FA1991	FA1992	FA1991	8	367	0.0046	0.021536	0.000000	0.008257	1.15	0.09	0.14	0.021536	0.000000	0.008257	1.15	0.09	0.14	0.021536	0.000000	0.008257	1.15	0.09	0.14
FA1993-FA1992	FA1993	FA1992	15	276	0.0046	0.021536	0.000000	0.008257	1.06	0.08	0.06	0.021536	0.000000	0.008257	1.06	0.08	0.06	0.021536	0.000000	0.008257	1.06	0.08	0.06
FA1994-FA1993	FA1994	FA1993	15	371	0.0053	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
FA1995-FA1994	FA1995	FA1994	15	194	0.0060	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
FA1996-FA1991	FA1996	FA1991	8	102	0.0060	0.054660	0.000000	0.022725	1.67	0.14	0.20	0.054660	0.000000	0.022725	1.67	0.14	0.20	0.054660	0.000000	0.022725	1.67	0.14	0.20
FA1997-FA1989D	FA1997	FA1989D	8	272	0.0284	0.002500	0.000000	0.000795	1.13	0.02	0.03	0.002500	0.000000	0.000795	1.13	0.02	0.03	0.002500	0.000000	0.000795	1.13	0.02	0.03
FA1998-FA1997	FA1998	FA1997	6	184	0.0670	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
FA1999-FA1997	FA1999	FA1997	8	15	0.0140	0.002500	0.000000	0.000795	0.88	0.03	0.04	0.002500	0.000000	0.000795	0.88	0.03	0.04	0.002500	0.000000	0.000795	0.88	0.03	0.04
FA19D-FA20	FA19D	FA20	18	260	0.0025	0.704169	0.000000	0.365622	2.35	0.46	0.31	0.704169	0.000000	0.365622	2.35	0.46	0.31	2.397202	0.000000	1.384596	3.23	0.93	0.62
FA20-FA21	FA20	FA21	18	384	0.0024	0.704169	0.000000	0.365622	2.33	0.47	0.31	0.704169	0.000000	0.365622	2.33	0.47	0.31	2.397202	0.000000	1.384596	3.20	0.94	0.62
FA21-FA22	FA21	FA22	18	338	0.0015	0.713204	0.000000	0.370724	1.96	0.53	0.35	0.713204	0.000000	0.370724	1.96	0.53	0.35	2.405328	0.000000	1.389698	2.62	1.12	0.75
FA22-FA2201	FA22	FA2201	18	133	0.0015	0.713204	0.000000	0.370724	1.96	0.53	0.35	0.713204	0.000000	0.370724	1.96	0.53	0.35	2.405328	0.000000	1.389698	2.62	1.12	0.75
FA2201-FA2202	FA2201	FA2202	18	240	0.0018	0.878973	0.000000	0.465269	2.22	0.57	0.38	0.917360	0.000000	0.487397	2.24	0.58	0.39	2.590507	0.000000	1.506371	2.85	1.11	0.74
FA2202-FA24	FA2202	FA24	18	11	0.0018	0.878973	0.000000	0.465269	2.24	0.56	0.38	0.917360	0.000000	0.487397	2.27	0.58	0.38	2.590507	0.000000	1.506371	2.89	1.10	0.73
FA23-FA2201	FA23	FA2201	10	6	0.0033	0.202897	0.000000	0.094545	1.92	0.28	0.34	0.246207	0.000000	0.116673	2.03	0.31	0.38	0.246207	0.000000	0.116673	2.03	0.31	0.38
FA23-FA23D	FA23	FA23D	8	177	0.0519	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
FA2301-FA23	FA2301	FA23	8	62	0.0519	0.202899	0.000000	0.094546	5.25	0.15	0.23	0.246209	0.000000	0.116674	5.55	0.17	0.25	0.246209	0.000000	0.116674	5.55	0.17	0.25
FA2302-FA2301	FA2302	FA2301	8	282	0.0098	0.202899	0.000000	0.094546	2.89	0.23	0.35	0.246209	0.000000	0.116674	3.05	0.26	0.39	0.246209	0.000000	0.116674	3.05	0.26	0.39
FA2303-FA2302	FA2303	FA2302	8	74	0.0101	0.198535	0.000000	0.092338	2.91	0.23	0.34	0.241919	0.000000	0.114466	3.07	0.25	0.38	0.241919	0.000000	0.114466	3.07	0.25	0.38
FA2304-FA2303	FA2304	FA2303	8	226	0.0088	0.198535	0.000000	0.092338	2.76	0.24	0.36	0.241919	0.000000	0.114466	2.91	0.26	0.40	0.241919	0.000000	0.114466	2.91	0.26	0.40
FA2305-FA2304	FA2305	FA2304	8	190	0.0142	0.192026	0.000000	0.089052	3.26	0.21	0.31	0.235522	0.000000	0.111180	3.45	0.23	0.34	0.235522	0.000000	0.111180	3.45	0.23	0.34
FA2306-FA2305	FA2306	FA2305	8	220	0.0161	0.192026	0.000000	0.089052	3.40	0.20	0.30	0.235522	0.000000	0.111180	3.61	0.22	0.33	0.235522	0.000000	0.111180	3.61	0.22	0.33
FA2307-FA2306	FA2307	FA2306	8	230	0.0183	0.131859	0.000000	0.059183	3.20	0.16	0.24	0.176614	0.000000	0.081311	3.48	0.18	0.28	0.176614	0.000000	0.081311	3.48	0.18	0.28
FA2308-FA2307	FA2308	FA2307	8	259	0.0195	0.128374	0.000000	0.057485	3.25	0.15	0.23	0.173218	0.000000	0.079613	3.54	0.18	0.27	0.173218	0.000000	0.079613	3.54	0.18	0.27
FA2309-FA2308	FA2309	FA2308	8	200	0.0216	0.125205	0.000000	0.055944	3.34	0.15	0.22	0.170131	0.000000	0.078072	3.65	0.17	0.26	0.170131	0.000000	0.078072	3.65	0.17	0.26
FA2312-FA2309	FA2312	FA2309	8	243	0.0037	0.054107	0.000000	0.022475	1.40	0.15	0.23	0.054107	0.000000	0.022475	1.40	0.15	0.23	0.054107	0.000000	0.022475	1.40	0.15	0.23
FA2313-FA2312	FA2313	FA2312	8	176	0.0040	0.054107	0.000000	0.022475	1.44	0.15	0.22	0.054107	0.000000	0.022475	1.44	0.15	0.22	0.054107	0.000000	0.022475	1.44	0.15	0.22
FA2314-FA2308	FA2314	FA2308	8	581	0.0100	0.004597	0.000000	0.001541	0.95	0.04	0.05	0.004597	0.000000	0.001541	0.95	0.04	0.05	0.004597	0.000000	0.001541	0.95	0.04	0.05
FA2315-FA2306	FA2315	FA2306	8	446	0.0040	0.036882	0.000000	0.014818	1.29	0.12	0.18	0.036882	0.000000	0.014818	1.29	0.12	0.18	0.036882	0.000000	0.014818	1.29	0.12	0.18
FA2316-FA2315	FA2316	FA2315	8	195	0.0060	0.035133	0.000000	0.014056	1.46	0.11	0.16	0.035133	0.000000	0.014056	1.46	0.11	0.16	0.035133	0.000000	0.014056	1.46	0.11	0.16
FA2317-FA2316	FA2317	FA2316	8	251	0.0055	0.026952	0.000000	0.010537	1.32	0.10	0.15	0.026952	0.000000	0.010537	1.32	0.10	0.15	0.026952	0.000000	0.010537	1.32	0.10	0.15
FA2318-FA2317	FA2318	FA2317	8	223	0.0091	0.026306	0.000000	0.010263	1.55	0.09	0.13	0.026306	0.000000	0.010263	1.55	0.09	0.13	0.026306	0.000000	0.010263	1.55	0.09	0.13
FA2319-FA2318	FA2319	FA2318	8	374	0.0276	0.012253	0.000000	0.004473	1.82	0.05	0.07	0.012253	0.000000	0.004473	1.82	0.05	0.07	0.012253	0.000000	0.004473	1.82	0.05	0.07
FA2320-FA2319	FA2320	FA2319	8	61	0.0180	0.008420	0.000000	0.002975	1.40	0.04	0.06	0.008420	0.000000	0.002975	1.40	0.04	0.06	0.008420	0.000000	0.002975	1.40	0.04	0.06
FA2321-FA2320	FA2321	FA2320	8	349	0.0104	0.008420	0.000000	0.002975	1.16	0.05	0.07	0.008420	0.000000	0.002975	1.16	0.05	0.07	0.008420	0.000000	0.002975	1.16	0.05	0.07
FA2322-FA2321	FA2322	FA2321	8	335	0.011																		

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Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
FA2323-FA2316	FA2323	FA2316	8	510	0.0250	0.007877	0.000000	0.002767	1.54	0.04	0.06	0.007877	0.000000	0.002767	1.54	0.04	0.06	0.007877	0.000000	0.002767	1.54	0.04	0.06
FA2324-FA2304	FA2324	FA2304	6	46	0.0035	0.009226	0.000000	0.003286	1.01	0.06	0.12	0.009226	0.000000	0.003286	1.01	0.06	0.12	0.009226	0.000000	0.003286	1.01	0.06	0.12
FA2325-FA2324	FA2325	FA2324	6	430	0.0040	0.009226	0.000000	0.003286	0.89	0.07	0.14	0.009226	0.000000	0.003286	0.89	0.07	0.14	0.009226	0.000000	0.003286	0.89	0.07	0.14
FA2326-FA2302	FA2326	FA2302	6	46	0.0124	0.006400	0.000000	0.002208	1.41	0.04	0.08	0.006400	0.000000	0.002208	1.41	0.04	0.08	0.006400	0.000000	0.002208	1.41	0.04	0.08
FA2327-FA2326	FA2327	FA2326	6	374	0.0029	0.006400	0.000000	0.002208	0.71	0.06	0.12	0.006400	0.000000	0.002208	0.71	0.06	0.12	0.006400	0.000000	0.002208	0.71	0.06	0.12
FA2328-FA2318	FA2328	FA2318	8	354	0.0138	0.014056	0.000000	0.005193	1.49	0.06	0.09	0.014056	0.000000	0.005193	1.49	0.06	0.09	0.014056	0.000000	0.005193	1.49	0.06	0.09
FA2329-FA2328	FA2329	FA2328	8	271	0.0142	0.011821	0.000000	0.004302	1.43	0.05	0.08	0.011821	0.000000	0.004302	1.43	0.05	0.08	0.011821	0.000000	0.004302	1.43	0.05	0.08
FA2330-FA2309	FA2330	FA2309	8	303	0.0270	0.067290	0.000000	0.028486	3.01	0.10	0.16	0.114187	0.000000	0.050614	3.52	0.13	0.20	0.114187	0.000000	0.050614	3.52	0.13	0.20
FA2331-FA2330	FA2331	FA2330	8	49	0.0051	0.067290	0.000000	0.028486	2.01	0.14	0.21	0.114187	0.000000	0.050614	2.35	0.18	0.27	0.114187	0.000000	0.050614	2.35	0.18	0.27
FA2332-FA2331	FA2332	FA2331	8	137	0.0076	0.067290	0.000000	0.028486	2.32	0.12	0.19	0.114187	0.000000	0.050614	2.71	0.16	0.24	0.114187	0.000000	0.050614	2.71	0.16	0.24
FA2333-FA2332	FA2333	FA2332	8	192	0.0158	0.066439	0.000000	0.028095	2.99	0.10	0.15	0.113375	0.000000	0.050223	3.50	0.13	0.20	0.113375	0.000000	0.050223	3.50	0.13	0.20
FA2334-FA2333	FA2334	FA2333	8	127	0.0150	0.065501	0.000000	0.027664	2.93	0.10	0.16	0.112480	0.000000	0.049792	3.43	0.14	0.20	0.112480	0.000000	0.049792	3.43	0.14	0.20
FA2335-FA2334	FA2335	FA2334	8	51	0.0151	0.065155	0.000000	0.027505	2.92	0.10	0.16	0.112149	0.000000	0.049633	3.43	0.13	0.20	0.112149	0.000000	0.049633	3.43	0.13	0.20
FA2336-FA2335	FA2336	FA2335	8	104	0.0150	0.065155	0.000000	0.027505	2.92	0.10	0.16	0.112149	0.000000	0.049633	3.43	0.14	0.20	0.112149	0.000000	0.049633	3.43	0.14	0.20
FA2337-FA2336	FA2337	FA2336	8	25	0.0100	0.059734	0.000000	0.025027	2.47	0.11	0.16	0.106987	0.000000	0.047155	2.93	0.15	0.22	0.106987	0.000000	0.047155	2.93	0.15	0.22
FA2338-FA2337	FA2338	FA2337	8	211	0.0200	0.059734	0.000000	0.025027	3.15	0.09	0.14	0.106987	0.000000	0.047155	3.74	0.12	0.18	0.106987	0.000000	0.047155	3.74	0.12	0.18
FA2339-FA2338	FA2339	FA2338	8	84	0.0200	0.059734	0.000000	0.025027	3.15	0.09	0.14	0.106987	0.000000	0.047155	3.74	0.12	0.18	0.106987	0.000000	0.047155	3.74	0.12	0.18
FA2340-FA2336	FA2340	FA2336	8	92	0.0050	0.007116	0.000000	0.002478	1.02	0.05	0.07	0.007116	0.000000	0.002478	1.02	0.05	0.07	0.007116	0.000000	0.002478	1.02	0.05	0.07
FA2341-FA2340	FA2341	FA2340	8	173	0.0050	0.007116	0.000000	0.002478	1.02	0.05	0.07	0.007116	0.000000	0.002478	1.02	0.05	0.07	0.007116	0.000000	0.002478	1.02	0.05	0.07
FA2342-FA2341	FA2342	FA2341	8	35	0.0049	0.006384	0.000000	0.002202	0.98	0.04	0.07	0.006384	0.000000	0.002202	0.98	0.04	0.07	0.006384	0.000000	0.002202	0.98	0.04	0.07
FA2343-FA2342	FA2343	FA2342	8	136	0.0050	0.004685	0.000000	0.001573	0.90	0.04	0.06	0.004685	0.000000	0.001573	0.90	0.04	0.06	0.004685	0.000000	0.001573	0.90	0.04	0.06
FA23D-FA24	FA23D	FA24	12	74	0.0080	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
FA24-FA25	FA24	FA25	15	73	0.0047	0.902442	0.000000	0.478788	3.19	0.48	0.39	0.940744	0.000000	0.500916	3.23	0.49	0.39	2.611889	0.000000	1.519890	4.08	0.94	0.75
FA2401-FA24	FA2401	FA24	8	333	0.0154	0.033897	0.000000	0.013519	2.02	0.09	0.13	0.033897	0.000000	0.013519	2.02	0.09	0.13	0.033897	0.000000	0.013519	2.02	0.09	0.13
FA2402-FA2401	FA2402	FA2401	8	325	0.0032	0.023708	0.000000	0.009166	1.04	0.10	0.16	0.023708	0.000000	0.009166	1.04	0.10	0.16	0.023708	0.000000	0.009166	1.04	0.10	0.16
FA2403-FA2402	FA2403	FA2402	8	449	0.0032	0.020608	0.000000	0.007871	1.00	0.10	0.15	0.020608	0.000000	0.007871	1.00	0.10	0.15	0.020608	0.000000	0.007871	1.00	0.10	0.15
FA2404-FA2403	FA2404	FA2403	8	449	0.0032	0.002081	0.000000	0.000651	0.50	0.03	0.05	0.002081	0.000000	0.000651	0.50	0.03	0.05	0.002081	0.000000	0.000651	0.50	0.03	0.05
FA2405-FA2404	FA2405	FA2404	10	67	0.0621	0.001402	0.000000	0.000424	1.20	0.01	0.02	0.001402	0.000000	0.000424	1.20	0.01	0.02	0.001402	0.000000	0.000424	1.20	0.01	0.02
FA2406-FA2405	FA2406	FA2405	8	162	0.0041	0.001402	0.000000	0.000424	0.49	0.03	0.04	0.001402	0.000000	0.000424	0.49	0.03	0.04	0.001402	0.000000	0.000424	0.49	0.03	0.04
FA2407-FA2405	FA2407	FA2405	8	67	0.0040	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
FA2408-FA2403	FA2408	FA2403	10	67	0.1188	0.019035	0.000000	0.007220	3.34	0.04	0.05	0.019035	0.000000	0.007220	3.34	0.04	0.05	0.019035	0.000000	0.007220	3.34	0.04	0.05
FA2409-FA2408	FA2409	FA2408	6	198	0.0040	0.009164	0.000000	0.003262	0.88	0.07	0.14	0.009164	0.000000	0.003262	0.88	0.07	0.14	0.009164	0.000000	0.003262	0.88	0.07	0.14
FA2410-FA2402	FA2410	FA2402	10	52	0.1738	0.001502	0.000000	0.000457	1.75	0.01	0.01	0.001502	0.000000	0.000457	1.75	0.01	0.01	0.001502	0.000000	0.000457	1.75	0.01	0.01
FA2411-FA2401	FA2411	FA2401	10	80	0.1125	0.011950	0.000000	0.004353	2.85	0.03	0.04	0.011950	0.000000	0.004353	2.85	0.03	0.04	0.011950	0.000000	0.004353	2.85	0.03	0.04
FA25-FA26	FA25	FA26	15	194	0.0029	0.904299	0.000000	0.479859	2.68	0.55	0.44	0.942594	0.000000	0.501987	2.71	0.56	0.45	2.613582	0.000000	1.520961	3.30	1.25	1.00
FA26-FA27	FA26	FA27	15	595	0.0042	0.910134	0.000000	0.483225	3.08	0.50	0.40	0.948407	0.000000	0.505353	3.11	0.51	0.41	2.618903	0.000000	1.524327	3.89	0.99	0.79
FA27-FA28	FA27	FA28	15	394	0.0040	0.911067	0.000000	0.483764	3.02	0.51	0.41	0.949338	0.000000	0.505892	3.05	0.52	0.42	2.619755	0.000000	1.524866	3.79	1.02	0.81
FA28-FA29	FA28	FA29	15	106	0.0377	0.911067	0.000000	0.483764	6.78	0.28	0.23	0.949338	0.000000	0.505892	6.86	0.29	0.23	2.619755	0.000000	1.524866	9.14	0.49	0.39
FA29-FB4013	FA29	FB4013	15	168	0.0111	0.911067	0.000000	0.483764	4.38	0.39	0.31	0.949338	0.000000	0.505892	4.43	0.39	0.32	2.619755	0.000000	1.524866	5.79	0.69	0.56
FA30-FB4012	FA30	FB4012	18	151	0.0030	0.911067	0.000000	0.483764	2.69	0.51	0.34	0.949338	0.000000	0.505892	2.72	0.52	0.34	2.619755	0.000000	1.524866	3.53	0.93	0.62
FA31-FA32	FA31	FA32	15	531	0.0041	0.753545	0.000000	0.393572	2.91	0.45	0.36	0.780642	0.000000	0.408979	2.94	0.46	0.37	1.890499	0.000000	1.069614	3.68	0.77	0.62
FA32-FA33	FA32	FA33	15	100	0.0060	0.753545	0.000000	0.393572	3.33	0.41	0.33	0.780642	0.000000	0.408979	3.36	0.42	0.33	1.890499	0.000000	1.069614	4.24	0.69	0.55
FA33-FA34	FA33	FA34	15	212	0.0060	0.797262	0.000000	0.418452	3.38	0.42	0.34	0.824229	0.000000	0.433859	3.41	0.43	0.34	1.930918	0.000000	1.094494	4.26	0.69	0.56
FA3301-FA33	FA3301	FA33	8	100	0.0198	0.059411	0.000000	0.024880	2.60	0.11	0.16	0.059411	0.000000	0.024880	2.60	0.11	0.16	0.059411	0.000000	0.024880	2.60	0.11	0.16
FA3302-FA3301	FA3302	FA3301	8	264	0.0043	0.058154	0.000000	0.024308	1.51	0.15	0.23	0.058154	0.000000	0.024308	1.51	0.15	0.23	0.058154	0.000000	0.024308	1.51	0.15	0.23
FA3303-FA3302	FA3303	FA3302	8	61	0.0082	0.058154	0.000000	0.024308	1.90														

City of Brea - Sewer Master Plan (November 2021)

Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
FA3304-FA3301	FA3304	FA3301	8	161	0.0051	0.001847	0.000000	0.000572	0.57	0.03	0.04	0.001847	0.000000	0.000572	0.57	0.03	0.04	0.001847	0.000000	0.000572	0.57	0.03	0.04
FA34-FA35D	FA34	FA35D	15	381	0.0020	0.896828	0.000000	0.475552	2.36	0.61	0.48	0.924979	0.000000	0.491799	2.37	0.62	0.49	2.024764	0.000000	1.152434	2.55	1.25	1.00
FA3401-FA34	FA3401	FA34	10	110	0.0056	0.113898	0.000000	0.050475	1.97	0.18	0.22	0.115641	0.000000	0.051315	1.98	0.19	0.22	0.115641	0.000000	0.051315	1.98	0.19	0.22
FA3402-FA3401	FA3402	FA3401	10	569	0.0035	0.113898	0.000000	0.050475	1.67	0.21	0.25	0.115641	0.000000	0.051315	1.67	0.21	0.25	0.115641	0.000000	0.051315	1.67	0.21	0.25
FA3403-FA3402	FA3403	FA3402	10	85	0.0075	0.113898	0.000000	0.050475	2.18	0.17	0.21	0.115641	0.000000	0.051315	2.19	0.17	0.21	0.115641	0.000000	0.051315	2.19	0.17	0.21
FA3404-FA3403	FA3404	FA3403	10	302	0.0035	0.113898	0.000000	0.050475	1.67	0.21	0.25	0.115641	0.000000	0.051315	1.68	0.21	0.25	0.115641	0.000000	0.051315	1.68	0.21	0.25
FA3405-FA3404	FA3405	FA3404	10	125	0.0031	0.113898	0.000000	0.050475	1.60	0.21	0.26	0.115641	0.000000	0.051315	1.60	0.22	0.26	0.115641	0.000000	0.051315	1.60	0.22	0.26
FA3406-FA3405	FA3406	FA3405	8	251	0.0096	0.113898	0.000000	0.050475	2.44	0.17	0.26	0.115641	0.000000	0.051315	2.45	0.18	0.26	0.115641	0.000000	0.051315	2.45	0.18	0.26
FA3407-FA3406	FA3407	FA3406	8	25	0.0080	0.113898	0.000000	0.050475	2.29	0.18	0.27	0.115641	0.000000	0.051315	2.30	0.18	0.27	0.115641	0.000000	0.051315	2.30	0.18	0.27
FA3408-FA3407	FA3408	FA3407	8	202	0.0077	0.086049	0.000000	0.037215	2.08	0.16	0.24	0.087835	0.000000	0.038055	2.09	0.16	0.24	0.087835	0.000000	0.038055	2.09	0.16	0.24
FA3409-FA3408	FA3409	FA3408	8	38	0.0666	0.012661	0.000000	0.004635	2.49	0.04	0.06	0.012661	0.000000	0.004635	2.49	0.04	0.06	0.012661	0.000000	0.004635	2.49	0.04	0.06
FA3410-FA3409	FA3410	FA3409	8	607	0.0113	0.012661	0.000000	0.004635	1.34	0.06	0.09	0.012661	0.000000	0.004635	1.34	0.06	0.09	0.012661	0.000000	0.004635	1.34	0.06	0.09
FA3411-FA3410	FA3411	FA3410	8	650	0.0050	0.008929	0.000000	0.003171	0.91	0.06	0.09	0.008929	0.000000	0.003171	0.91	0.06	0.09	0.008929	0.000000	0.003171	0.91	0.06	0.09
FA3412-FA3411	FA3412	FA3411	8	67	0.0070	0.001569	0.000000	0.000479	0.60	0.02	0.04	0.001569	0.000000	0.000479	0.60	0.02	0.04	0.001569	0.000000	0.000479	0.60	0.02	0.04
FA3413-FA3412	FA3413	FA3412	8	100	0.0040	0.001011	0.000000	0.000297	0.43	0.02	0.03	0.001011	0.000000	0.000297	0.43	0.02	0.03	0.001011	0.000000	0.000297	0.43	0.02	0.03
FA3414-FA3413	FA3414	FA3413	8	72	0.0068	0.001011	0.000000	0.000297	0.52	0.02	0.03	0.001011	0.000000	0.000297	0.52	0.02	0.03	0.001011	0.000000	0.000297	0.52	0.02	0.03
FA3415-FA3408	FA3415	FA3408	8	94	0.0851	0.076138	0.000000	0.032580	4.68	0.08	0.13	0.077942	0.000000	0.033420	4.71	0.08	0.13	0.077942	0.000000	0.033420	4.71	0.08	0.13
FA3416-FA3415	FA3416	FA3415	8	154	0.0049	0.048316	0.000000	0.019873	1.49	0.13	0.20	0.048316	0.000000	0.019873	1.49	0.13	0.20	0.048316	0.000000	0.019873	1.49	0.13	0.20
FA3417-FA3416	FA3417	FA3416	8	126	0.0040	0.027561	0.000000	0.010796	1.18	0.11	0.16	0.027561	0.000000	0.010796	1.18	0.11	0.16	0.027561	0.000000	0.010796	1.18	0.11	0.16
FA3418-FA3417	FA3418	FA3417	8	292	0.0040	0.027561	0.000000	0.010796	1.18	0.11	0.16	0.027561	0.000000	0.010796	1.18	0.11	0.16	0.027561	0.000000	0.010796	1.18	0.11	0.16
FA3419-FA3418	FA3419	FA3418	8	326	0.0040	0.025111	0.000000	0.009757	1.15	0.10	0.15	0.025111	0.000000	0.009757	1.15	0.10	0.15	0.025111	0.000000	0.009757	1.15	0.10	0.15
FA3420-FA3419	FA3420	FA3419	8	323	0.0046	0.021317	0.000000	0.008166	1.15	0.09	0.14	0.021317	0.000000	0.008166	1.15	0.09	0.14	0.021317	0.000000	0.008166	1.15	0.09	0.14
FA3421-FA3420	FA3421	FA3420	8	203	0.0434	0.017459	0.000000	0.006573	2.37	0.05	0.07	0.017459	0.000000	0.006573	2.37	0.05	0.07	0.017459	0.000000	0.006573	2.37	0.05	0.07
FA3422-FA3421	FA3422	FA3421	8	323	0.0242	0.007811	0.000000	0.002742	1.51	0.04	0.06	0.007811	0.000000	0.002742	1.51	0.04	0.06	0.007811	0.000000	0.002742	1.51	0.04	0.06
FA3423-FA3421	FA3423	FA3421	8	107	0.0039	0.009131	0.000000	0.003249	0.84	0.06	0.09	0.009131	0.000000	0.003249	0.84	0.06	0.09	0.009131	0.000000	0.003249	0.84	0.06	0.09
FA3424-FA3423	FA3424	FA3423	8	115	0.0040	0.009131	0.000000	0.003249	0.85	0.06	0.09	0.009131	0.000000	0.003249	0.85	0.06	0.09	0.009131	0.000000	0.003249	0.85	0.06	0.09
FA3425-FA3424	FA3425	FA3424	8	325	0.0040	0.006210	0.000000	0.002137	0.75	0.05	0.08	0.006210	0.000000	0.002137	0.75	0.05	0.08	0.006210	0.000000	0.002137	0.75	0.05	0.08
FA3426-FA3416	FA3426	FA3416	8	146	0.0862	0.021639	0.000000	0.008300	3.21	0.05	0.07	0.021639	0.000000	0.008300	3.21	0.05	0.07	0.021639	0.000000	0.008300	3.21	0.05	0.07
FA3427-FA3426	FA3427	FA3426	8	254	0.0160	0.021149	0.000000	0.008096	1.77	0.07	0.10	0.021149	0.000000	0.008096	1.77	0.07	0.10	0.021149	0.000000	0.008096	1.77	0.07	0.10
FA3428-FA3427	FA3428	FA3427	8	299	0.0048	0.018150	0.000000	0.006856	1.11	0.08	0.13	0.018150	0.000000	0.006856	1.11	0.08	0.13	0.018150	0.000000	0.006856	1.11	0.08	0.13
FA3429-FA3428	FA3429	FA3428	8	303	0.0048	0.013415	0.000000	0.004936	1.02	0.07	0.11	0.013415	0.000000	0.004936	1.02	0.07	0.11	0.013415	0.000000	0.004936	1.02	0.07	0.11
FA3430-FA3429	FA3430	FA3429	8	100	0.0040	0.006690	0.000000	0.002317	0.77	0.05	0.08	0.006690	0.000000	0.002317	0.77	0.05	0.08	0.006690	0.000000	0.002317	0.77	0.05	0.08
FA3431-FA3430	FA3431	FA3430	8	154	0.0040	0.006341	0.000000	0.002186	0.76	0.05	0.08	0.006341	0.000000	0.002186	0.76	0.05	0.08	0.006341	0.000000	0.002186	0.76	0.05	0.08
FA3432-FA3431	FA3432	FA3431	8	218	0.0040	0.004462	0.000000	0.001492	0.68	0.04	0.07	0.004462	0.000000	0.001492	0.68	0.04	0.07	0.004462	0.000000	0.001492	0.68	0.04	0.07
FA3433D-FA3415	FA3433D	FA3415	8	52	0.0721	0.032019	0.000000	0.012707	3.40	0.06	0.09	0.033961	0.000000	0.013547	3.46	0.06	0.09	0.033961	0.000000	0.013547	3.46	0.06	0.09
FA3434-FA3433D	FA3434	FA3433D	8	200	0.0890	0.032019	0.000000	0.012707	3.66	0.05	0.08	0.033961	0.000000	0.013547	3.72	0.06	0.08	0.033961	0.000000	0.013547	3.72	0.06	0.08
FA3435-FA3434	FA3435	FA3434	8	385	0.0004	0.031248	0.000000	0.012375	0.55	0.20	0.30	0.033195	0.000000	0.013215	0.56	0.21	0.31	0.033195	0.000000	0.013215	0.56	0.21	0.31
FA3436-FA3435	FA3436	FA3435	8	322	0.0154	0.026676	0.000000	0.010420	1.88	0.08	0.11	0.028649	0.000000	0.011260	1.92	0.08	0.12	0.028649	0.000000	0.011260	1.92	0.08	0.12
FA3437-FA3436	FA3437	FA3436	8	359	0.0022	0.019633	0.000000	0.007467	0.86	0.11	0.16	0.021656	0.000000	0.008307	0.89	0.11	0.17	0.021656	0.000000	0.008307	0.89	0.11	0.17
FA3438-FA3437	FA3438	FA3437	8	43	0.0126	0.015314	0.000000	0.005700	1.48	0.06	0.09	0.015314	0.000000	0.005700	1.48	0.06	0.09	0.015314	0.000000	0.005700	1.48	0.06	0.09
FA3439-FA3438	FA3439	FA3438	8	417	0.0221	0.012119	0.000000	0.004420	1.68	0.05	0.07	0.012119	0.000000	0.004420	1.68	0.05	0.07	0.012119	0.000000	0.004420	1.68	0.05	0.07
FA3440-FA3439	FA3440	FA3439	8	394	0.0068	0.007633	0.000000	0.002674	0.97	0.05	0.08	0.007633	0.000000	0.002674	0.97	0.05	0.08	0.007633	0.000000	0.002674	0.97	0.05	0.08
FA3441-FA3438	FA3441	FA3438	8	200	0.0208	0.003875	0.000000	0.001280	1.16	0.03	0.04	0.003875	0.000000	0.001280	1.16	0.03	0.04	0.003875	0.000000	0.001280	1.16	0.03	0.04
FA3442-FA3441	FA3442	FA3441	8	264	0.0090	0.003875	0.000000	0.001280	0.87	0.03	0.05	0.003875	0.000000	0.001280	0.87	0.03	0.05	0.003875	0.000000	0.001280	0.87	0.03	0.05
FA3443-FA3442	FA3443	FA3442	8	166	0.0090	0.001415	0.000000	0.000428	0.64	0.02	0.03	0.001415	0.000000	0.000428	0.64	0.02	0.03	0.001415	0.000000	0.000428	0.64	0.02	0.03
FA3444-FA3407	FA3444	FA																					

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Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
FA3445-FA3444	FA3445	FA3444	8	82	0.0068	0.033299	0.000000	0.013260	1.51	0.10	0.15	0.033299	0.000000	0.013260	1.51	0.10	0.15	0.033299	0.000000	0.013260	1.51	0.10	0.15
FA3446-FA3445	FA3446	FA3445	8	223	0.0065	0.027523	0.000000	0.010780	1.40	0.10	0.14	0.027523	0.000000	0.010780	1.40	0.10	0.14	0.027523	0.000000	0.010780	1.40	0.10	0.14
FA3447-FA3446	FA3447	FA3446	8	126	0.0068	0.025222	0.000000	0.009804	1.39	0.09	0.13	0.025222	0.000000	0.009804	1.39	0.09	0.13	0.025222	0.000000	0.009804	1.39	0.09	0.13
FA3448-FA3447	FA3448	FA3447	8	72	0.0074	0.019115	0.000000	0.007253	1.31	0.08	0.12	0.019115	0.000000	0.007253	1.31	0.08	0.12	0.019115	0.000000	0.007253	1.31	0.08	0.12
FA3449-FA3448	FA3449	FA3448	8	105	0.0077	0.018486	0.000000	0.006994	1.32	0.08	0.11	0.018486	0.000000	0.006994	1.32	0.08	0.11	0.018486	0.000000	0.006994	1.32	0.08	0.11
FA3450-FA3449	FA3450	FA3449	8	213	0.0065	0.008438	0.000000	0.002982	0.98	0.05	0.08	0.008438	0.000000	0.002982	0.98	0.05	0.08	0.008438	0.000000	0.002982	0.98	0.05	0.08
FA3451-FA3450	FA3451	FA3450	8	164	0.0066	0.006012	0.000000	0.002063	0.89	0.05	0.07	0.006012	0.000000	0.002063	0.89	0.05	0.07	0.006012	0.000000	0.002063	0.89	0.05	0.07
FA3452-FA3451	FA3452	FA3451	8	108	0.0119	0.002297	0.000000	0.000725	0.81	0.03	0.04	0.002297	0.000000	0.000725	0.81	0.03	0.04	0.002297	0.000000	0.000725	0.81	0.03	0.04
FA3453-FA3451	FA3453	FA3451	8	33	0.0161	0.001234	0.000000	0.000369	0.75	0.02	0.03	0.001234	0.000000	0.000369	0.75	0.02	0.03	0.001234	0.000000	0.000369	0.75	0.02	0.03
FA3454-FA3449	FA3454	FA3449	8	51	0.0220	0.010032	0.000000	0.003599	1.58	0.04	0.07	0.010032	0.000000	0.003599	1.58	0.04	0.07	0.010032	0.000000	0.003599	1.58	0.04	0.07
FA3455-FA3454	FA3455	FA3454	8	84	0.0198	0.009590	0.000000	0.003427	1.50	0.04	0.07	0.009590	0.000000	0.003427	1.50	0.04	0.07	0.009590	0.000000	0.003427	1.50	0.04	0.07
FA3456-FA3445	FA3456	FA3445	8	139	0.0068	0.007122	0.000000	0.002480	0.94	0.05	0.07	0.007122	0.000000	0.002480	0.94	0.05	0.07	0.007122	0.000000	0.002480	0.94	0.05	0.07
FA3457-FA3456	FA3457	FA3456	8	139	0.0147	0.004909	0.000000	0.001655	1.11	0.03	0.05	0.004909	0.000000	0.001655	1.11	0.03	0.05	0.004909	0.000000	0.001655	1.11	0.03	0.05
FA3458-FA3457	FA3458	FA3457	8	105	0.0383	0.001502	0.000000	0.000457	1.07	0.02	0.02	0.001502	0.000000	0.000457	1.07	0.02	0.02	0.001502	0.000000	0.000457	1.07	0.02	0.02
FA3501-FA35D	FA3501	FA35D	6	118	0.0339	0.026504	0.000000	0.010347	2.56	0.07	0.14	0.026504	0.000000	0.010347	2.56	0.07	0.14	0.026504	0.000000	0.010347	2.56	0.07	0.14
FA3502-FA3501	FA3502	FA3501	6	61	0.0116	0.008018	0.000000	0.002821	1.23	0.05	0.10	0.008018	0.000000	0.002821	1.23	0.05	0.10	0.008018	0.000000	0.002821	1.23	0.05	0.10
FA3503-FA3502	FA3503	FA3502	6	80	0.0649	0.008018	0.000000	0.002821	2.24	0.03	0.07	0.008018	0.000000	0.002821	2.24	0.03	0.07	0.008018	0.000000	0.002821	2.24	0.03	0.07
FA3504-FA3503	FA3504	FA3503	6	120	0.1025	0.008018	0.000000	0.002821	2.63	0.03	0.06	0.008018	0.000000	0.002821	2.63	0.03	0.06	0.008018	0.000000	0.002821	2.63	0.03	0.06
FA3505-FA3504	FA3505	FA3504	6	295	0.0203	0.007119	0.000000	0.002479	1.44	0.04	0.08	0.007119	0.000000	0.002479	1.44	0.04	0.08	0.007119	0.000000	0.002479	1.44	0.04	0.08
FA3506-FA3501	FA3506	FA3501	8	135	0.0931	0.019775	0.000000	0.007526	3.21	0.04	0.06	0.019775	0.000000	0.007526	3.21	0.04	0.06	0.019775	0.000000	0.007526	3.21	0.04	0.06
FA3507-FA3506	FA3507	FA3506	8	156	0.0638	0.019775	0.000000	0.007526	2.82	0.05	0.07	0.019775	0.000000	0.007526	2.82	0.05	0.07	0.019775	0.000000	0.007526	2.82	0.05	0.07
FA3508-FA3507	FA3508	FA3507	8	194	0.0112	0.019775	0.000000	0.007526	1.53	0.07	0.11	0.019775	0.000000	0.007526	1.53	0.07	0.11	0.019775	0.000000	0.007526	1.53	0.07	0.11
FA3509-FA3508	FA3509	FA3508	8	276	0.0072	0.012150	0.000000	0.004432	1.13	0.06	0.09	0.012150	0.000000	0.004432	1.13	0.06	0.09	0.012150	0.000000	0.004432	1.13	0.06	0.09
FA3510-FA3509	FA3510	FA3509	8	180	0.0073	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
FA35D-FB4005	FA35D	FB4005	15	157	0.0027	0.914765	0.000000	0.485899	2.64	0.56	0.45	0.942868	0.000000	0.502146	2.66	0.57	0.46	2.041482	0.000000	1.162781	3.14	0.96	0.76
FA36-FA2339	FA36	FA2339	8	90	0.0200	0.056660	0.000000	0.023630	3.10	0.09	0.14	0.104068	0.000000	0.045758	3.71	0.12	0.18	0.104068	0.000000	0.045758	3.71	0.12	0.18
FB01-FB02	FB01	FB02	8	374	0.0405	0.008248	0.000000	0.002909	1.84	0.03	0.05	0.008248	0.000000	0.002909	1.84	0.03	0.05	0.008248	0.000000	0.002909	1.84	0.03	0.05
FB02-FB03	FB02	FB03	8	295	0.0401	0.027138	0.000000	0.010616	2.63	0.06	0.09	0.027138	0.000000	0.010616	2.63	0.06	0.09	0.027138	0.000000	0.010616	2.63	0.06	0.09
FB0201-FB02	FB0201	FB02	8	264	0.0123	0.017755	0.000000	0.006694	1.54	0.07	0.10	0.017755	0.000000	0.006694	1.54	0.07	0.10	0.017755	0.000000	0.006694	1.54	0.07	0.10
FB0202-FB0201	FB0202	FB0201	8	276	0.0025	0.012253	0.000000	0.004473	0.79	0.08	0.12	0.012253	0.000000	0.004473	0.79	0.08	0.12	0.012253	0.000000	0.004473	0.79	0.08	0.12
FB03-FB04	FB03	FB04	8	143	0.0597	0.040569	0.000000	0.016435	3.42	0.07	0.10	0.040569	0.000000	0.016435	3.42	0.07	0.10	0.040569	0.000000	0.016435	3.42	0.07	0.10
FB0301-FB03	FB0301	FB03	8	367	0.0406	0.013752	0.000000	0.005071	2.15	0.04	0.07	0.013752	0.000000	0.005071	2.15	0.04	0.07	0.013752	0.000000	0.005071	2.15	0.04	0.07
FB04-FB05	FB04	FB05	8	340	0.0198	0.045796	0.000000	0.018749	2.41	0.09	0.14	0.045796	0.000000	0.018749	2.41	0.09	0.14	0.045796	0.000000	0.018749	2.41	0.09	0.14
FB05-FB06	FB05	FB06	8	207	0.0681	0.051025	0.000000	0.021087	3.83	0.07	0.11	0.051025	0.000000	0.021087	3.83	0.07	0.11	0.051025	0.000000	0.021087	3.83	0.07	0.11
FB0501-FB05	FB0501	FB05	8	52	0.0185	0.003820	0.000000	0.001260	1.11	0.03	0.04	0.003820	0.000000	0.001260	1.11	0.03	0.04	0.003820	0.000000	0.001260	1.11	0.03	0.04
FB06-FB07	FB06	FB07	8	331	0.0223	0.051025	0.000000	0.021087	2.59	0.09	0.14	0.051025	0.000000	0.021087	2.59	0.09	0.14	0.051025	0.000000	0.021087	2.59	0.09	0.14
FB07-FB08	FB07	FB08	8	346	0.0326	0.051025	0.000000	0.021087	2.96	0.09	0.13	0.051025	0.000000	0.021087	2.96	0.09	0.13	0.051025	0.000000	0.021087	2.96	0.09	0.13
FB08-FB09	FB08	FB09	8	346	0.0326	0.051025	0.000000	0.021087	2.96	0.09	0.13	0.051025	0.000000	0.021087	2.96	0.09	0.13	0.051025	0.000000	0.021087	2.96	0.09	0.13
FB09-FB10D	FB09	FB10D	8	346	0.0290	0.130472	0.000000	0.058507	3.75	0.14	0.21	0.130472	0.000000	0.058507	3.75	0.14	0.21	0.130472	0.000000	0.058507	3.75	0.14	0.21
FB1001-FB10D	FB1001	FB10D	8	302	0.0290	0.216473	0.000000	0.101441	4.35	0.18	0.27	0.216473	0.000000	0.101441	4.35	0.18	0.27	0.216473	0.000000	0.101441	4.35	0.18	0.27
FB1002D-FB1001	FB1002D	FB1001	8	107	0.0058	0.212543	0.000000	0.099441	2.42	0.28	0.41	0.212543	0.000000	0.099441	2.42	0.28	0.41	0.212543	0.000000	0.099441	2.42	0.28	0.41
FB1003-FB1002D	FB1003	FB1002D	8	346	0.0275	0.141534	0.000000	0.063918	3.77	0.15	0.22	0.141534	0.000000	0.063918	3.77	0.15	0.22	0.141534	0.000000	0.063918	3.77	0.15	0.22
FB1004-FB1003	FB1004	FB1003	8	346	0.0360	0.137209	0.000000	0.061798	4.11	0.14	0.21	0.137209	0.000000	0.061798	4.11	0.14	0.21	0.137209	0.000000	0.061798	4.11	0.14	0.21
FB1005-FB1004	FB1005	FB1004	8	322	0.0253	0.132016	0.000000	0.059260	3.59	0.15	0.22	0.132016	0.000000	0.059260	3.59	0.15	0.22	0.132016	0.000000	0.059260	3.59	0.15	0.22
FB1006-FB1005	FB1006	FB1005	8	212	0.0334	0.124680	0.000000	0.055689	3.90	0.13	0.20	0.124680	0.000000	0.055689	3.90	0.13	0.20	0.124680	0.000000	0.055689	3.90	0.13	0.20
FB1007-FB1006	FB1007	FB1006	8	136	0.0336	0.119093	0.000000	0.052982	3.85	0.13													

City of Brea - Sewer Master Plan (November 2021)

Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
FB1008-FB1007	FB1008	FB1007	8	184	0.0061	0.117738	0.000000	0.052327	2.09	0.20	0.30	0.117738	0.000000	0.052327	2.09	0.20	0.30	0.117738	0.000000	0.052327	2.09	0.20	0.30
FB1009-FB1008	FB1009	FB1008	8	326	0.0061	0.114201	0.000000	0.050621	2.07	0.20	0.29	0.114201	0.000000	0.050621	2.07	0.20	0.29	0.114201	0.000000	0.050621	2.07	0.20	0.29
FB1010-FB1009	FB1010	FB1009	8	200	0.0067	0.101835	0.000000	0.044692	2.07	0.18	0.27	0.101835	0.000000	0.044692	2.07	0.18	0.27	0.101835	0.000000	0.044692	2.07	0.18	0.27
FB1011-FB1010	FB1011	FB1010	8	200	0.0449	0.092088	0.000000	0.040062	3.95	0.11	0.16	0.092088	0.000000	0.040062	3.95	0.11	0.16	0.092088	0.000000	0.040062	3.95	0.11	0.16
FB1012-FB1011	FB1012	FB1011	8	243	0.0047	0.089371	0.000000	0.038779	1.77	0.18	0.28	0.089371	0.000000	0.038779	1.77	0.18	0.28	0.089371	0.000000	0.038779	1.77	0.18	0.28
FB1013-FB1012	FB1013	FB1012	8	202	0.0454	0.086898	0.000000	0.037614	3.90	0.10	0.16	0.086898	0.000000	0.037614	3.90	0.10	0.16	0.086898	0.000000	0.037614	3.90	0.10	0.16
FB1014-FB1013	FB1014	FB1013	8	210	0.0042	0.070629	0.000000	0.030026	1.58	0.17	0.25	0.070629	0.000000	0.030026	1.58	0.17	0.25	0.070629	0.000000	0.030026	1.58	0.17	0.25
FB1015-FB1014	FB1015	FB1014	8	21	0.0376	0.068603	0.000000	0.029091	3.40	0.10	0.14	0.068603	0.000000	0.029091	3.40	0.10	0.14	0.068603	0.000000	0.029091	3.40	0.10	0.14
FB1016-FB1015	FB1016	FB1015	8	218	0.0079	0.068603	0.000000	0.029091	1.97	0.14	0.21	0.068603	0.000000	0.029091	1.97	0.14	0.21	0.068603	0.000000	0.029091	1.97	0.14	0.21
FB1017-FB1016	FB1017	FB1016	8	177	0.0052	0.067922	0.000000	0.028777	1.69	0.16	0.23	0.067922	0.000000	0.028777	1.69	0.16	0.23	0.067922	0.000000	0.028777	1.69	0.16	0.23
FB1018-FB1017	FB1018	FB1017	8	238	0.0048	0.042260	0.000000	0.017181	1.43	0.13	0.19	0.042260	0.000000	0.017181	1.43	0.13	0.19	0.042260	0.000000	0.017181	1.43	0.13	0.19
FB1019-FB1018	FB1019	FB1018	8	285	0.0207	0.038984	0.000000	0.015738	2.33	0.08	0.13	0.038984	0.000000	0.015738	2.33	0.08	0.13	0.038984	0.000000	0.015738	2.33	0.08	0.13
FB1020-FB1019	FB1020	FB1019	8	190	0.0092	0.032151	0.000000	0.012764	1.65	0.09	0.14	0.032151	0.000000	0.012764	1.65	0.09	0.14	0.032151	0.000000	0.012764	1.65	0.09	0.14
FB1021-FB1020	FB1021	FB1020	8	271	0.0199	0.026410	0.000000	0.010307	2.05	0.07	0.11	0.026410	0.000000	0.010307	2.05	0.07	0.11	0.026410	0.000000	0.010307	2.05	0.07	0.11
FB1022-FB1021	FB1022	FB1021	8	271	0.0510	0.018923	0.000000	0.007174	2.57	0.05	0.07	0.018923	0.000000	0.007174	2.57	0.05	0.07	0.018923	0.000000	0.007174	2.57	0.05	0.07
FB1023S-FB1022	FB1023S	FB1022	8	307	0.0149	0.011705	0.000000	0.004256	1.45	0.05	0.08	0.011705	0.000000	0.004256	1.45	0.05	0.08	0.011705	0.000000	0.004256	1.45	0.05	0.08
FB1024-FB1023S	FB1024	FB1023S	8	295	0.0478	0.007911	0.000000	0.002780	1.93	0.03	0.05	0.007911	0.000000	0.002780	1.93	0.03	0.05	0.007911	0.000000	0.002780	1.93	0.03	0.05
FB1025-FB1022	FB1025	FB1022	8	230	0.0291	0.004371	0.000000	0.001459	1.35	0.03	0.04	0.004371	0.000000	0.001459	1.35	0.03	0.04	0.004371	0.000000	0.001459	1.35	0.03	0.04
FB1026-FB1021	FB1026	FB1021	8	226	0.0353	0.004131	0.000000	0.001372	1.42	0.03	0.04	0.004131	0.000000	0.001372	1.42	0.03	0.04	0.004131	0.000000	0.001372	1.42	0.03	0.04
FB1027-FB1020	FB1027	FB1020	8	172	0.0586	0.003607	0.000000	0.001184	1.63	0.02	0.03	0.003607	0.000000	0.001184	1.63	0.02	0.03	0.003607	0.000000	0.001184	1.63	0.02	0.03
FB1028-FB1027	FB1028	FB1027	8	89	0.0216	0.002857	0.000000	0.000919	1.07	0.02	0.04	0.002857	0.000000	0.000919	1.07	0.02	0.04	0.002857	0.000000	0.000919	1.07	0.02	0.04
FB1029-FB1017	FB1029	FB1017	8	281	0.0283	0.028885	0.000000	0.011361	2.38	0.07	0.10	0.028885	0.000000	0.011361	2.38	0.07	0.10	0.028885	0.000000	0.011361	2.38	0.07	0.10
FB1030-FB1029	FB1030	FB1029	8	317	0.0046	0.018889	0.000000	0.007160	1.11	0.09	0.13	0.018889	0.000000	0.007160	1.11	0.09	0.13	0.018889	0.000000	0.007160	1.11	0.09	0.13
FB1031-FB1030	FB1031	FB1030	8	213	0.0049	0.008882	0.000000	0.003153	0.90	0.06	0.09	0.008882	0.000000	0.003153	0.90	0.06	0.09	0.008882	0.000000	0.003153	0.90	0.06	0.09
FB1032-FB1031	FB1032	FB1031	8	94	0.0040	0.005303	0.000000	0.001800	0.72	0.05	0.07	0.005303	0.000000	0.001800	0.72	0.05	0.07	0.005303	0.000000	0.001800	0.72	0.05	0.07
FB1033-FB1030	FB1033	FB1030	8	146	0.0821	0.005590	0.000000	0.001906	2.09	0.02	0.04	0.005590	0.000000	0.001906	2.09	0.02	0.04	0.005590	0.000000	0.001906	2.09	0.02	0.04
FB1034S-FB1033	FB1034S	FB1033	8	187	0.0598	0.003892	0.000000	0.001286	1.68	0.02	0.03	0.003892	0.000000	0.001286	1.68	0.02	0.03	0.003892	0.000000	0.001286	1.68	0.02	0.03
FB1035-FB1014	FB1035	FB1014	8	177	0.0049	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
FB1036-FB1035	FB1036	FB1035	8	71	0.0277	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
FB1037-FB1013	FB1037	FB1013	8	249	0.0245	0.016440	0.000000	0.006157	1.91	0.05	0.08	0.016440	0.000000	0.006157	1.91	0.05	0.08	0.016440	0.000000	0.006157	1.91	0.05	0.08
FB1038-FB1037	FB1038	FB1037	8	243	0.0220	0.012829	0.000000	0.004702	1.70	0.05	0.07	0.012829	0.000000	0.004702	1.70	0.05	0.07	0.012829	0.000000	0.004702	1.70	0.05	0.07
FB1039S-FB1038	FB1039S	FB1038	8	277	0.0102	0.007396	0.000000	0.002584	1.10	0.05	0.07	0.007396	0.000000	0.002584	1.10	0.05	0.07	0.007396	0.000000	0.002584	1.10	0.05	0.07
FB1040-FB1009	FB1040	FB1009	8	205	0.0610	0.011637	0.000000	0.004229	2.36	0.04	0.06	0.011637	0.000000	0.004229	2.36	0.04	0.06	0.011637	0.000000	0.004229	2.36	0.04	0.06
FB1041-FB1040	FB1041	FB1040	8	136	0.0836	0.008758	0.000000	0.003105	2.41	0.03	0.05	0.008758	0.000000	0.003105	2.41	0.03	0.05	0.008758	0.000000	0.003105	2.41	0.03	0.05
FB1042-FB1041	FB1042	FB1041	8	235	0.0142	0.005902	0.000000	0.002022	1.16	0.04	0.06	0.005902	0.000000	0.002022	1.16	0.04	0.06	0.005902	0.000000	0.002022	1.16	0.04	0.06
FB1043S-FB1008	FB1043S	FB1008	8	251	0.0182	0.001983	0.000000	0.000618	0.90	0.02	0.03	0.001983	0.000000	0.000618	0.90	0.02	0.03	0.001983	0.000000	0.000618	0.90	0.02	0.03
FB1044-FB1006	FB1044	FB1006	8	353	0.0104	0.007013	0.000000	0.002439	1.09	0.04	0.07	0.007013	0.000000	0.002439	1.09	0.04	0.07	0.007013	0.000000	0.002439	1.09	0.04	0.07
FB1045-FB1005	FB1045	FB1005	8	282	0.0074	0.008560	0.000000	0.003029	1.03	0.05	0.08	0.008560	0.000000	0.003029	1.03	0.05	0.08	0.008560	0.000000	0.003029	1.03	0.05	0.08
FB1046-FB1045	FB1046	FB1045	8	243	0.0062	0.007008	0.000000	0.002437	0.91	0.05	0.08	0.007008	0.000000	0.002437	0.91	0.05	0.08	0.007008	0.000000	0.002437	0.91	0.05	0.08
FB1047-FB1002D	FB1047	FB1002D	8	143	0.0054	0.081653	0.000000	0.035153	1.80	0.17	0.25	0.081653	0.000000	0.035153	1.80	0.17	0.25	0.081653	0.000000	0.035153	1.80	0.17	0.25
FB1048-FB1047	FB1048	FB1047	8	235	0.0050	0.079816	0.000000	0.034294	1.75	0.17	0.26	0.079816	0.000000	0.034294	1.75	0.17	0.26	0.079816	0.000000	0.034294	1.75	0.17	0.26
FB1049-FB1048	FB1049	FB1048	8	272	0.0204	0.067852	0.000000	0.028745	2.74	0.11	0.17	0.067852	0.000000	0.028745	2.74	0.11	0.17	0.067852	0.000000	0.028745	2.74	0.11	0.17
FB1050-FB1049	FB1050	FB1049	8	154	0.0288	0.057517	0.000000	0.024019	2.94	0.09	0.14	0.057517	0.000000	0.024019	2.94	0.09	0.14	0.057517	0.000000	0.024019	2.94	0.09	0.14
FB1051-FB1050	FB1051	FB1050	8	130	0.0654	0.055423	0.000000	0.023070	3.88	0.08	0.11	0.055423	0.000000	0.023070	3.88	0.08	0.11	0.055423	0.000000	0.023070	3.88	0.08	0.11
FB1052-FB1051	FB1052	FB1051	8	215	0.0274	0.049659	0.000000	0.020474	2.77	0.09	0.13	0.049659	0.000000	0.020474	2.77	0.09	0.13	0.049659	0.000000	0.020474	2.77	0.09	0.13
FB1053-FB1052																							

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Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
FB1054-FB1053	FB1054	FB1053	8	284	0.0101	0.036431	0.000000	0.014621	1.78	0.10	0.15	0.036431	0.000000	0.014621	1.78	0.10	0.15	0.036431	0.000000	0.014621	1.78	0.10	0.15
FB1056-FB1054	FB1056	FB1054	8	226	0.0368	0.033615	0.000000	0.013397	2.73	0.07	0.10	0.033615	0.000000	0.013397	2.73	0.07	0.10	0.033615	0.000000	0.013397	2.73	0.07	0.10
FB1057-FB1056	FB1057	FB1056	8	294	0.0560	0.023582	0.000000	0.009113	2.84	0.05	0.08	0.023582	0.000000	0.009113	2.84	0.05	0.08	0.023582	0.000000	0.009113	2.84	0.05	0.08
FB1058S-FB1057	FB1058S	FB1057	8	184	0.0308	0.018086	0.000000	0.006830	2.13	0.05	0.08	0.018086	0.000000	0.006830	2.13	0.05	0.08	0.018086	0.000000	0.006830	2.13	0.05	0.08
FB1059-FB1058S	FB1059	FB1058S	8	246	0.0048	0.016762	0.000000	0.006288	1.09	0.08	0.12	0.016762	0.000000	0.006288	1.09	0.08	0.12	0.016762	0.000000	0.006288	1.09	0.08	0.12
FB1060-FB1059	FB1060	FB1059	8	164	0.0071	0.008125	0.000000	0.002862	1.00	0.05	0.08	0.008125	0.000000	0.002862	1.00	0.05	0.08	0.008125	0.000000	0.002862	1.00	0.05	0.08
FB1061-FB1059	FB1061	FB1059	8	210	0.0058	0.007280	0.000000	0.002540	0.90	0.05	0.08	0.007280	0.000000	0.002540	0.90	0.05	0.08	0.007280	0.000000	0.002540	0.90	0.05	0.08
FB1062-FB1056	FB1062	FB1056	8	408	0.0142	0.009107	0.000000	0.003240	1.32	0.05	0.07	0.009107	0.000000	0.003240	1.32	0.05	0.07	0.009107	0.000000	0.003240	1.32	0.05	0.07
FB1063-FB1051	FB1063	FB1051	8	336	0.0753	0.006183	0.000000	0.002127	2.09	0.03	0.04	0.006183	0.000000	0.002127	2.09	0.03	0.04	0.006183	0.000000	0.002127	2.09	0.03	0.04
FB1064-FB1049	FB1064	FB1049	8	500	0.0116	0.010262	0.000000	0.003689	1.27	0.05	0.08	0.010262	0.000000	0.003689	1.27	0.05	0.08	0.010262	0.000000	0.003689	1.27	0.05	0.08
FB1065-FB1048	FB1065	FB1048	8	238	0.0208	0.011953	0.000000	0.004354	1.64	0.05	0.07	0.011953	0.000000	0.004354	1.64	0.05	0.07	0.011953	0.000000	0.004354	1.64	0.05	0.07
FB1066-FB1065	FB1066	FB1065	8	233	0.0110	0.007913	0.000000	0.002781	1.16	0.05	0.07	0.007913	0.000000	0.002781	1.16	0.05	0.07	0.007913	0.000000	0.002781	1.16	0.05	0.07
FB10D-FB11	FB10D	FB11	8	271	0.0037	0.329115	0.000000	0.159948	2.27	0.41	0.61	0.329115	0.000000	0.159948	2.27	0.41	0.61	0.329115	0.000000	0.159948	2.27	0.41	0.61
FB11-FB12	FB11	FB12	8	346	0.0182	0.329115	0.000000	0.159948	4.14	0.26	0.38	0.329115	0.000000	0.159948	4.14	0.26	0.38	0.329115	0.000000	0.159948	4.14	0.26	0.38
FB12-FB13	FB12	FB13	8	346	0.0490	0.329115	0.000000	0.159948	5.91	0.20	0.30	0.329115	0.000000	0.159948	5.91	0.20	0.30	0.329115	0.000000	0.159948	5.91	0.20	0.30
FB13-FB14	FB13	FB14	8	343	0.0247	0.329115	0.000000	0.159948	4.62	0.24	0.35	0.329115	0.000000	0.159948	4.62	0.24	0.35	0.329115	0.000000	0.159948	4.62	0.24	0.35
FB14-FB15	FB14	FB15	8	139	0.0302	0.329115	0.000000	0.159948	4.97	0.22	0.33	0.329115	0.000000	0.159948	4.97	0.22	0.33	0.329115	0.000000	0.159948	4.97	0.22	0.33
FB15-FB16	FB15	FB16	8	313	0.0300	0.342874	0.000000	0.167229	5.01	0.23	0.34	0.342874	0.000000	0.167229	5.01	0.23	0.34	0.342874	0.000000	0.167229	5.01	0.23	0.34
FB16-FB17	FB16	FB17	8	338	0.0314	0.342874	0.000000	0.167229	5.10	0.23	0.34	0.342874	0.000000	0.167229	5.10	0.23	0.34	0.342874	0.000000	0.167229	5.10	0.23	0.34
FB17-FB18	FB17	FB18	8	354	0.0178	0.344218	0.000000	0.167942	4.15	0.26	0.39	0.344218	0.000000	0.167942	4.15	0.26	0.39	0.344218	0.000000	0.167942	4.15	0.26	0.39
FB1701-FB17	FB1701	FB17	8	18	0.0644	0.002262	0.000000	0.000713	1.46	0.02	0.03	0.002262	0.000000	0.000713	1.46	0.02	0.03	0.002262	0.000000	0.000713	1.46	0.02	0.03
FB1702-FB1701	FB1702	FB1701	8	212	0.0050	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
FB18-FB19	FB18	FB19	8	287	0.0172	0.347816	0.000000	0.169851	4.12	0.27	0.40	0.347816	0.000000	0.169851	4.12	0.27	0.40	0.347816	0.000000	0.169851	4.12	0.27	0.40
FB19-FB20	FB19	FB20	8	271	0.0069	0.348881	0.000000	0.170416	2.93	0.35	0.52	0.348881	0.000000	0.170416	2.93	0.35	0.52	0.348881	0.000000	0.170416	2.93	0.35	0.52
FB20-FB21	FB20	FB21	8	326	0.0361	0.349787	0.000000	0.170897	5.39	0.22	0.33	0.349787	0.000000	0.170897	5.39	0.22	0.33	0.349787	0.000000	0.170897	5.39	0.22	0.33
FB21-FB22	FB21	FB22	8	320	0.0500	0.352424	0.000000	0.172298	6.07	0.20	0.30	0.352424	0.000000	0.172298	6.07	0.20	0.30	0.352424	0.000000	0.172298	6.07	0.20	0.30
FB22-FB23	FB22	FB23	8	322	0.0299	0.352424	0.000000	0.172298	5.05	0.23	0.35	0.352424	0.000000	0.172298	5.05	0.23	0.35	0.352424	0.000000	0.172298	5.05	0.23	0.35
FB23-FB24	FB23	FB24	8	15	0.0173	0.352424	0.000000	0.172298	4.14	0.27	0.40	0.352424	0.000000	0.172298	4.14	0.27	0.40	0.352424	0.000000	0.172298	4.14	0.27	0.40
FB24-FB2501	FB24	FB2501	10	92	0.0087	0.362184	0.000000	0.177491	3.87	0.26	0.31	0.362184	0.000000	0.177491	3.87	0.26	0.31	0.362184	0.000000	0.177491	3.87	0.26	0.31
FB2401-FB24	FB2401	FB24	8	385	0.0051	0.014056	0.000000	0.005193	1.05	0.07	0.11	0.014056	0.000000	0.005193	1.05	0.07	0.11	0.014056	0.000000	0.005193	1.05	0.07	0.11
FB2402-FB2401	FB2402	FB2401	8	39	0.0131	0.014056	0.000000	0.005193	1.46	0.06	0.09	0.014056	0.000000	0.005193	1.46	0.06	0.09	0.014056	0.000000	0.005193	1.46	0.06	0.09
FB2403-FB2402	FB2403	FB2402	8	322	0.0236	0.008960	0.000000	0.003183	1.57	0.04	0.06	0.008960	0.000000	0.003183	1.57	0.04	0.06	0.008960	0.000000	0.003183	1.57	0.04	0.06
FB2404-FB2403	FB2404	FB2403	8	328	0.0202	0.008960	0.000000	0.003183	1.48	0.04	0.06	0.008960	0.000000	0.003183	1.48	0.04	0.06	0.008960	0.000000	0.003183	1.48	0.04	0.06
FB2405-FB2402	FB2405	FB2402	8	143	0.0615	0.005870	0.000000	0.002010	1.92	0.03	0.04	0.005870	0.000000	0.002010	1.92	0.03	0.04	0.005870	0.000000	0.002010	1.92	0.03	0.04
FB2406-FB2405	FB2406	FB2405	8	56	0.2880	0.005870	0.000000	0.002010	3.28	0.02	0.03	0.005870	0.000000	0.002010	3.28	0.02	0.03	0.005870	0.000000	0.002010	3.28	0.02	0.03
FB2407-FB2406	FB2407	FB2406	8	448	0.0100	0.005870	0.000000	0.002010	1.02	0.04	0.06	0.005870	0.000000	0.002010	1.02	0.04	0.06	0.005870	0.000000	0.002010	1.02	0.04	0.06
FB25-FB26	FB25	FB26	12	65	0.0125	0.381821	0.000000	0.187975	3.64	0.26	0.26	0.401180	0.000000	0.198357	3.69	0.27	0.27	0.401180	0.000000	0.198357	3.69	0.27	0.27
FB2501-FB25	FB2501	FB25	12	291	0.0034	0.365671	0.000000	0.179349	2.26	0.36	0.36	0.365671	0.000000	0.179349	2.26	0.36	0.36	0.365671	0.000000	0.179349	2.26	0.36	0.36
FB26-FB27	FB26	FB27	12	157	0.0049	0.419474	0.000000	0.208208	2.68	0.35	0.35	0.438679	0.000000	0.218590	2.71	0.36	0.36	0.438679	0.000000	0.218590	2.71	0.36	0.36
FB2601-FB26	FB2601	FB26	8	349	0.0033	0.049121	0.000000	0.020233	1.31	0.15	0.22	0.049121	0.000000	0.020233	1.31	0.15	0.22	0.049121	0.000000	0.020233	1.31	0.15	0.22
FB2602-FB2601	FB2602	FB2601	8	349	0.0024	0.049121	0.000000	0.020233	1.17	0.16	0.24	0.049121	0.000000	0.020233	1.17	0.16	0.24	0.049121	0.000000	0.020233	1.17	0.16	0.24
FB2603-FB2602	FB2603	FB2602	8	376	0.0023	0.043634	0.000000	0.017789	1.12	0.15	0.23	0.043634	0.000000	0.017789	1.12	0.15	0.23	0.043634	0.000000	0.017789	1.12	0.15	0.23
FB27-FB28	FB27	FB28	12	166	0.0049	0.419474	0.000000	0.208208	2.68	0.35	0.35	0.438679	0.000000	0.218590	2.72	0.36	0.36	0.438679	0.000000	0.218590	2.72	0.36	0.36
FB28-FB29	FB28	FB29	12	413	0.0047	0.419474	0.000000	0.208208	2.64	0.35	0.35	0.438679	0.000000	0.218590	2.67	0.36	0.36	0.438679	0.000000	0.218590	2.67	0.36	0.36
FB29-FB30	FB29	FB30	12	464	0.0053	0.430847	0.000000	0.214351	2.76	0.35	0.35	0.450009	0.000000	0.224733	2.80	0.35	0.35	0.450009	0.000000	0.224733	2.80	0.35	0.35
FB30-FB31	FB30	FB31	12	335	0.0048	0.433208	0.000000	0.215628	2.68	0.35	0.35	0.452361	0.000000	0.226010	2.72	0.36	0.36						

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Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADFW (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADFW (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADFW (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
FB31-FB32	FB31	FB32	12	157	0.0124	0.433426	0.000000	0.215746	3.77	0.28	0.28	0.498780	0.000000	0.251328	3.92	0.30	0.30	0.498780	0.000000	0.251328	3.92	0.30	0.30
FB32-FB33	FB32	FB33	12	296	0.0350	0.433426	0.000000	0.215746	5.45	0.21	0.21	0.498780	0.000000	0.251328	5.67	0.23	0.23	0.498780	0.000000	0.251328	5.67	0.23	0.23
FB33-FB65	FB33	FB65	12	211	0.0050	0.433426	0.000000	0.215746	2.71	0.35	0.35	0.498780	0.000000	0.251328	2.82	0.38	0.38	0.498780	0.000000	0.251328	2.82	0.38	0.38
FB3401-FAB65	FB3401	FB65	6	427	0.0185	0.007530	0.000000	0.002635	1.42	0.04	0.09	0.007530	0.000000	0.002635	1.42	0.04	0.09	0.007530	0.000000	0.002635	1.42	0.04	0.09
FB35-FB3544	FB35	FB3544	15	45	0.0036	0.557843	0.000000	0.283838	2.54	0.40	0.32	0.621871	0.000000	0.319420	2.62	0.42	0.34	0.621871	0.000000	0.319420	2.62	0.42	0.34
FB3501-FB35	FB3501	FB35	10	486	0.0016	0.144432	0.000000	0.065342	1.35	0.29	0.34	0.144432	0.000000	0.065342	1.35	0.29	0.34	0.144432	0.000000	0.065342	1.35	0.29	0.34
FB3502-FB3501	FB3502	FB3501	10	710	0.0016	0.144432	0.000000	0.065342	1.34	0.29	0.34	0.144432	0.000000	0.065342	1.34	0.29	0.34	0.144432	0.000000	0.065342	1.34	0.29	0.34
FB3503-FB3502	FB3503	FB3502	8	277	0.0005	0.094276	0.000000	0.041098	0.81	0.34	0.51	0.094276	0.000000	0.041098	0.81	0.34	0.51	0.094276	0.000000	0.041098	0.81	0.34	0.51
FB3504-FB3503	FB3504	FB3503	8	139	0.0016	0.093366	0.000000	0.040667	1.21	0.25	0.38	0.093366	0.000000	0.040667	1.21	0.25	0.38	0.093366	0.000000	0.040667	1.21	0.25	0.38
FB3505-FB3504	FB3505	FB3504	8	31	0.0026	0.088947	0.000000	0.038579	1.42	0.21	0.32	0.088947	0.000000	0.038579	1.42	0.21	0.32	0.088947	0.000000	0.038579	1.42	0.21	0.32
FB3506-FB3505	FB3506	FB3505	8	581	0.0027	0.088947	0.000000	0.038579	1.45	0.21	0.32	0.088947	0.000000	0.038579	1.45	0.21	0.32	0.088947	0.000000	0.038579	1.45	0.21	0.32
FB3507-FB3506	FB3507	FB3506	8	548	0.0020	0.080400	0.000000	0.034567	1.26	0.22	0.33	0.080400	0.000000	0.034567	1.26	0.22	0.33	0.080400	0.000000	0.034567	1.26	0.22	0.33
FB3508-FB3507	FB3508	FB3507	8	240	0.0033	0.034579	0.000000	0.013815	1.17	0.13	0.19	0.034579	0.000000	0.013815	1.17	0.13	0.19	0.034579	0.000000	0.013815	1.17	0.13	0.19
FB3509-FB3508	FB3509	FB3508	8	185	0.0026	0.033139	0.000000	0.013191	1.07	0.13	0.19	0.033139	0.000000	0.013191	1.07	0.13	0.19	0.033139	0.000000	0.013191	1.07	0.13	0.19
FB3510-FB3509	FB3510	FB3509	8	116	0.0033	0.028414	0.000000	0.011160	1.11	0.11	0.17	0.028414	0.000000	0.011160	1.11	0.11	0.17	0.028414	0.000000	0.011160	1.11	0.11	0.17
FB3511-FB3510	FB3511	FB3510	8	100	0.0032	0.027809	0.000000	0.010902	1.09	0.11	0.17	0.027809	0.000000	0.010902	1.09	0.11	0.17	0.027809	0.000000	0.010902	1.09	0.11	0.17
FB3512-FB3511	FB3512	FB3511	8	208	0.0032	0.026073	0.000000	0.010164	1.08	0.11	0.16	0.026073	0.000000	0.010164	1.08	0.11	0.16	0.026073	0.000000	0.010164	1.08	0.11	0.16
FB3513-FB3512	FB3513	FB3512	8	490	0.0032	0.021286	0.000000	0.008153	1.01	0.10	0.15	0.021286	0.000000	0.008153	1.01	0.10	0.15	0.021286	0.000000	0.008153	1.01	0.10	0.15
FB3514-FB66	FB3514	Briarwood_L S	8	1	0.0200	0.013879	0.000000	0.005122	1.69	0.05	0.08	0.013879	0.000000	0.005122	1.69	0.05	0.08	0.013879	0.000000	0.005122	1.69	0.05	0.08
FB3515-FB3514	FB3515	FB3514	8	148	0.0054	0.011723	0.000000	0.004263	1.02	0.07	0.10	0.011723	0.000000	0.004263	1.02	0.07	0.10	0.011723	0.000000	0.004263	1.02	0.07	0.10
FB3516-FB3515	FB3516	FB3515	8	208	0.0054	0.008745	0.000000	0.003100	0.93	0.06	0.09	0.008745	0.000000	0.003100	0.93	0.06	0.09	0.008745	0.000000	0.003100	0.93	0.06	0.09
FB3517-FB3516	FB3517	FB3516	8	185	0.0032	0.007706	0.000000	0.002702	0.74	0.06	0.09	0.007706	0.000000	0.002702	0.74	0.06	0.09	0.007706	0.000000	0.002702	0.74	0.06	0.09
FB3518-FB3517	FB3518	FB3517	8	449	0.0100	0.006285	0.000000	0.002165	1.04	0.04	0.06	0.006285	0.000000	0.002165	1.04	0.04	0.06	0.006285	0.000000	0.002165	1.04	0.04	0.06
FB3519-FB3509	FB3519	FB3509	8	77	0.0043	0.002163	0.000000	0.000679	0.56	0.03	0.05	0.002163	0.000000	0.000679	0.56	0.03	0.05	0.002163	0.000000	0.000679	0.56	0.03	0.05
FB3520-FB3509	FB3520	FB3509	8	77	0.0043	0.001986	0.000000	0.000619	0.55	0.03	0.05	0.001986	0.000000	0.000619	0.55	0.03	0.05	0.001986	0.000000	0.000619	0.55	0.03	0.05
FB3521-FB3507	FB3521	FB3507	8	490	0.0020	0.041100	0.000000	0.016669	1.04	0.15	0.23	0.041100	0.000000	0.016669	1.04	0.15	0.23	0.041100	0.000000	0.016669	1.04	0.15	0.23
FB3522-FB3521	FB3522	FB3521	8	130	0.0020	0.036891	0.000000	0.014822	1.01	0.15	0.22	0.036891	0.000000	0.014822	1.01	0.15	0.22	0.036891	0.000000	0.014822	1.01	0.15	0.22
FB3523-FB3522	FB3523	FB3522	8	131	0.0020	0.032496	0.000000	0.012913	0.97	0.14	0.21	0.032496	0.000000	0.012913	0.97	0.14	0.21	0.032496	0.000000	0.012913	0.97	0.14	0.21
FB3524-FB3523	FB3524	FB3523	8	103	0.0020	0.030777	0.000000	0.012172	0.96	0.13	0.20	0.030777	0.000000	0.012172	0.96	0.13	0.20	0.030777	0.000000	0.012172	0.96	0.13	0.20
FB3525-FB3524	FB3525	FB3524	8	259	0.0020	0.030192	0.000000	0.011921	0.95	0.13	0.20	0.030192	0.000000	0.011921	0.95	0.13	0.20	0.030192	0.000000	0.011921	0.95	0.13	0.20
FB3526-FB3525	FB3526	FB3525	8	294	0.0020	0.014492	0.000000	0.005368	0.77	0.09	0.14	0.014492	0.000000	0.005368	0.77	0.09	0.14	0.014492	0.000000	0.005368	0.77	0.09	0.14
FB3527-FB3526	FB3527	FB3526	8	125	0.0020	0.010439	0.000000	0.003758	0.69	0.08	0.12	0.010439	0.000000	0.003758	0.69	0.08	0.12	0.010439	0.000000	0.003758	0.69	0.08	0.12
FB3528-FB3527	FB3528	FB3527	8	166	0.0020	0.006934	0.000000	0.002409	0.61	0.07	0.10	0.006934	0.000000	0.002409	0.61	0.07	0.10	0.006934	0.000000	0.002409	0.61	0.07	0.10
FB3529-FB3528	FB3529	FB3528	8	153	0.0020	0.003945	0.000000	0.001305	0.51	0.05	0.07	0.003945	0.000000	0.001305	0.51	0.05	0.07	0.003945	0.000000	0.001305	0.51	0.05	0.07
FB3530-FB3527	FB3530	FB3527	8	136	0.0040	0.003125	0.000000	0.001013	0.61	0.04	0.06	0.003125	0.000000	0.001013	0.61	0.04	0.06	0.003125	0.000000	0.001013	0.61	0.04	0.06
FB3531-FB3526	FB3531	FB3526	8	92	0.0040	0.003037	0.000000	0.000982	0.61	0.04	0.06	0.003037	0.000000	0.000982	0.61	0.04	0.06	0.003037	0.000000	0.000982	0.61	0.04	0.06
FB3532-FB3525	FB3532	FB3525	8	254	0.0040	0.014722	0.000000	0.005461	0.98	0.08	0.12	0.014722	0.000000	0.005461	0.98	0.08	0.12	0.014722	0.000000	0.005461	0.98	0.08	0.12
FB3533-FB3532	FB3533	FB3532	8	338	0.0040	0.010265	0.000000	0.003690	0.88	0.07	0.10	0.010265	0.000000	0.003690	0.88	0.07	0.10	0.010265	0.000000	0.003690	0.88	0.07	0.10
FB3534-FB3503	FB3534	FB3503	8	850	0.0009	0.001424	0.000000	0.000431	0.29	0.04	0.06	0.001424	0.000000	0.000431	0.29	0.04	0.06	0.001424	0.000000	0.000431	0.29	0.04	0.06
FB3535-FB3502	FB3535	FB3502	8	633	0.0138	0.049792	0.000000	0.020534	2.18	0.11	0.16	0.049792	0.000000	0.020534	2.18	0.11	0.16	0.049792	0.000000	0.020534	2.18	0.11	0.16
FB3536-FB3535	FB3536	FB3535	8	249	0.0032	0.040162	0.000000	0.016256	1.22	0.14	0.20	0.040162	0.000000	0.016256	1.22	0.14	0.20	0.040162	0.000000	0.016256	1.22	0.14	0.20
FB3537-FB3536	FB3537	FB3536	8	249	0.0074	0.031775	0.000000	0.012602	1.53	0.10	0.15	0.031775	0.000000	0.012602	1.53	0.10	0.15	0.031775	0.000000	0.012602	1.53	0.10	0.15
FB3538-FB3537	FB3538	FB3537	8	87	0.0059	0.021435	0.000000	0.008215	1.25	0.09	0.13	0.021435	0.000000	0.008215	1.25	0.09	0.13	0.021435	0.000000	0.008215	1.25	0.09	0.13
FB3539-FB3537	FB3539	FB3537	6	494	0.0180	0.008224	0.000000	0.002900	1.44	0.05	0.09	0.008224	0.000000	0.002900	1.44	0.05	0.09	0.008224	0.000000	0.002900	1.44	0.05	0.09
FB3540-FB3536	FB3540	FB3536	6	200	0.0066	0.007887	0.000000	0.002771	1.01	0.06	0.11	0.007887	0.000000	0.002771	1.01	0.06	0.11	0.007887	0.000000	0.002771	1.01	0.06	0.11

City of Brea - Sewer Master Plan (November 2021)

Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
FB3541-FB3540	FB3541	FB3540	6	244	0.0321	0.005746	0.000000	0.001964	1.59	0.03	0.07	0.005746	0.000000	0.001964	1.59	0.03	0.07	0.005746	0.000000	0.001964	1.59	0.03	0.07
FB3542-FB3535	FB3542	FB3535	6	249	0.0060	0.006346	0.000000	0.002188	0.91	0.05	0.10	0.006346	0.000000	0.002188	0.91	0.05	0.10	0.006346	0.000000	0.002188	0.91	0.05	0.10
FB3543-FB3542	FB3543	FB3542	6	195	0.0492	0.004646	0.000000	0.001559	1.73	0.03	0.05	0.004646	0.000000	0.001559	1.73	0.03	0.05	0.004646	0.000000	0.001559	1.73	0.03	0.05
FB3544-FB3557	FB3544	FB3557	15	211	0.0040	0.580130	0.000000	0.296185	2.67	0.40	0.32	0.643953	0.000000	0.331767	2.75	0.42	0.34	0.643953	0.000000	0.331767	2.75	0.42	0.34
FB3545-FB3544	FB3545	FB3544	8	39	0.0018	0.029542	0.000000	0.011642	0.91	0.13	0.20	0.029542	0.000000	0.011642	0.91	0.13	0.20	0.029542	0.000000	0.011642	0.91	0.13	0.20
FB3546-FB3545	FB3546	FB3545	8	139	0.0055	0.007711	0.000000	0.002704	0.90	0.05	0.08	0.007711	0.000000	0.002704	0.90	0.05	0.08	0.007711	0.000000	0.002704	0.90	0.05	0.08
FB3547-FB3546	FB3547	FB3546	8	120	0.0040	0.006711	0.000000	0.002325	0.77	0.05	0.08	0.006711	0.000000	0.002325	0.77	0.05	0.08	0.006711	0.000000	0.002325	0.77	0.05	0.08
FB3548-FB3547	FB3548	FB3547	8	300	0.0293	0.004797	0.000000	0.001614	1.40	0.03	0.04	0.004797	0.000000	0.001614	1.40	0.03	0.04	0.004797	0.000000	0.001614	1.40	0.03	0.04
FB3549-FB3545	FB3549	FB3545	8	459	0.0181	0.023165	0.000000	0.008938	1.90	0.07	0.10	0.023165	0.000000	0.008938	1.90	0.07	0.10	0.023165	0.000000	0.008938	1.90	0.07	0.10
FB3550-FB3549	FB3550	FB3549	8	525	0.0025	0.021063	0.000000	0.008060	0.93	0.10	0.16	0.021063	0.000000	0.008060	0.93	0.10	0.16	0.021063	0.000000	0.008060	0.93	0.10	0.16
FB3551D-FB3550	FB3551D	FB3550	8	525	0.0025	0.013859	0.000000	0.005114	0.82	0.09	0.13	0.013859	0.000000	0.005114	0.82	0.09	0.13	0.013859	0.000000	0.005114	0.82	0.09	0.13
FB3552-FB3551D	FB3552	FB3551D	8	156	0.0026	0.006809	0.000000	0.002362	0.66	0.06	0.09	0.006809	0.000000	0.002362	0.66	0.06	0.09	0.006809	0.000000	0.002362	0.66	0.06	0.09
FB3553-FB3552	FB3553	FB3552	8	220	0.0025	0.005113	0.000000	0.001730	0.61	0.05	0.08	0.005113	0.000000	0.001730	0.61	0.05	0.08	0.005113	0.000000	0.001730	0.61	0.05	0.08
FB3554-FB3551D	FB3554	FB3551D	8	143	0.0101	0.002110	0.000000	0.000661	0.75	0.03	0.04	0.002110	0.000000	0.000661	0.75	0.03	0.04	0.002110	0.000000	0.000661	0.75	0.03	0.04
FB3555-FB3549	FB3555	FB3549	8	154	0.0026	0.000446	0.000000	0.000122	0.29	0.02	0.03	0.000446	0.000000	0.000122	0.29	0.02	0.03	0.000446	0.000000	0.000122	0.29	0.02	0.03
FB3556-FB3522	FB3556	FB3522	8	320	0.0020	0.004302	0.000000	0.001434	0.53	0.05	0.08	0.004302	0.000000	0.001434	0.53	0.05	0.08	0.004302	0.000000	0.001434	0.53	0.05	0.08
FB3557-FB4003	FB3557	FB4003	15	42	0.0029	0.580130	0.000000	0.296185	2.37	0.43	0.35	0.643953	0.000000	0.331767	2.44	0.46	0.37	0.643953	0.000000	0.331767	2.44	0.46	0.37
FB36-FB3601	FB36	FB3601	10	93	0.0016	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
FB3601-FB4004	FB3601	FB4004	12	89	0.0022	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
FB40-FB41	FB40	FB41	15	102	0.0015	1.567080	0.000000	0.872281	2.31	1.00	0.80	1.663594	0.000000	0.930828	2.10	1.25	1.00	3.284574	0.000000	1.949804	4.14	1.25	1.00
FB4001-FB40	FB4001	FB40	24	2	0.0050	1.567080	0.000000	0.872281	3.68	0.53	0.26	1.663594	0.000000	0.930828	3.74	0.54	0.27	3.284574	0.000000	1.949804	4.53	0.77	0.39
FB4002-FB4001	FB4002	FB4001	24	230	0.0020	1.567080	0.000000	0.872281	2.63	0.67	0.33	1.663594	0.000000	0.930828	2.67	0.69	0.35	3.284574	0.000000	1.949804	3.20	1.01	0.50
FB4003-FB4002	FB4003	FB4002	24	273	0.0020	1.567080	0.000000	0.872281	2.66	0.66	0.33	1.663594	0.000000	0.930828	2.70	0.69	0.34	3.284574	0.000000	1.949804	3.24	1.00	0.50
FB4004-FB4003	FB4004	FB4003	24	51	0.0020	1.069899	0.000000	0.576096	2.36	0.55	0.27	1.109075	0.000000	0.599061	2.39	0.56	0.28	2.766666	0.000000	1.618037	3.07	0.91	0.46
FB4005-FB4004	FB4005	FB4004	24	70	0.0029	1.069899	0.000000	0.576096	2.70	0.50	0.25	1.109075	0.000000	0.599061	2.73	0.51	0.25	2.766666	0.000000	1.618037	3.53	0.82	0.41
FB4006-FB4005	FB4006	FB4005	12	3	0.0040	0.194297	0.000000	0.090197	2.00	0.25	0.25	0.207572	0.000000	0.096915	2.04	0.25	0.25	0.861554	0.000000	0.455256	2.99	0.55	0.55
FB4007-FB4006	FB4007	FB4006	12	162	0.0037	0.194297	0.000000	0.090197	1.94	0.25	0.25	0.207572	0.000000	0.096915	1.98	0.26	0.26	0.861554	0.000000	0.455256	2.91	0.57	0.57
FB4008-FB4007	FB4008	FB4007	12	376	0.0035	0.194297	0.000000	0.090197	1.91	0.25	0.25	0.207572	0.000000	0.096915	1.94	0.26	0.26	0.861554	0.000000	0.455256	2.85	0.58	0.58
FB4009-FB4008	FB4009	FB4008	12	288	0.0034	0.194297	0.000000	0.090197	1.89	0.26	0.26	0.207572	0.000000	0.096915	1.93	0.26	0.26	0.861554	0.000000	0.455256	2.82	0.58	0.58
FB4010-FB4009	FB4010	FB4009	12	315	0.0034	0.194297	0.000000	0.090197	1.88	0.26	0.26	0.207572	0.000000	0.096915	1.92	0.27	0.27	0.861554	0.000000	0.455256	2.81	0.58	0.58
FB4011-FB4010	FB4011	FB4010	12	322	0.0045	0.194297	0.000000	0.090197	2.09	0.24	0.24	0.207572	0.000000	0.096915	2.13	0.25	0.25	0.861554	0.000000	0.455256	3.14	0.53	0.53
FB4012-FA31	FB4012	FA31	15	87	0.0048	0.741209	0.000000	0.393572	3.06	0.43	0.34	0.767474	0.000000	0.408979	3.09	0.44	0.35	1.837622	0.000000	1.069614	3.88	0.72	0.58
FB4012-FB4011	FB4012	FB4011	12	3	0.0040	0.169868	0.000000	0.090197	1.92	0.23	0.23	0.181868	0.000000	0.096915	1.96	0.24	0.24	0.782139	0.000000	0.455256	2.93	0.52	0.52
FB4013-FA30	FB4013	FA30	15	287	0.0059	0.911067	0.000000	0.483764	3.49	0.46	0.36	0.949338	0.000000	0.505892	3.53	0.47	0.37	2.619755	0.000000	1.524866	4.51	0.86	0.69
FB41-FB42	FB41	FB42	27	8	0.0125	1.632568	0.000000	0.911974	5.09	0.41	0.18	1.728749	0.000000	0.970521	5.17	0.42	0.19	3.346041	0.000000	1.989497	6.27	0.59	0.26
FB4101-FB41	FB4101	FB41	15	13	0.0562	0.091307	0.000000	0.039693	3.92	0.08	0.07	0.091307	0.000000	0.039693	3.92	0.08	0.07	0.091307	0.000000	0.039693	3.92	0.08	0.07
FB4102-FB4101	FB4102	FB4101	15	410	0.0013	0.091307	0.000000	0.039693	1.05	0.21	0.17	0.091307	0.000000	0.039693	1.05	0.21	0.17	0.091307	0.000000	0.039693	1.05	0.21	0.17
FB4103-FB4102	FB4103	FB4102	15	161	0.0012	0.054789	0.000000	0.022783	0.89	0.16	0.13	0.054789	0.000000	0.022783	0.89	0.16	0.13	0.054789	0.000000	0.022783	0.89	0.16	0.13
FB4104-FB4102	FB4104	FB4102	6	130	0.0145	0.041647	0.000000	0.016910	2.17	0.10	0.21	0.041647	0.000000	0.016910	2.17	0.10	0.21	0.041647	0.000000	0.016910	2.17	0.10	0.21
FB4105D-FB4104	FB4105D	FB4104	6	49	0.1020	0.041647	0.000000	0.016910	4.32	0.06	0.13	0.041647	0.000000	0.016910	4.32	0.06	0.13	0.041647	0.000000	0.016910	4.32	0.06	0.13
FB4106-FB4105D	FB4106	FB4105D	6	281	0.0100	0.041647	0.000000	0.016910	1.90	0.11	0.23	0.041647	0.000000	0.016910	1.90	0.11	0.23	0.041647	0.000000	0.016910	1.90	0.11	0.23
FB4107-FB4106	FB4107	FB4106	6	185	0.0324	0.039211	0.000000	0.015838	2.84	0.08	0.17	0.039211	0.000000	0.015838	2.84	0.08	0.17	0.039211	0.000000	0.015838	2.84	0.08	0.17
FB4108-FB4107	FB4108	FB4107	6	591	0.0142	0.038222	0.000000	0.015404	2.11	0.10	0.20	0.038222	0.000000	0.015404	2.11	0.10	0.20	0.038222	0.000000	0.015404	2.11	0.10	0.20
FB42-FB43	FB42	FB43	27	116	0.0016	1.632568	0.000000	0.911974	2.42	0.69	0.31	1.728749	0.000000	0.970521	2.46	0.71	0.32	3.346041	0.000000	1.989497	2.95	1.02	0.45
FB43-FB44	FB43	FB44	27	341	0.0016	1.632568	0.000000	0.911974	2.46	0.69	0.31	1.728749	0.000000	0.970521	2.50	0.71	0.31	3.346041	0.000000	1.989497	2.99	1.01	0.45
FB44-FB45	FB44	FB45	27	392	0.0008																		

City of Brea - Sewer Master Plan (November 2021)

Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
FB45-FB55	FB45	FB55	27	204	0.0012	1.632568	0.000000	0.911974	2.23	0.74	0.33	1.728749	0.000000	0.970521	2.26	0.76	0.34	3.346041	0.000000	1.989497	2.70	1.09	0.49
FB4701-FB55	FB4701	FB55	15	59	0.0158	0.123837	0.000000	0.055280	2.76	0.13	0.11	0.123837	0.000000	0.055280	2.76	0.13	0.11	0.123837	0.000000	0.055280	2.76	0.13	0.11
FB4702-FB4701	FB4702	FB4701	15	238	0.0009	0.123837	0.000000	0.055280	1.00	0.27	0.21	0.123837	0.000000	0.055280	1.00	0.27	0.21	0.123837	0.000000	0.055280	1.00	0.27	0.21
FB4703-FB4702	FB4703	FB4702	8	381	0.0635	0.012127	0.000000	0.004423	2.42	0.04	0.06	0.012127	0.000000	0.004423	2.42	0.04	0.06	0.012127	0.000000	0.004423	2.42	0.04	0.06
FB4704-FB4703	FB4704	FB4703	8	282	0.0029	0.012127	0.000000	0.004423	0.83	0.08	0.12	0.012127	0.000000	0.004423	0.83	0.08	0.12	0.012127	0.000000	0.004423	0.83	0.08	0.12
FB4705-FB4704	FB4705	FB4704	8	8	0.0450	0.011568	0.000000	0.004202	2.12	0.04	0.06	0.011568	0.000000	0.004202	2.12	0.04	0.06	0.011568	0.000000	0.004202	2.12	0.04	0.06
FB4706-FB4705	FB4706	FB4705	8	530	0.0009	0.011568	0.000000	0.004202	0.55	0.10	0.15	0.011568	0.000000	0.004202	0.55	0.10	0.15	0.011568	0.000000	0.004202	0.55	0.10	0.15
FB4707-FB4702	FB4707	FB4702	15	466	0.0009	0.114691	0.000000	0.050857	0.99	0.25	0.20	0.114691	0.000000	0.050857	0.99	0.25	0.20	0.114691	0.000000	0.050857	0.99	0.25	0.20
FB4708-FB4707	FB4708	FB4707	6	171	0.0819	0.012789	0.000000	0.004686	2.80	0.04	0.08	0.012789	0.000000	0.004686	2.80	0.04	0.08	0.012789	0.000000	0.004686	2.80	0.04	0.08
FB4709-FB4708	FB4709	FB4708	6	520	0.0396	0.012789	0.000000	0.004686	2.18	0.05	0.09	0.012789	0.000000	0.004686	2.18	0.05	0.09	0.012789	0.000000	0.004686	2.18	0.05	0.09
FB4710-FB4709	FB4710	FB4709	6	259	0.0066	0.006015	0.000000	0.002064	0.92	0.05	0.10	0.006015	0.000000	0.002064	0.92	0.05	0.10	0.006015	0.000000	0.002064	0.92	0.05	0.10
FB4711-FB4707	FB4711	FB4707	8	161	0.0199	0.104932	0.000000	0.046171	3.08	0.14	0.21	0.104932	0.000000	0.046171	3.08	0.14	0.21	0.104932	0.000000	0.046171	3.08	0.14	0.21
FB4712-FB4711	FB4712	FB4711	8	28	0.0089	0.103785	0.000000	0.045623	2.31	0.17	0.25	0.103785	0.000000	0.045623	2.31	0.17	0.25	0.103785	0.000000	0.045623	2.31	0.17	0.25
FB4713-FB4712	FB4713	FB4712	6	30	0.0950	0.010255	0.000000	0.003686	2.76	0.03	0.07	0.010255	0.000000	0.003686	2.76	0.03	0.07	0.010255	0.000000	0.003686	2.76	0.03	0.07
FB4714-FB4713	FB4714	FB4713	6	180	0.0939	0.010255	0.000000	0.003686	2.75	0.03	0.07	0.010255	0.000000	0.003686	2.75	0.03	0.07	0.010255	0.000000	0.003686	2.75	0.03	0.07
FB4715-FB4714	FB4715	FB4714	6	161	0.0124	0.003139	0.000000	0.001018	0.95	0.03	0.06	0.003139	0.000000	0.001018	0.95	0.03	0.06	0.003139	0.000000	0.001018	0.95	0.03	0.06
FB4716-FB4712	FB4716	FB4712	8	256	0.0085	0.096045	0.000000	0.041937	2.22	0.16	0.25	0.096045	0.000000	0.041937	2.22	0.16	0.25	0.096045	0.000000	0.041937	2.22	0.16	0.25
FB4717-FB4716	FB4717	FB4716	8	95	0.0104	0.094951	0.000000	0.041418	2.38	0.16	0.23	0.094951	0.000000	0.041418	2.38	0.16	0.23	0.094951	0.000000	0.041418	2.38	0.16	0.23
FB4718-FB4717	FB4718	FB4717	6	276	0.0746	0.003680	0.000000	0.001210	1.86	0.02	0.04	0.003680	0.000000	0.001210	1.86	0.02	0.04	0.003680	0.000000	0.001210	1.86	0.02	0.04
FB4720D-FB4717	FB4720D	FB4717	8	146	0.0095	0.091859	0.000000	0.039954	2.28	0.16	0.23	0.091859	0.000000	0.039954	2.28	0.16	0.23	0.091859	0.000000	0.039954	2.28	0.16	0.23
FB4721D-FB4720D	FB4721D	FB4720D	8	10	0.0200	0.088289	0.000000	0.038269	2.94	0.13	0.19	0.088289	0.000000	0.038269	2.94	0.13	0.19	0.088289	0.000000	0.038269	2.94	0.13	0.19
FB4724-FB4720D	FB4724	FB4720D	6	476	0.0133	0.004652	0.000000	0.001561	1.10	0.04	0.07	0.004652	0.000000	0.001561	1.10	0.04	0.07	0.004652	0.000000	0.001561	1.10	0.04	0.07
FB4725-FB4721D	FB4725	FB4721D	8	272	0.0092	0.088289	0.000000	0.038269	2.23	0.15	0.23	0.088289	0.000000	0.038269	2.23	0.15	0.23	0.088289	0.000000	0.038269	2.23	0.15	0.23
FB4726-FB4725	FB4726	FB4725	8	274	0.0095	0.088289	0.000000	0.038269	2.26	0.15	0.23	0.088289	0.000000	0.038269	2.26	0.15	0.23	0.088289	0.000000	0.038269	2.26	0.15	0.23
FB4727-FB4726	FB4727	FB4726	8	176	0.0611	0.018379	0.000000	0.006950	2.71	0.05	0.07	0.018379	0.000000	0.006950	2.71	0.05	0.07	0.018379	0.000000	0.006950	2.71	0.05	0.07
FB4728-FB4727	FB4728	FB4727	8	325	0.0185	0.017249	0.000000	0.006487	1.75	0.06	0.09	0.017249	0.000000	0.006487	1.75	0.06	0.09	0.017249	0.000000	0.006487	1.75	0.06	0.09
FB4729-FB4728	FB4729	FB4728	8	330	0.0091	0.008802	0.000000	0.003122	1.12	0.05	0.08	0.008802	0.000000	0.003122	1.12	0.05	0.08	0.008802	0.000000	0.003122	1.12	0.05	0.08
FB4730-FB4726	FB4730	FB4726	8	272	0.0285	0.073423	0.000000	0.031319	3.15	0.11	0.16	0.073423	0.000000	0.031319	3.15	0.11	0.16	0.073423	0.000000	0.031319	3.15	0.11	0.16
FB4731-FB4730	FB4731	FB4730	8	277	0.0097	0.073423	0.000000	0.031319	2.16	0.14	0.21	0.073423	0.000000	0.031319	2.16	0.14	0.21	0.073423	0.000000	0.031319	2.16	0.14	0.21
FB4732D-FB4731	FB4732D	FB4731	8	279	0.0076	0.073423	0.000000	0.031319	1.97	0.15	0.22	0.073423	0.000000	0.031319	1.97	0.15	0.22	0.073423	0.000000	0.031319	1.97	0.15	0.22
FB4733-FB4732D	FB4733	FB4732D	8	371	0.0076	0.003114	0.000000	0.001009	0.76	0.03	0.05	0.003114	0.000000	0.001009	0.76	0.03	0.05	0.003114	0.000000	0.001009	0.76	0.03	0.05
FB4734-FB4732D	FB4734	FB4732D	8	120	0.0149	0.023896	0.000000	0.009245	1.80	0.07	0.11	0.023896	0.000000	0.009245	1.80	0.07	0.11	0.023896	0.000000	0.009245	1.80	0.07	0.11
FB4735-FB4734	FB4735	FB4734	8	108	0.0040	0.004073	0.000000	0.001351	0.66	0.04	0.06	0.004073	0.000000	0.001351	0.66	0.04	0.06	0.004073	0.000000	0.001351	0.66	0.04	0.06
FB4736-FB4735	FB4736	FB4735	8	59	0.0041	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
FB4737-FB4736	FB4737	FB4736	8	89	0.0040	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
FB4738-FB4732D	FB4738	FB4732D	8	240	0.0111	0.050976	0.000000	0.021065	2.03	0.11	0.17	0.050976	0.000000	0.021065	2.03	0.11	0.17	0.050976	0.000000	0.021065	2.03	0.11	0.17
FB4739-FB4738	FB4739	FB4738	8	67	0.0112	0.044982	0.000000	0.018387	1.96	0.11	0.16	0.044982	0.000000	0.018387	1.96	0.11	0.16	0.044982	0.000000	0.018387	1.96	0.11	0.16
FB4740-FB4739	FB4740	FB4739	8	279	0.0041	0.044982	0.000000	0.018387	1.37	0.14	0.20	0.044982	0.000000	0.018387	1.37	0.14	0.20	0.044982	0.000000	0.018387	1.37	0.14	0.20
FB4741-FB4740	FB4741	FB4740	8	131	0.0042	0.043239	0.000000	0.017614	1.37	0.13	0.20	0.043239	0.000000	0.017614	1.37	0.13	0.20	0.043239	0.000000	0.017614	1.37	0.13	0.20
FB4742-FB4741	FB4742	FB4741	8	80	0.0046	0.043239	0.000000	0.017614	1.42	0.13	0.19	0.043239	0.000000	0.017614	1.42	0.13	0.19	0.043239	0.000000	0.017614	1.42	0.13	0.19
FB4743-FB4742	FB4743	FB4742	8	126	0.0045	0.038687	0.000000	0.015608	1.36	0.12	0.18	0.038687	0.000000	0.015608	1.36	0.12	0.18	0.038687	0.000000	0.015608	1.36	0.12	0.18
FB4744-FB4743	FB4744	FB4743	8	185	0.0047	0.038687	0.000000	0.015608	1.38	0.12	0.18	0.038687	0.000000	0.015608	1.38	0.12	0.18	0.038687	0.000000	0.015608	1.38	0.12	0.18
FB4745-FB4744	FB4745	FB4744	8	100	0.0108	0.020283	0.000000	0.007736	1.53	0.07	0.11	0.020283	0.000000	0.007736	1.53	0.07	0.11	0.020283	0.000000	0.007736	1.53	0.07	0.11
FB4746-FB4745	FB4746	FB4745	8	75	0.0105	0.015635	0.000000	0.005830	1.40	0.06	0.10	0.015635	0.000000	0.005830	1.40	0.06	0.10	0.015635	0.000000	0.005830	1.40	0.06	0.10
FB4747-FB4746	FB4747	FB4746	8	180	0.0105	0.015635	0.000000	0.005830	1.40	0.06	0.10	0.015635	0.000000	0.005830	1.40	0.06	0.10	0.015635	0.000000	0.005830	1.40	0.06	0.10
FB4748-FB4747	FB4748																						

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Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
FB4749-FB4748	FB4749	FB4748	8	92	0.0070	0.009690	0.000000	0.003466	1.05	0.06	0.09	0.009690	0.000000	0.003466	1.05	0.06	0.09	0.009690	0.000000	0.003466	1.05	0.06	0.09
FB4750-FB4749	FB4750	FB4749	8	164	0.0054	0.004887	0.000000	0.001647	0.78	0.04	0.07	0.004887	0.000000	0.001647	0.78	0.04	0.07	0.004887	0.000000	0.001647	0.78	0.04	0.07
FB4751-FB4750	FB4751	FB4750	8	169	0.0100	0.003176	0.000000	0.001031	0.85	0.03	0.05	0.003176	0.000000	0.001031	0.85	0.03	0.05	0.003176	0.000000	0.001031	0.85	0.03	0.05
FB4752-FB4751	FB4752	FB4751	8	75	0.0100	0.000818	0.000000	0.000236	0.56	0.02	0.02	0.000818	0.000000	0.000236	0.56	0.02	0.02	0.000818	0.000000	0.000236	0.56	0.02	0.02
FB4753-FB4750	FB4753	FB4750	8	71	0.0087	0.000673	0.000000	0.000191	0.50	0.02	0.02	0.000673	0.000000	0.000191	0.50	0.02	0.02	0.000673	0.000000	0.000191	0.50	0.02	0.02
FB4754-FB4749	FB4754	FB4749	8	71	0.0576	0.001292	0.000000	0.000388	1.18	0.01	0.02	0.001292	0.000000	0.000388	1.18	0.01	0.02	0.001292	0.000000	0.000388	1.18	0.01	0.02
FB4755-FB4749	FB4755	FB4749	8	164	0.0201	0.003978	0.000000	0.001317	1.16	0.03	0.04	0.003978	0.000000	0.001317	1.16	0.03	0.04	0.003978	0.000000	0.001317	1.16	0.03	0.04
FB4756-FB4744	FB4756	FB4744	8	271	0.0291	0.012407	0.000000	0.004534	1.86	0.05	0.07	0.012407	0.000000	0.004534	1.86	0.05	0.07	0.012407	0.000000	0.004534	1.86	0.05	0.07
FB4757-FB4756	FB4757	FB4756	8	340	0.0146	0.012407	0.000000	0.004534	1.46	0.05	0.08	0.012407	0.000000	0.004534	1.46	0.05	0.08	0.012407	0.000000	0.004534	1.46	0.05	0.08
FB4758-FB4757	FB4758	FB4757	8	198	0.0072	0.002645	0.000000	0.000845	0.71	0.03	0.05	0.002645	0.000000	0.000845	0.71	0.03	0.05	0.002645	0.000000	0.000845	0.71	0.03	0.05
FB4759-FB4757	FB4759	FB4757	8	61	0.0098	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
FB4760-FB4738	FB4760	FB4738	8	21	0.0090	0.007643	0.000000	0.002678	1.07	0.05	0.07	0.007643	0.000000	0.002678	1.07	0.05	0.07	0.007643	0.000000	0.002678	1.07	0.05	0.07
FB4761D-FB4760	FB4761D	FB4760	8	107	0.0097	0.007643	0.000000	0.002678	1.10	0.05	0.07	0.007643	0.000000	0.002678	1.10	0.05	0.07	0.007643	0.000000	0.002678	1.10	0.05	0.07
FB4762-FB4761D	FB4762	FB4761D	8	226	0.0043	0.007643	0.000000	0.002678	0.83	0.06	0.08	0.007643	0.000000	0.002678	0.83	0.06	0.08	0.007643	0.000000	0.002678	0.83	0.06	0.08
FB48-FB49	FB48	FB49	15	308	0.0016	1.723384	0.000000	0.967247	2.17	1.25	1.00	1.717555	0.000000	0.963692	2.17	1.25	1.00	1.807007	0.000000	1.018368	2.28	1.25	1.00
FB49-FB50D	FB49	FB50D	15	39	0.0018	1.723384	0.000000	0.967247	2.55	0.99	0.80	1.717555	0.000000	0.963692	2.55	0.99	0.79	1.807007	0.000000	1.018368	2.28	1.25	1.00
FB5001-FB50D	FB5001	FB50D	6	371	0.0080	0.001889	0.000000	0.000586	0.70	0.03	0.05	0.001889	0.000000	0.000586	0.70	0.03	0.05	0.001889	0.000000	0.000586	0.70	0.03	0.05
FB50D-FB51	FB50D	FB51	15	725	0.0016	1.728635	0.000000	0.970451	2.18	1.25	1.00	1.722808	0.000000	0.966896	2.17	1.25	1.00	1.812237	0.000000	1.021572	2.28	1.25	1.00
FB51-FB52	FB51	FB52	15	454	0.0010	1.730733	0.000000	0.971731	2.18	1.25	1.00	1.724906	0.000000	0.968176	2.17	1.25	1.00	1.814326	0.000000	1.022852	2.29	1.25	1.00
FB52-FB53D	FB52	FB53D	15	310	0.0035	1.811736	0.000000	1.021265	3.40	0.80	0.64	1.805933	0.000000	1.017710	3.40	0.79	0.63	1.895006	0.000000	1.072386	3.43	0.82	0.66
FB5201-FB52	FB5201	FB52	8	15	0.0100	0.005800	0.000000	0.001984	1.02	0.04	0.06	0.005800	0.000000	0.001984	1.02	0.04	0.06	0.005800	0.000000	0.001984	1.02	0.04	0.06
FB5202-FB5201	FB5202	FB5201	8	482	0.0072	0.004786	0.000000	0.001610	0.86	0.04	0.06	0.004786	0.000000	0.001610	0.86	0.04	0.06	0.004786	0.000000	0.001610	0.86	0.04	0.06
FB5203-FB5201	FB5203	FB5201	8	71	0.0039	0.001249	0.000000	0.000374	0.46	0.02	0.04	0.001249	0.000000	0.000374	0.46	0.02	0.04	0.001249	0.000000	0.000374	0.46	0.02	0.04
FB5204D-FB52	FB5204D	FB52	8	198	0.0020	0.105174	0.000000	0.046287	1.35	0.25	0.38	0.105174	0.000000	0.046287	1.35	0.25	0.38	0.105174	0.000000	0.046287	1.35	0.25	0.38
FB5205-FB5204D	FB5205	FB5204D	8	315	0.0017	0.102014	0.000000	0.044777	1.26	0.26	0.39	0.102014	0.000000	0.044777	1.26	0.26	0.39	0.102014	0.000000	0.044777	1.26	0.26	0.39
FB5206-FB5205	FB5206	FB5205	8	310	0.0021	0.076602	0.000000	0.032796	1.27	0.21	0.31	0.076602	0.000000	0.032796	1.27	0.21	0.31	0.076602	0.000000	0.032796	1.27	0.21	0.31
FB5207-FB5206	FB5207	FB5206	8	300	0.0025	0.063534	0.000000	0.026762	1.28	0.18	0.27	0.063534	0.000000	0.026762	1.28	0.18	0.27	0.063534	0.000000	0.026762	1.28	0.18	0.27
FB5208-FB5207	FB5208	FB5207	8	228	0.0025	0.014931	0.000000	0.005545	0.83	0.09	0.13	0.014931	0.000000	0.005545	0.83	0.09	0.13	0.014931	0.000000	0.005545	0.83	0.09	0.13
FB5209-FB5208	FB5209	FB5208	8	189	0.0025	0.011114	0.000000	0.004023	0.76	0.08	0.12	0.011114	0.000000	0.004023	0.76	0.08	0.12	0.011114	0.000000	0.004023	0.76	0.08	0.12
FB5210-FB5209	FB5210	FB5209	8	228	0.0025	0.008073	0.000000	0.002842	0.69	0.07	0.10	0.008073	0.000000	0.002842	0.69	0.07	0.10	0.008073	0.000000	0.002842	0.69	0.07	0.10
FB5211-FB5210	FB5211	FB5210	8	149	0.0025	0.004286	0.000000	0.001428	0.57	0.05	0.07	0.004286	0.000000	0.001428	0.57	0.05	0.07	0.004286	0.000000	0.001428	0.57	0.05	0.07
FB5212-FB5207	FB5212	FB5207	8	285	0.0025	0.047111	0.000000	0.019335	1.17	0.16	0.23	0.047111	0.000000	0.019335	1.17	0.16	0.23	0.047111	0.000000	0.019335	1.17	0.16	0.23
FB5213-FB5212	FB5213	FB5212	8	138	0.0025	0.045214	0.000000	0.018490	1.15	0.15	0.23	0.045214	0.000000	0.018490	1.15	0.15	0.23	0.045214	0.000000	0.018490	1.15	0.15	0.23
FB5214-FB5213	FB5214	FB5213	8	71	0.0024	0.040724	0.000000	0.016503	1.11	0.15	0.22	0.040724	0.000000	0.016503	1.11	0.15	0.22	0.040724	0.000000	0.016503	1.11	0.15	0.22
FB5215-FB5214	FB5215	FB5214	8	200	0.0023	0.040287	0.000000	0.016311	1.08	0.15	0.22	0.040287	0.000000	0.016311	1.08	0.15	0.22	0.040287	0.000000	0.016311	1.08	0.15	0.22
FB5216-FB5215	FB5216	FB5215	8	110	0.0027	0.036848	0.000000	0.014803	1.12	0.14	0.20	0.036848	0.000000	0.014803	1.12	0.14	0.20	0.036848	0.000000	0.014803	1.12	0.14	0.20
FB5217-FB5216	FB5217	FB5216	8	157	0.0025	0.035099	0.000000	0.014041	1.07	0.14	0.20	0.035099	0.000000	0.014041	1.07	0.14	0.20	0.035099	0.000000	0.014041	1.07	0.14	0.20
FB5218-FB5217	FB5218	FB5217	8	358	0.0232	0.022659	0.000000	0.008726	2.06	0.06	0.10	0.022659	0.000000	0.008726	2.06	0.06	0.10	0.022659	0.000000	0.008726	2.06	0.06	0.10
FB5219-FB5218	FB5219	FB5218	8	290	0.0086	0.014978	0.000000	0.005564	1.29	0.07	0.10	0.014978	0.000000	0.005564	1.29	0.07	0.10	0.014978	0.000000	0.005564	1.29	0.07	0.10
FB5220-FB5219	FB5220	FB5219	8	290	0.0086	0.010311	0.000000	0.003708	1.15	0.06	0.08	0.010311	0.000000	0.003708	1.15	0.06	0.08	0.010311	0.000000	0.003708	1.15	0.06	0.08
FB5221-FB5220	FB5221	FB5220	8	172	0.0046	0.005821	0.000000	0.001992	0.78	0.05	0.07	0.005821	0.000000	0.001992	0.78	0.05	0.07	0.005821	0.000000	0.001992	0.78	0.05	0.07
FB5222-FB5213	FB5222	FB5213	8	176	0.0023	0.003660	0.000000	0.001203	0.53	0.05	0.07	0.003660	0.000000	0.001203	0.53	0.05	0.07	0.003660	0.000000	0.001203	0.53	0.05	0.07
FB5223-FB5215	FB5223	FB5215	8	138	0.0050	0.003119	0.000000	0.001011	0.66	0.04	0.05	0.003119	0.000000	0.001011	0.66	0.04	0.05	0.003119	0.000000	0.001011	0.66	0.04	0.05
FB5224-FB5217	FB5224	FB5217	8	307	0.0208	0.013202	0.000000	0.004851	1.68	0.05	0.08	0.013202	0.000000	0.004851	1.68	0.05	0.08	0.013202	0.000000	0.004851	1.68	0.05	0.08
FB5225-FB5224	FB5225	FB5224	8	354	0.0032	0.011862	0.000000	0.004318	0.85	0.08	0.11	0.011862	0.000000	0.004318	0.85	0.08	0.11	0.011862	0.000000	0.004318	0.85	0.08	0.11
FB5226-FB5225	FB5226	FB5225	8	87	0.0032																		

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Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
FB5227-FB5206	FB5227	FB5206	8	149	0.0090	0.013297	0.000000	0.004889	1.26	0.06	0.09	0.013297	0.000000	0.004889	1.26	0.06	0.09	0.013297	0.000000	0.004889	1.26	0.06	0.09
FB5228-FB5227	FB5228	FB5227	8	367	0.0180	0.012059	0.000000	0.004396	1.56	0.05	0.08	0.012059	0.000000	0.004396	1.56	0.05	0.08	0.012059	0.000000	0.004396	1.56	0.05	0.08
FB5229-FB5228	FB5229	FB5228	8	367	0.0151	0.007185	0.000000	0.002504	1.25	0.04	0.06	0.007185	0.000000	0.002504	1.25	0.04	0.06	0.007185	0.000000	0.002504	1.25	0.04	0.06
FB5230-FB5205	FB5230	FB5205	8	112	0.0110	0.026212	0.000000	0.010223	1.66	0.08	0.12	0.026212	0.000000	0.010223	1.66	0.08	0.12	0.026212	0.000000	0.010223	1.66	0.08	0.12
FB5231-FB5230	FB5231	FB5230	8	300	0.0100	0.024281	0.000000	0.009407	1.57	0.08	0.12	0.024281	0.000000	0.009407	1.57	0.08	0.12	0.024281	0.000000	0.009407	1.57	0.08	0.12
FB5232-FB5231	FB5232	FB5231	8	385	0.0100	0.020581	0.000000	0.007860	1.49	0.07	0.11	0.020581	0.000000	0.007860	1.49	0.07	0.11	0.020581	0.000000	0.007860	1.49	0.07	0.11
FB5233-FB5232	FB5233	FB5232	8	164	0.0120	0.014608	0.000000	0.005415	1.43	0.06	0.09	0.014608	0.000000	0.005415	1.43	0.06	0.09	0.014608	0.000000	0.005415	1.43	0.06	0.09
FB5234-FB5233	FB5234	FB5233	8	248	0.0040	0.013085	0.000000	0.004804	0.94	0.07	0.11	0.013085	0.000000	0.004804	0.94	0.07	0.11	0.013085	0.000000	0.004804	0.94	0.07	0.11
FB5235-FB5234	FB5235	FB5234	8	143	0.0348	0.009944	0.000000	0.003565	1.85	0.04	0.06	0.009944	0.000000	0.003565	1.85	0.04	0.06	0.009944	0.000000	0.003565	1.85	0.04	0.06
FB5236-FB5235	FB5236	FB5235	8	533	0.0090	0.006378	0.000000	0.002200	1.01	0.04	0.07	0.006378	0.000000	0.002200	1.01	0.04	0.07	0.006378	0.000000	0.002200	1.01	0.04	0.07
FB5237-FB5235	FB5237	FB5235	8	144	0.0025	0.002883	0.000000	0.000928	0.51	0.04	0.06	0.002883	0.000000	0.000928	0.51	0.04	0.06	0.002883	0.000000	0.000928	0.51	0.04	0.06
FB5238-FB5233	FB5238	FB5233	8	59	0.0119	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
FB5239-FB5204D	FB5239	FB5204D	8	264	0.0039	0.003599	0.000000	0.001181	0.64	0.04	0.06	0.003599	0.000000	0.001181	0.64	0.04	0.06	0.003599	0.000000	0.001181	0.64	0.04	0.06
FB5301-FB53D	FB5301	FB53D	8	10	0.0040	0.031165	0.000000	0.012339	1.22	0.11	0.17	0.031165	0.000000	0.012339	1.22	0.11	0.17	0.031165	0.000000	0.012339	1.22	0.11	0.17
FB5302-FB5301	FB5302	FB5301	8	266	0.0031	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
FB5303-FB5301	FB5303	FB5301	8	476	0.0111	0.031165	0.000000	0.012339	1.75	0.09	0.13	0.031165	0.000000	0.012339	1.75	0.09	0.13	0.031165	0.000000	0.012339	1.75	0.09	0.13
FB5304-FB5303	FB5304	FB5303	8	612	0.0072	0.029588	0.000000	0.011662	1.48	0.10	0.14	0.029588	0.000000	0.011662	1.48	0.10	0.14	0.029588	0.000000	0.011662	1.48	0.10	0.14
FB5305-FB5304	FB5305	FB5304	8	74	0.0072	0.017589	0.000000	0.006626	1.27	0.07	0.11	0.017589	0.000000	0.006626	1.27	0.07	0.11	0.017589	0.000000	0.006626	1.27	0.07	0.11
FB5306-FB5305	FB5306	FB5305	8	171	0.0066	0.016722	0.000000	0.006272	1.21	0.07	0.11	0.016722	0.000000	0.006272	1.21	0.07	0.11	0.016722	0.000000	0.006272	1.21	0.07	0.11
FB5307-FB5306	FB5307	FB5306	8	459	0.0071	0.015096	0.000000	0.005612	1.21	0.07	0.10	0.015096	0.000000	0.005612	1.21	0.07	0.10	0.015096	0.000000	0.005612	1.21	0.07	0.10
FB5308-FB5305	FB5308	FB5305	8	149	0.0410	0.001188	0.000000	0.000354	1.02	0.01	0.02	0.001188	0.000000	0.000354	1.02	0.01	0.02	0.001188	0.000000	0.000354	1.02	0.01	0.02
FB53D-FB54D	FB53D	FB54D	15	340	0.0020	1.836208	0.000000	1.036268	2.71	1.00	0.80	1.830411	0.000000	1.032713	2.71	0.99	0.79	1.919383	0.000000	1.087389	2.42	1.25	1.00
FB5401-FB54D	FB5401	FB54D	8	495	0.0104	0.020733	0.000000	0.007923	1.52	0.07	0.11	0.020733	0.000000	0.007923	1.52	0.07	0.11	0.020733	0.000000	0.007923	1.52	0.07	0.11
FB5402-FB5401	FB5402	FB5401	8	605	0.0109	0.017291	0.000000	0.006504	1.46	0.07	0.10	0.017291	0.000000	0.006504	1.46	0.07	0.10	0.017291	0.000000	0.006504	1.46	0.07	0.10
FB5403-FB5402	FB5403	FB5402	8	320	0.0077	0.003677	0.000000	0.001209	0.81	0.04	0.05	0.003677	0.000000	0.001209	0.81	0.04	0.05	0.003677	0.000000	0.001209	0.81	0.04	0.05
FB5404-FB5403	FB5404	FB5403	8	139	0.0228	0.003054	0.000000	0.000988	1.11	0.02	0.04	0.003054	0.000000	0.000988	1.11	0.02	0.04	0.003054	0.000000	0.000988	1.11	0.02	0.04
FB5405-FB5404	FB5405	FB5404	8	121	0.0038	0.001135	0.000000	0.000337	0.44	0.02	0.04	0.001135	0.000000	0.000337	0.44	0.02	0.04	0.001135	0.000000	0.000337	0.44	0.02	0.04
FB5406-FB5405	FB5406	FB5405	8	346	0.0046	0.000453	0.000000	0.000124	0.36	0.01	0.02	0.000453	0.000000	0.000124	0.36	0.01	0.02	0.000453	0.000000	0.000124	0.36	0.01	0.02
FB5407-FB5406	FB5407	FB5406	8	346	0.0042	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
FB54D-OUTLETF	FB54D	OUT_FULLER TON	15	25	0.0020	1.849120	0.000000	1.044191	2.69	1.01	0.81	1.843327	0.000000	1.040636	2.69	1.01	0.81	1.932246	0.000000	1.095312	2.44	1.25	1.00
FB55-FB56	FB55	FB56	27	336	0.0013	1.723394	0.000000	0.967254	2.30	0.75	0.33	1.819137	0.000000	1.025801	2.33	0.77	0.34	3.431482	0.000000	2.044777	2.76	1.10	0.49
FB56-FB48	FB56	FB48	15	24	0.0017	1.723383	0.000000	0.967247	2.17	1.25	1.00	1.708994	0.000000	0.963692	2.15	1.25	1.00	1.708994	0.000000	1.018368	2.15	1.25	1.00
FB56-WWFBPS	FB56	Brea_Creek_LS	15	43	0.0089	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.110154	0.000000	0.062115	2.18	0.14	0.11	1.722502	0.000000	1.026418	4.81	0.58	0.46
FB57-FB58	FB57	FB58	15	263	0.0038	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.137857	0.000000	0.062115	1.73	0.20	0.16	1.820143	0.000000	1.026418	3.53	0.77	0.62
FB58-FB59	FB58	FB59	15	59	0.0606	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.137857	0.000000	0.062115	4.56	0.10	0.08	1.820143	0.000000	1.026418	9.79	0.36	0.28
FB59-FB60	FB59	FB60	15	250	0.0200	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.137857	0.000000	0.062115	3.10	0.13	0.11	1.820143	0.000000	1.026418	6.57	0.48	0.38
FB60-FB61	FB60	FB61	15	433	0.0020	0.009366	0.000000	0.003340	0.61	0.06	0.05	0.144662	0.000000	0.065455	1.40	0.24	0.19	1.825592	0.000000	1.029758	2.68	1.00	0.80
FB61-FB62	FB61	FB62	15	329	0.0040	0.011376	0.000000	0.004126	0.83	0.06	0.05	0.146260	0.000000	0.066241	1.79	0.20	0.16	1.826873	0.000000	1.030544	3.59	0.76	0.61
FB62-FB63	FB62	FB63	15	472	0.0040	0.023282	0.000000	0.008987	1.03	0.08	0.07	0.156106	0.000000	0.071102	1.83	0.21	0.16	1.834800	0.000000	1.035405	3.60	0.77	0.61
FB63-FB64	FB63	FB64	15	343	0.0040	0.025716	0.000000	0.010013	1.06	0.09	0.07	0.158177	0.000000	0.072128	1.83	0.21	0.17	1.836472	0.000000	1.036431	3.60	0.77	0.61
FB64-OUTLETF	FB64	OUT_FULLER TON	24	9	0.0043	0.025716	0.000000	0.010013	1.02	0.08	0.04	0.158177	0.000000	0.072128	1.77	0.18	0.09	1.836472	0.000000	1.036431	3.66	0.59	0.30
FB65-FB35	FB65	FB35	12	211	0.0050	0.438294	0.000000	0.218381	2.72	0.35	0.35	0.503589	0.000000	0.253963	2.83	0.38	0.38	0.503589	0.000000	0.253963	2.83	0.38	0.38
IA01-IA02	IA01	IA02	8	680	0.0036	0.018644	0.000000	0.007059	1.02	0.09	0.14	0.018644	0.000000	0.007059	1.02	0.09	0.14	0.018644	0.000000	0.007059	1.02	0.09	0.14

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Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADFW (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADFW (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADFW (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
IA0101-IA01	IA0101	IA01	8	347	0.0040	0.011051	0.000000	0.003998	0.90	0.07	0.10	0.011051	0.000000	0.003998	0.90	0.07	0.10	0.011051	0.000000	0.003998	0.90	0.07	0.10
IA0102-IA0101	IA0102	IA0101	8	496	0.0232	0.011051	0.000000	0.003998	1.66	0.05	0.07	0.011051	0.000000	0.003998	1.66	0.05	0.07	0.011051	0.000000	0.003998	1.66	0.05	0.07
IA0103-IA0102	IA0103	IA0102	8	231	0.0104	0.011051	0.000000	0.003998	1.26	0.05	0.08	0.011051	0.000000	0.003998	1.26	0.05	0.08	0.011051	0.000000	0.003998	1.26	0.05	0.08
IA0104-IA0103	IA0104	IA0103	8	233	0.0245	0.011051	0.000000	0.003998	1.69	0.04	0.07	0.011051	0.000000	0.003998	1.69	0.04	0.07	0.011051	0.000000	0.003998	1.69	0.04	0.07
IA0105-IA0104	IA0105	IA0104	8	133	0.0320	0.011051	0.000000	0.003998	1.85	0.04	0.06	0.011051	0.000000	0.003998	1.85	0.04	0.06	0.011051	0.000000	0.003998	1.85	0.04	0.06
IA0106-IA0105	IA0106	IA0105	8	67	0.0373	0.007806	0.000000	0.002740	1.76	0.03	0.05	0.007806	0.000000	0.002740	1.76	0.03	0.05	0.007806	0.000000	0.002740	1.76	0.03	0.05
IA0107-IA0106	IA0107	IA0106	8	260	0.0165	0.007806	0.000000	0.002740	1.33	0.04	0.06	0.007806	0.000000	0.002740	1.33	0.04	0.06	0.007806	0.000000	0.002740	1.33	0.04	0.06
IA0108-IA0107	IA0108	IA0107	8	274	0.0146	0.006788	0.000000	0.002354	1.22	0.04	0.06	0.006788	0.000000	0.002354	1.22	0.04	0.06	0.006788	0.000000	0.002354	1.22	0.04	0.06
IA0109-IA0108	IA0109	IA0108	8	320	0.0122	0.005309	0.000000	0.001802	1.06	0.04	0.06	0.005309	0.000000	0.001802	1.06	0.04	0.06	0.005309	0.000000	0.001802	1.06	0.04	0.06
IA0110-IA0109	IA0110	IA0109	8	323	0.0162	0.000992	0.000000	0.000291	0.70	0.02	0.02	0.000992	0.000000	0.000291	0.70	0.02	0.02	0.000992	0.000000	0.000291	0.70	0.02	0.02
IA02-IA03	IA02	IA03	8	515	0.0252	0.018644	0.000000	0.007059	2.00	0.06	0.09	0.018644	0.000000	0.007059	2.00	0.06	0.09	0.018644	0.000000	0.007059	2.00	0.06	0.09
IA03-IA04	IA03	IA04	8	35	0.0057	0.068768	0.000000	0.029167	1.75	0.15	0.23	0.068768	0.000000	0.029167	1.75	0.15	0.23	0.068768	0.000000	0.029167	1.75	0.15	0.23
IA0301-IA03	IA0301	IA03	8	496	0.0038	0.053293	0.000000	0.022108	1.41	0.15	0.22	0.053293	0.000000	0.022108	1.41	0.15	0.22	0.053293	0.000000	0.022108	1.41	0.15	0.22
IA0302-IA0301	IA0302	IA0301	8	162	0.0261	0.050555	0.000000	0.020876	2.73	0.09	0.14	0.050555	0.000000	0.020876	2.73	0.09	0.14	0.050555	0.000000	0.020876	2.73	0.09	0.14
IA0303-IA0302	IA0303	IA0302	8	304	0.0047	0.037797	0.000000	0.015218	1.37	0.12	0.18	0.037797	0.000000	0.015218	1.37	0.12	0.18	0.037797	0.000000	0.015218	1.37	0.12	0.18
IA0304-IA0303	IA0304	IA0303	8	196	0.0124	0.015680	0.000000	0.005848	1.48	0.06	0.09	0.015680	0.000000	0.005848	1.48	0.06	0.09	0.015680	0.000000	0.005848	1.48	0.06	0.09
IA0305-IA0304	IA0305	IA0304	8	496	0.0141	0.012711	0.000000	0.004655	1.46	0.05	0.08	0.012711	0.000000	0.004655	1.46	0.05	0.08	0.012711	0.000000	0.004655	1.46	0.05	0.08
IA0306-IA0303	IA0306	IA0303	8	338	0.0040	0.024193	0.000000	0.009370	1.14	0.10	0.15	0.024193	0.000000	0.009370	1.14	0.10	0.15	0.024193	0.000000	0.009370	1.14	0.10	0.15
IA030601-IA0306	IA030601	IA0306	8	107	0.0652	0.024193	0.000000	0.009370	3.01	0.05	0.08	0.024193	0.000000	0.009370	3.01	0.05	0.08	0.024193	0.000000	0.009370	3.01	0.05	0.08
IA030602-IA030601	IA030602	IA030601	8	236	0.0040	0.021958	0.000000	0.008433	1.11	0.10	0.14	0.021958	0.000000	0.008433	1.11	0.10	0.14	0.021958	0.000000	0.008433	1.11	0.10	0.14
IA030603-IA030602	IA030603	IA030602	8	223	0.0040	0.021958	0.000000	0.008433	1.10	0.10	0.14	0.021958	0.000000	0.008433	1.10	0.10	0.14	0.021958	0.000000	0.008433	1.10	0.10	0.14
IA030604-IA030603	IA030604	IA030603	8	57	0.0400	0.001228	0.000000	0.000367	1.02	0.01	0.02	0.001228	0.000000	0.000367	1.02	0.01	0.02	0.001228	0.000000	0.000367	1.02	0.01	0.02
IA030605-IA030604	IA030605	IA030604	8	221	0.0200	0.001228	0.000000	0.000367	0.81	0.02	0.03	0.001228	0.000000	0.000367	0.81	0.02	0.03	0.001228	0.000000	0.000367	0.81	0.02	0.03
IA030606-IA030603	IA030606	IA030603	8	259	0.0136	0.021077	0.000000	0.008066	1.68	0.07	0.10	0.021077	0.000000	0.008066	1.68	0.07	0.10	0.021077	0.000000	0.008066	1.68	0.07	0.10
IA030607-IA030606	IA030607	IA030606	8	263	0.0100	0.020764	0.000000	0.007936	1.50	0.07	0.11	0.020764	0.000000	0.007936	1.50	0.07	0.11	0.020764	0.000000	0.007936	1.50	0.07	0.11
IA030608-IA030607	IA030608	IA030607	8	215	0.0100	0.010454	0.000000	0.003764	1.22	0.05	0.08	0.010454	0.000000	0.003764	1.22	0.05	0.08	0.010454	0.000000	0.003764	1.22	0.05	0.08
IA030609-IA030608	IA030609	IA030608	8	204	0.0310	0.006952	0.000000	0.002416	1.59	0.03	0.05	0.006952	0.000000	0.002416	1.59	0.03	0.05	0.006952	0.000000	0.002416	1.59	0.03	0.05
IA030610-IA030609	IA030610	IA030609	8	232	0.0439	0.005466	0.000000	0.001860	1.67	0.03	0.04	0.005466	0.000000	0.001860	1.67	0.03	0.04	0.005466	0.000000	0.001860	1.67	0.03	0.04
IA030611-IA030610	IA030611	IA030610	8	204	0.0180	0.002743	0.000000	0.000879	0.99	0.03	0.04	0.002743	0.000000	0.000879	0.99	0.03	0.04	0.002743	0.000000	0.000879	0.99	0.03	0.04
IA030612-IA030607	IA030612	IA030607	8	291	0.0250	0.007892	0.000000	0.002773	1.54	0.04	0.06	0.007892	0.000000	0.002773	1.54	0.04	0.06	0.007892	0.000000	0.002773	1.54	0.04	0.06
IA0307-IA0302	IA0307	IA0302	8	315	0.0230	0.014735	0.000000	0.005466	1.80	0.05	0.08	0.014735	0.000000	0.005466	1.80	0.05	0.08	0.014735	0.000000	0.005466	1.80	0.05	0.08
IA0308-IA0307	IA0308	IA0307	8	328	0.0103	0.013805	0.000000	0.005092	1.34	0.06	0.09	0.013805	0.000000	0.005092	1.34	0.06	0.09	0.013805	0.000000	0.005092	1.34	0.06	0.09
IA0309-IA0308	IA0309	IA0308	8	356	0.0106	0.013805	0.000000	0.005092	1.35	0.06	0.09	0.013805	0.000000	0.005092	1.35	0.06	0.09	0.013805	0.000000	0.005092	1.35	0.06	0.09
IA04-IA05	IA04	IA05	8	645	0.0058	0.070599	0.000000	0.030012	1.78	0.15	0.23	0.070599	0.000000	0.030012	1.78	0.15	0.23	0.070599	0.000000	0.030012	1.78	0.15	0.23
IA05-IA06	IA05	IA06	8	95	0.0588	0.070599	0.000000	0.030012	4.02	0.09	0.13	0.070599	0.000000	0.030012	4.02	0.09	0.13	0.070599	0.000000	0.030012	4.02	0.09	0.13
IA06-IA07	IA06	IA07	10	444	0.0028	0.093825	0.000000	0.040884	1.45	0.20	0.24	0.093825	0.000000	0.040884	1.45	0.20	0.24	0.093825	0.000000	0.040884	1.45	0.20	0.24
IA0601D-IA06	IA0601D	IA06	10	67	0.0028	0.026747	0.000000	0.010450	1.01	0.11	0.13	0.026747	0.000000	0.010450	1.01	0.11	0.13	0.026747	0.000000	0.010450	1.01	0.11	0.13
IA0602-IA0601D	IA0602	IA0601D	8	331	0.0036	0.019132	0.000000	0.007260	1.02	0.09	0.14	0.019132	0.000000	0.007260	1.02	0.09	0.14	0.019132	0.000000	0.007260	1.02	0.09	0.14
IA0603-IA0602	IA0603	IA0602	8	237	0.0040	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
IA0604-IA0603	IA0604	IA0603	8	267	0.0040	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
IA0605-IA0604	IA0605	IA0604	8	236	0.0040	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
IA0606-IA0601D	IA0606	IA0601D	8	35	0.0057	0.008978	0.000000	0.003190	0.96	0.06	0.09	0.008978	0.000000	0.003190	0.96	0.06	0.09	0.008978	0.000000	0.003190	0.96	0.06	0.09
IA0607-IA0606	IA0607	IA0606	8	30	0.0060	0.008978	0.000000	0.003190	0.97	0.06	0.08	0.008978	0.000000	0.003190	0.97	0.06	0.08	0.008978	0.000000	0.003190	0.97	0.06	0.08
IA0608-IA0607	IA0608	IA0607	8	295	0.0060	0.008978	0.000000	0.003190	0.97	0.06	0.08	0.008978	0.000000	0.003190	0.97	0.06	0.08	0.008978	0.000000	0.003190	0.97	0.06	0.08
IA0609-IA0608	IA0609	IA0608	8	93	0.0026	0.008978	0.000000	0.003190	0.72	0.07	0.10	0.008978	0.000000	0.003190	0.72	0.07	0.10	0.008978	0.000000	0.003190	0.72		

City of Brea - Sewer Master Plan (November 2021)

Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
IA08-IA09	IA08	IA09	10	187	0.0107	0.201897	0.000000	0.094039	2.93	0.21	0.25	0.201897	0.000000	0.094039	2.93	0.21	0.25	0.201897	0.000000	0.094039	2.93	0.21	0.25
IA0801-IA08	IA0801	IA08	8	126	0.0306	0.118185	0.000000	0.052543	3.72	0.13	0.20	0.118185	0.000000	0.052543	3.72	0.13	0.20	0.118185	0.000000	0.052543	3.72	0.13	0.20
IA0802-IA0801	IA0802	IA0801	8	218	0.0293	0.118185	0.000000	0.052543	3.66	0.13	0.20	0.118185	0.000000	0.052543	3.66	0.13	0.20	0.118185	0.000000	0.052543	3.66	0.13	0.20
IA0803-IA0802	IA0803	IA0802	8	476	0.0062	0.118185	0.000000	0.052543	2.11	0.20	0.30	0.118185	0.000000	0.052543	2.11	0.20	0.30	0.118185	0.000000	0.052543	2.11	0.20	0.30
IA0804-IA0803	IA0804	IA0803	8	110	0.0167	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
IA09-IA10	IA09	IA10	10	49	0.0051	0.201897	0.000000	0.094039	2.24	0.25	0.30	0.201897	0.000000	0.094039	2.24	0.25	0.30	0.201897	0.000000	0.094039	2.24	0.25	0.30
IA10-IA11	IA10	IA11	10	145	0.0083	0.337630	0.000000	0.164451	3.08	0.29	0.35	0.337630	0.000000	0.164451	3.08	0.29	0.35	0.337630	0.000000	0.164451	3.08	0.29	0.35
IA11-IA12	IA11	IA12	10	258	0.0168	0.338023	0.000000	0.164659	3.98	0.24	0.29	0.338023	0.000000	0.164659	3.98	0.24	0.29	0.338023	0.000000	0.164659	3.98	0.24	0.29
IA12-IA13	IA12	IA13	10	228	0.0064	0.338635	0.000000	0.164983	2.82	0.31	0.37	0.338635	0.000000	0.164983	2.82	0.31	0.37	0.338635	0.000000	0.164983	2.82	0.31	0.37
IA13-IA14	IA13	IA14	10	103	0.0086	0.339345	0.000000	0.165359	3.14	0.29	0.35	0.339345	0.000000	0.165359	3.14	0.29	0.35	0.339345	0.000000	0.165359	3.14	0.29	0.35
IA14-IB23	IA14	IB23	10	35	0.0231	0.339345	0.000000	0.165359	4.47	0.22	0.27	0.339345	0.000000	0.165359	4.47	0.22	0.27	0.339345	0.000000	0.165359	4.47	0.22	0.27
IB01-IB02	IB01	IB02	6	280	0.0199	0.004884	0.000000	0.001646	1.28	0.03	0.07	0.004884	0.000000	0.001646	1.28	0.03	0.07	0.004884	0.000000	0.001646	1.28	0.03	0.07
IB02-IB03	IB02	IB03	8	196	0.0222	0.008973	0.000000	0.003188	1.53	0.04	0.06	0.008973	0.000000	0.003188	1.53	0.04	0.06	0.008973	0.000000	0.003188	1.53	0.04	0.06
IB03-IB04	IB03	IB04	8	221	0.0263	0.011786	0.000000	0.004288	1.77	0.05	0.07	0.011786	0.000000	0.004288	1.77	0.05	0.07	0.011786	0.000000	0.004288	1.77	0.05	0.07
IB04-IB05	IB04	IB05	8	336	0.0365	0.015864	0.000000	0.005923	2.17	0.05	0.07	0.015864	0.000000	0.005923	2.17	0.05	0.07	0.015864	0.000000	0.005923	2.17	0.05	0.07
IB05-IB06	IB05	IB06	8	304	0.0364	0.145876	0.000000	0.066052	4.21	0.14	0.21	0.145876	0.000000	0.066052	4.21	0.14	0.21	0.145876	0.000000	0.066052	4.21	0.14	0.21
IB0501-IB05	IB0501	IB05	8	329	0.0128	0.131768	0.000000	0.059139	2.82	0.17	0.26	0.131768	0.000000	0.059139	2.82	0.17	0.26	0.131768	0.000000	0.059139	2.82	0.17	0.26
IB0502-IB0501	IB0502	IB0501	8	350	0.0033	0.117516	0.000000	0.052220	1.69	0.23	0.35	0.117516	0.000000	0.052220	1.69	0.23	0.35	0.117516	0.000000	0.052220	1.69	0.23	0.35
IB0503D-IB0502	IB0503D	IB0502	8	244	0.0033	0.110943	0.000000	0.049053	1.65	0.23	0.34	0.110943	0.000000	0.049053	1.65	0.23	0.34	0.110943	0.000000	0.049053	1.65	0.23	0.34
IB0504-IB0503D	IB0504	IB0503D	8	210	0.0269	0.089335	0.000000	0.038762	3.27	0.12	0.18	0.089335	0.000000	0.038762	3.27	0.12	0.18	0.089335	0.000000	0.038762	3.27	0.12	0.18
IB0505-IB0504	IB0505	IB0504	8	150	0.0360	0.087323	0.000000	0.037814	3.60	0.11	0.16	0.087323	0.000000	0.037814	3.60	0.11	0.16	0.087323	0.000000	0.037814	3.60	0.11	0.16
IB0506-IB0505	IB0506	IB0505	8	305	0.0561	0.082194	0.000000	0.035406	4.13	0.10	0.14	0.082194	0.000000	0.035406	4.13	0.10	0.14	0.082194	0.000000	0.035406	4.13	0.10	0.14
IB0507-IB0506	IB0507	IB0506	8	235	0.0136	0.072754	0.000000	0.031009	2.42	0.13	0.19	0.072754	0.000000	0.031009	2.42	0.13	0.19	0.072754	0.000000	0.031009	2.42	0.13	0.19
IB0508-IB0507	IB0508	IB0507	8	290	0.0050	0.065092	0.000000	0.027476	1.65	0.15	0.23	0.065092	0.000000	0.027476	1.65	0.15	0.23	0.065092	0.000000	0.027476	1.65	0.15	0.23
IB0509-IB0508	IB0509	IB0508	8	115	0.0052	0.061826	0.000000	0.025981	1.65	0.15	0.22	0.061826	0.000000	0.025981	1.65	0.15	0.22	0.061826	0.000000	0.025981	1.65	0.15	0.22
IB0510-IB0509	IB0510	IB0509	8	337	0.0363	0.033382	0.000000	0.013296	2.71	0.07	0.10	0.033382	0.000000	0.013296	2.71	0.07	0.10	0.033382	0.000000	0.013296	2.71	0.07	0.10
IB0511-IB0510	IB0511	IB0510	8	337	0.0363	0.027821	0.000000	0.010907	2.56	0.06	0.09	0.027821	0.000000	0.010907	2.56	0.06	0.09	0.027821	0.000000	0.010907	2.56	0.06	0.09
IB0512-IB0511	IB0512	IB0511	8	158	0.0362	0.023270	0.000000	0.008982	2.43	0.06	0.09	0.023270	0.000000	0.008982	2.43	0.06	0.09	0.023270	0.000000	0.008982	2.43	0.06	0.09
IB0513-IB0512	IB0513	IB0512	8	130	0.0363	0.009206	0.000000	0.003278	1.83	0.04	0.06	0.009206	0.000000	0.003278	1.83	0.04	0.06	0.009206	0.000000	0.003278	1.83	0.04	0.06
IB0514-IB0513	IB0514	IB0513	8	323	0.0534	0.008222	0.000000	0.002899	2.03	0.03	0.05	0.008222	0.000000	0.002899	2.03	0.03	0.05	0.008222	0.000000	0.002899	2.03	0.03	0.05
IB0515-IB0512	IB0515	IB0512	8	153	0.0100	0.004393	0.000000	0.001467	0.93	0.04	0.05	0.004393	0.000000	0.001467	0.93	0.04	0.05	0.004393	0.000000	0.001467	0.93	0.04	0.05
IB0516-IB0512	IB0516	IB0512	8	240	0.0400	0.010717	0.000000	0.003867	1.99	0.04	0.06	0.010717	0.000000	0.003867	1.99	0.04	0.06	0.010717	0.000000	0.003867	1.99	0.04	0.06
IB0517-IB0516	IB0517	IB0516	8	336	0.0400	0.009032	0.000000	0.003211	1.89	0.04	0.05	0.009032	0.000000	0.003211	1.89	0.04	0.05	0.009032	0.000000	0.003211	1.89	0.04	0.05
IB0518-IB0517	IB0518	IB0517	8	145	0.0400	0.005403	0.000000	0.001837	1.61	0.03	0.04	0.005403	0.000000	0.001837	1.61	0.03	0.04	0.005403	0.000000	0.001837	1.61	0.03	0.04
IB0519-IB0509	IB0519	IB0509	8	235	0.0360	0.030839	0.000000	0.012199	2.64	0.07	0.10	0.030839	0.000000	0.012199	2.64	0.07	0.10	0.030839	0.000000	0.012199	2.64	0.07	0.10
IB0520-IB0519	IB0520	IB0519	8	310	0.0334	0.029063	0.000000	0.011437	2.52	0.07	0.10	0.029063	0.000000	0.011437	2.52	0.07	0.10	0.029063	0.000000	0.011437	2.52	0.07	0.10
IB0521-IB0520	IB0521	IB0520	8	300	0.0334	0.022759	0.000000	0.008768	2.34	0.06	0.09	0.022759	0.000000	0.008768	2.34	0.06	0.09	0.022759	0.000000	0.008768	2.34	0.06	0.09
IB0522-IB0521	IB0522	IB0521	8	205	0.0334	0.018831	0.000000	0.007136	2.21	0.05	0.08	0.018831	0.000000	0.007136	2.21	0.05	0.08	0.018831	0.000000	0.007136	2.21	0.05	0.08
IB0523-IB0522	IB0523	IB0522	8	120	0.0255	0.016433	0.000000	0.006154	1.93	0.05	0.08	0.016433	0.000000	0.006154	1.93	0.05	0.08	0.016433	0.000000	0.006154	1.93	0.05	0.08
IB0524-IB0523	IB0524	IB0523	8	327	0.0105	0.015418	0.000000	0.005742	1.39	0.06	0.10	0.015418	0.000000	0.005742	1.39	0.06	0.10	0.015418	0.000000	0.005742	1.39	0.06	0.10
IB0525-IB0524	IB0525	IB0524	8	354	0.0440	0.006960	0.000000	0.002419	1.80	0.03	0.05	0.006960	0.000000	0.002419	1.80	0.03	0.05	0.006960	0.000000	0.002419	1.80	0.03	0.05
IB0526S-IB0525	IB0526S	IB0525	8	166	0.0561	0.003099	0.000000	0.001004	1.53	0.02	0.03	0.003099	0.000000	0.001004	1.53	0.02	0.03	0.003099	0.000000	0.001004	1.53	0.02	0.03
IB0527-IB0524	IB0527	IB0524	8	259	0.0358	0.005792	0.000000	0.001981	1.58	0.03	0.05	0.005792	0.000000	0.001981	1.58	0.03	0.05	0.005792	0.000000	0.001981	1.58	0.03	0.05
IB0528-IB0520	IB0528	IB0520	8	115	0.0117	0.005778	0.000000	0.001976	1.07	0.04	0.06	0.005778	0.000000	0.001976	1.07	0.04	0.06	0.005778	0.000000	0.001976	1.07	0.04	0.06
IB0529-IB0528	IB0529	IB0528	8	250	0.0117	0.005778	0.000000	0.001976	1.07	0.04	0.06	0.005778	0.000000	0.001976	1.07	0.04	0.06	0.005778	0.000000	0.001976	1.07	0.04	0.06
IB0530-IB0507	IB0530	IB0507	8	100	0.0300	0.007593	0.000000	0.002659	1.62	0.0													

City of Brea - Sewer Master Plan (November 2021)

Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
IB0531-IB0530	IB0531	IB0530	8	200	0.0560	0.005854	0.000000	0.002004	1.86	0.03	0.04	0.005854	0.000000	0.002004	1.86	0.03	0.04	0.005854	0.000000	0.002004	1.86	0.03	0.04
IB0532-IB0531	IB0532	IB0531	8	145	0.0300	0.003060	0.000000	0.000990	1.23	0.02	0.04	0.003060	0.000000	0.000990	1.23	0.02	0.04	0.003060	0.000000	0.000990	1.23	0.02	0.04
IB0533-IB0506	IB0533	IB0506	8	175	0.0149	0.005208	0.000000	0.001765	1.13	0.04	0.05	0.005208	0.000000	0.001765	1.13	0.04	0.05	0.005208	0.000000	0.001765	1.13	0.04	0.05
IB0534-IB0533	IB0534	IB0533	8	120	0.0149	0.004300	0.000000	0.001433	1.07	0.03	0.05	0.004300	0.000000	0.001433	1.07	0.03	0.05	0.004300	0.000000	0.001433	1.07	0.03	0.05
IB0535-IB0505	IB0535	IB0505	8	200	0.0290	0.004371	0.000000	0.001459	1.35	0.03	0.04	0.004371	0.000000	0.001459	1.35	0.03	0.04	0.004371	0.000000	0.001459	1.35	0.03	0.04
IB0536-IB0503D	IB0536	IB0503D	8	280	0.0363	0.018505	0.000000	0.007002	2.27	0.05	0.08	0.018505	0.000000	0.007002	2.27	0.05	0.08	0.018505	0.000000	0.007002	2.27	0.05	0.08
IB0537-IB0536	IB0537	IB0536	8	118	0.0203	0.014382	0.000000	0.005324	1.72	0.05	0.08	0.014382	0.000000	0.005324	1.72	0.05	0.08	0.014382	0.000000	0.005324	1.72	0.05	0.08
IB0538-IB0537	IB0538	IB0537	8	248	0.0383	0.011497	0.000000	0.004174	2.00	0.04	0.06	0.011497	0.000000	0.004174	2.00	0.04	0.06	0.011497	0.000000	0.004174	2.00	0.04	0.06
IB0539-IB0538	IB0539	IB0538	8	180	0.0156	0.004745	0.000000	0.001595	1.12	0.03	0.05	0.004745	0.000000	0.001595	1.12	0.03	0.05	0.004745	0.000000	0.001595	1.12	0.03	0.05
IB0540-IB0503D	IB0540	IB0503D	8	140	0.0034	0.006671	0.000000	0.002310	0.73	0.06	0.08	0.006671	0.000000	0.002310	0.73	0.06	0.08	0.006671	0.000000	0.002310	0.73	0.06	0.08
IB0541-IB0540	IB0541	IB0540	8	200	0.0039	0.006389	0.000000	0.002204	0.75	0.05	0.08	0.006389	0.000000	0.002204	0.75	0.05	0.08	0.006389	0.000000	0.002204	0.75	0.05	0.08
IB0542-IB0541	IB0542	IB0541	8	110	0.0034	0.002994	0.000000	0.000967	0.57	0.04	0.06	0.002994	0.000000	0.000967	0.57	0.04	0.06	0.002994	0.000000	0.000967	0.57	0.04	0.06
IB0543-IB0501	IB0543	IB0501	8	331	0.0427	0.017645	0.000000	0.006649	2.36	0.05	0.07	0.017645	0.000000	0.006649	2.36	0.05	0.07	0.017645	0.000000	0.006649	2.36	0.05	0.07
IB0544-IB0543	IB0544	IB0543	8	269	0.0241	0.013040	0.000000	0.004786	1.77	0.05	0.07	0.013040	0.000000	0.004786	1.77	0.05	0.07	0.013040	0.000000	0.004786	1.77	0.05	0.07
IB0545-IB0544	IB0545	IB0544	8	382	0.0264	0.008641	0.000000	0.003060	1.61	0.04	0.06	0.008641	0.000000	0.003060	1.61	0.04	0.06	0.008641	0.000000	0.003060	1.61	0.04	0.06
IB0546-IB0545	IB0546	IB0545	8	150	0.0256	0.003326	0.000000	0.001084	1.19	0.03	0.04	0.003326	0.000000	0.001084	1.19	0.03	0.04	0.003326	0.000000	0.001084	1.19	0.03	0.04
IB06-IB07	IB06	IB07	8	208	0.0311	0.154056	0.000000	0.070088	4.04	0.15	0.23	0.154056	0.000000	0.070088	4.04	0.15	0.23	0.154056	0.000000	0.070088	4.04	0.15	0.23
IB0601-IB06	IB0601	IB06	8	278	0.0284	0.010600	0.000000	0.003821	1.76	0.04	0.06	0.010600	0.000000	0.003821	1.76	0.04	0.06	0.010600	0.000000	0.003821	1.76	0.04	0.06
IB0602-IB0601	IB0602	IB0601	8	271	0.0136	0.007167	0.000000	0.002497	1.21	0.04	0.06	0.007167	0.000000	0.002497	1.21	0.04	0.06	0.007167	0.000000	0.002497	1.21	0.04	0.06
IB07-IB08	IB07	IB08	8	410	0.0541	0.173070	0.000000	0.079539	5.08	0.14	0.21	0.173070	0.000000	0.079539	5.08	0.14	0.21	0.173070	0.000000	0.079539	5.08	0.14	0.21
IB0701-IB07	IB0701	IB07	8	207	0.0029	0.020598	0.000000	0.007867	0.97	0.10	0.15	0.020598	0.000000	0.007867	0.97	0.10	0.15	0.020598	0.000000	0.007867	0.97	0.10	0.15
IB0702S-IB0701	IB0702S	IB0701	8	57	0.0065	0.019572	0.000000	0.007442	1.26	0.08	0.12	0.019572	0.000000	0.007442	1.26	0.08	0.12	0.019572	0.000000	0.007442	1.26	0.08	0.12
IB0703-IB0702S	IB0703	IB0702S	8	346	0.0227	0.018758	0.000000	0.007106	1.93	0.06	0.09	0.018758	0.000000	0.007106	1.93	0.06	0.09	0.018758	0.000000	0.007106	1.93	0.06	0.09
IB0704-IB0703	IB0704	IB0703	8	324	0.0243	0.015361	0.000000	0.005719	1.86	0.05	0.08	0.015361	0.000000	0.005719	1.86	0.05	0.08	0.015361	0.000000	0.005719	1.86	0.05	0.08
IB0705-IB0704	IB0705	IB0704	8	114	0.0242	0.011310	0.000000	0.004100	1.70	0.05	0.07	0.011310	0.000000	0.004100	1.70	0.05	0.07	0.011310	0.000000	0.004100	1.70	0.05	0.07
IB0706-IB0705	IB0706	IB0705	8	235	0.0081	0.006336	0.000000	0.002184	0.97	0.04	0.07	0.006336	0.000000	0.002184	0.97	0.04	0.07	0.006336	0.000000	0.002184	0.97	0.04	0.07
IB0707-IB0705	IB0707	IB0705	8	313	0.0218	0.003864	0.000000	0.001276	1.18	0.03	0.04	0.003864	0.000000	0.001276	1.18	0.03	0.04	0.003864	0.000000	0.001276	1.18	0.03	0.04
IB08-IB09	IB08	IB09	8	130	0.0313	0.181893	0.000000	0.083956	4.25	0.16	0.24	0.181893	0.000000	0.083956	4.25	0.16	0.24	0.181893	0.000000	0.083956	4.25	0.16	0.24
IB0801-IB08	IB0801	IB08	8	23	0.0052	0.012112	0.000000	0.004417	1.01	0.07	0.10	0.012112	0.000000	0.004417	1.01	0.07	0.10	0.012112	0.000000	0.004417	1.01	0.07	0.10
IB0802-IB0801	IB0802	IB0801	8	85	0.0072	0.012112	0.000000	0.004417	1.13	0.06	0.09	0.012112	0.000000	0.004417	1.13	0.06	0.09	0.012112	0.000000	0.004417	1.13	0.06	0.09
IB0803-IB0802	IB0803	IB0802	8	288	0.0043	0.011561	0.000000	0.004199	0.94	0.07	0.10	0.011561	0.000000	0.004199	0.94	0.07	0.10	0.011561	0.000000	0.004199	0.94	0.07	0.10
IB0804-IB0803	IB0804	IB0803	8	224	0.0038	0.008167	0.000000	0.002878	0.81	0.06	0.09	0.008167	0.000000	0.002878	0.81	0.06	0.09	0.008167	0.000000	0.002878	0.81	0.06	0.09
IB0805-IB0804	IB0805	IB0804	8	219	0.0127	0.004953	0.000000	0.001671	1.05	0.04	0.05	0.004953	0.000000	0.001671	1.05	0.04	0.05	0.004953	0.000000	0.001671	1.05	0.04	0.05
IB09-IB10	IB09	IB10	8	317	0.0314	0.202837	0.000000	0.094515	4.39	0.17	0.26	0.202837	0.000000	0.094515	4.39	0.17	0.26	0.202837	0.000000	0.094515	4.39	0.17	0.26
IB0901-IB09	IB0901	IB09	8	278	0.0176	0.024017	0.000000	0.009296	1.91	0.07	0.10	0.024017	0.000000	0.009296	1.91	0.07	0.10	0.024017	0.000000	0.009296	1.91	0.07	0.10
IB0902-IB0901	IB0902	IB0901	8	350	0.0581	0.010487	0.000000	0.003777	2.25	0.04	0.05	0.010487	0.000000	0.003777	2.25	0.04	0.05	0.010487	0.000000	0.003777	2.25	0.04	0.05
IB0903-IB0902	IB0903	IB0902	8	293	0.0406	0.004718	0.000000	0.001585	1.56	0.03	0.04	0.004718	0.000000	0.001585	1.56	0.03	0.04	0.004718	0.000000	0.001585	1.56	0.03	0.04
IB0904-IB0901	IB0904	IB0901	8	122	0.0048	0.012969	0.000000	0.004758	1.01	0.07	0.11	0.012969	0.000000	0.004758	1.01	0.07	0.11	0.012969	0.000000	0.004758	1.01	0.07	0.11
IB0905-IB0904	IB0905	IB0904	8	271	0.0124	0.012969	0.000000	0.004758	1.40	0.06	0.09	0.012969	0.000000	0.004758	1.40	0.06	0.09	0.012969	0.000000	0.004758	1.40	0.06	0.09
IB0906-IB0905	IB0906	IB0905	8	260	0.0396	0.011710	0.000000	0.004258	2.03	0.04	0.06	0.011710	0.000000	0.004258	2.03	0.04	0.06	0.011710	0.000000	0.004258	2.03	0.04	0.06
IB0907-IB0906	IB0907	IB0906	8	260	0.0392	0.008000	0.000000	0.002814	1.80	0.03	0.05	0.008000	0.000000	0.002814	1.80	0.03	0.05	0.008000	0.000000	0.002814	1.80	0.03	0.05
IB0908-IB0907	IB0908	IB0907	8	250	0.0392	0.002837	0.000000	0.000912	1.31	0.02	0.03	0.002837	0.000000	0.000912	1.31	0.02	0.03	0.002837	0.000000	0.000912	1.31	0.02	0.03
IB10-IB11	IB10	IB11	8	332	0.0373	0.237597	0.000000	0.112245	4.89	0.18	0.27	0.237597	0.000000	0.112245	4.89	0.18	0.27	0.237597	0.000000	0.112245	4.89	0.18	0.27
IB1001-IB10	IB1001	IB10	8	126	0.0030	0.043501	0.000000	0.017730	1.22	0.14	0.21	0.043501	0.000000	0.017730	1.22	0.14	0.21	0.043501	0.000000	0.017730	1.22	0.14	0.21
IB1002-IB1001	IB1002	IB1001	8	224	0.0094	0.043501	0.000000	0.017730	1.83	0.11	0.16	0.043501	0.000000	0.017730	1.83	0.11	0.16	0.043501	0.000000	0.017730	1.83	0.11	0.16
IB1003-IB1002	IB1003	IB1002	8	331	0.0032	0.042410																	

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Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
IB1004-IB1003	IB1004	IB1003	8	213	0.0185	0.039912	0.000000	0.016146	2.26	0.09	0.13	0.039912	0.000000	0.016146	2.26	0.09	0.13	0.039912	0.000000	0.016146	2.26	0.09	0.13
IB1005-IB1004	IB1005	IB1004	8	410	0.0160	0.019577	0.000000	0.007444	1.73	0.06	0.10	0.019577	0.000000	0.007444	1.73	0.06	0.10	0.019577	0.000000	0.007444	1.73	0.06	0.10
IB1006-IB1005	IB1006	IB1005	8	350	0.0244	0.012939	0.000000	0.004746	1.77	0.05	0.07	0.012939	0.000000	0.004746	1.77	0.05	0.07	0.012939	0.000000	0.004746	1.77	0.05	0.07
IB1007-IB1006	IB1007	IB1006	8	350	0.0224	0.008456	0.000000	0.002989	1.51	0.04	0.06	0.008456	0.000000	0.002989	1.51	0.04	0.06	0.008456	0.000000	0.002989	1.51	0.04	0.06
IB1008-IB1007	IB1008	IB1007	8	368	0.0423	0.005560	0.000000	0.001895	1.66	0.03	0.04	0.005560	0.000000	0.001895	1.66	0.03	0.04	0.005560	0.000000	0.001895	1.66	0.03	0.04
IB1009-IB1005	IB1009	IB1005	8	67	0.0115	0.001011	0.000000	0.000297	0.63	0.02	0.03	0.001011	0.000000	0.000297	0.63	0.02	0.03	0.001011	0.000000	0.000297	0.63	0.02	0.03
IB1010-IB1004	IB1010	IB1004	8	268	0.0427	0.020557	0.000000	0.007850	2.48	0.05	0.08	0.020557	0.000000	0.007850	2.48	0.05	0.08	0.020557	0.000000	0.007850	2.48	0.05	0.08
IB1011-IB1010	IB1011	IB1010	8	268	0.0525	0.015472	0.000000	0.005764	2.44	0.04	0.07	0.015472	0.000000	0.005764	2.44	0.04	0.07	0.015472	0.000000	0.005764	2.44	0.04	0.07
IB1012-IB1011	IB1012	IB1011	8	151	0.0479	0.010324	0.000000	0.003713	2.09	0.04	0.06	0.010324	0.000000	0.003713	2.09	0.04	0.06	0.010324	0.000000	0.003713	2.09	0.04	0.06
IB1013-IB1012	IB1013	IB1012	8	166	0.0172	0.008931	0.000000	0.003172	1.40	0.04	0.07	0.008931	0.000000	0.003172	1.40	0.04	0.07	0.008931	0.000000	0.003172	1.40	0.04	0.07
IB1014-IB1013	IB1014	IB1013	8	204	0.0576	0.004569	0.000000	0.001531	1.74	0.02	0.04	0.004569	0.000000	0.001531	1.74	0.02	0.04	0.004569	0.000000	0.001531	1.74	0.02	0.04
IB1015-IB1013	IB1015	IB1013	8	137	0.0036	0.002676	0.000000	0.000856	0.56	0.04	0.05	0.002676	0.000000	0.000856	0.56	0.04	0.05	0.002676	0.000000	0.000856	0.56	0.04	0.05
IB1016-IB1011	IB1016	IB1011	8	250	0.0036	0.004048	0.000000	0.001342	0.64	0.04	0.07	0.004048	0.000000	0.001342	0.64	0.04	0.07	0.004048	0.000000	0.001342	0.64	0.04	0.07
IB1017-IB1010	IB1017	IB1010	8	250	0.0192	0.003557	0.000000	0.001166	1.10	0.03	0.04	0.003557	0.000000	0.001166	1.10	0.03	0.04	0.003557	0.000000	0.001166	1.10	0.03	0.04
IB11-IB12	IB11	IB12	8	25	0.0788	0.331585	0.000000	0.161253	7.02	0.17	0.26	0.331585	0.000000	0.161253	7.02	0.17	0.26	0.331585	0.000000	0.161253	7.02	0.17	0.26
IB1101-IB11	IB1101	IB11	8	125	0.1228	0.110849	0.000000	0.049008	5.95	0.09	0.14	0.110849	0.000000	0.049008	5.95	0.09	0.14	0.110849	0.000000	0.049008	5.95	0.09	0.14
IB1102-IB1101	IB1102	IB1101	8	496	0.0043	0.110849	0.000000	0.049008	1.82	0.21	0.31	0.110849	0.000000	0.049008	1.82	0.21	0.31	0.110849	0.000000	0.049008	1.82	0.21	0.31
IB1103-IB1102	IB1103	IB1102	8	491	0.0043	0.100852	0.000000	0.044223	1.77	0.20	0.30	0.100852	0.000000	0.044223	1.77	0.20	0.30	0.100852	0.000000	0.044223	1.77	0.20	0.30
IB1104-IB1103	IB1104	IB1103	8	210	0.0060	0.096741	0.000000	0.042267	1.97	0.18	0.27	0.096741	0.000000	0.042267	1.97	0.18	0.27	0.096741	0.000000	0.042267	1.97	0.18	0.27
IB1105-IB1104	IB1105	IB1104	8	266	0.0305	0.094996	0.000000	0.041439	3.48	0.12	0.18	0.094996	0.000000	0.041439	3.48	0.12	0.18	0.094996	0.000000	0.041439	3.48	0.12	0.18
IB1106-IB1105	IB1106	IB1105	8	109	0.0049	0.094667	0.000000	0.041283	1.81	0.19	0.28	0.094667	0.000000	0.041283	1.81	0.19	0.28	0.094667	0.000000	0.041283	1.81	0.19	0.28
IB1107-IB1106	IB1107	IB1106	8	102	0.1098	0.094167	0.000000	0.041046	5.45	0.09	0.13	0.094167	0.000000	0.041046	5.45	0.09	0.13	0.094167	0.000000	0.041046	5.45	0.09	0.13
IB1108-IB1107	IB1108	IB1107	8	135	0.0608	0.093829	0.000000	0.040886	4.42	0.10	0.15	0.093829	0.000000	0.040886	4.42	0.10	0.15	0.093829	0.000000	0.040886	4.42	0.10	0.15
IB1110-B1109	IB1110	B1109	8	182	0.0100	0.036192	0.000000	0.014517	1.77	0.10	0.15	0.036192	0.000000	0.014517	1.77	0.10	0.15	0.036192	0.000000	0.014517	1.77	0.10	0.15
IB1111-IB1110	IB1111	IB1110	8	110	0.0123	0.028796	0.000000	0.011323	1.77	0.08	0.12	0.028796	0.000000	0.011323	1.77	0.08	0.12	0.028796	0.000000	0.011323	1.77	0.08	0.12
IB1112-IB1111	IB1112	IB1111	8	58	0.0069	0.024914	0.000000	0.009674	1.39	0.09	0.13	0.024914	0.000000	0.009674	1.39	0.09	0.13	0.024914	0.000000	0.009674	1.39	0.09	0.13
IB1113-IB1112	IB1113	IB1112	8	200	0.0107	0.003258	0.000000	0.001060	0.87	0.03	0.05	0.003258	0.000000	0.001060	0.87	0.03	0.05	0.003258	0.000000	0.001060	0.87	0.03	0.05
IB1114-IB1112	IB1114	IB1112	8	230	0.0060	0.022391	0.000000	0.008614	1.28	0.09	0.13	0.022391	0.000000	0.008614	1.28	0.09	0.13	0.022391	0.000000	0.008614	1.28	0.09	0.13
IB1115-IB1108	IB1115	IB1108	8	272	0.0101	0.058314	0.000000	0.024381	2.04	0.12	0.18	0.058314	0.000000	0.024381	2.04	0.12	0.18	0.058314	0.000000	0.024381	2.04	0.12	0.18
IB1116-B1109	IB1116	B1109	8	220	0.0102	0.004076	0.000000	0.001352	0.92	0.03	0.05	0.004076	0.000000	0.001352	0.92	0.03	0.05	0.004076	0.000000	0.001352	0.92	0.03	0.05
IB1117-IB1110	IB1117	IB1110	8	262	0.0076	0.007546	0.000000	0.002641	1.00	0.05	0.07	0.007546	0.000000	0.002641	1.00	0.05	0.07	0.007546	0.000000	0.002641	1.00	0.05	0.07
IB1118-IB1117	IB1118	IB1117	8	71	0.0180	0.002518	0.000000	0.000801	0.97	0.02	0.04	0.002518	0.000000	0.000801	0.97	0.02	0.04	0.002518	0.000000	0.000801	0.97	0.02	0.04
IB1119-IB1117	IB1119	IB1117	8	26	0.0189	0.001716	0.000000	0.000528	0.88	0.02	0.03	0.001716	0.000000	0.000528	0.88	0.02	0.03	0.001716	0.000000	0.000528	0.88	0.02	0.03
IB1120-IB1113	IB1120	IB1113	8	160	0.0091	0.002119	0.000000	0.000664	0.72	0.03	0.04	0.002119	0.000000	0.000664	0.72	0.03	0.04	0.002119	0.000000	0.000664	0.72	0.03	0.04
IB1121-IB1114	IB1121	IB1114	8	55	0.0149	0.016157	0.000000	0.006042	1.60	0.06	0.09	0.016157	0.000000	0.006042	1.60	0.06	0.09	0.016157	0.000000	0.006042	1.60	0.06	0.09
IB1122-IB1121	IB1122	IB1121	8	188	0.0102	0.015329	0.000000	0.005706	1.38	0.06	0.10	0.015329	0.000000	0.005706	1.38	0.06	0.10	0.015329	0.000000	0.005706	1.38	0.06	0.10
IB1123-IB1122	IB1123	IB1122	8	188	0.0100	0.009597	0.000000	0.003430	1.19	0.05	0.08	0.009597	0.000000	0.003430	1.19	0.05	0.08	0.009597	0.000000	0.003430	1.19	0.05	0.08
IB1124-IB1122	IB1124	IB1122	8	309	0.0100	0.004501	0.000000	0.001506	0.94	0.04	0.05	0.004501	0.000000	0.001506	0.94	0.04	0.05	0.004501	0.000000	0.001506	0.94	0.04	0.05
IB1125-IB1123	IB1125	IB1123	8	316	0.0101	0.007462	0.000000	0.002609	1.10	0.05	0.07	0.007462	0.000000	0.002609	1.10	0.05	0.07	0.007462	0.000000	0.002609	1.10	0.05	0.07
IB1126-IB1114	IB1126	IB1114	8	258	0.0140	0.005165	0.000000	0.001749	1.10	0.04	0.05	0.005165	0.000000	0.001749	1.10	0.04	0.05	0.005165	0.000000	0.001749	1.10	0.04	0.05
IB1127-IB1115	IB1127	IB1115	8	144	0.0134	0.001998	0.000000	0.000623	0.81	0.02	0.03	0.001998	0.000000	0.000623	0.81	0.02	0.03	0.001998	0.000000	0.000623	0.81	0.02	0.03
IB1128-IB1115	IB1128	IB1115	8	102	0.0158	0.055467	0.000000	0.023090	2.35	0.11	0.16	0.055467	0.000000	0.023090	2.35	0.11	0.16	0.055467	0.000000	0.023090	2.35	0.11	0.16
IB1129-IB1128	IB1129	IB1128	8	308	0.0092	0.001560	0.000000	0.000476	0.66	0.02	0.03	0.001560	0.000000	0.000476	0.66	0.02	0.03	0.001560	0.000000	0.000476	0.66	0.02	0.03
IB1130-IB1129	IB1130	IB1129	8	337	0.0118	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
IB1131-IB1128	IB1131	IB1128	8	127	0.0531	0.053218	0.000000	0.022074	3.56	0.08	0.12	0.053218	0.000000	0.022074	3.56	0.08	0.12	0.053218	0.000000	0.022074	3.56	0.08	0.12
IB1132-IB1131	IB1132	IB1131	8																				

City of Brea - Sewer Master Plan (November 2021)

Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
IB1133-IB1132	IB1133	IB1132	8	190	0.0279	0.040654	0.000000	0.016472	2.62	0.08	0.12	0.040654	0.000000	0.016472	2.62	0.08	0.12	0.040654	0.000000	0.016472	2.62	0.08	0.12
IB1134-IB1133	IB1134	IB1133	8	192	0.0130	0.035095	0.000000	0.014039	1.92	0.09	0.14	0.035095	0.000000	0.014039	1.92	0.09	0.14	0.035095	0.000000	0.014039	1.92	0.09	0.14
IB1135-IB1134	IB1135	IB1134	8	192	0.0104	0.030106	0.000000	0.011884	1.70	0.09	0.13	0.030106	0.000000	0.011884	1.70	0.09	0.13	0.030106	0.000000	0.011884	1.70	0.09	0.13
IB1136-IB1135	IB1136	IB1135	8	220	0.0109	0.020184	0.000000	0.007695	1.53	0.07	0.11	0.020184	0.000000	0.007695	1.53	0.07	0.11	0.020184	0.000000	0.007695	1.53	0.07	0.11
IB1137-IB1136	IB1137	IB1136	8	192	0.0068	0.014789	0.000000	0.005488	1.18	0.07	0.10	0.014789	0.000000	0.005488	1.18	0.07	0.10	0.014789	0.000000	0.005488	1.18	0.07	0.10
IB1138-IB1132	IB1138	IB1132	8	131	0.0420	0.012592	0.000000	0.004608	2.12	0.04	0.06	0.012592	0.000000	0.004608	2.12	0.04	0.06	0.012592	0.000000	0.004608	2.12	0.04	0.06
IB1139-IB1138	IB1139	IB1138	8	235	0.0110	0.010746	0.000000	0.003879	1.27	0.05	0.08	0.010746	0.000000	0.003879	1.27	0.05	0.08	0.010746	0.000000	0.003879	1.27	0.05	0.08
IB1140-IB1139	IB1140	IB1139	8	238	0.0105	0.005427	0.000000	0.001846	1.01	0.04	0.06	0.005427	0.000000	0.001846	1.01	0.04	0.06	0.005427	0.000000	0.001846	1.01	0.04	0.06
IB1141S-IB1140	IB1141S	IB1140	8	139	0.0115	0.002372	0.000000	0.000798	0.81	0.03	0.04	0.002372	0.000000	0.000798	0.81	0.03	0.04	0.002372	0.000000	0.000798	0.81	0.03	0.04
IB1141S-IB1142	IB1141S	IB1142	8	164	0.0116	0.002387	0.000000	0.000802	0.82	0.03	0.04	0.002387	0.000000	0.000802	0.82	0.03	0.04	0.002387	0.000000	0.000802	0.82	0.03	0.04
IB1142-IB1134	IB1142	IB1134	8	239	0.0100	0.004546	0.000000	0.001522	0.95	0.04	0.05	0.004546	0.000000	0.001522	0.95	0.04	0.05	0.004546	0.000000	0.001522	0.95	0.04	0.05
IB1143-IB1133	IB1143	IB1133	8	165	0.0133	0.004347	0.000000	0.001450	1.03	0.03	0.05	0.004347	0.000000	0.001450	1.03	0.03	0.05	0.004347	0.000000	0.001450	1.03	0.03	0.05
IB1144-IB1143	IB1144	IB1143	8	135	0.0118	0.002579	0.000000	0.000822	0.84	0.03	0.04	0.002579	0.000000	0.000822	0.84	0.03	0.04	0.002579	0.000000	0.000822	0.84	0.03	0.04
IB1145-IB1135	IB1145	IB1135	8	373	0.0126	0.011117	0.000000	0.004024	1.34	0.05	0.08	0.011117	0.000000	0.004024	1.34	0.05	0.08	0.011117	0.000000	0.004024	1.34	0.05	0.08
IB1146-IB1145	IB1146	IB1145	8	220	0.0105	0.006687	0.000000	0.002316	1.08	0.04	0.06	0.006687	0.000000	0.002316	1.08	0.04	0.06	0.006687	0.000000	0.002316	1.08	0.04	0.06
IB1147-IB1146	IB1147	IB1146	8	233	0.0098	0.003179	0.000000	0.001032	0.84	0.03	0.05	0.003179	0.000000	0.001032	0.84	0.03	0.05	0.003179	0.000000	0.001032	0.84	0.03	0.05
IB1148-IB1147	IB1148	IB1147	8	32	0.0041	0.000850	0.000000	0.000246	0.41	0.02	0.03	0.000850	0.000000	0.000246	0.41	0.02	0.03	0.000850	0.000000	0.000246	0.41	0.02	0.03
IB1149-IB1136	IB1149	IB1136	8	317	0.0126	0.005292	0.000000	0.001796	1.07	0.04	0.06	0.005292	0.000000	0.001796	1.07	0.04	0.06	0.005292	0.000000	0.001796	1.07	0.04	0.06
IB1150-IB1137	IB1150	IB1137	8	302	0.0139	0.014429	0.000000	0.005343	1.51	0.06	0.09	0.014429	0.000000	0.005343	1.51	0.06	0.09	0.014429	0.000000	0.005343	1.51	0.06	0.09
IB12-IB13	IB12	IB13	8	459	0.0300	0.331585	0.000000	0.161253	4.97	0.22	0.34	0.331585	0.000000	0.161253	4.97	0.22	0.34	0.331585	0.000000	0.161253	4.97	0.22	0.34
IB13-IB14	IB13	IB14	12	596	0.0083	0.676647	0.000000	0.350116	3.70	0.39	0.39	0.676647	0.000000	0.350116	3.70	0.39	0.39	0.676647	0.000000	0.350116	3.70	0.39	0.39
IB14-IB15	IB14	IB15	12	296	0.0189	0.676647	0.000000	0.350116	4.97	0.31	0.31	0.676647	0.000000	0.350116	4.97	0.31	0.31	0.676647	0.000000	0.350116	4.97	0.31	0.31
IB15-IB16	IB15	IB16	12	296	0.0218	0.676647	0.000000	0.350116	5.23	0.30	0.30	0.676647	0.000000	0.350116	5.23	0.30	0.30	0.676647	0.000000	0.350116	5.23	0.30	0.30
IB1501-IB15	IB1501	IB15	8	100	0.0164	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
IB16-IB17	IB16	IB17	12	596	0.0062	0.678297	0.000000	0.351044	3.32	0.42	0.42	0.678297	0.000000	0.351044	3.32	0.42	0.42	0.678297	0.000000	0.351044	3.32	0.42	0.42
IB17-IB18	IB17	IB18	12	406	0.0063	0.678297	0.000000	0.351044	3.33	0.42	0.42	0.678297	0.000000	0.351044	3.33	0.42	0.42	0.678297	0.000000	0.351044	3.33	0.42	0.42
IB18-IB19	IB18	IB19	12	381	0.0302	0.679687	0.000000	0.351826	5.88	0.28	0.28	0.679687	0.000000	0.351826	5.88	0.28	0.28	0.679687	0.000000	0.351826	5.88	0.28	0.28
IB19-IB20	IB19	IB20	12	386	0.0083	0.684069	0.000000	0.354292	3.70	0.39	0.39	0.684069	0.000000	0.354292	3.70	0.39	0.39	0.684069	0.000000	0.354292	3.70	0.39	0.39
IB20-IB21D	IB20	IB21D	12	186	0.0080	0.685469	0.000000	0.355080	3.66	0.40	0.40	0.685469	0.000000	0.355080	3.66	0.40	0.40	0.685469	0.000000	0.355080	3.66	0.40	0.40
IB2101-IB21D	IB2101	IB21D	8	299	0.0201	0.050595	0.000000	0.020894	2.49	0.10	0.15	0.050595	0.000000	0.020894	2.49	0.10	0.15	0.050595	0.000000	0.020894	2.49	0.10	0.15
IB2102-IB2101	IB2102	IB2101	8	376	0.0142	0.049382	0.000000	0.020350	2.19	0.10	0.16	0.049382	0.000000	0.020350	2.19	0.10	0.16	0.049382	0.000000	0.020350	2.19	0.10	0.16
IB21D-IB22	IB21D	IB22	12	200	0.0080	0.722491	0.000000	0.375974	3.71	0.41	0.41	0.722491	0.000000	0.375974	3.71	0.41	0.41	0.722491	0.000000	0.375974	3.71	0.41	0.41
IB22-IB23	IB22	IB23	12	91	0.0102	0.722491	0.000000	0.375974	4.05	0.38	0.38	0.722491	0.000000	0.375974	4.05	0.38	0.38	0.722491	0.000000	0.375974	4.05	0.38	0.38
IB23-IB24	IB23	IB24	15	170	0.0034	1.010357	0.000000	0.541333	2.94	0.56	0.45	1.010357	0.000000	0.541333	2.94	0.56	0.45	1.010357	0.000000	0.541333	2.94	0.56	0.45
IB24-IB25	IB24	IB25	15	132	0.0035	1.010357	0.000000	0.541333	2.96	0.56	0.45	1.010357	0.000000	0.541333	2.96	0.56	0.45	1.010357	0.000000	0.541333	2.96	0.56	0.45
IB25-IB26S	IB25	IB26S	15	250	0.0052	1.080732	0.000000	0.582439	3.49	0.52	0.41	1.080732	0.000000	0.582439	3.49	0.52	0.41	1.080732	0.000000	0.582439	3.49	0.52	0.41
IB2501-IB25	IB2501	IB25	8	55	0.1236	0.094293	0.000000	0.041106	5.68	0.08	0.13	0.094293	0.000000	0.041106	5.68	0.08	0.13	0.094293	0.000000	0.041106	5.68	0.08	0.13
IB2502-IB2501	IB2502	IB2501	8	308	0.0039	0.094293	0.000000	0.041106	1.67	0.20	0.30	0.094293	0.000000	0.041106	1.67	0.20	0.30	0.094293	0.000000	0.041106	1.67	0.20	0.30
IB2503-IB2502	IB2503	IB2502	8	308	0.0052	0.081166	0.000000	0.034925	1.78	0.17	0.26	0.081166	0.000000	0.034925	1.78	0.17	0.26	0.081166	0.000000	0.034925	1.78	0.17	0.26
IB2504-IB2503	IB2504	IB2503	8	90	0.0041	0.081166	0.000000	0.034925	1.64	0.18	0.27	0.081166	0.000000	0.034925	1.64	0.18	0.27	0.081166	0.000000	0.034925	1.64	0.18	0.27
IB2505-IB2504	IB2505	IB2504	8	293	0.0107	0.073235	0.000000	0.031232	2.23	0.14	0.20	0.073235	0.000000	0.031232	2.23	0.14	0.20	0.073235	0.000000	0.031232	2.23	0.14	0.20
IB2506-IB2505	IB2506	IB2505	8	153	0.0131	0.061752	0.000000	0.025947	2.28	0.12	0.18	0.061752	0.000000	0.025947	2.28	0.12	0.18	0.061752	0.000000	0.025947	2.28	0.12	0.18
IB2507-IB2506	IB2507	IB2506	8	189	0.0055	0.061752	0.000000	0.025947	1.67	0.15	0.22	0.061752	0.000000	0.025947	1.67	0.15	0.22	0.061752	0.000000	0.025947	1.67	0.15	0.22
IB2508-IB2507	IB2508	IB2507	8	298	0.0054	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
IB2509-IB2504	IB2509	IB2504	8	44	0.0084	0.010273	0.000000	0.003693	1.14	0.06	0.08	0.010273	0.000000	0.003693	1.14	0.06	0.08	0.010273	0.000000	0.003693	1.14	0.06	0.08
IB2510-IB2509	IB2510	IB2509	8	426	0.0045	0.009541	0.000000	0.003408	0.89	0.06	0.09</												

City of Brea - Sewer Master Plan (November 2021)

Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
IB26S-IB27	IB26S	IB27	15	499	0.0065	1.080732	0.000000	0.582439	3.78	0.49	0.39	1.080732	0.000000	0.582439	3.78	0.49	0.39	1.080732	0.000000	0.582439	3.78	0.49	0.39
IB27-IB28	IB27	IB28	15	500	0.0063	1.086751	0.000000	0.585966	3.74	0.49	0.39	1.086751	0.000000	0.585966	3.74	0.49	0.39	1.086751	0.000000	0.585966	3.74	0.49	0.39
IB28-IB29	IB28	IB29	15	329	0.0112	1.088343	0.000000	0.586899	4.62	0.42	0.34	1.088343	0.000000	0.586899	4.62	0.42	0.34	1.088343	0.000000	0.586899	4.62	0.42	0.34
IB2801-IB28	IB2801	IB28	12	13	0.1592	0.002897	0.000000	0.000933	2.02	0.01	0.01	0.002897	0.000000	0.000933	2.02	0.01	0.01	0.002897	0.000000	0.000933	2.02	0.01	0.01
IB2802-IB2801	IB2802	IB2801	12	175	0.0058	0.001166	0.000000	0.000347	0.48	0.02	0.02	0.001166	0.000000	0.000347	0.48	0.02	0.02	0.001166	0.000000	0.000347	0.48	0.02	0.02
IB2803-IB2802	IB2803	IB2802	12	455	0.0027	0.001166	0.000000	0.000347	0.37	0.02	0.02	0.001166	0.000000	0.000347	0.37	0.02	0.02	0.001166	0.000000	0.000347	0.37	0.02	0.02
IB2804-IB2803	IB2804	IB2803	10	335	0.0053	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
IB2805S-IB2804	IB2805S	IB2804	15	20	0.0025	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
IB29-IE10	IB29	IE10	15	24	0.0129	1.088343	0.000000	0.586899	4.86	0.41	0.33	1.088343	0.000000	0.586899	4.86	0.41	0.33	1.088343	0.000000	0.586899	4.86	0.41	0.33
IC01-IC02	IC01	IC02	8	352	0.0151	0.007042	0.000000	0.002450	1.25	0.04	0.06	0.007042	0.000000	0.002450	1.25	0.04	0.06	0.007042	0.000000	0.002450	1.25	0.04	0.06
IC02-IC03	IC02	IC03	8	350	0.0366	0.012225	0.000000	0.004462	2.00	0.04	0.06	0.012225	0.000000	0.004462	2.00	0.04	0.06	0.012225	0.000000	0.004462	2.00	0.04	0.06
IC03-IC04	IC03	IC04	8	311	0.0395	0.015645	0.000000	0.005834	2.22	0.05	0.07	0.015645	0.000000	0.005834	2.22	0.05	0.07	0.015645	0.000000	0.005834	2.22	0.05	0.07
IC04-IC05	IC04	IC05	8	227	0.0280	0.016086	0.000000	0.006013	1.98	0.05	0.08	0.016086	0.000000	0.006013	1.98	0.05	0.08	0.016086	0.000000	0.006013	1.98	0.05	0.08
IC05-IC06	IC05	IC06	8	221	0.0241	0.026978	0.000000	0.010548	2.20	0.07	0.10	0.026978	0.000000	0.010548	2.20	0.07	0.10	0.026978	0.000000	0.010548	2.20	0.07	0.10
IC0501-IC05	IC0501	IC05	8	350	0.0456	0.012409	0.000000	0.004535	2.17	0.04	0.06	0.012409	0.000000	0.004535	2.17	0.04	0.06	0.012409	0.000000	0.004535	2.17	0.04	0.06
IC0502-IC0501	IC0502	IC0501	8	410	0.0444	0.008828	0.000000	0.003132	1.94	0.04	0.05	0.008828	0.000000	0.003132	1.94	0.04	0.05	0.008828	0.000000	0.003132	1.94	0.04	0.05
IC06-IC07	IC06	IC07	8	210	0.0223	0.028349	0.000000	0.011132	2.17	0.07	0.11	0.028349	0.000000	0.011132	2.17	0.07	0.11	0.028349	0.000000	0.011132	2.17	0.07	0.11
IC07-IC08	IC07	IC08	8	256	0.0440	0.033283	0.000000	0.013253	2.90	0.07	0.10	0.033283	0.000000	0.013253	2.90	0.07	0.10	0.033283	0.000000	0.013253	2.90	0.07	0.10
IC0701-IC07	IC0701	IC07	8	160	0.0328	0.005862	0.000000	0.002007	1.54	0.03	0.05	0.005862	0.000000	0.002007	1.54	0.03	0.05	0.005862	0.000000	0.002007	1.54	0.03	0.05
IC08-IC09	IC08	IC09	8	180	0.0209	0.051801	0.000000	0.021436	2.55	0.10	0.15	0.051801	0.000000	0.021436	2.55	0.10	0.15	0.051801	0.000000	0.021436	2.55	0.10	0.15
IC0801-IC08	IC0801	IC08	8	34	0.0206	0.019686	0.000000	0.007489	1.89	0.06	0.09	0.019686	0.000000	0.007489	1.89	0.06	0.09	0.019686	0.000000	0.007489	1.89	0.06	0.09
IC0802-IC0801	IC0802	IC0801	8	139	0.0099	0.019686	0.000000	0.007489	1.47	0.07	0.11	0.019686	0.000000	0.007489	1.47	0.07	0.11	0.019686	0.000000	0.007489	1.47	0.07	0.11
IC0803-IC0802	IC0803	IC0802	8	322	0.0286	0.017887	0.000000	0.006748	2.06	0.05	0.08	0.017887	0.000000	0.006748	2.06	0.05	0.08	0.017887	0.000000	0.006748	2.06	0.05	0.08
IC0804-IC0803	IC0804	IC0803	8	311	0.0318	0.014114	0.000000	0.005216	1.99	0.05	0.07	0.014114	0.000000	0.005216	1.99	0.05	0.07	0.014114	0.000000	0.005216	1.99	0.05	0.07
IC0805-IC0804	IC0805	IC0804	8	223	0.0226	0.008773	0.000000	0.003111	1.53	0.04	0.06	0.008773	0.000000	0.003111	1.53	0.04	0.06	0.008773	0.000000	0.003111	1.53	0.04	0.06
IC0806-IC0805	IC0806	IC0805	8	90	0.0146	0.001314	0.000000	0.000395	0.74	0.02	0.03	0.001314	0.000000	0.000395	0.74	0.02	0.03	0.001314	0.000000	0.000395	0.74	0.02	0.03
IC0807-IC0805	IC0807	IC0805	8	152	0.0380	0.004134	0.000000	0.001373	1.46	0.03	0.04	0.004134	0.000000	0.001373	1.46	0.03	0.04	0.004134	0.000000	0.001373	1.46	0.03	0.04
IC09-IC10	IC09	IC10	8	184	0.0356	0.075850	0.000000	0.032446	3.44	0.10	0.15	0.075850	0.000000	0.032446	3.44	0.10	0.15	0.075850	0.000000	0.032446	3.44	0.10	0.15
IC0901-IC09	IC0901	IC09	8	350	0.0340	0.027128	0.000000	0.010612	2.49	0.06	0.10	0.027128	0.000000	0.010612	2.49	0.06	0.10	0.027128	0.000000	0.010612	2.49	0.06	0.10
IC0902-IC0901	IC0902	IC0901	8	350	0.0229	0.022520	0.000000	0.008668	2.05	0.06	0.10	0.022520	0.000000	0.008668	2.05	0.06	0.10	0.022520	0.000000	0.008668	2.05	0.06	0.10
IC0903-IC0902	IC0903	IC0902	8	308	0.0260	0.017755	0.000000	0.006694	1.99	0.06	0.08	0.017755	0.000000	0.006694	1.99	0.06	0.08	0.017755	0.000000	0.006694	1.99	0.06	0.08
IC0904-IC0903	IC0904	IC0903	8	140	0.0009	0.012856	0.000000	0.004713	0.56	0.11	0.16	0.012856	0.000000	0.004713	0.56	0.11	0.16	0.012856	0.000000	0.004713	0.56	0.11	0.16
IC0905-IC0904	IC0905	IC0904	8	350	0.0276	0.010098	0.000000	0.003625	1.72	0.04	0.06	0.010098	0.000000	0.003625	1.72	0.04	0.06	0.010098	0.000000	0.003625	1.72	0.04	0.06
IC0906-IC0905	IC0906	IC0905	8	336	0.0573	0.005830	0.000000	0.001995	1.87	0.03	0.04	0.005830	0.000000	0.001995	1.87	0.03	0.04	0.005830	0.000000	0.001995	1.87	0.03	0.04
IC10-IC11	IC10	IC11	8	145	0.0233	0.077024	0.000000	0.032992	2.98	0.11	0.17	0.077024	0.000000	0.032992	2.98	0.11	0.17	0.077024	0.000000	0.032992	2.98	0.11	0.17
IC11-IC12	IC11	IC12	8	163	0.0550	0.077833	0.000000	0.033369	4.04	0.09	0.14	0.077833	0.000000	0.033369	4.04	0.09	0.14	0.077833	0.000000	0.033369	4.04	0.09	0.14
IC12-IC13	IC12	IC13	8	96	0.0584	0.081061	0.000000	0.034876	4.18	0.09	0.14	0.081061	0.000000	0.034876	4.18	0.09	0.14	0.081061	0.000000	0.034876	4.18	0.09	0.14
IC1201-IC12	IC1201	IC12	8	335	0.0280	0.003884	0.000000	0.001283	1.29	0.03	0.04	0.003884	0.000000	0.001283	1.29	0.03	0.04	0.003884	0.000000	0.001283	1.29	0.03	0.04
IC13-IC14	IC13	IC14	8	165	0.0171	0.082473	0.000000	0.035537	2.72	0.13	0.19	0.082473	0.000000	0.035537	2.72	0.13	0.19	0.082473	0.000000	0.035537	2.72	0.13	0.19
IC14-IC15	IC14	IC15	8	108	0.0124	0.091737	0.000000	0.039896	2.51	0.15	0.22	0.091737	0.000000	0.039896	2.51	0.15	0.22	0.091737	0.000000	0.039896	2.51	0.15	0.22
IC1401-IC14	IC1401	IC14	8	301	0.0259	0.011434	0.000000	0.004149	1.74	0.04	0.07	0.011434	0.000000	0.004149	1.74	0.04	0.07	0.011434	0.000000	0.004149	1.74	0.04	0.07
IC1402-IC1401	IC1402	IC1401	8	394	0.0501	0.008719	0.000000	0.003090	2.02	0.03	0.05	0.008719	0.000000	0.003090	2.02	0.03	0.05	0.008719	0.000000	0.003090	2.02	0.03	0.05
IC15-IC16	IC15	IC16	8	105	0.0147	0.093453	0.000000	0.040708	2.68	0.14	0.21	0.093453	0.000000	0.040708	2.68	0.14	0.21	0.093453	0.000000	0.040708	2.68	0.14	0.21
IC16-IC17	IC16	IC17	8	146	0.0147	0.095008	0.000000	0.041445	2.69	0.14	0.21	0.095008	0.000000	0.041445	2.69	0.14	0.21	0.095008	0.000000	0.041445	2.69	0.14	0.21
IC17-IC18	IC17	IC18	8	158	0.0472	0.095995	0.000000	0.041913	4.07	0.11	0.16	0.095995	0.000000	0.041913	4.07	0.11	0.16	0.095995	0.000000	0.041913	4.07	0.11	0.16
IC18-IC19	IC18	IC19	8	142	0.0444	0.097940	0.000000	0.042837	4.01	0.11	0.17	0.097940	0.000000	0.042837	4.01	0.11	0.17	0.097940	0.000000				

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Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
IC19-IC20	IC19	IC20	8	272	0.0782	0.099008	0.000000	0.043345	4.91	0.10	0.14	0.099008	0.000000	0.043345	4.91	0.10	0.14	0.099008	0.000000	0.043345	4.91	0.10	0.14
IC20-IC21	IC20	IC21	8	90	0.0328	0.114019	0.000000	0.050533	3.77	0.13	0.19	0.114019	0.000000	0.050533	3.77	0.13	0.19	0.114019	0.000000	0.050533	3.77	0.13	0.19
IC2001-IC20	IC2001	IC20	8	31	0.0376	0.017877	0.000000	0.006744	2.27	0.05	0.08	0.017877	0.000000	0.006744	2.27	0.05	0.08	0.017877	0.000000	0.006744	2.27	0.05	0.08
IC2002-IC2001	IC2002	IC2001	8	70	0.0379	0.017877	0.000000	0.006744	2.28	0.05	0.08	0.017877	0.000000	0.006744	2.28	0.05	0.08	0.017877	0.000000	0.006744	2.28	0.05	0.08
IC2003-IC2002	IC2003	IC2002	8	56	0.0377	0.017550	0.000000	0.006610	2.26	0.05	0.08	0.017550	0.000000	0.006610	2.26	0.05	0.08	0.017550	0.000000	0.006610	2.26	0.05	0.08
IC200301-IC2003	IC200301	IC2003	8	218	0.0111	0.010068	0.000000	0.003613	1.25	0.05	0.08	0.010068	0.000000	0.003613	1.25	0.05	0.08	0.010068	0.000000	0.003613	1.25	0.05	0.08
IC200302-IC200301	IC200302	IC200301	8	75	0.0125	0.008396	0.000000	0.002966	1.23	0.05	0.07	0.008396	0.000000	0.002966	1.23	0.05	0.07	0.008396	0.000000	0.002966	1.23	0.05	0.07
IC200303-IC200302	IC200303	IC200302	8	117	0.0662	0.007209	0.000000	0.002513	2.10	0.03	0.04	0.007209	0.000000	0.002513	2.10	0.03	0.04	0.007209	0.000000	0.002513	2.10	0.03	0.04
IC200304-IC200303	IC200304	IC200303	8	192	0.0400	0.007209	0.000000	0.002513	1.76	0.03	0.05	0.007209	0.000000	0.002513	1.76	0.03	0.05	0.007209	0.000000	0.002513	1.76	0.03	0.05
IC2004-IC2003	IC2004	IC2003	8	146	0.0779	0.006897	0.000000	0.002395	2.19	0.03	0.04	0.006897	0.000000	0.002395	2.19	0.03	0.04	0.006897	0.000000	0.002395	2.19	0.03	0.04
IC2005-IC2004	IC2005	IC2004	8	150	0.0310	0.004966	0.000000	0.001676	1.44	0.03	0.04	0.004966	0.000000	0.001676	1.44	0.03	0.04	0.004966	0.000000	0.001676	1.44	0.03	0.04
IC200501-IC2005	IC200501	IC2005	8	164	0.0200	0.002227	0.000000	0.000701	0.97	0.02	0.03	0.002227	0.000000	0.000701	0.97	0.02	0.03	0.002227	0.000000	0.000701	0.97	0.02	0.03
IC2006-IC2005	IC2006	IC2005	8	36	0.0445	0.001249	0.000000	0.000374	1.07	0.01	0.02	0.001249	0.000000	0.000374	1.07	0.01	0.02	0.001249	0.000000	0.000374	1.07	0.01	0.02
IC21-IC22	IC21	IC22	8	200	0.0233	0.115797	0.000000	0.051390	3.35	0.14	0.21	0.115797	0.000000	0.051390	3.35	0.14	0.21	0.115797	0.000000	0.051390	3.35	0.14	0.21
IC22-IC23D	IC22	IC23D	8	281	0.0241	0.119113	0.000000	0.052992	3.43	0.14	0.21	0.119113	0.000000	0.052992	3.43	0.14	0.21	0.119113	0.000000	0.052992	3.43	0.14	0.21
IC2201-IC22	IC2201	IC22	8	104	0.0385	0.002653	0.000000	0.000848	1.28	0.02	0.03	0.002653	0.000000	0.000848	1.28	0.02	0.03	0.002653	0.000000	0.000848	1.28	0.02	0.03
IC2301-IC23D	IC2301	IC23D	8	320	0.0029	0.173316	0.000000	0.079662	1.78	0.30	0.45	0.173316	0.000000	0.079662	1.78	0.30	0.45	0.173316	0.000000	0.079662	1.78	0.30	0.45
IC2302-IC2301	IC2302	IC2301	8	42	0.0045	0.007024	0.000000	0.002443	0.82	0.05	0.08	0.007024	0.000000	0.002443	0.82	0.05	0.08	0.007024	0.000000	0.002443	0.82	0.05	0.08
IC2303-IC2302	IC2303	IC2302	8	380	0.0018	0.006440	0.000000	0.002223	0.58	0.06	0.10	0.006440	0.000000	0.002223	0.58	0.06	0.10	0.006440	0.000000	0.002223	0.58	0.06	0.10
IC2304D-IC2301	IC2304D	IC2301	8	288	0.0154	0.164415	0.000000	0.075225	3.21	0.19	0.28	0.164415	0.000000	0.075225	3.21	0.19	0.28	0.164415	0.000000	0.075225	3.21	0.19	0.28
IC2305-IC2304D	IC2305	IC2304D	8	367	0.0375	0.009873	0.000000	0.003537	1.89	0.04	0.06	0.009873	0.000000	0.003537	1.89	0.04	0.06	0.009873	0.000000	0.003537	1.89	0.04	0.06
IC2306-IC2305	IC2306	IC2305	8	361	0.0482	0.005611	0.000000	0.001914	1.74	0.03	0.04	0.005611	0.000000	0.001914	1.74	0.03	0.04	0.005611	0.000000	0.001914	1.74	0.03	0.04
IC2307-IC2304D	IC2307	IC2304D	8	158	0.0095	0.032714	0.000000	0.013007	1.68	0.09	0.14	0.032714	0.000000	0.013007	1.68	0.09	0.14	0.032714	0.000000	0.013007	1.68	0.09	0.14
IC2308-IC2307	IC2308	IC2307	8	148	0.0037	0.030914	0.000000	0.012231	1.19	0.11	0.17	0.030914	0.000000	0.012231	1.19	0.11	0.17	0.030914	0.000000	0.012231	1.19	0.11	0.17
IC2309-IC2308	IC2309	IC2308	8	284	0.0322	0.018091	0.000000	0.006832	2.16	0.05	0.08	0.018091	0.000000	0.006832	2.16	0.05	0.08	0.018091	0.000000	0.006832	2.16	0.05	0.08
IC2310-IC2309	IC2310	IC2309	8	267	0.0497	0.013974	0.000000	0.005160	2.32	0.04	0.06	0.013974	0.000000	0.005160	2.32	0.04	0.06	0.013974	0.000000	0.005160	2.32	0.04	0.06
IC2311-IC2310	IC2311	IC2310	8	207	0.0529	0.009048	0.000000	0.003217	2.08	0.03	0.05	0.009048	0.000000	0.003217	2.08	0.03	0.05	0.009048	0.000000	0.003217	2.08	0.03	0.05
IC2312-IC2311	IC2312	IC2311	8	176	0.0528	0.003221	0.000000	0.001047	1.52	0.02	0.03	0.003221	0.000000	0.001047	1.52	0.02	0.03	0.003221	0.000000	0.001047	1.52	0.02	0.03
IC2313-IC2312	IC2313	IC2312	8	196	0.0320	0.001764	0.000000	0.000544	1.06	0.02	0.03	0.001764	0.000000	0.000544	1.06	0.02	0.03	0.001764	0.000000	0.000544	1.06	0.02	0.03
IC2314-IC2311	IC2314	IC2311	8	87	0.0275	0.002347	0.000000	0.000742	1.10	0.02	0.03	0.002347	0.000000	0.000742	1.10	0.02	0.03	0.002347	0.000000	0.000742	1.10	0.02	0.03
IC2315-IC2310	IC2315	IC2310	8	201	0.0036	0.003196	0.000000	0.001038	0.60	0.04	0.06	0.003196	0.000000	0.001038	0.60	0.04	0.06	0.003196	0.000000	0.001038	0.60	0.04	0.06
IC2316-IC2308	IC2316	IC2308	8	299	0.0311	0.012932	0.000000	0.004743	1.93	0.05	0.07	0.012932	0.000000	0.004743	1.93	0.05	0.07	0.012932	0.000000	0.004743	1.93	0.05	0.07
IC2317-IC2316	IC2317	IC2316	8	299	0.0477	0.010224	0.000000	0.003674	2.08	0.04	0.06	0.010224	0.000000	0.003674	2.08	0.04	0.06	0.010224	0.000000	0.003674	2.08	0.04	0.06
IC2318-IC2317	IC2318	IC2317	8	369	0.0439	0.004531	0.000000	0.001517	1.58	0.03	0.04	0.004531	0.000000	0.001517	1.58	0.03	0.04	0.004531	0.000000	0.001517	1.58	0.03	0.04
IC2319-IC2304D	IC2319	IC2304D	8	281	0.0032	0.128047	0.000000	0.057326	1.69	0.25	0.37	0.128047	0.000000	0.057326	1.69	0.25	0.37	0.128047	0.000000	0.057326	1.69	0.25	0.37
IC2320-IC2319	IC2320	IC2319	8	442	0.0164	0.126783	0.000000	0.056711	3.05	0.16	0.24	0.126783	0.000000	0.056711	3.05	0.16	0.24	0.126783	0.000000	0.056711	3.05	0.16	0.24
IC2321-IC2320	IC2321	IC2320	8	442	0.0182	0.120124	0.000000	0.053481	3.11	0.15	0.23	0.120124	0.000000	0.053481	3.11	0.15	0.23	0.120124	0.000000	0.053481	3.11	0.15	0.23
IC2322-IC2321	IC2322	IC2321	8	146	0.0123	0.112808	0.000000	0.049950	2.65	0.16	0.24	0.112808	0.000000	0.049950	2.65	0.16	0.24	0.112808	0.000000	0.049950	2.65	0.16	0.24
IC2323-IC2322	IC2323	IC2322	8	43	0.0181	0.110866	0.000000	0.049016	3.03	0.15	0.22	0.110866	0.000000	0.049016	3.03	0.15	0.22	0.110866	0.000000	0.049016	3.03	0.15	0.22
IC2324-IC2323	IC2324	IC2323	8	119	0.0087	0.110866	0.000000	0.049016	2.33	0.18	0.26	0.110866	0.000000	0.049016	2.33	0.18	0.26	0.110866	0.000000	0.049016	2.33	0.18	0.26
IC2325-IC2324	IC2325	IC2324	8	33	0.0012	0.099246	0.000000	0.043458	1.11	0.28	0.42	0.099246	0.000000	0.043458	1.11	0.28	0.42	0.099246	0.000000	0.043458	1.11	0.28	0.42
IC2326-IC2325	IC2326	IC2325	8	132	0.1157	0.099246	0.000000	0.043458	5.64	0.09	0.13	0.099246	0.000000	0.043458	5.64	0.09	0.13	0.099246	0.000000	0.043458	5.64	0.09	0.13
IC2327-IC2326	IC2327	IC2326	8	52	0.1475	0.086683	0.000000	0.037513	5.89	0.08	0.12	0.086683	0.000000	0.037513	5.89	0.08	0.12	0.086683	0.000000	0.037513	5.89	0.08	0.12
IC2328-IC2327	IC2328	IC2327	8	185	0.0049	0.086683	0.000000	0.037513	1.77	0.18	0.27	0.086683	0.000000	0.037513	1.77	0.18	0.27	0.086683	0.000000	0.037513	1.77	0.18	0.27
IC2329D-IC2328	IC2329D	IC2328	8	114	0.0057	0.085566	0.000000	0.036988	1.87	0.17	0.26	0.085566	0.000000	0.036988	1.87	0.17	0.26	0.085566	0.000000	0.036988	1.87	0.17	0.26
IC2330-IC2329D	IC2330	IC																					

City of Brea - Sewer Master Plan (November 2021)

Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
IC2331-IC2330	IC2331	IC2330	8	276	0.0224	0.070776	0.000000	0.030094	2.86	0.11	0.17	0.070776	0.000000	0.030094	2.86	0.11	0.17	0.070776	0.000000	0.030094	2.86	0.11	0.17
IC2332-IC2331	IC2332	IC2331	8	281	0.0392	0.061042	0.000000	0.025623	3.34	0.09	0.14	0.061042	0.000000	0.025623	3.34	0.09	0.14	0.061042	0.000000	0.025623	3.34	0.09	0.14
IC2333-IC2332	IC2333	IC2332	8	156	0.0379	0.030230	0.000000	0.011937	2.67	0.07	0.10	0.030230	0.000000	0.011937	2.67	0.07	0.10	0.030230	0.000000	0.011937	2.67	0.07	0.10
IC2334D-IC2333	IC2334D	IC2333	8	227	0.0426	0.027203	0.000000	0.010644	2.69	0.06	0.09	0.027203	0.000000	0.010644	2.69	0.06	0.09	0.027203	0.000000	0.010644	2.69	0.06	0.09
IC2335D-IC2334D	IC2335D	IC2334D	8	205	0.0200	0.016396	0.000000	0.006139	1.77	0.06	0.08	0.016396	0.000000	0.006139	1.77	0.06	0.08	0.016396	0.000000	0.006139	1.77	0.06	0.08
IC2336-IC2335D	IC2336	IC2335D	8	280	0.0200	0.010663	0.000000	0.003846	1.56	0.05	0.07	0.010663	0.000000	0.003846	1.56	0.05	0.07	0.010663	0.000000	0.003846	1.56	0.05	0.07
IC2337-IC2336	IC2337	IC2336	8	230	0.0624	0.006232	0.000000	0.002145	1.97	0.03	0.04	0.006232	0.000000	0.002145	1.97	0.03	0.04	0.006232	0.000000	0.002145	1.97	0.03	0.04
IC2338-IC2335D	IC2338	IC2335D	8	160	0.0479	0.004517	0.000000	0.001512	1.62	0.03	0.04	0.004517	0.000000	0.001512	1.62	0.03	0.04	0.004517	0.000000	0.001512	1.62	0.03	0.04
IC2339-IC2334D	IC2339	IC2334D	8	500	0.0146	0.009631	0.000000	0.003443	1.35	0.05	0.07	0.009631	0.000000	0.003443	1.35	0.05	0.07	0.009631	0.000000	0.003443	1.35	0.05	0.07
IC2340-IC2332	IC2340	IC2332	8	200	0.0040	0.031272	0.000000	0.012385	1.22	0.11	0.17	0.031272	0.000000	0.012385	1.22	0.11	0.17	0.031272	0.000000	0.012385	1.22	0.11	0.17
IC2341-IC2340	IC2341	IC2340	8	262	0.0501	0.030691	0.000000	0.012135	2.95	0.06	0.09	0.030691	0.000000	0.012135	2.95	0.06	0.09	0.030691	0.000000	0.012135	2.95	0.06	0.09
IC2342-IC2341	IC2342	IC2341	8	229	0.0220	0.025416	0.000000	0.009886	2.10	0.07	0.10	0.025416	0.000000	0.009886	2.10	0.07	0.10	0.025416	0.000000	0.009886	2.10	0.07	0.10
IC2343-IC2342	IC2343	IC2342	8	275	0.0740	0.022740	0.000000	0.008760	3.09	0.05	0.07	0.022740	0.000000	0.008760	3.09	0.05	0.07	0.022740	0.000000	0.008760	3.09	0.05	0.07
IC2344-IC2343	IC2344	IC2343	8	164	0.0288	0.015527	0.000000	0.005786	1.98	0.05	0.08	0.015527	0.000000	0.005786	1.98	0.05	0.08	0.015527	0.000000	0.005786	1.98	0.05	0.08
IC2345-IC2344	IC2345	IC2344	8	67	0.0481	0.009329	0.000000	0.003326	2.03	0.04	0.05	0.009329	0.000000	0.003326	2.03	0.04	0.05	0.009329	0.000000	0.003326	2.03	0.04	0.05
IC2346-IC2345	IC2346	IC2345	8	336	0.0961	0.008229	0.000000	0.002902	2.49	0.03	0.04	0.008229	0.000000	0.002902	2.49	0.03	0.04	0.008229	0.000000	0.002902	2.49	0.03	0.04
IC2347-IC2331	IC2347	IC2331	8	169	0.0238	0.007683	0.000000	0.002693	1.50	0.04	0.06	0.007683	0.000000	0.002693	1.50	0.04	0.06	0.007683	0.000000	0.002693	1.50	0.04	0.06
IC2348-IC2347	IC2348	IC2347	8	297	0.0583	0.005727	0.000000	0.001957	1.87	0.03	0.04	0.005727	0.000000	0.001957	1.87	0.03	0.04	0.005727	0.000000	0.001957	1.87	0.03	0.04
IC2349-IC2330	IC2349	IC2330	8	225	0.0040	0.007819	0.000000	0.002745	0.81	0.06	0.09	0.007819	0.000000	0.002745	0.81	0.06	0.09	0.007819	0.000000	0.002745	0.81	0.06	0.09
IC2350-IC2349	IC2350	IC2349	8	238	0.0649	0.006001	0.000000	0.002059	1.97	0.03	0.04	0.006001	0.000000	0.002059	1.97	0.03	0.04	0.006001	0.000000	0.002059	1.97	0.03	0.04
IC2351-IC2329D	IC2351	IC2329D	8	175	0.0199	0.007045	0.000000	0.002451	1.37	0.04	0.06	0.007045	0.000000	0.002451	1.37	0.04	0.06	0.007045	0.000000	0.002451	1.37	0.04	0.06
IC2352-IC2351	IC2352	IC2351	8	273	0.0660	0.006253	0.000000	0.002153	2.01	0.03	0.04	0.006253	0.000000	0.002153	2.01	0.03	0.04	0.006253	0.000000	0.002153	2.01	0.03	0.04
IC2353-IC2326	IC2353	IC2326	8	201	0.0055	0.015247	0.000000	0.005673	1.11	0.07	0.11	0.015247	0.000000	0.005673	1.11	0.07	0.11	0.015247	0.000000	0.005673	1.11	0.07	0.11
IC2354-IC2353	IC2354	IC2353	8	341	0.0172	0.013884	0.000000	0.005124	1.60	0.05	0.08	0.013884	0.000000	0.005124	1.60	0.05	0.08	0.013884	0.000000	0.005124	1.60	0.05	0.08
IC2355S-IC2354	IC2355S	IC2354	8	484	0.0571	0.009682	0.000000	0.003463	2.18	0.03	0.05	0.009682	0.000000	0.003463	2.18	0.03	0.05	0.009682	0.000000	0.003463	2.18	0.03	0.05
IC2356-IC2324	IC2356	IC2324	8	133	0.0407	0.014963	0.000000	0.005558	2.21	0.05	0.07	0.014963	0.000000	0.005558	2.21	0.05	0.07	0.014963	0.000000	0.005558	2.21	0.05	0.07
IC2357-IC2356	IC2357	IC2356	8	155	0.0528	0.014963	0.000000	0.005558	2.42	0.04	0.06	0.014963	0.000000	0.005558	2.42	0.04	0.06	0.014963	0.000000	0.005558	2.42	0.04	0.06
IC2358-IC2357	IC2358	IC2357	8	128	0.0209	0.014012	0.000000	0.005175	1.72	0.05	0.08	0.014012	0.000000	0.005175	1.72	0.05	0.08	0.014012	0.000000	0.005175	1.72	0.05	0.08
IC2359-IC2358	IC2359	IC2358	8	259	0.0363	0.014012	0.000000	0.005175	2.08	0.05	0.07	0.014012	0.000000	0.005175	2.08	0.05	0.07	0.014012	0.000000	0.005175	2.08	0.05	0.07
IC2360-IC2359	IC2360	IC2359	8	95	0.0492	0.010406	0.000000	0.003745	2.11	0.04	0.06	0.010406	0.000000	0.003745	2.11	0.04	0.06	0.010406	0.000000	0.003745	2.11	0.04	0.06
IC2361-IC2360	IC2361	IC2360	8	286	0.0488	0.010134	0.000000	0.003639	2.09	0.04	0.05	0.010134	0.000000	0.003639	2.09	0.04	0.05	0.010134	0.000000	0.003639	2.09	0.04	0.05
IC2362S-IC2361	IC2362S	IC2361	8	239	0.0236	0.005227	0.000000	0.001772	1.33	0.03	0.05	0.005227	0.000000	0.001772	1.33	0.03	0.05	0.005227	0.000000	0.001772	1.33	0.03	0.05
IC2363-IC2321	IC2363	IC2321	8	333	0.0440	0.003099	0.000000	0.001004	1.41	0.02	0.03	0.003099	0.000000	0.001004	1.41	0.02	0.03	0.003099	0.000000	0.001004	1.41	0.02	0.03
IC23D-IC24	IC23D	IC24	8	104	0.0041	0.277551	0.000000	0.132904	2.29	0.35	0.53	0.277551	0.000000	0.132904	2.29	0.35	0.53	0.277551	0.000000	0.132904	2.29	0.35	0.53
IC24-IC25	IC24	IC25	8	184	0.0035	0.278336	0.000000	0.133313	2.15	0.37	0.56	0.278336	0.000000	0.133313	2.15	0.37	0.56	0.278336	0.000000	0.133313	2.15	0.37	0.56
IC25-IC26	IC25	IC26	8	301	0.0126	0.284454	0.000000	0.136501	3.48	0.26	0.39	0.284454	0.000000	0.136501	3.48	0.26	0.39	0.284454	0.000000	0.136501	3.48	0.26	0.39
IC2501-IC25	IC2501	IC25	8	171	0.0326	0.006266	0.000000	0.002158	1.57	0.03	0.05	0.006266	0.000000	0.002158	1.57	0.03	0.05	0.006266	0.000000	0.002158	1.57	0.03	0.05
IC2502-IC2501	IC2502	IC2501	8	301	0.0626	0.005414	0.000000	0.001841	1.88	0.03	0.04	0.005414	0.000000	0.001841	1.88	0.03	0.04	0.005414	0.000000	0.001841	1.88	0.03	0.04
IC26-IC27	IC26	IC27	8	296	0.0133	0.287823	0.000000	0.138259	3.55	0.26	0.39	0.287823	0.000000	0.138259	3.55	0.26	0.39	0.287823	0.000000	0.138259	3.55	0.26	0.39
IC27-IC28	IC27	IC28	8	328	0.0320	0.291215	0.000000	0.140031	4.90	0.21	0.31	0.291215	0.000000	0.140031	4.90	0.21	0.31	0.291215	0.000000	0.140031	4.90	0.21	0.31
IC28-IC29	IC28	IC29	8	246	0.0109	0.293546	0.000000	0.141250	3.32	0.28	0.41	0.293546	0.000000	0.141250	3.32	0.28	0.41	0.293546	0.000000	0.141250	3.32	0.28	0.41
IC29-IC30	IC29	IC30	8	291	0.0198	0.310001	0.000000	0.149877	4.19	0.24	0.36	0.310001	0.000000	0.149877	4.19	0.24	0.36	0.310001	0.000000	0.149877	4.19	0.24	0.36
IC2901-IC29	IC2901	IC29	8	366	0.0186	0.020097	0.000000	0.007659	1.84	0.06	0.10	0.020097	0.000000	0.007659	1.84	0.06	0.10	0.020097	0.000000	0.007659	1.84	0.06	0.10
IC2902-IC2901	IC2902	IC2901	8	340	0.0127	0.016889	0.000000	0.006340	1.53	0.06	0.10	0.016889	0.000000	0.006340	1.53	0.06	0.10	0.016889	0.000000	0.006340	1.53	0.06	0.10
IC2903-IC2902	IC2903	IC2902	8	340	0.0006	0.005784	0.000000	0.001978	0.38	0.08	0.12	0.005784	0.000000	0.001978	0.38	0.08	0.12	0.005784	0.000000	0.001978	0.38	0.08	0.12
IC2904-IC2902	IC2904	IC2902	8	235	0.0478	0.00																	

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Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
IC30-IC31	IC30	IC31	8	155	0.0366	0.318161	0.000000	0.154170	5.27	0.21	0.31	0.318161	0.000000	0.154170	5.27	0.21	0.31	0.318161	0.000000	0.154170	5.27	0.21	0.31
IC3001-IC30	IC3001	IC30	8	296	0.0305	0.010681	0.000000	0.003853	1.80	0.04	0.06	0.010681	0.000000	0.003853	1.80	0.04	0.06	0.010681	0.000000	0.003853	1.80	0.04	0.06
IC3002-IC3001	IC3002	IC3001	8	283	0.0305	0.007559	0.000000	0.002646	1.63	0.04	0.05	0.007559	0.000000	0.002646	1.63	0.04	0.05	0.007559	0.000000	0.002646	1.63	0.04	0.05
IC3003-IC3002	IC3003	IC3002	8	174	0.0244	0.003363	0.000000	0.001097	1.18	0.03	0.04	0.003363	0.000000	0.001097	1.18	0.03	0.04	0.003363	0.000000	0.001097	1.18	0.03	0.04
IC31-IC32	IC31	IC32	8	142	0.0130	0.318442	0.000000	0.154318	3.62	0.28	0.41	0.318442	0.000000	0.154318	3.62	0.28	0.41	0.318442	0.000000	0.154318	3.62	0.28	0.41
IC32-IC33D	IC32	IC33D	8	366	0.0030	0.322450	0.000000	0.156430	2.07	0.43	0.65	0.322450	0.000000	0.156430	2.07	0.43	0.65	0.322450	0.000000	0.156430	2.07	0.43	0.65
IC3201-IC32	IC3201	IC32	8	87	0.0001	0.002253	0.000000	0.000710	0.16	0.08	0.11	0.002253	0.000000	0.000710	0.16	0.08	0.11	0.002253	0.000000	0.000710	0.16	0.08	0.11
IC3301-IC33D	IC3301	IC33D	8	95	0.0200	0.011523	0.000000	0.004184	1.60	0.05	0.07	0.011523	0.000000	0.004184	1.60	0.05	0.07	0.011523	0.000000	0.004184	1.60	0.05	0.07
IC3302-IC3301	IC3302	IC3301	8	178	0.0069	0.009993	0.000000	0.003584	1.05	0.06	0.09	0.009993	0.000000	0.003584	1.05	0.06	0.09	0.009993	0.000000	0.003584	1.05	0.06	0.09
IC3303-IC3302	IC3303	IC3302	8	160	0.0068	0.005487	0.000000	0.001868	0.87	0.04	0.07	0.005487	0.000000	0.001868	0.87	0.04	0.07	0.005487	0.000000	0.001868	0.87	0.04	0.07
IC3304S-IC3303	IC3304S	IC3303	8	295	0.0024	0.003464	0.000000	0.001133	0.53	0.04	0.07	0.003464	0.000000	0.001133	0.53	0.04	0.07	0.003464	0.000000	0.001133	0.53	0.04	0.07
IC33D-IC34D	IC33D	IC34D	8	356	0.0043	0.331776	0.000000	0.161354	2.41	0.39	0.59	0.331776	0.000000	0.161354	2.41	0.39	0.59	0.331776	0.000000	0.161354	2.41	0.39	0.59
IC3401-IC34D	IC3401	IC34D	8	289	0.0050	0.007193	0.000000	0.002507	0.85	0.05	0.08	0.007193	0.000000	0.002507	0.85	0.05	0.08	0.007193	0.000000	0.002507	0.85	0.05	0.08
IC3402-IC3401	IC3402	IC3401	8	164	0.0024	0.002766	0.000000	0.000887	0.49	0.04	0.06	0.002766	0.000000	0.000887	0.49	0.04	0.06	0.002766	0.000000	0.000887	0.49	0.04	0.06
IC3403-IC3401	IC3403	IC3401	8	117	0.0463	0.001647	0.000000	0.000505	1.18	0.02	0.02	0.001647	0.000000	0.000505	1.18	0.02	0.02	0.001647	0.000000	0.000505	1.18	0.02	0.02
IC34D-IC35	IC34D	IC35	8	290	0.0187	0.338995	0.000000	0.165174	4.21	0.26	0.39	0.338995	0.000000	0.165174	4.21	0.26	0.39	0.338995	0.000000	0.165174	4.21	0.26	0.39
IC35-IC36	IC35	IC36	8	351	0.0361	0.341566	0.000000	0.166536	5.35	0.22	0.33	0.341566	0.000000	0.166536	5.35	0.22	0.33	0.341566	0.000000	0.166536	5.35	0.22	0.33
IC36-IC37	IC36	IC37	8	148	0.0047	0.351223	0.000000	0.171660	2.54	0.39	0.59	0.351223	0.000000	0.171660	2.54	0.39	0.59	0.351223	0.000000	0.171660	2.54	0.39	0.59
IC3601-IC36	IC3601	IC36	8	377	0.0029	0.013425	0.000000	0.004940	0.86	0.08	0.12	0.013425	0.000000	0.004940	0.86	0.08	0.12	0.013425	0.000000	0.004940	0.86	0.08	0.12
IC3602-IC3601	IC3602	IC3601	8	356	0.0167	0.009806	0.000000	0.003511	1.43	0.05	0.07	0.009806	0.000000	0.003511	1.43	0.05	0.07	0.009806	0.000000	0.003511	1.43	0.05	0.07
IC3603-IC3602	IC3603	IC3602	8	296	0.0184	0.005021	0.000000	0.001696	1.20	0.03	0.05	0.005021	0.000000	0.001696	1.20	0.03	0.05	0.005021	0.000000	0.001696	1.20	0.03	0.05
IC3604-IC3602	IC3604	IC3602	8	76	0.0059	0.001767	0.000000	0.000545	0.59	0.03	0.04	0.001767	0.000000	0.000545	0.59	0.03	0.04	0.001767	0.000000	0.000545	0.59	0.03	0.04
IC37-IC38	IC37	IC38	8	132	0.0041	0.351631	0.000000	0.171877	2.40	0.41	0.62	0.351631	0.000000	0.171877	2.40	0.41	0.62	0.351631	0.000000	0.171877	2.40	0.41	0.62
IC38-IC39	IC38	IC39	8	78	0.0176	0.357253	0.000000	0.174866	4.17	0.27	0.40	0.357253	0.000000	0.174866	4.17	0.27	0.40	0.357253	0.000000	0.174866	4.17	0.27	0.40
IC3801-IC38	IC3801	IC38	8	276	0.0003	0.008456	0.000000	0.002989	0.34	0.11	0.17	0.008456	0.000000	0.002989	0.34	0.11	0.17	0.008456	0.000000	0.002989	0.34	0.11	0.17
IC3802-IC3801	IC3802	IC3801	8	23	0.0426	0.007787	0.000000	0.002733	1.84	0.03	0.05	0.007787	0.000000	0.002733	1.84	0.03	0.05	0.007787	0.000000	0.002733	1.84	0.03	0.05
IC3803-IC3802	IC3803	IC3802	8	112	0.0739	0.007787	0.000000	0.002733	2.23	0.03	0.04	0.007787	0.000000	0.002733	2.23	0.03	0.04	0.007787	0.000000	0.002733	2.23	0.03	0.04
IC3804-IC3803	IC3804	IC3803	8	188	0.0271	0.007787	0.000000	0.002733	1.57	0.04	0.06	0.007787	0.000000	0.002733	1.57	0.04	0.06	0.007787	0.000000	0.002733	1.57	0.04	0.06
IC3805-IC3804	IC3805	IC3804	8	195	0.0150	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
IC39-IC40	IC39	IC40	8	78	0.0092	0.357253	0.000000	0.174866	3.29	0.32	0.49	0.357253	0.000000	0.174866	3.29	0.32	0.49	0.357253	0.000000	0.174866	3.29	0.32	0.49
IC40-IC41	IC40	IC41	8	532	0.0260	0.357253	0.000000	0.174866	4.82	0.24	0.36	0.357253	0.000000	0.174866	4.82	0.24	0.36	0.357253	0.000000	0.174866	4.82	0.24	0.36
IC41-IC42	IC41	IC42	8	204	0.0058	0.383480	0.000000	0.188863	2.80	0.39	0.58	0.383480	0.000000	0.188863	2.80	0.39	0.58	0.383480	0.000000	0.188863	2.80	0.39	0.58
IC4101-IC41	IC4101	IC41	8	67	0.0049	0.034998	0.000000	0.013997	1.36	0.11	0.17	0.034998	0.000000	0.013997	1.36	0.11	0.17	0.034998	0.000000	0.013997	1.36	0.11	0.17
IC4102-IC4101	IC4102	IC4101	8	83	0.0155	0.034998	0.000000	0.013997	2.04	0.09	0.13	0.034998	0.000000	0.013997	2.04	0.09	0.13	0.034998	0.000000	0.013997	2.04	0.09	0.13
IC4103-IC4102	IC4103	IC4102	8	321	0.0202	0.034998	0.000000	0.013997	2.24	0.08	0.12	0.034998	0.000000	0.013997	2.24	0.08	0.12	0.034998	0.000000	0.013997	2.24	0.08	0.12
IC4104S-IC4103	IC4104S	IC4103	8	328	0.0197	0.000929	0.000000	0.000271	0.74	0.01	0.02	0.000929	0.000000	0.000271	0.74	0.01	0.02	0.000929	0.000000	0.000271	0.74	0.01	0.02
IC42-IC43	IC42	IC43	8	166	0.0058	0.383480	0.000000	0.188863	2.82	0.39	0.58	0.383480	0.000000	0.188863	2.82	0.39	0.58	0.383480	0.000000	0.188863	2.82	0.39	0.58
IC43-IB13	IC43	IB13	8	352	0.0094	0.383480	0.000000	0.188863	3.37	0.34	0.50	0.383480	0.000000	0.188863	3.37	0.34	0.50	0.383480	0.000000	0.188863	3.37	0.34	0.50
ID01-ID02	ID01	ID02	8	284	0.0036	0.044128	0.000000	0.018008	1.30	0.14	0.21	0.044128	0.000000	0.018008	1.30	0.14	0.21	0.044128	0.000000	0.018008	1.30	0.14	0.21
ID0101D-ID01	ID0101D	ID01	8	153	0.0032	0.044128	0.000000	0.018008	1.25	0.14	0.21	0.044128	0.000000	0.018008	1.25	0.14	0.21	0.044128	0.000000	0.018008	1.25	0.14	0.21
ID0102-ID0101D	ID0102	ID0101D	8	345	0.0032	0.042109	0.000000	0.017114	1.24	0.14	0.21	0.042109	0.000000	0.017114	1.24	0.14	0.21	0.042109	0.000000	0.017114	1.24	0.14	0.21
ID0103-ID0102	ID0103	ID0102	8	350	0.0032	0.038261	0.000000	0.015421	1.20	0.13	0.20	0.038261	0.000000	0.015421	1.20	0.13	0.20	0.038261	0.000000	0.015421	1.20	0.13	0.20
ID0104-ID0103	ID0104	ID0103	8	350	0.0035	0.034441	0.000000	0.013755	1.20	0.12	0.18	0.034441	0.000000	0.013755	1.20	0.12	0.18	0.034441	0.000000	0.013755	1.20	0.12	0.18
ID0105-	ID0105	ID0104	8	224	0.0037	0.031889	0.000000	0.012651	1.20	0.12	0.18	0.031889	0.000000	0.012651	1.20	0.12	0.18	0.031889	0.000000	0.012651	1.20	0.12	0.18
ID0106-ID0105	ID0106	ID0105	8	227	0.0080	0.016906	0.000000	0.006347	1.30	0.07	0.11	0.016906	0.000000	0.006347	1.30	0.07	0.11	0.016906	0.000000	0.006347	1.30	0.07	0.11
ID0107-ID0106	ID0107	ID0106	8	345	0.0172	0.015116	0.000000	0.005620	1.64	0.06	0.08	0.015116	0.000000	0.005620	1.64	0.06	0.08	0.0					

City of Brea - Sewer Master Plan (November 2021)

Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
ID0108-ID0107	ID0108	ID0107	8	345	0.0180	0.010556	0.000000	0.003804	1.50	0.05	0.07	0.010556	0.000000	0.003804	1.50	0.05	0.07	0.010556	0.000000	0.003804	1.50	0.05	0.07
ID0109S-ID0108	ID0109S	ID0108	8	347	0.0162	0.006023	0.000000	0.002067	1.22	0.04	0.06	0.006023	0.000000	0.002067	1.22	0.04	0.06	0.006023	0.000000	0.002067	1.22	0.04	0.06
ID0110-ID0105	ID0110	ID0105	8	347	0.0100	0.013715	0.000000	0.005056	1.32	0.06	0.09	0.013715	0.000000	0.005056	1.32	0.06	0.09	0.013715	0.000000	0.005056	1.32	0.06	0.09
ID0111-ID0110	ID0111	ID0110	8	347	0.0175	0.010472	0.000000	0.003771	1.48	0.05	0.07	0.010472	0.000000	0.003771	1.48	0.05	0.07	0.010472	0.000000	0.003771	1.48	0.05	0.07
ID0112S-ID0111	ID0112S	ID0111	8	347	0.0168	0.005501	0.000000	0.001873	1.20	0.04	0.05	0.005501	0.000000	0.001873	1.20	0.04	0.05	0.005501	0.000000	0.001873	1.20	0.04	0.05
ID0113S-ID0112S	ID0113S	ID0112S	8	227	0.0184	0.001641	0.000000	0.000503	0.86	0.02	0.03	0.001641	0.000000	0.000503	0.86	0.02	0.03	0.001641	0.000000	0.000503	0.86	0.02	0.03
ID0114S-ID0101D	ID0114S	ID0101D	8	225	0.0191	0.002221	0.000000	0.000699	0.95	0.02	0.03	0.002221	0.000000	0.000699	0.95	0.02	0.03	0.002221	0.000000	0.000699	0.95	0.02	0.03
ID02-ID03	ID02	ID03	8	170	0.0032	0.044128	0.000000	0.018008	1.25	0.14	0.21	0.044128	0.000000	0.018008	1.25	0.14	0.21	0.044128	0.000000	0.018008	1.25	0.14	0.21
ID03-ID04	ID03	ID04	8	114	0.0032	0.087174	0.000000	0.037744	1.53	0.20	0.30	0.087174	0.000000	0.037744	1.53	0.20	0.30	0.087174	0.000000	0.037744	1.53	0.20	0.30
ID0301-ID03	ID0301	ID03	8	204	0.0666	0.048009	0.000000	0.019736	3.74	0.07	0.11	0.048009	0.000000	0.019736	3.74	0.07	0.11	0.048009	0.000000	0.019736	3.74	0.07	0.11
ID0302-ID0301	ID0302	ID0301	8	219	0.0220	0.046900	0.000000	0.019241	2.52	0.09	0.14	0.046900	0.000000	0.019241	2.52	0.09	0.14	0.046900	0.000000	0.019241	2.52	0.09	0.14
ID0303-ID0302	ID0303	ID0302	8	213	0.0127	0.036994	0.000000	0.014867	1.94	0.09	0.14	0.036994	0.000000	0.014867	1.94	0.09	0.14	0.036994	0.000000	0.014867	1.94	0.09	0.14
ID0304-ID0303	ID0304	ID0303	8	160	0.0206	0.033855	0.000000	0.013501	2.23	0.08	0.12	0.033855	0.000000	0.013501	2.23	0.08	0.12	0.033855	0.000000	0.013501	2.23	0.08	0.12
ID0305-ID0304	ID0305	ID0304	8	197	0.0053	0.019841	0.000000	0.007553	1.18	0.09	0.13	0.019841	0.000000	0.007553	1.18	0.09	0.13	0.019841	0.000000	0.007553	1.18	0.09	0.13
ID0306-ID0305	ID0306	ID0305	8	79	0.0390	0.017320	0.000000	0.006516	2.28	0.05	0.07	0.017320	0.000000	0.006516	2.28	0.05	0.07	0.017320	0.000000	0.006516	2.28	0.05	0.07
ID0307-ID0306	ID0307	ID0306	8	170	0.0152	0.014856	0.000000	0.005515	1.57	0.06	0.09	0.014856	0.000000	0.005515	1.57	0.06	0.09	0.014856	0.000000	0.005515	1.57	0.06	0.09
ID0308-ID0307	ID0308	ID0307	8	101	0.0040	0.000677	0.000000	0.000192	0.38	0.02	0.03	0.000677	0.000000	0.000192	0.38	0.02	0.03	0.000677	0.000000	0.000192	0.38	0.02	0.03
ID0309-ID0308	ID0309	ID0308	8	134	0.0136	0.000677	0.000000	0.000192	0.59	0.01	0.02	0.000677	0.000000	0.000192	0.59	0.01	0.02	0.000677	0.000000	0.000192	0.59	0.01	0.02
ID0310-ID0307	ID0310	ID0307	8	153	0.0161	0.014380	0.000000	0.005323	1.58	0.06	0.08	0.014380	0.000000	0.005323	1.58	0.06	0.08	0.014380	0.000000	0.005323	1.58	0.06	0.08
ID0311-ID0306	ID0311	ID0306	8	155	0.0120	0.003091	0.000000	0.001001	0.89	0.03	0.04	0.003091	0.000000	0.001001	0.89	0.03	0.04	0.003091	0.000000	0.001001	0.89	0.03	0.04
ID0312-ID0305	ID0312	ID0305	8	186	0.0022	0.003193	0.000000	0.001037	0.50	0.04	0.07	0.003193	0.000000	0.001037	0.50	0.04	0.07	0.003193	0.000000	0.001037	0.50	0.04	0.07
ID0313-ID0304	ID0313	ID0304	8	55	0.0024	0.005422	0.000000	0.001844	0.60	0.06	0.08	0.005422	0.000000	0.001844	0.60	0.06	0.08	0.005422	0.000000	0.001844	0.60	0.06	0.08
ID0314-ID0313	ID0314	ID0313	8	317	0.0200	0.005422	0.000000	0.001844	1.27	0.03	0.05	0.005422	0.000000	0.001844	1.27	0.03	0.05	0.005422	0.000000	0.001844	1.27	0.03	0.05
ID0315-ID0303	ID0315	ID0303	8	155	0.0030	0.002119	0.000000	0.000664	0.49	0.03	0.05	0.002119	0.000000	0.000664	0.49	0.03	0.05	0.002119	0.000000	0.000664	0.49	0.03	0.05
ID0316-ID0302	ID0316	ID0302	8	151	0.0080	0.002702	0.000000	0.000865	0.75	0.03	0.05	0.002702	0.000000	0.000865	0.75	0.03	0.05	0.002702	0.000000	0.000865	0.75	0.03	0.05
ID04-ID05	ID04	ID05	8	92	0.0032	0.087174	0.000000	0.037744	1.52	0.20	0.30	0.087174	0.000000	0.037744	1.52	0.20	0.30	0.087174	0.000000	0.037744	1.52	0.20	0.30
ID05-ID06D	ID05	ID06D	8	42	0.0079	0.087174	0.000000	0.037744	2.10	0.16	0.24	0.087174	0.000000	0.037744	2.10	0.16	0.24	0.087174	0.000000	0.037744	2.10	0.16	0.24
ID0601D-ID06D	ID0601D	ID06D	8	155	0.0049	0.070510	0.000000	0.029971	1.67	0.16	0.24	0.070510	0.000000	0.029971	1.67	0.16	0.24	0.070510	0.000000	0.029971	1.67	0.16	0.24
ID0602-ID0601D	ID0602	ID0601D	8	220	0.0034	0.068796	0.000000	0.029180	1.45	0.18	0.26	0.068796	0.000000	0.029180	1.45	0.18	0.26	0.068796	0.000000	0.029180	1.45	0.18	0.26
ID0603-ID0602	ID0603	ID0602	8	110	0.0245	0.066194	0.000000	0.027982	2.90	0.11	0.16	0.066194	0.000000	0.027982	2.90	0.11	0.16	0.066194	0.000000	0.027982	2.90	0.11	0.16
ID0604-ID0603	ID0604	ID0603	8	95	0.0112	0.065571	0.000000	0.027696	2.19	0.13	0.19	0.065571	0.000000	0.027696	2.19	0.13	0.19	0.065571	0.000000	0.027696	2.19	0.13	0.19
ID0605-ID0604	ID0605	ID0604	8	220	0.0101	0.035515	0.000000	0.014222	1.76	0.10	0.14	0.035515	0.000000	0.014222	1.76	0.10	0.14	0.035515	0.000000	0.014222	1.76	0.10	0.14
ID0606-ID0605	ID0606	ID0605	8	120	0.0114	0.032459	0.000000	0.012897	1.79	0.09	0.13	0.032459	0.000000	0.012897	1.79	0.09	0.13	0.032459	0.000000	0.012897	1.79	0.09	0.13
ID0607-ID0606	ID0607	ID0606	8	88	0.0078	0.031629	0.000000	0.012539	1.56	0.10	0.15	0.031629	0.000000	0.012539	1.56	0.10	0.15	0.031629	0.000000	0.012539	1.56	0.10	0.15
ID0608-ID0607	ID0608	ID0607	8	180	0.0046	0.031339	0.000000	0.012414	1.28	0.11	0.17	0.031339	0.000000	0.012414	1.28	0.11	0.17	0.031339	0.000000	0.012414	1.28	0.11	0.17
ID0609-ID0608	ID0609	ID0608	8	193	0.0040	0.025229	0.000000	0.009807	1.15	0.10	0.15	0.025229	0.000000	0.009807	1.15	0.10	0.15	0.025229	0.000000	0.009807	1.15	0.10	0.15
ID0610-ID0609	ID0610	ID0609	8	193	0.0130	0.020781	0.000000	0.007943	1.64	0.07	0.11	0.020781	0.000000	0.007943	1.64	0.07	0.11	0.020781	0.000000	0.007943	1.64	0.07	0.11
ID0611-ID0610	ID0611	ID0610	8	193	0.0139	0.016504	0.000000	0.006183	1.57	0.06	0.09	0.016504	0.000000	0.006183	1.57	0.06	0.09	0.016504	0.000000	0.006183	1.57	0.06	0.09
ID0612-ID0611	ID0612	ID0611	8	193	0.0136	0.011761	0.000000	0.004278	1.40	0.05	0.08	0.011761	0.000000	0.004278	1.40	0.05	0.08	0.011761	0.000000	0.004278	1.40	0.05	0.08
ID0613-ID0612	ID0613	ID0612	8	197	0.0235	0.006362	0.000000	0.002194	1.41	0.03	0.05	0.006362	0.000000	0.002194	1.41	0.03	0.05	0.006362	0.000000	0.002194	1.41	0.03	0.05
ID0614-ID0613	ID0614	ID0613	8	265	0.0120	0.004715	0.000000	0.001584	1.02	0.04	0.05	0.004715	0.000000	0.001584	1.02	0.04	0.05	0.004715	0.000000	0.001584	1.02	0.04	0.05
ID0615-ID0612	ID0615	ID0612	8	240	0.0156	0.003697	0.000000	0.001216	1.03	0.03	0.04	0.003697	0.000000	0.001216	1.03	0.03	0.04	0.003697	0.000000	0.001216	1.03	0.03	0.04
ID0616-ID0611	ID0616	ID0611	8	239	0.0108	0.003267	0.000000	0.001063	0.88	0.03	0.05	0.003267	0.000000	0.001063	0.88	0.03	0.05	0.003267	0.000000	0.001063	0.88	0.03	0.05
ID0617-ID0610	ID0617	ID0610	8	239	0.0112	0.003213	0.000000	0.001044	0.88	0.03	0.05	0.003213	0.000000	0.001044	0.88	0.03	0.05	0.003213	0.000000	0.001044	0.88	0.03	0.05
ID0618-ID0609	ID0618	ID0609	8	239	0.0108	0.003725	0.000000	0.001226	0.91	0.03	0.05	0.003725	0.000000	0.001226	0.91	0.03	0.05	0.003725	0.000000	0.001226	0.91	0.03	0.05
ID0619-ID0608	ID0619	ID0608	8	215	0.0045	0.005433	0.000000	0.001848	0.75	0.05	0.07	0.005433	0.000000	0.001848	0.75	0.05	0.07	0.005433	0.000000	0.001848			

City of Brea - Sewer Master Plan (November 2021)

Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
ID0620-ID0619	ID0620	ID0619	8	101	0.0050	0.002803	0.000000	0.000900	0.64	0.03	0.05	0.002803	0.000000	0.000900	0.64	0.03	0.05	0.002803	0.000000	0.000900	0.64	0.03	0.05
ID0621-ID0605	ID0621	ID0605	8	166	0.0100	0.003281	0.000000	0.001068	0.86	0.03	0.05	0.003281	0.000000	0.001068	0.86	0.03	0.05	0.003281	0.000000	0.001068	0.86	0.03	0.05
ID0622-ID0621	ID0622	ID0621	8	84	0.0036	0.001710	0.000000	0.000526	0.49	0.03	0.04	0.001710	0.000000	0.000526	0.49	0.03	0.04	0.001710	0.000000	0.000526	0.49	0.03	0.04
ID0623-ID0604	ID0623	ID0604	8	159	0.0050	0.033040	0.000000	0.013148	1.35	0.11	0.17	0.033040	0.000000	0.013148	1.35	0.11	0.17	0.033040	0.000000	0.013148	1.35	0.11	0.17
ID0624-ID0623	ID0624	ID0623	8	94	0.0045	0.025555	0.000000	0.009945	1.20	0.10	0.15	0.025555	0.000000	0.009945	1.20	0.10	0.15	0.025555	0.000000	0.009945	1.20	0.10	0.15
ID0625-ID0624	ID0625	ID0624	8	194	0.0104	0.025555	0.000000	0.009945	1.61	0.08	0.12	0.025555	0.000000	0.009945	1.61	0.08	0.12	0.025555	0.000000	0.009945	1.61	0.08	0.12
ID0626-ID0625	ID0626	ID0625	8	209	0.0172	0.020085	0.000000	0.007654	1.79	0.06	0.10	0.020085	0.000000	0.007654	1.79	0.06	0.10	0.020085	0.000000	0.007654	1.79	0.06	0.10
ID0627-ID0626	ID0627	ID0626	8	219	0.0175	0.018279	0.000000	0.006909	1.75	0.06	0.09	0.018279	0.000000	0.006909	1.75	0.06	0.09	0.018279	0.000000	0.006909	1.75	0.06	0.09
ID0628-ID0627	ID0628	ID0627	8	212	0.0208	0.013313	0.000000	0.004895	1.69	0.05	0.08	0.013313	0.000000	0.004895	1.69	0.05	0.08	0.013313	0.000000	0.004895	1.69	0.05	0.08
ID0629-ID0628	ID0629	ID0628	8	114	0.0296	0.001132	0.000000	0.000336	0.90	0.01	0.02	0.001132	0.000000	0.000336	0.90	0.01	0.02	0.001132	0.000000	0.000336	0.90	0.01	0.02
ID0630-ID0629	ID0630	ID0629	8	134	0.0143	0.001132	0.000000	0.000336	0.70	0.02	0.03	0.001132	0.000000	0.000336	0.70	0.02	0.03	0.001132	0.000000	0.000336	0.70	0.02	0.03
ID0631-ID0628	ID0631	ID0628	8	143	0.0250	0.002431	0.000000	0.000771	1.07	0.02	0.03	0.002431	0.000000	0.000771	1.07	0.02	0.03	0.002431	0.000000	0.000771	1.07	0.02	0.03
ID0632-ID0628	ID0632	ID0628	8	165	0.0024	0.002242	0.000000	0.000706	0.47	0.04	0.05	0.002242	0.000000	0.000706	0.47	0.04	0.05	0.002242	0.000000	0.000706	0.47	0.04	0.05
ID0633-ID0627	ID0633	ID0627	8	161	0.0046	0.001895	0.000000	0.000588	0.55	0.03	0.04	0.001895	0.000000	0.000588	0.55	0.03	0.04	0.001895	0.000000	0.000588	0.55	0.03	0.04
ID0634-ID0625	ID0634	ID0625	8	374	0.0131	0.004737	0.000000	0.001592	1.05	0.03	0.05	0.004737	0.000000	0.001592	1.05	0.03	0.05	0.004737	0.000000	0.001592	1.05	0.03	0.05
ID0635-ID0602	ID0635	ID0602	8	238	0.0155	0.002119	0.000000	0.000664	0.87	0.02	0.03	0.002119	0.000000	0.000664	0.87	0.02	0.03	0.002119	0.000000	0.000664	0.87	0.02	0.03
ID0636-ID0601D	ID0636	ID0601D	8	123	0.0100	0.002019	0.000000	0.000630	0.74	0.02	0.04	0.002019	0.000000	0.000630	0.74	0.02	0.04	0.002019	0.000000	0.000630	0.74	0.02	0.04
ID06D-ID07	ID06D	ID07	8	306	0.0036	0.149251	0.000000	0.067715	1.85	0.26	0.39	0.149251	0.000000	0.067715	1.85	0.26	0.39	0.149251	0.000000	0.067715	1.85	0.26	0.39
ID07-ID08	ID07	ID08	8	305	0.0177	0.149251	0.000000	0.067715	3.28	0.17	0.26	0.149251	0.000000	0.067715	3.28	0.17	0.26	0.149251	0.000000	0.067715	3.28	0.17	0.26
ID08-ID09	ID08	ID09	8	369	0.0033	0.149251	0.000000	0.067715	1.79	0.26	0.40	0.149251	0.000000	0.067715	1.79	0.26	0.40	0.149251	0.000000	0.067715	1.79	0.26	0.40
ID09-ID10	ID09	ID10	8	368	0.0027	0.149251	0.000000	0.067715	1.66	0.28	0.42	0.149251	0.000000	0.067715	1.66	0.28	0.42	0.149251	0.000000	0.067715	1.66	0.28	0.42
ID10-ID11	ID10	ID11	12	338	0.0008	0.149251	0.000000	0.067715	1.04	0.33	0.33	0.149251	0.000000	0.067715	1.04	0.33	0.33	0.149251	0.000000	0.067715	1.04	0.33	0.33
ID11-ID12	ID11	ID12	12	336	0.0008	0.149251	0.000000	0.067715	1.04	0.32	0.32	0.149251	0.000000	0.067715	1.04	0.32	0.32	0.149251	0.000000	0.067715	1.04	0.32	0.32
ID12-ID13	ID12	ID13	12	336	0.0008	0.149251	0.000000	0.067715	1.04	0.32	0.32	0.149251	0.000000	0.067715	1.04	0.32	0.32	0.149251	0.000000	0.067715	1.04	0.32	0.32
ID13-ID14	ID13	ID14	12	338	0.0008	0.150800	0.000000	0.068479	1.05	0.33	0.33	0.150800	0.000000	0.068479	1.05	0.33	0.33	0.150800	0.000000	0.068479	1.05	0.33	0.33
ID14-IA10	ID14	IA10	12	339	0.0014	0.153205	0.000000	0.069667	1.28	0.29	0.29	0.153205	0.000000	0.069667	1.28	0.29	0.29	0.153205	0.000000	0.069667	1.28	0.29	0.29
IE01-IE02	IE01	IE02	8	330	0.0040	0.028574	0.000000	0.011228	1.19	0.11	0.16	0.028574	0.000000	0.011228	1.19	0.11	0.16	0.028574	0.000000	0.011228	1.19	0.11	0.16
IE0101-IE01	IE0101	IE01	8	527	0.0063	0.028574	0.000000	0.011228	1.40	0.10	0.15	0.028574	0.000000	0.011228	1.40	0.10	0.15	0.028574	0.000000	0.011228	1.40	0.10	0.15
IE0102-IE0101	IE0102	IE0101	8	160	0.0058	0.019582	0.000000	0.007446	1.22	0.08	0.12	0.019582	0.000000	0.007446	1.22	0.08	0.12	0.019582	0.000000	0.007446	1.22	0.08	0.12
IE0103-IE0102	IE0103	IE0102	8	334	0.0057	0.016759	0.000000	0.006287	1.15	0.08	0.12	0.016759	0.000000	0.006287	1.15	0.08	0.12	0.016759	0.000000	0.006287	1.15	0.08	0.12
IE0104-IE0103	IE0104	IE0103	8	346	0.0067	0.008755	0.000000	0.003104	1.00	0.05	0.08	0.008755	0.000000	0.003104	1.00	0.05	0.08	0.008755	0.000000	0.003104	1.00	0.05	0.08
IE0105-IE0104	IE0105	IE0104	8	320	0.0060	0.001966	0.000000	0.000612	0.61	0.03	0.04	0.001966	0.000000	0.000612	0.61	0.03	0.04	0.001966	0.000000	0.000612	0.61	0.03	0.04
IE0106-IE0103	IE0106	IE0103	8	185	0.0055	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
IE0107-IE0103	IE0107	IE0103	8	365	0.0074	0.006756	0.000000	0.002342	0.96	0.05	0.07	0.006756	0.000000	0.002342	0.96	0.05	0.07	0.006756	0.000000	0.002342	0.96	0.05	0.07
IE0108-IE0102	IE0108	IE0102	8	420	0.0102	0.003537	0.000000	0.001159	0.88	0.03	0.05	0.003537	0.000000	0.001159	0.88	0.03	0.05	0.003537	0.000000	0.001159	0.88	0.03	0.05
IE0109-IE0101	IE0109	IE0101	8	90	0.0040	0.007627	0.000000	0.002672	0.80	0.06	0.09	0.007627	0.000000	0.002672	0.80	0.06	0.09	0.007627	0.000000	0.002672	0.80	0.06	0.09
IE0110-IE0109	IE0110	IE0109	8	182	0.0040	0.007627	0.000000	0.002672	0.80	0.06	0.09	0.007627	0.000000	0.002672	0.80	0.06	0.09	0.007627	0.000000	0.002672	0.80	0.06	0.09
IE0111-IE0110	IE0111	IE0110	8	134	0.0040	0.007627	0.000000	0.002672	0.81	0.06	0.09	0.007627	0.000000	0.002672	0.81	0.06	0.09	0.007627	0.000000	0.002672	0.81	0.06	0.09
IE02-IE03	IE02	IE03	8	330	0.0037	0.028574	0.000000	0.011228	1.16	0.11	0.17	0.028574	0.000000	0.011228	1.16	0.11	0.17	0.028574	0.000000	0.011228	1.16	0.11	0.17
IE03-IE04	IE03	IE04	8	330	0.0069	0.086855	0.000000	0.037594	2.01	0.16	0.25	0.086855	0.000000	0.037594	2.01	0.16	0.25	0.086855	0.000000	0.037594	2.01	0.16	0.25
IE04-IE05	IE04	IE05	8	330	0.0066	0.086855	0.000000	0.037594	1.97	0.17	0.25	0.086855	0.000000	0.037594	1.97	0.17	0.25	0.086855	0.000000	0.037594	1.97	0.17	0.25
IE05-IE06	IE05	IE06	8	52	0.0075	0.086855	0.000000	0.037594	2.07	0.16	0.24	0.086855	0.000000	0.037594	2.07	0.16	0.24	0.086855	0.000000	0.037594	2.07	0.16	0.24
IE06-IE07	IE06	IE07	10	447	0.0053	0.145563	0.000000	0.065898	2.07	0.21	0.25	0.145563	0.000000	0.065898	2.07	0.21	0.25	0.145563	0.000000	0.065898	2.07	0.21	0.25
IE0601-IE06	IE0601	IE06	8	252	0.0146	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
IE07-IE08	IE07	IE08	10	225	0.0052	0.145563	0.000000	0.065898	2.06	0.21	0.25	0.145563	0.000000	0.065898	2.06	0.21	0.25	0.145563	0.000000	0.065898	2.06	0.21	0.25
IE08-IE09	IE08	IE09	10	221	0.0052	0.155639	0.000000	0.070871	2.10	0.22	0.26	0.155639	0.000000	0.070871	2.10	0.22	0.26	0.155639	0.000000	0.070871	2.10	0.22	0.26

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Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
IE0801D-IE08	IE0801D	IE08	8	75	0.0136	0.013508	0.000000	0.004973	1.46	0.06	0.08	0.013508	0.000000	0.004973	1.46	0.06	0.08	0.013508	0.000000	0.004973	1.46	0.06	0.08
IE0802-IE0801D	IE0802	IE0801D	8	327	0.0136	0.013508	0.000000	0.004973	1.46	0.06	0.08	0.013508	0.000000	0.004973	1.46	0.06	0.08	0.013508	0.000000	0.004973	1.46	0.06	0.08
IE0803-IE0802	IE0803	IE0802	8	402	0.0136	0.013508	0.000000	0.004973	1.46	0.06	0.08	0.013508	0.000000	0.004973	1.46	0.06	0.08	0.013508	0.000000	0.004973	1.46	0.06	0.08
IE09-IE10	IE09	IE10	10	444	0.0181	0.155639	0.000000	0.070871	3.26	0.16	0.19	0.155639	0.000000	0.070871	3.26	0.16	0.19	0.155639	0.000000	0.070871	3.26	0.16	0.19
IE10-IE11	IE10	IE11	12	15	0.0047	1.208692	0.000000	0.657770	3.42	0.66	0.66	1.208692	0.000000	0.657770	3.42	0.66	0.66	1.208692	0.000000	0.657770	3.42	0.66	0.66
IE11-IE12	IE11	IE12	12	418	0.0048	1.210191	0.000000	0.658657	3.46	0.65	0.65	1.210191	0.000000	0.658657	3.46	0.65	0.65	1.210191	0.000000	0.658657	3.46	0.65	0.65
IE12-OUTLETI	IE12	OUT_IMPERIAL	12	229	0.0063	1.226663	0.000000	0.668407	3.87	0.60	0.60	1.226663	0.000000	0.668407	3.87	0.60	0.60	1.226663	0.000000	0.668407	3.87	0.60	0.60
IE1201-IE12	IE1201	IE12	8	395	0.0056	0.020085	0.000000	0.007654	1.21	0.08	0.13	0.020085	0.000000	0.007654	1.21	0.08	0.13	0.020085	0.000000	0.007654	1.21	0.08	0.13
IE1202-IE1201	IE1202	IE1201	8	376	0.0039	0.018792	0.000000	0.007120	1.05	0.09	0.13	0.018792	0.000000	0.007120	1.05	0.09	0.13	0.018792	0.000000	0.007120	1.05	0.09	0.13
IE1203-IE1202	IE1203	IE1202	8	367	0.0120	0.012799	0.000000	0.004690	1.38	0.06	0.09	0.012799	0.000000	0.004690	1.38	0.06	0.09	0.012799	0.000000	0.004690	1.38	0.06	0.09
IE1204-IE1202	IE1204	IE1202	8	349	0.0045	0.001740	0.000000	0.000536	0.53	0.03	0.04	0.001740	0.000000	0.000536	0.53	0.03	0.04	0.001740	0.000000	0.000536	0.53	0.03	0.04
IF01-IF02	IF01	IF02	8	247	0.0036	0.005576	0.000000	0.001901	0.70	0.05	0.08	0.005576	0.000000	0.001901	0.70	0.05	0.08	0.005576	0.000000	0.001901	0.70	0.05	0.08
IF0101-IF01	IF0101	IF01	8	263	0.0060	0.003867	0.000000	0.001277	0.75	0.04	0.06	0.003867	0.000000	0.001277	0.75	0.04	0.06	0.003867	0.000000	0.001277	0.75	0.04	0.06
IF0102-IF0101	IF0102	IF0101	8	225	0.0068	0.002763	0.000000	0.000886	0.71	0.03	0.05	0.002763	0.000000	0.000886	0.71	0.03	0.05	0.002763	0.000000	0.000886	0.71	0.03	0.05
IF02-IF03	IF02	IF03	8	359	0.0032	0.057063	0.000000	0.023813	1.35	0.16	0.24	0.057063	0.000000	0.023813	1.35	0.16	0.24	0.057063	0.000000	0.023813	1.35	0.16	0.24
IF0201-IF02	IF0201	IF02	8	254	0.0036	0.050836	0.000000	0.021002	1.36	0.15	0.22	0.050836	0.000000	0.021002	1.36	0.15	0.22	0.050836	0.000000	0.021002	1.36	0.15	0.22
IF0202-IF0201	IF0202	IF0201	8	261	0.0048	0.038637	0.000000	0.015586	1.39	0.12	0.18	0.038637	0.000000	0.015586	1.39	0.12	0.18	0.038637	0.000000	0.015586	1.39	0.12	0.18
IF0203-IF0202	IF0203	IF0202	8	339	0.0035	0.026233	0.000000	0.010232	1.11	0.11	0.16	0.026233	0.000000	0.010232	1.11	0.11	0.16	0.026233	0.000000	0.010232	1.11	0.11	0.16
IF0204-IF0203	IF0204	IF0203	8	266	0.0031	0.018255	0.000000	0.006899	0.96	0.09	0.14	0.018255	0.000000	0.006899	0.96	0.09	0.14	0.018255	0.000000	0.006899	0.96	0.09	0.14
IF0205-IF0204	IF0205	IF0204	8	266	0.0028	0.010234	0.000000	0.003678	0.78	0.07	0.11	0.010234	0.000000	0.003678	0.78	0.07	0.11	0.010234	0.000000	0.003678	0.78	0.07	0.11
IF0206-IF0205	IF0206	IF0205	8	417	0.0050	0.008594	0.000000	0.003042	0.90	0.06	0.09	0.008594	0.000000	0.003042	0.90	0.06	0.09	0.008594	0.000000	0.003042	0.90	0.06	0.09
IF0207-IF0204	IF0207	IF0204	8	323	0.0040	0.007167	0.000000	0.002497	0.79	0.06	0.08	0.007167	0.000000	0.002497	0.79	0.06	0.08	0.007167	0.000000	0.002497	0.79	0.06	0.08
IF0208-IF0203	IF0208	IF0203	8	323	0.0040	0.006474	0.000000	0.002236	0.76	0.05	0.08	0.006474	0.000000	0.002236	0.76	0.05	0.08	0.006474	0.000000	0.002236	0.76	0.05	0.08
IF0209-IF0202	IF0209	IF0202	8	86	0.0121	0.012160	0.000000	0.004436	1.36	0.06	0.08	0.012160	0.000000	0.004436	1.36	0.06	0.08	0.012160	0.000000	0.004436	1.36	0.06	0.08
IF0210-IF0209	IF0210	IF0209	8	248	0.0500	0.011758	0.000000	0.004277	2.21	0.04	0.06	0.011758	0.000000	0.004277	2.21	0.04	0.06	0.011758	0.000000	0.004277	2.21	0.04	0.06
IF0211-IF0201	IF0211	IF0201	8	435	0.0034	0.012721	0.000000	0.004659	0.89	0.08	0.11	0.012721	0.000000	0.004659	0.89	0.08	0.11	0.012721	0.000000	0.004659	0.89	0.08	0.11
IF0212-IF0211	IF0212	IF0211	8	439	0.0032	0.008980	0.000000	0.003191	0.78	0.07	0.10	0.008980	0.000000	0.003191	0.78	0.07	0.10	0.008980	0.000000	0.003191	0.78	0.07	0.10
IF0213-IF0212	IF0213	IF0212	8	49	0.0016	0.001817	0.000000	0.000562	0.38	0.04	0.05	0.001817	0.000000	0.000562	0.38	0.04	0.05	0.001817	0.000000	0.000562	0.38	0.04	0.05
IF03-IF04	IF03	IF04	8	350	0.0032	0.059409	0.000000	0.024879	1.37	0.16	0.25	0.059409	0.000000	0.024879	1.37	0.16	0.25	0.059409	0.000000	0.024879	1.37	0.16	0.25
IF04-IE06	IF04	IE06	8	374	0.0065	0.060573	0.000000	0.025409	1.77	0.14	0.21	0.060573	0.000000	0.025409	1.77	0.14	0.21	0.060573	0.000000	0.025409	1.77	0.14	0.21
K01-K02	K01	K02	8	178	0.0540	0.231349	0.000000	0.109040	5.53	0.16	0.24	0.231349	0.000000	0.109040	5.53	0.16	0.24	0.231349	0.000000	0.109040	5.53	0.16	0.24
K02-K03	K02	K03	8	132	0.0057	0.231349	0.000000	0.109040	2.46	0.29	0.43	0.231349	0.000000	0.109040	2.46	0.29	0.43	0.231349	0.000000	0.109040	2.46	0.29	0.43
K03-K04	K03	K04	8	268	0.0472	0.232469	0.000000	0.109614	5.28	0.17	0.25	0.232469	0.000000	0.109614	5.28	0.17	0.25	0.232469	0.000000	0.109614	5.28	0.17	0.25
K04-K05	K04	K05	8	310	0.0750	0.232469	0.000000	0.109614	6.22	0.15	0.22	0.232469	0.000000	0.109614	6.22	0.15	0.22	0.232469	0.000000	0.109614	6.22	0.15	0.22
K046-K1110	K046	K1110	8	16	0.0200	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
K05-K06	K05	K06	8	350	0.0700	0.232808	0.000000	0.109788	6.08	0.15	0.23	0.232808	0.000000	0.109788	6.08	0.15	0.23	0.232808	0.000000	0.109788	6.08	0.15	0.23
K06-K07	K06	K07	8	350	0.0450	0.234291	0.000000	0.110548	5.20	0.17	0.25	0.234291	0.000000	0.110548	5.20	0.17	0.25	0.234291	0.000000	0.110548	5.20	0.17	0.25
K07-K08D	K07	K08D	8	445	0.0076	0.326406	0.000000	0.158517	2.98	0.33	0.49	0.326406	0.000000	0.158517	2.98	0.33	0.49	0.326406	0.000000	0.158517	2.98	0.33	0.49
K0701-K07	K0701	K07	8	254	0.0048	0.041452	0.000000	0.016824	1.42	0.12	0.19	0.041452	0.000000	0.016824	1.42	0.12	0.19	0.041452	0.000000	0.016824	1.42	0.12	0.19
K0702-K0701	K0702	K0701	8	31	0.0042	0.040317	0.000000	0.016324	1.34	0.13	0.19	0.040317	0.000000	0.016324	1.34	0.13	0.19	0.040317	0.000000	0.016324	1.34	0.13	0.19
K0703-K0702	K0703	K0702	6	172	0.0308	0.039776	0.000000	0.016086	2.80	0.08	0.17	0.039776	0.000000	0.016086	2.80	0.08	0.17	0.039776	0.000000	0.016086	2.80	0.08	0.17
K0704-K0703	K0704	K0703	6	64	0.0075	0.034791	0.000000	0.013907	1.63	0.11	0.22	0.034791	0.000000	0.013907	1.63	0.11	0.22	0.034791	0.000000	0.013907	1.63	0.11	0.22
K0705-K0704	K0705	K0704	6	247	0.0255	0.034791	0.000000	0.013907	2.51	0.08	0.17	0.034791	0.000000	0.013907	2.51	0.08	0.17	0.034791	0.000000	0.013907	2.51	0.08	0.17
K0706-K0705	K0706	K0705	6	257	0.0681	0.014975	0.000000	0.005563	2.76	0.04	0.09	0.014975	0.000000	0.005563	2.76	0.04	0.09	0.014975	0.000000	0.005563	2.76	0.04	0.09
K0707-K0706	K0707	K0706	6	298	0.0742	0.008711	0.000000	0.003087	2.41	0.03	0.07	0.008711	0.000000	0.003087	2.41	0.03	0.07	0.008711	0.000000	0.003087	2.41	0.03	0.07

City of Brea - Sewer Master Plan (November 2021)

Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
K0708-K0707	K0708	K0707	6	192	0.0218	0.003733	0.000000	0.001229	1.22	0.03	0.06	0.003733	0.000000	0.001229	1.22	0.03	0.06	0.003733	0.000000	0.001229	1.22	0.03	0.06
K0709-K0702	K0709	K0702	8	244	0.0048	0.000824	0.000000	0.000238	0.43	0.02	0.03	0.000824	0.000000	0.000238	0.43	0.02	0.03	0.000824	0.000000	0.000238	0.43	0.02	0.03
K0710-K0703	K0710	K0703	6	217	0.0370	0.004698	0.000000	0.001578	1.57	0.03	0.06	0.004698	0.000000	0.001578	1.57	0.03	0.06	0.004698	0.000000	0.001578	1.57	0.03	0.06
K0711-K0705	K0711	K0705	6	275	0.0236	0.005176	0.000000	0.001753	1.38	0.03	0.07	0.005176	0.000000	0.001753	1.38	0.03	0.07	0.005176	0.000000	0.001753	1.38	0.03	0.07
K0712-K0706	K0712	K0706	6	320	0.0502	0.005238	0.000000	0.001776	1.80	0.03	0.06	0.005238	0.000000	0.001776	1.80	0.03	0.06	0.005238	0.000000	0.001776	1.80	0.03	0.06
K0713-K07	K0713	K07	8	170	0.0415	0.071639	0.000000	0.030493	3.57	0.10	0.14	0.071639	0.000000	0.030493	3.57	0.10	0.14	0.071639	0.000000	0.030493	3.57	0.10	0.14
K0714-K0713	K0714	K0713	8	214	0.0621	0.048186	0.000000	0.019815	3.65	0.07	0.11	0.048186	0.000000	0.019815	3.65	0.07	0.11	0.048186	0.000000	0.019815	3.65	0.07	0.11
K0715-K0714	K0715	K0714	8	260	0.0211	0.046914	0.000000	0.019247	2.48	0.09	0.14	0.046914	0.000000	0.019247	2.48	0.09	0.14	0.046914	0.000000	0.019247	2.48	0.09	0.14
K0716-K0715	K0716	K0715	8	242	0.0221	0.037699	0.000000	0.015175	2.36	0.08	0.12	0.037699	0.000000	0.015175	2.36	0.08	0.12	0.037699	0.000000	0.015175	2.36	0.08	0.12
K0717-K0716	K0717	K0716	8	121	0.0359	0.020931	0.000000	0.008005	2.34	0.06	0.08	0.020931	0.000000	0.008005	2.34	0.06	0.08	0.020931	0.000000	0.008005	2.34	0.06	0.08
K0718-K0717	K0718	K0717	8	264	0.0201	0.020931	0.000000	0.008005	1.91	0.06	0.10	0.020931	0.000000	0.008005	1.91	0.06	0.10	0.020931	0.000000	0.008005	1.91	0.06	0.10
K0719-K0718	K0719	K0718	8	350	0.0386	0.016683	0.000000	0.006256	2.69	0.04	0.06	0.016683	0.000000	0.006256	2.69	0.04	0.06	0.016683	0.000000	0.006256	2.69	0.04	0.06
K0720-K0719	K0720	K0719	8	252	0.0276	0.012273	0.000000	0.004481	1.82	0.05	0.07	0.012273	0.000000	0.004481	1.82	0.05	0.07	0.012273	0.000000	0.004481	1.82	0.05	0.07
K0721-K0720	K0721	K0720	6	214	0.0275	0.007264	0.000000	0.002534	1.61	0.04	0.08	0.007264	0.000000	0.002534	1.61	0.04	0.08	0.007264	0.000000	0.002534	1.61	0.04	0.08
K0722-K0716	K0722	K0716	8	264	0.0064	0.017327	0.000000	0.006519	1.21	0.08	0.11	0.017327	0.000000	0.006519	1.21	0.08	0.11	0.017327	0.000000	0.006519	1.21	0.08	0.11
K0723-K0722	K0723	K0722	8	296	0.0390	0.015161	0.000000	0.005638	2.19	0.05	0.07	0.015161	0.000000	0.005638	2.19	0.05	0.07	0.015161	0.000000	0.005638	2.19	0.05	0.07
K0724-K0723	K0724	K0723	8	246	0.0649	0.011231	0.000000	0.004069	2.86	0.03	0.05	0.011231	0.000000	0.004069	2.86	0.03	0.05	0.011231	0.000000	0.004069	2.86	0.03	0.05
K0725-K0724	K0725	K0724	6	234	0.0300	0.008394	0.000000	0.002965	1.74	0.04	0.08	0.008394	0.000000	0.002965	1.74	0.04	0.08	0.008394	0.000000	0.002965	1.74	0.04	0.08
K0726-K0723	K0726	K0723	8	166	0.0762	0.001518	0.000000	0.000462	1.37	0.01	0.02	0.001518	0.000000	0.000462	1.37	0.01	0.02	0.001518	0.000000	0.000462	1.37	0.01	0.02
K0727-K0719	K0727	K0719	6	194	0.0141	0.003048	0.000000	0.000986	0.98	0.03	0.06	0.003048	0.000000	0.000986	0.98	0.03	0.06	0.003048	0.000000	0.000986	0.98	0.03	0.06
K0728-K0713	K0728	K0713	8	32	0.0050	0.026846	0.000000	0.010492	1.27	0.10	0.15	0.026846	0.000000	0.010492	1.27	0.10	0.15	0.026846	0.000000	0.010492	1.27	0.10	0.15
K0729-K0728	K0729	K0728	8	256	0.0045	0.023267	0.000000	0.008981	1.17	0.10	0.14	0.023267	0.000000	0.008981	1.17	0.10	0.14	0.023267	0.000000	0.008981	1.17	0.10	0.14
K0730-K0729	K0730	K0729	8	373	0.0070	0.019563	0.000000	0.007438	1.30	0.08	0.12	0.019563	0.000000	0.007438	1.30	0.08	0.12	0.019563	0.000000	0.007438	1.30	0.08	0.12
K0731-K0730	K0731	K0730	8	258	0.0105	0.015445	0.000000	0.005753	1.39	0.06	0.10	0.015445	0.000000	0.005753	1.39	0.06	0.10	0.015445	0.000000	0.005753	1.39	0.06	0.10
K0732-K0731	K0732	K0731	8	254	0.0394	0.010244	0.000000	0.003682	1.95	0.04	0.06	0.010244	0.000000	0.003682	1.95	0.04	0.06	0.010244	0.000000	0.003682	1.95	0.04	0.06
K0733-K0732	K0733	K0732	8	157	0.0445	0.002711	0.000000	0.000868	1.36	0.02	0.03	0.002711	0.000000	0.000868	1.36	0.02	0.03	0.002711	0.000000	0.000868	1.36	0.02	0.03
K0734-K0728	K0734	K0728	6	249	0.0614	0.004515	0.000000	0.001511	1.85	0.03	0.05	0.004515	0.000000	0.001511	1.85	0.03	0.05	0.004515	0.000000	0.001511	1.85	0.03	0.05
K0735-K0732	K0735	K0732	6	251	0.0112	0.004175	0.000000	0.001388	1.00	0.04	0.07	0.004175	0.000000	0.001388	1.00	0.04	0.07	0.004175	0.000000	0.001388	1.00	0.04	0.07
K0736-K0715	K0736	K0715	8	120	0.0352	0.008154	0.000000	0.002873	1.75	0.04	0.05	0.008154	0.000000	0.002873	1.75	0.04	0.05	0.008154	0.000000	0.002873	1.75	0.04	0.05
K0737-K0736	K0737	K0736	6	324	0.0125	0.006216	0.000000	0.002139	1.17	0.04	0.09	0.006216	0.000000	0.002139	1.17	0.04	0.09	0.006216	0.000000	0.002139	1.17	0.04	0.09
K0801-K08D	K0801	K08D	8	348	0.0040	0.092684	0.000000	0.040344	1.68	0.20	0.29	0.092684	0.000000	0.040344	1.68	0.20	0.29	0.092684	0.000000	0.040344	1.68	0.20	0.29
K0802-K0801	K0802	K0801	8	277	0.0043	0.083850	0.000000	0.036182	1.68	0.18	0.27	0.083850	0.000000	0.036182	1.68	0.18	0.27	0.083850	0.000000	0.036182	1.68	0.18	0.27
K08D-K09	K08D	K09	12	267	0.0308	0.402118	0.000000	0.198861	5.09	0.21	0.21	0.402118	0.000000	0.198861	5.09	0.21	0.21	0.402118	0.000000	0.198861	5.09	0.21	0.21
K09-K10	K09	K10	12	350	0.0452	0.402118	0.000000	0.198861	5.83	0.19	0.19	0.402118	0.000000	0.198861	5.83	0.19	0.19	0.402118	0.000000	0.198861	5.83	0.19	0.19
K10-K11	K10	K11	12	371	0.0255	0.402118	0.000000	0.198861	4.76	0.22	0.22	0.402118	0.000000	0.198861	4.76	0.22	0.22	0.402118	0.000000	0.198861	4.76	0.22	0.22
K11-K12	K11	K12	12	350	0.0254	0.440367	0.000000	0.219504	4.88	0.23	0.23	0.440367	0.000000	0.219504	4.88	0.23	0.23	0.440367	0.000000	0.219504	4.88	0.23	0.23
K1101-K11	K1101	K11	8	118	0.0236	0.050036	0.000000	0.020643	2.63	0.09	0.14	0.050036	0.000000	0.020643	2.63	0.09	0.14	0.050036	0.000000	0.020643	2.63	0.09	0.14
K1102-K1101	K1102	K1101	8	42	0.0199	0.050036	0.000000	0.020643	2.98	0.09	0.13	0.050036	0.000000	0.020643	2.98	0.09	0.13	0.050036	0.000000	0.020643	2.98	0.09	0.13
K1103-K1102	K1103	K1102	8	57	0.0200	0.050036	0.000000	0.020643	2.98	0.09	0.13	0.050036	0.000000	0.020643	2.98	0.09	0.13	0.050036	0.000000	0.020643	2.98	0.09	0.13
K1104-K1103	K1104	K1103	8	61	0.0200	0.050036	0.000000	0.020643	2.98	0.09	0.13	0.050036	0.000000	0.020643	2.98	0.09	0.13	0.050036	0.000000	0.020643	2.98	0.09	0.13
K1105-K1104	K1105	K1104	8	22	0.0999	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
K1106-K1104	K1106	K1104	8	283	0.0155	0.050036	0.000000	0.020643	2.73	0.09	0.14	0.050036	0.000000	0.020643	2.73	0.09	0.14	0.050036	0.000000	0.020643	2.73	0.09	0.14
K1107-K1106	K1107	K1106	6	47	0.0101	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
K1108-K47	K1108	K047	8	37	0.0107	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
K1109-K1108	K1109	K1108	8	101	0.0200	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
K1110-K1109	K1110	K1109	8	28	0.0199	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	

City of Brea - Sewer Master Plan (November 2021)

Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
K1111-K1106	K1111	K1106	6	96	0.0230	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
K1112-K1102	K1112	K1102	8	95	0.0200	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
K1113-K1112	K1113	K1112	8	87	0.0200	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
K12-K13	K12	K13	15	144	0.0033	1.000122	0.129600	0.460409	2.88	0.56	0.45	1.222317	0.129600	0.589463	3.03	0.63	0.51	1.222317	0.129600	0.589463	3.03	0.63	0.51
K1201-K12	K1201	K12	12	158	0.0611	0.609318	0.129600	0.240905	7.33	0.22	0.22	0.841450	0.129600	0.369959	8.05	0.26	0.26	0.841450	0.129600	0.369959	8.05	0.26	0.26
K1202-K1201	K1202	K1201	15	415	0.0051	0.609318	0.129600	0.240905	2.96	0.38	0.31	0.841450	0.129600	0.369959	3.23	0.45	0.36	0.841450	0.129600	0.369959	3.23	0.45	0.36
K1203-K1202	K1203	K1202	15	405	0.0049	0.609318	0.129600	0.240905	2.92	0.39	0.31	0.841450	0.129600	0.369959	3.20	0.46	0.37	0.841450	0.129600	0.369959	3.20	0.46	0.37
K1204-K1203	K1204	K1203	15	281	0.0051	0.603037	0.129600	0.237479	2.94	0.38	0.31	0.835383	0.129600	0.366533	3.22	0.45	0.36	0.835383	0.129600	0.366533	3.22	0.45	0.36
K1205-K1204	K1205	K1204	10	440	0.0074	0.116512	0.000000	0.051735	2.18	0.17	0.21	0.116512	0.000000	0.051735	2.18	0.17	0.21	0.116512	0.000000	0.051735	2.18	0.17	0.21
K1206-K1205	K1206	K1205	10	420	0.0065	0.113593	0.000000	0.050328	2.08	0.18	0.21	0.113593	0.000000	0.050328	2.08	0.18	0.21	0.113593	0.000000	0.050328	2.08	0.18	0.21
K1207-K1247	K1207	K1247	6	152	0.0112	0.002527	0.000000	0.000804	0.86	0.03	0.06	0.002527	0.000000	0.000804	0.86	0.03	0.06	0.002527	0.000000	0.000804	0.86	0.03	0.06
K1208-K1206	K1208	K1206	10	440	0.0069	0.093119	0.000000	0.040550	2.00	0.16	0.19	0.093119	0.000000	0.040550	2.00	0.16	0.19	0.093119	0.000000	0.040550	2.00	0.16	0.19
K1209-K1208	K1209	K1208	10	490	0.0100	0.057127	0.000000	0.023842	1.97	0.11	0.14	0.057127	0.000000	0.023842	1.97	0.11	0.14	0.057127	0.000000	0.023842	1.97	0.11	0.14
K1210-K1209	K1210	K1209	8	302	0.0106	0.057127	0.000000	0.023842	2.07	0.12	0.18	0.057127	0.000000	0.023842	2.07	0.12	0.18	0.057127	0.000000	0.023842	2.07	0.12	0.18
K1211D-K1210	K1211D	K1210	8	301	0.0145	0.032186	0.000000	0.012779	1.94	0.08	0.13	0.032186	0.000000	0.012779	1.94	0.08	0.13	0.032186	0.000000	0.012779	1.94	0.08	0.13
K1212-K1211D	K1212	K1211D	8	336	0.0057	0.016460	0.000000	0.006165	1.14	0.08	0.11	0.016460	0.000000	0.006165	1.14	0.08	0.11	0.016460	0.000000	0.006165	1.14	0.08	0.11
K1213-K1212	K1213	K1212	8	334	0.0099	0.012054	0.000000	0.004394	1.26	0.06	0.09	0.012054	0.000000	0.004394	1.26	0.06	0.09	0.012054	0.000000	0.004394	1.26	0.06	0.09
K1214-K1213	K1214	K1213	8	455	0.0044	0.012054	0.000000	0.004394	0.95	0.07	0.11	0.012054	0.000000	0.004394	0.95	0.07	0.11	0.012054	0.000000	0.004394	0.95	0.07	0.11
K1215-K1214	K1215	K1214	8	125	0.0056	0.006982	0.000000	0.002427	0.88	0.05	0.08	0.006982	0.000000	0.002427	0.88	0.05	0.08	0.006982	0.000000	0.002427	0.88	0.05	0.08
K1216-K1215	K1216	K1215	8	180	0.0331	0.006982	0.000000	0.002427	1.63	0.03	0.05	0.006982	0.000000	0.002427	1.63	0.03	0.05	0.006982	0.000000	0.002427	1.63	0.03	0.05
K1217-K1229	K1217	K1229	6	116	0.0131	0.002294	0.000000	0.000724	0.88	0.03	0.05	0.002294	0.000000	0.000724	0.88	0.03	0.05	0.002294	0.000000	0.000724	0.88	0.03	0.05
K1218-K1204	K1218	K1204	10	318	0.0319	0.507250	0.129600	0.185744	5.61	0.25	0.30	0.743188	0.129600	0.314798	6.24	0.31	0.37	0.743188	0.129600	0.314798	6.24	0.31	0.37
K1219-K1218	K1219	K1218	10	361	0.0402	0.507250	0.129600	0.185744	6.10	0.24	0.29	0.743188	0.129600	0.314798	6.80	0.29	0.35	0.743188	0.129600	0.314798	6.80	0.29	0.35
K1220-K1219	K1220	K1219	10	259	0.0343	0.504486	0.129600	0.184267	5.76	0.25	0.30	0.740539	0.129600	0.313321	6.41	0.30	0.36	0.740539	0.129600	0.313321	6.41	0.30	0.36
K1221-K1220	K1221	K1220	10	358	0.0068	0.503872	0.129600	0.183939	3.19	0.38	0.46	0.739950	0.129600	0.312993	3.51	0.48	0.58	0.739950	0.129600	0.312993	3.51	0.48	0.58
K1222-K1221	K1222	K1221	10	132	0.0036	0.502348	0.129600	0.183125	2.53	0.46	0.55	0.738490	0.129600	0.312179	2.73	0.60	0.72	0.738490	0.129600	0.312179	2.73	0.60	0.72
K1223-K1222	K1223	K1222	10	64	0.0069	0.478748	0.129600	0.170558	3.17	0.37	0.44	0.715903	0.129600	0.299612	3.50	0.47	0.56	0.715903	0.129600	0.299612	3.50	0.47	0.56
K1224-K1223	K1224	K1223	10	107	0.0051	0.478748	0.129600	0.170558	2.84	0.40	0.48	0.715903	0.129600	0.299612	3.13	0.52	0.62	0.715903	0.129600	0.299612	3.13	0.52	0.62
K1225-K1224	K1225	K1224	10	281	0.0421	0.306064	0.000000	0.147809	5.36	0.18	0.22	0.306064	0.000000	0.147809	5.36	0.18	0.22	0.306064	0.000000	0.147809	5.36	0.18	0.22
K1226-K1225	K1226	K1225	10	236	0.0057	0.304248	0.000000	0.146856	3.16	0.26	0.32	0.304248	0.000000	0.146856	3.16	0.26	0.32	0.304248	0.000000	0.146856	3.16	0.26	0.32
K1227-K1226	K1227	K1226	10	221	0.0040	0.301596	0.000000	0.145465	2.29	0.33	0.40	0.301596	0.000000	0.145465	2.29	0.33	0.40	0.301596	0.000000	0.145465	2.29	0.33	0.40
K1228-K1227	K1228	K1227	10	204	0.0057	0.299048	0.000000	0.144130	2.60	0.30	0.36	0.299048	0.000000	0.144130	2.60	0.30	0.36	0.299048	0.000000	0.144130	2.60	0.30	0.36
K1229-K1228	K1229	K1228	8	141	0.0394	0.290457	0.000000	0.139635	5.28	0.20	0.29	0.290457	0.000000	0.139635	5.28	0.20	0.29	0.290457	0.000000	0.139635	5.28	0.20	0.29
K1230-K1229	K1230	K1229	8	201	0.0462	0.288528	0.000000	0.138627	5.57	0.19	0.28	0.288528	0.000000	0.138627	5.57	0.19	0.28	0.288528	0.000000	0.138627	5.57	0.19	0.28
K1231-K1230	K1231	K1230	8	153	0.0473	0.275012	0.000000	0.131583	5.54	0.18	0.27	0.275012	0.000000	0.131583	5.54	0.18	0.27	0.275012	0.000000	0.131583	5.54	0.18	0.27
K1232-K1231	K1232	K1231	8	226	0.0101	0.273862	0.000000	0.130985	3.17	0.27	0.41	0.273862	0.000000	0.130985	3.17	0.27	0.41	0.273862	0.000000	0.130985	3.17	0.27	0.41
K1233-K1224	K1233	K1224	8	287	0.0262	0.183846	0.129600	0.022538	4.00	0.17	0.26	0.442863	0.129600	0.151592	5.12	0.27	0.41	0.442863	0.129600	0.151592	5.12	0.27	0.41
K1234-K1233	K1234	K1233	6	106	0.0169	0.022561	0.000000	0.008685	1.91	0.07	0.15	0.022561	0.000000	0.008685	1.91	0.07	0.15	0.022561	0.000000	0.008685	1.91	0.07	0.15
K1235-K1234	K1235	K1234	8	258	0.0198	0.021845	0.000000	0.008386	2.32	0.06	0.09	0.021845	0.000000	0.008386	2.32	0.06	0.09	0.021845	0.000000	0.008386	2.32	0.06	0.09
K1236-K1235	K1236	K1235	6	301	0.0150	0.019592	0.000000	0.007450	1.76	0.07	0.14	0.019592	0.000000	0.007450	1.76	0.07	0.14	0.019592	0.000000	0.007450	1.76	0.07	0.14
K1237-K1236	K1237	K1236	6	268	0.0222	0.015675	0.000000	0.005846	1.89	0.06	0.12	0.015675	0.000000	0.005846	1.89	0.06	0.12	0.015675	0.000000	0.005846	1.89	0.06	0.12
K1238-K1237	K1238	K1237	6	263	0.0305	0.010270	0.000000	0.003692	1.86	0.04	0.09	0.010270	0.000000	0.003692	1.86	0.04	0.09	0.010270	0.000000	0.003692	1.86	0.04	0.09
K1239-K1238	K1239	K1238	6	213	0.0345	0.005433	0.000000	0.001848	1.60	0.03	0.06	0.005433	0.000000	0.001848	1.60	0.03	0.06	0.005433	0.000000	0.001848	1.60	0.03	0.06
K1240-K1222	K1240	K1222	6	111	0.0511	0.029819	0.000000	0.011761	3.07	0.07	0.13	0.029819	0.000000	0.011761	3.07	0.07	0.13	0.029819	0.000000	0.011761	3.07	0.07	0.13
K1241-K1240	K1241	K1240	6	118	0.0636	0.027022	0.000000	0.010567	3.21	0.06	0.12	0.027022	0.000000	0.010567	3.21	0.06	0.12	0.027022	0.000000	0.010567	3.21	0.06	0.12
K1242-K1241	K1242	K1241	6	100	0.0478	0.024271	0.000000	0.009403	2.82	0.06	0.12	0.024271	0.000000	0.009403	2.82	0.06	0.12	0.					

City of Brea - Sewer Master Plan (November 2021)

Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
K1243-K1242	K1243	K1242	6	190	0.0226	0.023672	0.000000	0.009151	2.15	0.07	0.14	0.023672	0.000000	0.009151	2.15	0.07	0.14	0.023672	0.000000	0.009151	2.15	0.07	0.14
K1244-K1243	K1244	K1243	8	359	0.0121	0.015635	0.000000	0.005830	1.77	0.06	0.08	0.015635	0.000000	0.005830	1.77	0.06	0.08	0.015635	0.000000	0.005830	1.77	0.06	0.08
K1245-K1244	K1245	K1244	6	305	0.0388	0.009270	0.000000	0.003303	1.96	0.04	0.08	0.009270	0.000000	0.003303	1.96	0.04	0.08	0.009270	0.000000	0.003303	1.96	0.04	0.08
K1246-K1245	K1246	K1245	6	240	0.0256	0.005803	0.000000	0.001985	1.47	0.04	0.07	0.005803	0.000000	0.001985	1.47	0.04	0.07	0.005803	0.000000	0.001985	1.47	0.04	0.07
K1247-K1233	K1247	K1233	8	324	0.0064	0.160911	0.129600	0.012402	2.32	0.23	0.35	0.423540	0.129600	0.141456	2.98	0.40	0.60	0.423540	0.129600	0.141456	2.98	0.40	0.60
K1248-K1247	K1248	K1247	6	142	0.0064	0.155956	0.129600	0.010284	2.33	0.26	0.52	0.419489	0.129600	0.139338	3.31	0.50	1.00	0.419489	0.129600	0.139338	3.31	0.50	1.00
K1249-K1248	K1249	K1248	8	39	0.0141	0.154730	0.129600	0.009765	3.68	0.16	0.24	0.418495	0.129600	0.138819	4.87	0.27	0.41	0.418495	0.129600	0.138819	4.87	0.27	0.41
K1250-K1249	K1250	K1249	6	324	0.0035	0.149327	0.129600	0.007506	1.83	0.31	0.61	0.414167	0.129600	0.136560	3.26	0.50	1.00	0.414167	0.129600	0.136560	3.26	0.50	1.00
K1251-K1250	K1251	K1250	6	230	0.0366	0.018381	0.000000	0.006951	2.36	0.06	0.11	0.018381	0.000000	0.006951	2.36	0.06	0.11	0.018381	0.000000	0.006951	2.36	0.06	0.11
K1252-K1251	K1252	K1251	6	164	0.0110	0.013570	0.000000	0.004998	1.41	0.06	0.13	0.013570	0.000000	0.004998	1.41	0.06	0.13	0.013570	0.000000	0.004998	1.41	0.06	0.13
K1253-K1252	K1253	K1252	6	164	0.0101	0.010226	0.000000	0.003675	1.26	0.06	0.12	0.010226	0.000000	0.003675	1.26	0.06	0.12	0.010226	0.000000	0.003675	1.26	0.06	0.12
K1254-K1253	K1254	K1253	6	186	0.0043	0.003204	0.000000	0.001041	0.66	0.04	0.08	0.003204	0.000000	0.001041	0.66	0.04	0.08	0.003204	0.000000	0.001041	0.66	0.04	0.08
K1255-K1249	K1255	K1249	6	207	0.0209	0.006536	0.000000	0.002259	1.42	0.04	0.08	0.006536	0.000000	0.002259	1.42	0.04	0.08	0.006536	0.000000	0.002259	1.42	0.04	0.08
K1256-K1255	K1256	K1255	6	181	0.0306	0.003162	0.000000	0.001026	1.30	0.03	0.05	0.003162	0.000000	0.001026	1.30	0.03	0.05	0.003162	0.000000	0.001026	1.30	0.03	0.05
K1257-K1240	K1257	K1240	6	87	0.0275	0.002518	0.000000	0.000801	1.17	0.02	0.05	0.002518	0.000000	0.000801	1.17	0.02	0.05	0.002518	0.000000	0.000801	1.17	0.02	0.05
K1258-K1243	K1258	K1243	6	206	0.0133	0.005593	0.000000	0.001907	1.16	0.04	0.08	0.005593	0.000000	0.001907	1.16	0.04	0.08	0.005593	0.000000	0.001907	1.16	0.04	0.08
K1259-K1244	K1259	K1244	6	153	0.0144	0.003747	0.000000	0.001234	1.06	0.03	0.07	0.003747	0.000000	0.001234	1.06	0.03	0.07	0.003747	0.000000	0.001234	1.06	0.03	0.07
K1260-K1228	K1260	K1228	6	196	0.0471	0.007955	0.000000	0.002797	2.00	0.04	0.07	0.007955	0.000000	0.002797	2.00	0.04	0.07	0.007955	0.000000	0.002797	2.00	0.04	0.07
K1261-K1260	K1261	K1260	6	221	0.0448	0.006151	0.000000	0.002115	1.82	0.03	0.06	0.006151	0.000000	0.002115	1.82	0.03	0.06	0.006151	0.000000	0.002115	1.82	0.03	0.06
K1262-K1230	K1262	K1230	6	132	0.0329	0.017080	0.000000	0.006418	2.22	0.06	0.11	0.017080	0.000000	0.006418	2.22	0.06	0.11	0.017080	0.000000	0.006418	2.22	0.06	0.11
K1263-K1262	K1263	K1262	6	143	0.0083	0.015872	0.000000	0.005926	1.34	0.07	0.15	0.015872	0.000000	0.005926	1.34	0.07	0.15	0.015872	0.000000	0.005926	1.34	0.07	0.15
K1264-K1263	K1264	K1263	6	139	0.0110	0.013682	0.000000	0.005043	1.42	0.06	0.13	0.013682	0.000000	0.005043	1.42	0.06	0.13	0.013682	0.000000	0.005043	1.42	0.06	0.13
K1265-K1264	K1265	K1264	6	197	0.0158	0.011867	0.000000	0.004320	1.54	0.06	0.11	0.011867	0.000000	0.004320	1.54	0.06	0.11	0.011867	0.000000	0.004320	1.54	0.06	0.11
K1266-K1265	K1266	K1265	6	231	0.0153	0.007766	0.000000	0.002725	1.34	0.05	0.09	0.007766	0.000000	0.002725	1.34	0.05	0.09	0.007766	0.000000	0.002725	1.34	0.05	0.09
K1267-K1263	K1267	K1263	6	111	0.0119	0.001539	0.000000	0.000469	0.75	0.02	0.05	0.001539	0.000000	0.000469	0.75	0.02	0.05	0.001539	0.000000	0.000469	0.75	0.02	0.05
K1269-K1250	K1269	K1250	8	220	0.0039	0.129600	0.129600	0.000000	2.21	0.20	0.31	0.399745	0.129600	0.129054	2.98	0.38	0.57	0.399745	0.129600	0.129054	2.98	0.38	0.57
K1270-K1253	K1270	K1253	8	111	0.0484	0.003747	0.000000	0.001234	1.54	0.02	0.03	0.003747	0.000000	0.001234	1.54	0.02	0.03	0.003747	0.000000	0.001234	1.54	0.02	0.03
K1271-K1206	K1271	K1206	8	289	0.0437	0.025160	0.000000	0.009778	2.65	0.06	0.09	0.025160	0.000000	0.009778	2.65	0.06	0.09	0.025160	0.000000	0.009778	2.65	0.06	0.09
K1272-K1271	K1272	K1271	8	328	0.0191	0.021618	0.000000	0.008291	1.90	0.07	0.10	0.021618	0.000000	0.008291	1.90	0.07	0.10	0.021618	0.000000	0.008291	1.90	0.07	0.10
K1273-K1272	K1273	K1272	8	206	0.0245	0.007177	0.000000	0.002501	1.48	0.04	0.05	0.007177	0.000000	0.002501	1.48	0.04	0.05	0.007177	0.000000	0.002501	1.48	0.04	0.05
K1274-K1273	K1274	K1273	8	311	0.0221	0.007177	0.000000	0.002501	1.43	0.04	0.06	0.007177	0.000000	0.002501	1.43	0.04	0.06	0.007177	0.000000	0.002501	1.43	0.04	0.06
K1275-K1211D	K1275	K1211D	8	161	0.0077	0.017560	0.000000	0.006614	1.30	0.07	0.11	0.017560	0.000000	0.006614	1.30	0.07	0.11	0.017560	0.000000	0.006614	1.30	0.07	0.11
K1276-K1275	K1276	K1275	8	225	0.0529	0.017560	0.000000	0.006614	2.54	0.05	0.07	0.017560	0.000000	0.006614	2.54	0.05	0.07	0.017560	0.000000	0.006614	2.54	0.05	0.07
K1277-K1272	K1277	K1272	8	296	0.0140	0.015536	0.000000	0.005790	1.54	0.06	0.09	0.015536	0.000000	0.005790	1.54	0.06	0.09	0.015536	0.000000	0.005790	1.54	0.06	0.09
K1278-K1277	K1278	K1277	8	311	0.0180	0.013448	0.000000	0.004949	1.61	0.05	0.08	0.013448	0.000000	0.004949	1.61	0.05	0.08	0.013448	0.000000	0.004949	1.61	0.05	0.08
K1279-K1269	K1279	K1269	8	253	0.0032	0.129600	0.129600	0.000000	1.70	0.25	0.37	0.399745	0.129600	0.129054	2.22	0.50	0.74	0.399745	0.129600	0.129054	2.22	0.50	0.74
K1280-K1279	K1280	K1279	8	295	0.0050	0.129600	0.129600	0.000000	2.00	0.22	0.33	0.399745	0.129600	0.129054	2.67	0.42	0.63	0.399745	0.129600	0.129054	2.67	0.42	0.63
K1281-K1280	K1281	K1280	8	240	0.0050	0.129600	0.129600	0.000000	2.00	0.22	0.33	0.399745	0.129600	0.129054	2.66	0.42	0.63	0.399745	0.129600	0.129054	2.66	0.42	0.63
K1282-K1281	K1282	K1281	8	257	0.0129	0.129600	0.129600	0.000000	2.81	0.17	0.26	0.399745	0.129600	0.129054	3.84	0.31	0.47	0.399745	0.129600	0.129054	3.84	0.31	0.47
K1283-K1282	K1283	K1282	8	298	0.0125	0.129600	0.129600	0.000000	2.78	0.17	0.26	0.399745	0.129600	0.129054	3.79	0.32	0.47	0.399745	0.129600	0.129054	3.79	0.32	0.47
K1284-K1283	K1284	K1283	8	210	0.0100	0.129600	0.129600	0.000000	2.56	0.18	0.28	0.399745	0.129600	0.129054	3.48	0.34	0.51	0.399745	0.129600	0.129054	3.48	0.34	0.51
K1285-K1284	K1285	K1284	8	209	0.0100	0.129600	0.129600	0.000000	2.57	0.18	0.27	0.399745	0.129600	0.129054	3.49	0.34	0.51	0.399745	0.129600	0.129054	3.49	0.34	0.51
K1286-K1232	K1286	K1232	8	196	0.0061	0.273011	0.000000	0.130543	2.64	0.31	0.47	0.273011	0.000000	0.130543	2.64	0.31	0.47	0.273011	0.000000	0.130543	2.64	0.31	0.47
K1287-K1286	K1287	K1286	8	285	0.0140	0.228372	0.000000	0.107516	3.40	0.23	0.34	0.228372	0.000000	0.107516	3.40	0.23	0.34	0.228372	0.000000	0.107516	3.40	0.23	0.34
K1288-K1287	K1288	K1287	8	54	0.0513	0.225320	0.000000	0.105955	5.39	0.16	0.24	0.225320	0.000000	0.105955	5.39	0.16	0.24	0.225320	0.000000	0.105955	5.39	0.16	0.24
K1289-K1286	K1289	K1286	8	324	0.0181	0.052419	0.000000	0.021714	2.43	0.10	0.15	0.052419	0.000000	0.021714	2.43	0.10	0.15	0.052419					

City of Brea - Sewer Master Plan (November 2021)

Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
K1290-K1289	K1290	K1289	8	496	0.0233	0.031388	0.000000	0.012435	2.28	0.07	0.11	0.031388	0.000000	0.012435	2.28	0.07	0.11	0.031388	0.000000	0.012435	2.28	0.07	0.11
K1291-K1290	K1291	K1290	8	383	0.0222	0.021661	0.000000	0.008309	2.00	0.06	0.09	0.021661	0.000000	0.008309	2.00	0.06	0.09	0.021661	0.000000	0.008309	2.00	0.06	0.09
K1292-K1291	K1292	K1291	8	385	0.0130	0.011710	0.000000	0.004258	1.38	0.05	0.08	0.011710	0.000000	0.004258	1.38	0.05	0.08	0.011710	0.000000	0.004258	1.38	0.05	0.08
K1293-K1288	K1293	K1288	8	100	0.3225	0.224725	0.000000	0.105651	10.30	0.10	0.15	0.224725	0.000000	0.105651	10.30	0.10	0.15	0.224725	0.000000	0.105651	10.30	0.10	0.15
K1294-K1293	K1294	K1293	8	158	0.0050	0.224725	0.000000	0.105651	2.33	0.30	0.44	0.224725	0.000000	0.105651	2.33	0.30	0.44	0.224725	0.000000	0.105651	2.33	0.30	0.44
K129401-K1294	K129401	K1294	8	248	0.0114	0.034189	0.000000	0.013646	1.82	0.09	0.14	0.034189	0.000000	0.013646	1.82	0.09	0.14	0.034189	0.000000	0.013646	1.82	0.09	0.14
K129402-K129401	K129402	K129401	8	302	0.0113	0.032107	0.000000	0.012745	1.78	0.09	0.13	0.032107	0.000000	0.012745	1.78	0.09	0.13	0.032107	0.000000	0.012745	1.78	0.09	0.13
K129403-K129402	K129403	K129402	8	364	0.0111	0.026799	0.000000	0.010472	1.68	0.08	0.12	0.026799	0.000000	0.010472	1.68	0.08	0.12	0.026799	0.000000	0.010472	1.68	0.08	0.12
K129404-K129403	K129404	K129403	8	296	0.0125	0.021642	0.000000	0.008301	1.64	0.07	0.11	0.021642	0.000000	0.008301	1.64	0.07	0.11	0.021642	0.000000	0.008301	1.64	0.07	0.11
K129405-K129404	K129405	K129404	8	250	0.0372	0.005360	0.000000	0.001821	1.57	0.03	0.04	0.005360	0.000000	0.001821	1.57	0.03	0.04	0.005360	0.000000	0.001821	1.57	0.03	0.04
K129406-K1294	K129406	K1294	8	240	0.0053	0.195566	0.000000	0.090838	2.30	0.27	0.40	0.195566	0.000000	0.090838	2.30	0.27	0.40	0.195566	0.000000	0.090838	2.30	0.27	0.40
K129407-K129406	K129407	K129406	8	120	0.0057	0.174917	0.000000	0.080462	2.28	0.25	0.37	0.174917	0.000000	0.080462	2.28	0.25	0.37	0.174917	0.000000	0.080462	2.28	0.25	0.37
K129408-K129407	K129408	K129407	8	140	0.0059	0.173766	0.000000	0.079887	2.30	0.25	0.37	0.173766	0.000000	0.079887	2.30	0.25	0.37	0.173766	0.000000	0.079887	2.30	0.25	0.37
K129409-K129408	K129409	K129408	8	227	0.0969	0.172801	0.000000	0.079405	6.24	0.12	0.18	0.172801	0.000000	0.079405	6.24	0.12	0.18	0.172801	0.000000	0.079405	6.24	0.12	0.18
K129410-K129409	K129410	K129409	8	60	0.0050	0.172413	0.000000	0.079211	2.17	0.26	0.38	0.172413	0.000000	0.079211	2.17	0.26	0.38	0.172413	0.000000	0.079211	2.17	0.26	0.38
K129411-K129410	K129411	K129410	8	98	0.0340	0.059407	0.000000	0.024878	3.15	0.09	0.14	0.059407	0.000000	0.024878	3.15	0.09	0.14	0.059407	0.000000	0.024878	3.15	0.09	0.14
K129412-K129411	K129412	K129411	8	43	0.0178	0.036222	0.000000	0.014530	2.16	0.08	0.13	0.036222	0.000000	0.014530	2.16	0.08	0.13	0.036222	0.000000	0.014530	2.16	0.08	0.13
K129413-K129412	K129413	K129412	8	144	0.0184	0.036222	0.000000	0.014530	2.19	0.08	0.13	0.036222	0.000000	0.014530	2.19	0.08	0.13	0.036222	0.000000	0.014530	2.19	0.08	0.13
K129414-K129413	K129414	K129413	8	37	0.0186	0.035308	0.000000	0.014132	2.18	0.08	0.12	0.035308	0.000000	0.014132	2.18	0.08	0.12	0.035308	0.000000	0.014132	2.18	0.08	0.12
K129415-K129414	K129415	K129414	8	294	0.0109	0.035071	0.000000	0.014029	1.80	0.09	0.14	0.035071	0.000000	0.014029	1.80	0.09	0.14	0.035071	0.000000	0.014029	1.80	0.09	0.14
K129416-K129411	K129416	K129411	8	39	0.0340	0.026507	0.000000	0.010348	2.47	0.06	0.09	0.026507	0.000000	0.010348	2.47	0.06	0.09	0.026507	0.000000	0.010348	2.47	0.06	0.09
K129417-K129416	K129417	K129416	8	134	0.0330	0.004567	0.000000	0.001530	1.43	0.03	0.04	0.004567	0.000000	0.001530	1.43	0.03	0.04	0.004567	0.000000	0.001530	1.43	0.03	0.04
K129418-K129417	K129418	K129417	8	244	0.0251	0.004567	0.000000	0.001530	1.30	0.03	0.04	0.004567	0.000000	0.001530	1.30	0.03	0.04	0.004567	0.000000	0.001530	1.30	0.03	0.04
K129419-K129418	K129419	K129418	8	98	0.0378	0.004567	0.000000	0.001530	1.50	0.03	0.04	0.004567	0.000000	0.001530	1.50	0.03	0.04	0.004567	0.000000	0.001530	1.50	0.03	0.04
K129420-K129419	K129420	K129419	8	220	0.0202	0.004567	0.000000	0.001530	1.21	0.03	0.05	0.004567	0.000000	0.001530	1.21	0.03	0.05	0.004567	0.000000	0.001530	1.21	0.03	0.05
K129421-K129420	K129421	K129420	8	176	0.0213	0.002419	0.000000	0.000767	1.01	0.02	0.03	0.002419	0.000000	0.000767	1.01	0.02	0.03	0.002419	0.000000	0.000767	1.01	0.02	0.03
K129422-K129416	K129422	K129416	8	54	0.0635	0.022879	0.000000	0.008818	2.94	0.05	0.08	0.022879	0.000000	0.008818	2.94	0.05	0.08	0.022879	0.000000	0.008818	2.94	0.05	0.08
K129423-K129422	K129423	K129422	8	40	0.0425	0.022879	0.000000	0.008818	2.55	0.06	0.08	0.022879	0.000000	0.008818	2.55	0.06	0.08	0.022879	0.000000	0.008818	2.55	0.06	0.08
K129424-K129423	K129424	K129423	8	212	0.0221	0.022879	0.000000	0.008818	2.03	0.06	0.10	0.022879	0.000000	0.008818	2.03	0.06	0.10	0.022879	0.000000	0.008818	2.03	0.06	0.10
K129425-K129424	K129425	K129424	8	185	0.0198	0.020755	0.000000	0.007932	1.90	0.06	0.10	0.020755	0.000000	0.007932	1.90	0.06	0.10	0.020755	0.000000	0.007932	1.90	0.06	0.10
K129426-K129425	K129426	K129425	8	325	0.0206	0.019538	0.000000	0.007428	1.89	0.06	0.09	0.019538	0.000000	0.007428	1.89	0.06	0.09	0.019538	0.000000	0.007428	1.89	0.06	0.09
K129427-K129410	K129427	K129410	8	158	0.0049	0.121884	0.000000	0.054333	1.96	0.21	0.32	0.121884	0.000000	0.054333	1.96	0.21	0.32	0.121884	0.000000	0.054333	1.96	0.21	0.32
K129428-K129427	K129428	K129427	8	105	0.0207	0.073908	0.000000	0.031544	2.82	0.12	0.17	0.073908	0.000000	0.031544	2.82	0.12	0.17	0.073908	0.000000	0.031544	2.82	0.12	0.17
K129429-K129428	K129429	K129428	8	217	0.0311	0.009906	0.000000	0.003550	1.78	0.04	0.06	0.009906	0.000000	0.003550	1.78	0.04	0.06	0.009906	0.000000	0.003550	1.78	0.04	0.06
K129430-K129429	K129430	K129429	8	74	0.0127	0.008222	0.000000	0.002899	1.23	0.05	0.07	0.008222	0.000000	0.002899	1.23	0.05	0.07	0.008222	0.000000	0.002899	1.23	0.05	0.07
K129431-K129428	K129431	K129428	8	104	0.0212	0.065782	0.000000	0.027793	2.75	0.11	0.16	0.065782	0.000000	0.027793	2.75	0.11	0.16	0.065782	0.000000	0.027793	2.75	0.11	0.16
K129432-K129431	K129432	K129431	8	101	0.0264	0.064457	0.000000	0.027185	2.95	0.10	0.15	0.064457	0.000000	0.027185	2.95	0.10	0.15	0.064457	0.000000	0.027185	2.95	0.10	0.15
K129433-K129432	K129433	K129432	8	223	0.0170	0.003456	0.000000	0.001130	1.05	0.03	0.04	0.003456	0.000000	0.001130	1.05	0.03	0.04	0.003456	0.000000	0.001130	1.05	0.03	0.04
K129434-K129432	K129434	K129432	8	14	0.0271	0.060213	0.000000	0.025245	2.92	0.10	0.15	0.060213	0.000000	0.025245	2.92	0.10	0.15	0.060213	0.000000	0.025245	2.92	0.10	0.15
K129435-K129434	K129435	K129434	8	45	0.0101	0.060213	0.000000	0.025245	2.06	0.12	0.19	0.060213	0.000000	0.025245	2.06	0.12	0.19	0.060213	0.000000	0.025245	2.06	0.12	0.19
K129436-K129435	K129436	K129435	8	113	0.0119	0.051890	0.000000	0.021476	2.09	0.11	0.17	0.051890	0.000000	0.021476	2.09	0.11	0.17	0.051890	0.000000	0.021476	2.09	0.11	0.17
K129437-K129436	K129437	K129436	6	60	0.0537	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
K129438-K129436	K129438	K129436	8	69	0.0118	0.051565	0.000000	0.021330	2.08	0.11	0.17	0.051565	0.000000	0.021330	2.08	0.11	0.17	0.051565	0.000000	0.021330	2.08	0.11	0.17
K129439-K129435	K129439	K129435	8	40	0.0170	0.009128	0.000000	0.003248	1.40	0.04	0.07	0.009128	0.000000	0.003248	1.40	0.04	0.07	0.009128	0.000000	0.003248	1.40	0.04	0.07
K129440-K129439	K129440	K129439	8	118	0.0100	0.009128	0.000000	0.003248	1.17	0.05	0.08	0.009128	0.000000	0.003248</									

City of Brea - Sewer Master Plan (November 2021)

Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
K129442-K129440	K129442	K129440	8	158	0.0101	0.007774	0.000000	0.002728	1.11	0.05	0.07	0.007774	0.000000	0.002728	1.11	0.05	0.07	0.007774	0.000000	0.002728	1.11	0.05	0.07
K129443-K129442	K129443	K129442	8	98	0.0236	0.007774	0.000000	0.002728	1.50	0.04	0.06	0.007774	0.000000	0.002728	1.50	0.04	0.06	0.007774	0.000000	0.002728	1.50	0.04	0.06
K129444-K129427	K129444	K129427	8	264	0.0053	0.051327	0.000000	0.021223	1.57	0.14	0.20	0.051327	0.000000	0.021223	1.57	0.14	0.20	0.051327	0.000000	0.021223	1.57	0.14	0.20
K129445-K129444	K129445	K129444	8	249	0.0050	0.050568	0.000000	0.020882	1.53	0.14	0.20	0.050568	0.000000	0.020882	1.53	0.14	0.20	0.050568	0.000000	0.020882	1.53	0.14	0.20
K129446-K129445	K129446	K129445	8	263	0.0050	0.050568	0.000000	0.020882	1.53	0.14	0.20	0.050568	0.000000	0.020882	1.53	0.14	0.20	0.050568	0.000000	0.020882	1.53	0.14	0.20
K129447-K129446	K129447	K129446	8	141	0.0100	0.006386	0.000000	0.002203	1.05	0.04	0.06	0.006386	0.000000	0.002203	1.05	0.04	0.06	0.006386	0.000000	0.002203	1.05	0.04	0.06
K129448-K129447	K129448	K129447	8	163	0.0228	0.005539	0.000000	0.001887	1.34	0.03	0.05	0.005539	0.000000	0.001887	1.34	0.03	0.05	0.005539	0.000000	0.001887	1.34	0.03	0.05
K129449-K129446	K129449	K129446	8	66	0.0514	0.034823	0.000000	0.013921	3.10	0.06	0.10	0.034823	0.000000	0.013921	3.10	0.06	0.10	0.034823	0.000000	0.013921	3.10	0.06	0.10
K129450-K129449	K129450	K129449	8	143	0.0288	0.033534	0.000000	0.013362	2.50	0.07	0.11	0.033534	0.000000	0.013362	2.50	0.07	0.11	0.033534	0.000000	0.013362	2.50	0.07	0.11
K129451-K129450	K129451	K129450	8	126	0.0284	0.032160	0.000000	0.012768	2.46	0.07	0.11	0.032160	0.000000	0.012768	2.46	0.07	0.11	0.032160	0.000000	0.012768	2.46	0.07	0.11
K129451-K129456	K129456	K129451	8	120	0.0458	0.011573	0.000000	0.004204	2.13	0.04	0.06	0.011573	0.000000	0.004204	2.13	0.04	0.06	0.011573	0.000000	0.004204	2.13	0.04	0.06
K129452-K129451	K129452	K129451	8	169	0.0709	0.019248	0.000000	0.007308	2.90	0.05	0.07	0.019248	0.000000	0.007308	2.90	0.05	0.07	0.019248	0.000000	0.007308	2.90	0.05	0.07
K129453-K129452	K129453	K129452	8	145	0.0653	0.017403	0.000000	0.006550	2.73	0.04	0.07	0.017403	0.000000	0.006550	2.73	0.04	0.07	0.017403	0.000000	0.006550	2.73	0.04	0.07
K129454-K129453	K129454	K129453	8	245	0.0379	0.012281	0.000000	0.004484	2.03	0.04	0.06	0.012281	0.000000	0.004484	2.03	0.04	0.06	0.012281	0.000000	0.004484	2.03	0.04	0.06
K129455-K129454	K129455	K129454	8	268	0.0188	0.007538	0.000000	0.002638	1.37	0.04	0.06	0.007538	0.000000	0.002638	1.37	0.04	0.06	0.007538	0.000000	0.002638	1.37	0.04	0.06
K129457-K129456	K129457	K129456	8	252	0.0154	0.011573	0.000000	0.004204	1.46	0.05	0.08	0.011573	0.000000	0.004204	1.46	0.05	0.08	0.011573	0.000000	0.004204	1.46	0.05	0.08
K129458-K129457	K129458	K129457	8	131	0.1208	0.008187	0.000000	0.002886	2.69	0.03	0.04	0.008187	0.000000	0.002886	2.69	0.03	0.04	0.008187	0.000000	0.002886	2.69	0.03	0.04
K129459-K129458	K129459	K129458	8	86	0.0394	0.006087	0.000000	0.002091	1.66	0.03	0.05	0.006087	0.000000	0.002091	1.66	0.03	0.05	0.006087	0.000000	0.002091	1.66	0.03	0.05
K129460-K129455	K129460	K129455	8	99	0.0050	0.002480	0.000000	0.000876	0.62	0.03	0.05	0.002480	0.000000	0.000876	0.62	0.03	0.05	0.002480	0.000000	0.000876	0.62	0.03	0.05
K129460-K129459	K129460	K129459	8	250	0.0283	0.005919	0.000000	0.002091	1.47	0.03	0.05	0.005919	0.000000	0.002091	1.47	0.03	0.05	0.005919	0.000000	0.002091	1.47	0.03	0.05
K13-K14	K13	K14	15	314	0.0055	1.043496	0.129600	0.485397	3.54	0.50	0.40	1.264861	0.129600	0.614451	3.72	0.55	0.44	1.264861	0.129600	0.614451	3.72	0.55	0.44
K1301-K13	K1301	K13	8	551	0.0048	0.025106	0.000000	0.009755	1.23	0.10	0.15	0.025106	0.000000	0.009755	1.23	0.10	0.15	0.025106	0.000000	0.009755	1.23	0.10	0.15
K1302-K1301	K1302	K1301	8	551	0.0089	0.021709	0.000000	0.008329	1.45	0.08	0.12	0.021709	0.000000	0.008329	1.45	0.08	0.12	0.021709	0.000000	0.008329	1.45	0.08	0.12
K1303-K13	K1303	K13	8	216	0.0049	0.037831	0.000000	0.015233	1.39	0.12	0.18	0.037831	0.000000	0.015233	1.39	0.12	0.18	0.037831	0.000000	0.015233	1.39	0.12	0.18
K1304-K1303	K1304	K1303	8	211	0.0050	0.037228	0.000000	0.014969	1.68	0.10	0.15	0.037228	0.000000	0.014969	1.68	0.10	0.15	0.037228	0.000000	0.014969	1.68	0.10	0.15
K1305-K1304	K1305	K1304	8	93	0.0052	0.037228	0.000000	0.014969	1.70	0.10	0.15	0.037228	0.000000	0.014969	1.70	0.10	0.15	0.037228	0.000000	0.014969	1.70	0.10	0.15
K1306-K1305	K1306	K1305	8	55	0.0069	0.034127	0.000000	0.013619	1.83	0.09	0.14	0.034127	0.000000	0.013619	1.83	0.09	0.14	0.034127	0.000000	0.013619	1.83	0.09	0.14
K1307-K1306	K1307	K1306	8	27	0.0051	0.034127	0.000000	0.013619	1.65	0.10	0.15	0.034127	0.000000	0.013619	1.65	0.10	0.15	0.034127	0.000000	0.013619	1.65	0.10	0.15
K1308-K1307	K1308	K1307	8	208	0.0050	0.034127	0.000000	0.013619	1.64	0.10	0.15	0.034127	0.000000	0.013619	1.64	0.10	0.15	0.034127	0.000000	0.013619	1.64	0.10	0.15
K1309-K1308	K1309	K1308	8	208	0.0050	0.031388	0.000000	0.012435	1.60	0.09	0.14	0.031388	0.000000	0.012435	1.60	0.09	0.14	0.031388	0.000000	0.012435	1.60	0.09	0.14
K1310-K1309	K1310	K1309	8	45	0.0051	0.031388	0.000000	0.012435	1.60	0.09	0.14	0.031388	0.000000	0.012435	1.60	0.09	0.14	0.031388	0.000000	0.012435	1.60	0.09	0.14
K1311-K1310	K1311	K1310	8	81	0.0051	0.031388	0.000000	0.012435	1.60	0.09	0.14	0.031388	0.000000	0.012435	1.60	0.09	0.14	0.031388	0.000000	0.012435	1.60	0.09	0.14
K1312-K1311	K1312	K1311	8	13	0.0048	0.031388	0.000000	0.012435	1.57	0.10	0.14	0.031388	0.000000	0.012435	1.57	0.10	0.14	0.031388	0.000000	0.012435	1.57	0.10	0.14
K1313-K1312	K1313	K1312	8	285	0.0050	0.008815	0.000000	0.003127	1.09	0.05	0.08	0.008815	0.000000	0.003127	1.09	0.05	0.08	0.008815	0.000000	0.003127	1.09	0.05	0.08
K1314-K1312	K1314	K1312	8	318	0.0050	0.024046	0.000000	0.009308	1.47	0.08	0.13	0.024046	0.000000	0.009308	1.47	0.08	0.13	0.024046	0.000000	0.009308	1.47	0.08	0.13
K1315-K1314	K1315	K1314	8	367	0.0050	0.002983	0.000000	0.000963	0.78	0.03	0.05	0.002983	0.000000	0.000963	0.78	0.03	0.05	0.002983	0.000000	0.000963	0.78	0.03	0.05
K1316-K1305	K1316	K1305	8	284	0.0259	0.002579	0.000000	0.000822	1.33	0.02	0.03	0.002579	0.000000	0.000822	1.33	0.02	0.03	0.002579	0.000000	0.000822	1.33	0.02	0.03
K14-K15	K14	K15	15	332	0.0068	1.047029	0.129600	0.487437	3.82	0.47	0.38	1.268328	0.129600	0.616491	4.03	0.52	0.42	1.268328	0.129600	0.616491	4.03	0.52	0.42
K15-K16D	K15	K16D	15	460	0.0068	1.055132	0.129600	0.492118	3.83	0.47	0.38	1.276281	0.129600	0.621172	4.03	0.53	0.42	1.276281	0.129600	0.621172	4.03	0.53	0.42
K1601-K16D	K1601	K16D	12	400	0.0023	0.150321	0.000000	0.068243	1.53	0.25	0.25	0.158921	0.000000	0.072497	1.56	0.26	0.26	0.158921	0.000000	0.072497	1.56	0.26	0.26
K1602-K1601	K1602	K1601	12	350	0.0031	0.144656	0.000000	0.065452	1.67	0.23	0.23	0.153284	0.000000	0.069706	1.70	0.23	0.23	0.153284	0.000000	0.069706	1.70	0.23	0.23
K1603-K1602	K1603	K1602	12	374	0.0030	0.144656	0.000000	0.065452	1.67	0.23	0.23	0.153284	0.000000	0.069706	1.69	0.23	0.23	0.153284	0.000000	0.069706	1.69	0.23	0.23
K1604-K1603	K1604	K1603	10	419	0.0054	0.142267	0.000000	0.064278	2.08	0.21	0.25	0.150907	0.000000	0.068532	2.11	0.21	0.26	0.150907	0.000000	0.068532	2.11	0.21	0.26
K1605-K1604	K1605	K1604	10	366	0.0090	0.138975	0.000000	0.062663	2.46	0.18	0.22	0.147632	0.000000	0.066917	2.51	0.19	0.22	0.147632	0.000000	0.066917	2.51	0.19	0.22
K1606-K1605	K1606	K1605	10	400	0.0106	0.118754	0.000000	0.052818	2.49	0.16	0.19	0.127525	0.000000	0.057072	2.54	0.17	0.20	0.127525	0.000000	0.057072	2.54	0.17	0.20
K1607-K1606	K1607	K1606	10	428	0.0079	0.107764	0																

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Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
K1608-K1607	K1608	K1607	8	183	0.0105	0.107764	0.000000	0.047527	2.48	0.17	0.25	0.107764	0.000000	0.047527	2.48	0.17	0.25	0.107764	0.000000	0.047527	2.48	0.17	0.25
K1609-K1608	K1609	K1608	8	326	0.0052	0.107764	0.000000	0.047527	1.92	0.20	0.30	0.107764	0.000000	0.047527	1.92	0.20	0.30	0.107764	0.000000	0.047527	1.92	0.20	0.30
K1610-K1609	K1610	K1609	8	360	0.0049	0.100688	0.000000	0.044145	1.85	0.19	0.29	0.100688	0.000000	0.044145	1.85	0.19	0.29	0.100688	0.000000	0.044145	1.85	0.19	0.29
K1611-K1610	K1611	K1610	8	380	0.0142	0.100688	0.000000	0.044145	2.70	0.15	0.22	0.100688	0.000000	0.044145	2.70	0.15	0.22	0.100688	0.000000	0.044145	2.70	0.15	0.22
K1612-K1611	K1612	K1611	8	246	0.0228	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
K1613-K1612	K1613	K1612	8	301	0.0168	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
K1614-K1615	K1614	K1615	10	261	0.0073	0.015054	0.000000	0.005595	1.18	0.07	0.08	0.015054	0.000000	0.005595	1.18	0.07	0.08	0.015054	0.000000	0.005595	1.18	0.07	0.08
K1615-K1605	K1615	K1605	10	323	0.0055	0.025319	0.000000	0.009845	1.25	0.09	0.11	0.025319	0.000000	0.009845	1.25	0.09	0.11	0.025319	0.000000	0.009845	1.25	0.09	0.11
K1616-K1611	K1616	K1611	8	289	0.0220	0.075798	0.000000	0.032422	2.90	0.12	0.17	0.075798	0.000000	0.032422	2.90	0.12	0.17	0.075798	0.000000	0.032422	2.90	0.12	0.17
K16D-K17D	K16D	K17D	21	136	0.0119	1.172585	0.129600	0.560361	4.67	0.38	0.22	1.398851	0.129600	0.693669	4.92	0.42	0.24	1.398851	0.129600	0.693669	4.92	0.42	0.24
K1701-K17D	K1701	K17D	8	32	0.0034	0.007801	0.000000	0.002738	0.77	0.06	0.09	0.019630	0.000000	0.007466	1.01	0.09	0.14	0.019630	0.000000	0.007466	1.01	0.09	0.14
K1702-K1701	K1702	K1701	8	365	0.0042	0.007801	0.000000	0.002738	0.82	0.06	0.09	0.019630	0.000000	0.007466	1.09	0.09	0.13	0.019630	0.000000	0.007466	1.09	0.09	0.13
K1703-K1702	K1703	K1702	8	229	0.0020	0.007301	0.000000	0.002548	0.62	0.07	0.10	0.019170	0.000000	0.007276	0.83	0.11	0.16	0.019170	0.000000	0.007276	0.83	0.11	0.16
K1704-K1703	K1704	K1703	8	455	0.0075	0.007301	0.000000	0.002548	0.99	0.05	0.07	0.019170	0.000000	0.007276	1.32	0.08	0.12	0.019170	0.000000	0.007276	1.32	0.08	0.12
K1705-K1704	K1705	K1704	8	440	0.0120	0.007301	0.000000	0.002548	1.16	0.04	0.07	0.007301	0.000000	0.002548	1.16	0.04	0.07	0.007301	0.000000	0.002548	1.16	0.04	0.07
K1706-K1702	K1706	K1702	8	200	0.0040	0.000670	0.000000	0.000190	0.38	0.02	0.03	0.000670	0.000000	0.000190	0.38	0.02	0.03	0.000670	0.000000	0.000190	0.38	0.02	0.03
K17D-K18D	K17D	K18D	21	68	0.0066	1.177273	0.129600	0.563099	3.80	0.44	0.25	1.411414	0.129600	0.701135	4.00	0.49	0.28	1.411414	0.129600	0.701135	4.00	0.49	0.28
K18D-K19	K18D	K19	21	409	0.0099	1.177273	0.129600	0.563099	4.38	0.40	0.23	1.411414	0.129600	0.701135	4.62	0.44	0.25	1.411414	0.129600	0.701135	4.62	0.44	0.25
K19-K20	K19	K20	21	450	0.0099	1.180658	0.129600	0.565077	4.38	0.40	0.23	1.414741	0.129600	0.703113	4.62	0.44	0.25	1.414741	0.129600	0.703113	4.62	0.44	0.25
K20-K21	K20	K21	21	425	0.0120	1.180658	0.129600	0.565077	4.69	0.38	0.22	1.414741	0.129600	0.703113	4.95	0.42	0.24	1.414741	0.129600	0.703113	4.95	0.42	0.24
K21-OUTLETK	K21	OUT_KRAEMER	21	125	0.0120	1.246278	0.129600	0.603526	4.77	0.39	0.22	1.479256	0.129600	0.741562	5.01	0.43	0.24	1.479256	0.129600	0.741562	5.01	0.43	0.24
K2101-K21	K2101	K21	10	69	0.0184	0.088671	0.000000	0.038449	2.78	0.12	0.15	0.088671	0.000000	0.038449	2.78	0.12	0.15	0.088671	0.000000	0.038449	2.78	0.12	0.15
K2102-K2101	K2102	K2101	10	394	0.0032	0.088671	0.000000	0.038449	1.50	0.19	0.22	0.088671	0.000000	0.038449	1.50	0.19	0.22	0.088671	0.000000	0.038449	1.50	0.19	0.22
K2103-K2102	K2103	K2102	10	314	0.0035	0.086088	0.000000	0.037233	1.54	0.18	0.22	0.086088	0.000000	0.037233	1.54	0.18	0.22	0.086088	0.000000	0.037233	1.54	0.18	0.22
K2104-K2103	K2104	K2103	10	360	0.0035	0.086088	0.000000	0.037233	1.53	0.18	0.22	0.086088	0.000000	0.037233	1.53	0.18	0.22	0.086088	0.000000	0.037233	1.53	0.18	0.22
K2105-K2104	K2105	K2104	8	366	0.0045	0.073410	0.000000	0.031313	1.65	0.17	0.25	0.073410	0.000000	0.031313	1.65	0.17	0.25	0.073410	0.000000	0.031313	1.65	0.17	0.25
K2106-K2105	K2106	K2105	8	348	0.0043	0.065993	0.000000	0.027890	1.56	0.16	0.24	0.065993	0.000000	0.027890	1.56	0.16	0.24	0.065993	0.000000	0.027890	1.56	0.16	0.24
K2107-K2106	K2107	K2106	8	391	0.0063	0.057953	0.000000	0.024217	1.72	0.14	0.21	0.057953	0.000000	0.024217	1.72	0.14	0.21	0.057953	0.000000	0.024217	1.72	0.14	0.21
K2108-K2107	K2108	K2107	8	269	0.0060	0.049183	0.000000	0.020261	1.62	0.13	0.19	0.049183	0.000000	0.020261	1.62	0.13	0.19	0.049183	0.000000	0.020261	1.62	0.13	0.19
K2109-K2108	K2109	K2108	8	301	0.0140	0.049183	0.000000	0.020261	2.18	0.10	0.16	0.049183	0.000000	0.020261	2.18	0.10	0.16	0.049183	0.000000	0.020261	2.18	0.10	0.16
K2110-K2109	K2110	K2109	8	285	0.0223	0.022907	0.000000	0.008830	2.04	0.06	0.10	0.022907	0.000000	0.008830	2.04	0.06	0.10	0.022907	0.000000	0.008830	2.04	0.06	0.10
K2111-K2110	K2111	K2110	8	97	0.0194	0.022907	0.000000	0.008830	1.94	0.07	0.10	0.022907	0.000000	0.008830	1.94	0.07	0.10	0.022907	0.000000	0.008830	1.94	0.07	0.10
K2112-K2111	K2112	K2111	6	38	0.0232	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
K22-K01	K22	K01	8	47	0.0608	0.231349	0.000000	0.109040	5.77	0.16	0.23	0.231349	0.000000	0.109040	5.77	0.16	0.23	0.231349	0.000000	0.109040	5.77	0.16	0.23
K23-K22	K23	K22	8	72	0.0488	0.231349	0.000000	0.109040	5.34	0.16	0.25	0.231349	0.000000	0.109040	5.34	0.16	0.25	0.231349	0.000000	0.109040	5.34	0.16	0.25
K2301-K23	K2301	K23	8	129	0.0310	0.109704	0.000000	0.048458	3.65	0.13	0.19	0.109704	0.000000	0.048458	3.65	0.13	0.19	0.109704	0.000000	0.048458	3.65	0.13	0.19
K2302-K2301	K2302	K2301	8	146	0.1303	0.109704	0.000000	0.048458	7.28	0.08	0.12	0.109704	0.000000	0.048458	7.28	0.08	0.12	0.109704	0.000000	0.048458	7.28	0.08	0.12
K2303-K2302	K2303	K2302	8	300	0.0939	0.109704	0.000000	0.048458	6.49	0.09	0.13	0.109704	0.000000	0.048458	6.49	0.09	0.13	0.109704	0.000000	0.048458	6.49	0.09	0.13
K2304-K2303	K2304	K2303	8	178	0.0200	0.109704	0.000000	0.048458	3.77	0.12	0.19	0.109704	0.000000	0.048458	3.77	0.12	0.19	0.109704	0.000000	0.048458	3.77	0.12	0.19
K2305-K230501	K2305	K230501	8	26	0.0198	0.109704	0.000000	0.048458	3.75	0.12	0.19	0.109704	0.000000	0.048458	3.75	0.12	0.19	0.109704	0.000000	0.048458	3.75	0.12	0.19
K230501-K230502	K230501	K230502	8	12	0.0204	0.109704	0.000000	0.048458	3.79	0.12	0.19	0.109704	0.000000	0.048458	3.79	0.12	0.19	0.109704	0.000000	0.048458	3.79	0.12	0.19
K230502-K230503	K230502	K230503	8	17	0.0530	0.109704	0.000000	0.048458	5.31	0.10	0.15	0.109704	0.000000	0.048458	5.31	0.10	0.15	0.109704	0.000000	0.048458	5.31	0.10	0.15
K230503-K230504	K230503	K230504	8	29	0.1401	0.109704	0.000000	0.048458	7.46	0.08	0.12	0.109704	0.000000	0.048458	7.46	0.08	0.12	0.109704	0.000000	0.048458	7.46	0.08	0.12
K230504-K230505	K230504	K230505	8	13	0.2211	0.109704	0.000000	0.048458	8.75	0.07	0.10	0.109704	0.000000	0.048458	8.75	0.07	0.10	0.109704	0.000000	0.048458	8.75	0.07	0.10
K230505-K230506	K230505	K230506	8	16	0.2460	0.109704	0.000000	0.048458	9.09	0.07	0.10	0.109704	0.000000	0.048458	9.09	0.07	0.10	0.109704	0.000000	0.048458	9.09	0.07	0.10

City of Brea - Sewer Master Plan (November 2021)

Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
K230506-K230507	K230506	K230507	8	29	0.2460	0.109704	0.000000	0.048458	9.09	0.07	0.10	0.109704	0.000000	0.048458	9.09	0.07	0.10	0.109704	0.000000	0.048458	9.09	0.07	0.10
K230507-K2304	K230507	K2304	8	29	0.2453	0.109704	0.000000	0.048458	9.08	0.07	0.10	0.109704	0.000000	0.048458	9.08	0.07	0.10	0.109704	0.000000	0.048458	9.08	0.07	0.10
K2306-K2305	K2306	K2305	8	130	0.0150	0.067881	0.000000	0.028758	2.95	0.11	0.16	0.067881	0.000000	0.028758	2.95	0.11	0.16	0.067881	0.000000	0.028758	2.95	0.11	0.16
K2307-K2306	K2307	K2306	8	201	0.0196	0.067881	0.000000	0.028758	3.25	0.10	0.15	0.067881	0.000000	0.028758	3.25	0.10	0.15	0.067881	0.000000	0.028758	3.25	0.10	0.15
K2308-K2307	K2308	K2307	8	81	0.0395	0.062218	0.000000	0.026160	4.04	0.08	0.12	0.062218	0.000000	0.026160	4.04	0.08	0.12	0.062218	0.000000	0.026160	4.04	0.08	0.12
K2309-K2308	K2309	K2308	8	92	0.0394	0.061077	0.000000	0.025639	4.02	0.08	0.12	0.061077	0.000000	0.025639	4.02	0.08	0.12	0.061077	0.000000	0.025639	4.02	0.08	0.12
K2310-K2309	K2310	K2309	8	173	0.0437	0.058070	0.000000	0.024270	4.10	0.08	0.11	0.058070	0.000000	0.024270	4.10	0.08	0.11	0.058070	0.000000	0.024270	4.10	0.08	0.11
K2311-K2310	K2311	K2310	8	64	0.0513	0.054946	0.000000	0.022854	4.27	0.07	0.11	0.054946	0.000000	0.022854	4.27	0.07	0.11	0.054946	0.000000	0.022854	4.27	0.07	0.11
K2312-K2311	K2312	K2311	8	72	0.0541	0.054082	0.000000	0.022464	4.33	0.07	0.10	0.054082	0.000000	0.022464	4.33	0.07	0.10	0.054082	0.000000	0.022464	4.33	0.07	0.10
K2313-K2312	K2313	K2312	8	96	0.0530	0.053695	0.000000	0.022289	4.29	0.07	0.10	0.053695	0.000000	0.022289	4.29	0.07	0.10	0.053695	0.000000	0.022289	4.29	0.07	0.10
K2314-K2313	K2314	K2313	8	140	0.0516	0.052286	0.000000	0.021654	4.21	0.07	0.10	0.052286	0.000000	0.021654	4.21	0.07	0.10	0.052286	0.000000	0.021654	4.21	0.07	0.10
K2315-K2314	K2315	K2314	8	194	0.0404	0.050488	0.000000	0.020846	3.83	0.07	0.11	0.050488	0.000000	0.020846	3.83	0.07	0.11	0.050488	0.000000	0.020846	3.83	0.07	0.11
K2316-K2315	K2316	K2315	8	71	0.0205	0.048016	0.000000	0.019739	2.97	0.08	0.12	0.048016	0.000000	0.019739	2.97	0.08	0.12	0.048016	0.000000	0.019739	2.97	0.08	0.12
K2317-K2316	K2317	K2316	8	281	0.0100	0.025274	0.000000	0.009826	1.90	0.07	0.11	0.025274	0.000000	0.009826	1.90	0.07	0.11	0.025274	0.000000	0.009826	1.90	0.07	0.11
K2318-K2317	K2318	K2317	8	160	0.0095	0.003179	0.000000	0.001032	1.00	0.03	0.04	0.003179	0.000000	0.001032	1.00	0.03	0.04	0.003179	0.000000	0.001032	1.00	0.03	0.04
K2319-K2316	K2319	K2316	8	74	0.0490	0.024874	0.000000	0.009657	3.31	0.05	0.07	0.024874	0.000000	0.009657	3.31	0.05	0.07	0.024874	0.000000	0.009657	3.31	0.05	0.07
K2320-K2319	K2320	K2319	8	250	0.0385	0.024874	0.000000	0.009657	3.04	0.05	0.08	0.024874	0.000000	0.009657	3.04	0.05	0.08	0.024874	0.000000	0.009657	3.04	0.05	0.08
K2321-K2320	K2321	K2320	8	290	0.0216	0.009824	0.000000	0.003518	1.56	0.04	0.07	0.009824	0.000000	0.003518	1.56	0.04	0.07	0.009824	0.000000	0.003518	1.56	0.04	0.07
K2321-K2338	K2321	K2338	8	130	0.0148	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
K2322-K2321	K2322	K2321	8	80	0.0364	0.006437	0.000000	0.002222	1.97	0.03	0.04	0.006437	0.000000	0.002222	1.97	0.03	0.04	0.006437	0.000000	0.002222	1.97	0.03	0.04
K2323-K2322	K2323	K2322	8	85	0.0414	0.006437	0.000000	0.002222	2.07	0.03	0.04	0.006437	0.000000	0.002222	2.07	0.03	0.04	0.006437	0.000000	0.002222	2.07	0.03	0.04
K2324-K2323	K2324	K2323	8	145	0.0359	0.006437	0.000000	0.002222	1.97	0.03	0.04	0.006437	0.000000	0.002222	1.97	0.03	0.04	0.006437	0.000000	0.002222	1.97	0.03	0.04
K2325-K2324	K2325	K2324	8	74	0.0271	0.005102	0.000000	0.001726	1.66	0.03	0.04	0.005102	0.000000	0.001726	1.66	0.03	0.04	0.005102	0.000000	0.001726	1.66	0.03	0.04
K2326-K2325	K2326	K2325	8	227	0.0335	0.003942	0.000000	0.001304	1.65	0.02	0.03	0.003942	0.000000	0.001304	1.65	0.02	0.03	0.003942	0.000000	0.001304	1.65	0.02	0.03
K2327-K2326	K2327	K2326	8	236	0.0131	0.002966	0.000000	0.000957	1.09	0.02	0.04	0.002966	0.000000	0.000957	1.09	0.02	0.04	0.002966	0.000000	0.000957	1.09	0.02	0.04
K2328-K2305	K2328	K2305	10	266	0.0057	0.047929	0.000000	0.019700	1.84	0.11	0.13	0.047929	0.000000	0.019700	1.84	0.11	0.13	0.047929	0.000000	0.019700	1.84	0.11	0.13
K2329-K2328	K2329	K2328	10	108	0.1983	0.013819	0.000000	0.005098	4.35	0.03	0.03	0.013819	0.000000	0.005098	4.35	0.03	0.03	0.013819	0.000000	0.005098	4.35	0.03	0.03
K2330-K2329	K2330	K2329	8	83	0.0494	0.012424	0.000000	0.004541	2.68	0.04	0.05	0.012424	0.000000	0.004541	2.68	0.04	0.05	0.012424	0.000000	0.004541	2.68	0.04	0.05
K2331-K2330	K2331	K2330	8	255	0.0224	0.011027	0.000000	0.003989	1.96	0.04	0.06	0.011027	0.000000	0.003989	1.96	0.04	0.06	0.011027	0.000000	0.003989	1.96	0.04	0.06
K2332-K2331	K2332	K2331	8	122	0.0088	0.006390	0.000000	0.002448	1.00	0.04	0.07	0.006390	0.000000	0.002448	1.00	0.04	0.07	0.006390	0.000000	0.002448	1.00	0.04	0.07
K2332-K2345	K2332	K2345	8	278	0.0480	0.014925	0.000000	0.005717	2.34	0.04	0.07	0.014925	0.000000	0.005717	2.34	0.04	0.07	0.014925	0.000000	0.005717	2.34	0.04	0.07
K2333-K2332	K2333	K2332	8	115	0.0601	0.017117	0.000000	0.006433	3.17	0.04	0.06	0.017117	0.000000	0.006433	3.17	0.04	0.06	0.017117	0.000000	0.006433	3.17	0.04	0.06
K2334-K2333	K2334	K2333	8	162	0.0592	0.016086	0.000000	0.006013	3.09	0.04	0.06	0.016086	0.000000	0.006013	3.09	0.04	0.06	0.016086	0.000000	0.006013	3.09	0.04	0.06
K2335-K2334	K2335	K2334	8	282	0.0318	0.013483	0.000000	0.004963	2.36	0.04	0.06	0.013483	0.000000	0.004963	2.36	0.04	0.06	0.013483	0.000000	0.004963	2.36	0.04	0.06
K2336-K2335	K2336	K2335	8	124	0.0242	0.009146	0.000000	0.003255	1.91	0.04	0.05	0.009146	0.000000	0.003255	1.91	0.04	0.05	0.009146	0.000000	0.003255	1.91	0.04	0.05
K2337-K2336	K2337	K2336	8	124	0.0242	0.006764	0.000000	0.002345	1.74	0.03	0.05	0.006764	0.000000	0.002345	1.74	0.03	0.05	0.006764	0.000000	0.002345	1.74	0.03	0.05
K2338-K2337	K2338	K2337	8	148	0.0154	0.004668	0.000000	0.001567	1.33	0.03	0.04	0.004668	0.000000	0.001567	1.33	0.03	0.04	0.004668	0.000000	0.001567	1.33	0.03	0.04
K2339-K2328	K2339	K2328	10	115	0.0068	0.035623	0.000000	0.014269	1.79	0.09	0.11	0.035623	0.000000	0.014269	1.79	0.09	0.11	0.035623	0.000000	0.014269	1.79	0.09	0.11
K2340-K2339	K2340	K2339	10	157	0.0050	0.034616	0.000000	0.013831	1.60	0.09	0.11	0.034616	0.000000	0.013831	1.60	0.09	0.11	0.034616	0.000000	0.013831	1.60	0.09	0.11
K2341-K2340	K2341	K2340	8	82	0.0050	0.033417	0.000000	0.013311	1.63	0.10	0.15	0.033417	0.000000	0.013311	1.63	0.10	0.15	0.033417	0.000000	0.013311	1.63	0.10	0.15
K2342-K2341	K2342	K2341	8	234	0.0050	0.031648	0.000000	0.012547	1.60	0.10	0.14	0.031648	0.000000	0.012547	1.60	0.10	0.14	0.031648	0.000000	0.012547	1.60	0.10	0.14
K2343-K2342	K2343	K2342	8	182	0.0053	0.027875	0.000000	0.010930	1.58	0.09	0.13	0.027875	0.000000	0.010930	1.58	0.09	0.13	0.027875	0.000000	0.010930	1.58	0.09	0.13
K2344-K2343	K2344	K2343	8	181	0.0203	0.023758	0.000000	0.009187	2.40	0.06	0.09	0.023758	0.000000	0.009187	2.40	0.06	0.09	0.023758	0.000000	0.009187	2.40	0.06	0.09
K2345-K2344	K2345	K2344	8	171	0.0636	0.019575	0.000000	0.007443	3.36	0.04	0.06	0.019575	0.000000	0.007443	3.36	0.04	0.06	0.019575	0.000000	0.007443	3.36	0.04	0.06
K24-K23	K24	K23	8	220	0.0488	0.134724	0.000000	0.060582	4.56	0.13	0.19	0.134724	0.000000	0.060582	4.56	0.13	0.19	0.134724	0.000000	0.060582	4.56	0.13	0.19
K2401-K24	K2401	K24	8	107	0.0100	0.063197	0.000000	0.026608	2.08	0.13	0.19	0.063197	0.000000	0.026608	2.08	0.13	0.19	0.063197	0.00000				

City of Brea - Sewer Master Plan (November 2021)

Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADFW (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADFW (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADFW (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
K2402-	K2402	K2401	8	17	0.0087	0.038089	0.000000	0.015346	1.71	0.10	0.15	0.038089	0.000000	0.015346	1.71	0.10	0.15	0.038089	0.000000	0.015346	1.71	0.10	0.15
K2403-K2402	K2403	K2402	8	100	0.0100	0.038089	0.000000	0.015346	1.80	0.10	0.15	0.038089	0.000000	0.015346	1.80	0.10	0.15	0.038089	0.000000	0.015346	1.80	0.10	0.15
K2404-K2403	K2404	K2403	8	146	0.0216	0.036100	0.000000	0.014477	2.31	0.08	0.12	0.036100	0.000000	0.014477	2.31	0.08	0.12	0.036100	0.000000	0.014477	2.31	0.08	0.12
K2405-K2404	K2405	K2404	8	274	0.0427	0.028684	0.000000	0.011275	2.74	0.06	0.09	0.028684	0.000000	0.011275	2.74	0.06	0.09	0.028684	0.000000	0.011275	2.74	0.06	0.09
K2406-K2405	K2406	K2405	8	224	0.0322	0.027680	0.000000	0.010847	2.46	0.06	0.10	0.027680	0.000000	0.010847	2.46	0.06	0.10	0.027680	0.000000	0.010847	2.46	0.06	0.10
K2407-K2406	K2407	K2406	8	157	0.0385	0.009224	0.000000	0.003285	1.87	0.04	0.06	0.009224	0.000000	0.003285	1.87	0.04	0.06	0.009224	0.000000	0.003285	1.87	0.04	0.06
K2408-K2406	K2408	K2406	8	67	0.0295	0.019391	0.000000	0.007367	2.14	0.06	0.08	0.019391	0.000000	0.007367	2.14	0.06	0.08	0.019391	0.000000	0.007367	2.14	0.06	0.08
K2409-K2408	K2409	K2408	8	41	0.0650	0.002834	0.000000	0.000911	1.57	0.02	0.03	0.002834	0.000000	0.000911	1.57	0.02	0.03	0.002834	0.000000	0.000911	1.57	0.02	0.03
K2410-K2409	K2410	K2409	8	233	0.0221	0.002834	0.000000	0.000911	1.08	0.02	0.04	0.002834	0.000000	0.000911	1.08	0.02	0.04	0.002834	0.000000	0.000911	1.08	0.02	0.04
K2411-K2408	K2411	K2408	8	79	0.0286	0.017173	0.000000	0.006456	2.04	0.05	0.08	0.017173	0.000000	0.006456	2.04	0.05	0.08	0.017173	0.000000	0.006456	2.04	0.05	0.08
K2412-K2411	K2412	K2411	8	101	0.0415	0.015406	0.000000	0.005737	2.25	0.05	0.07	0.015406	0.000000	0.005737	2.25	0.05	0.07	0.015406	0.000000	0.005737	2.25	0.05	0.07
K2413-K2412	K2413	K2412	8	129	0.0103	0.015406	0.000000	0.005737	1.38	0.06	0.10	0.015406	0.000000	0.005737	1.38	0.06	0.10	0.015406	0.000000	0.005737	1.38	0.06	0.10
K2414-K2411	K2414	K2411	8	178	0.0282	0.002280	0.000000	0.000719	1.10	0.02	0.03	0.002280	0.000000	0.000719	1.10	0.02	0.03	0.002280	0.000000	0.000719	1.10	0.02	0.03
K2415-K2414	K2415	K2414	8	119	0.0170	0.002280	0.000000	0.000719	0.92	0.02	0.03	0.002280	0.000000	0.000719	0.92	0.02	0.03	0.002280	0.000000	0.000719	0.92	0.02	0.03
K2416-K2401	K2416	K2401	8	117	0.0285	0.022742	0.000000	0.008761	2.22	0.06	0.09	0.022742	0.000000	0.008761	2.22	0.06	0.09	0.022742	0.000000	0.008761	2.22	0.06	0.09
K2417-K2416	K2417	K2416	8	224	0.0276	0.022291	0.000000	0.008572	2.18	0.06	0.09	0.022291	0.000000	0.008572	2.18	0.06	0.09	0.022291	0.000000	0.008572	2.18	0.06	0.09
K2418-K2417	K2418	K2417	8	206	0.0284	0.019826	0.000000	0.007547	2.12	0.06	0.09	0.019826	0.000000	0.007547	2.12	0.06	0.09	0.019826	0.000000	0.007547	2.12	0.06	0.09
K25-K24	K25	K24	8	246	0.0421	0.078745	0.000000	0.033794	3.69	0.10	0.15	0.078745	0.000000	0.033794	3.69	0.10	0.15	0.078745	0.000000	0.033794	3.69	0.10	0.15
K26-K25	K26	K25	8	144	0.0166	0.078745	0.000000	0.033794	2.66	0.13	0.19	0.078745	0.000000	0.033794	2.66	0.13	0.19	0.078745	0.000000	0.033794	2.66	0.13	0.19
K27-K26	K27	K26	8	69	0.1247	0.078745	0.000000	0.033794	5.40	0.08	0.12	0.078745	0.000000	0.033794	5.40	0.08	0.12	0.078745	0.000000	0.033794	5.40	0.08	0.12
K28-K27	K28	K27	8	273	0.0307	0.078745	0.000000	0.033794	3.30	0.11	0.16	0.078745	0.000000	0.033794	3.30	0.11	0.16	0.078745	0.000000	0.033794	3.30	0.11	0.16
K29-K28	K29	K28	8	196	0.0150	0.078745	0.000000	0.033794	2.57	0.13	0.19	0.078745	0.000000	0.033794	2.57	0.13	0.19	0.078745	0.000000	0.033794	2.57	0.13	0.19
K30-K29	K30	K29	8	267	0.0046	0.078745	0.000000	0.033794	1.69	0.17	0.26	0.078745	0.000000	0.033794	1.69	0.17	0.26	0.078745	0.000000	0.033794	1.69	0.17	0.26
K31-K30	K31	K30	8	190	0.0050	0.078745	0.000000	0.033794	1.74	0.17	0.25	0.078745	0.000000	0.033794	1.74	0.17	0.25	0.078745	0.000000	0.033794	1.74	0.17	0.25
K32-K31	K32	K31	8	196	0.0424	0.078745	0.000000	0.033794	3.70	0.10	0.15	0.078745	0.000000	0.033794	3.70	0.10	0.15	0.078745	0.000000	0.033794	3.70	0.10	0.15
K33-K32	K33	K32	8	149	0.0726	0.078745	0.000000	0.033794	5.37	0.08	0.12	0.078745	0.000000	0.033794	5.37	0.08	0.12	0.078745	0.000000	0.033794	5.37	0.08	0.12
K34-K3401	K34	K3401	8	15	0.0200	0.078745	0.000000	0.033794	3.42	0.11	0.16	0.078745	0.000000	0.033794	3.42	0.11	0.16	0.078745	0.000000	0.033794	3.42	0.11	0.16
K3401-K3402	K3401	K3402	8	17	0.1228	0.078745	0.000000	0.033794	6.45	0.07	0.10	0.078745	0.000000	0.033794	6.45	0.07	0.10	0.078745	0.000000	0.033794	6.45	0.07	0.10
K3402-K3403	K3402	K3403	8	17	0.3272	0.078745	0.000000	0.033794	9.08	0.05	0.08	0.078745	0.000000	0.033794	9.08	0.05	0.08	0.078745	0.000000	0.033794	9.08	0.05	0.08
K3403-K3404	K3403	K3404	8	17	0.4734	0.078745	0.000000	0.033794	10.33	0.05	0.07	0.078745	0.000000	0.033794	10.33	0.05	0.07	0.078745	0.000000	0.033794	10.33	0.05	0.07
K3404-K3405	K3404	K3405	8	17	0.3347	0.078745	0.000000	0.033794	9.15	0.05	0.08	0.078745	0.000000	0.033794	9.15	0.05	0.08	0.078745	0.000000	0.033794	9.15	0.05	0.08
K3405-K3406	K3405	K3406	8	17	0.1385	0.078745	0.000000	0.033794	6.73	0.07	0.10	0.078745	0.000000	0.033794	6.73	0.07	0.10	0.078745	0.000000	0.033794	6.73	0.07	0.10
K3406-K33	K3406	K33	8	15	0.0400	0.078745	0.000000	0.033794	4.36	0.09	0.13	0.078745	0.000000	0.033794	4.36	0.09	0.13	0.078745	0.000000	0.033794	4.36	0.09	0.13
K35-K34	K35	K34	8	47	0.0200	0.078745	0.000000	0.033794	2.84	0.12	0.18	0.078745	0.000000	0.033794	2.84	0.12	0.18	0.078745	0.000000	0.033794	2.84	0.12	0.18
K36-K35	K36	K35	8	242	0.0600	0.078395	0.000000	0.033631	4.17	0.09	0.14	0.078395	0.000000	0.033631	4.17	0.09	0.14	0.078395	0.000000	0.033631	4.17	0.09	0.14
K37-K36	K37	K36	8	184	0.0575	0.076777	0.000000	0.032877	4.09	0.09	0.14	0.076777	0.000000	0.032877	4.09	0.09	0.14	0.076777	0.000000	0.032877	4.09	0.09	0.14
K38-K37	K38	K37	8	215	0.0631	0.070091	0.000000	0.029777	4.11	0.09	0.13	0.070091	0.000000	0.029777	4.11	0.09	0.13	0.070091	0.000000	0.029777	4.11	0.09	0.13
K39-K38	K39	K38	8	289	0.0357	0.054105	0.000000	0.022474	3.11	0.09	0.13	0.054105	0.000000	0.022474	3.11	0.09	0.13	0.054105	0.000000	0.022474	3.11	0.09	0.13
K3901-K39	K3901	K39	8	215	0.0288	0.017745	0.000000	0.006690	2.06	0.05	0.08	0.017745	0.000000	0.006690	2.06	0.05	0.08	0.017745	0.000000	0.006690	2.06	0.05	0.08
K3902-K3901	K3902	K3901	8	259	0.0524	0.014479	0.000000	0.005363	2.39	0.04	0.06	0.014479	0.000000	0.005363	2.39	0.04	0.06	0.014479	0.000000	0.005363	2.39	0.04	0.06
K3903-K3902	K3903	K3902	8	198	0.0552	0.009572	0.000000	0.003420	2.15	0.03	0.05	0.009572	0.000000	0.003420	2.15	0.03	0.05	0.009572	0.000000	0.003420	2.15	0.03	0.05
K40-K39	K40	K39	8	216	0.0602	0.034982	0.000000	0.013990	3.28	0.06	0.09	0.034982	0.000000	0.013990	3.28	0.06	0.09	0.034982	0.000000	0.013990	3.28	0.06	0.09
K41-K40	K41	K40	8	240	0.0351	0.032941	0.000000	0.013105	2.67	0.07	0.10	0.032941	0.000000	0.013105	2.67	0.07	0.10	0.032941	0.000000	0.013105	2.67	0.07	0.10
K42-K41	K42	K41	8	218	0.0375	0.025029	0.000000	0.009722	2.51	0.06	0.09	0.025029	0.000000	0.009722	2.51	0.06	0.09	0.025029	0.000000	0.009722	2.51	0.06	0.09
K4201-K42	K4201	K42	8	139	0.0223	0.019144	0.000000	0.007265	1.93	0.06	0.09	0.019144	0.000000	0.007265	1.93	0.06	0.09	0.019144	0.000000	0.007265	1.93	0.06	0.09
K4202-K3903	K4202	K3903	8	138	0.0290	0.004720	0.000000	0.001651	1.38	0.03	0.04	0.004720	0.000000	0.001651	1.38	0.03	0.04	0.004720	0.000000	0.001651	1.38	0.03	0.04

City of Brea - Sewer Master Plan (November 2021)

Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
K4202-K4201	K4202	K4201	8	261	0.0100	0.002768	0.000000	0.000968	0.81	0.03	0.04	0.002768	0.000000	0.000968	0.81	0.03	0.04	0.002768	0.000000	0.000968	0.81	0.03	0.04
K43-A088711	K43	A088711	8	296	0.0142	0.005072	0.000000	0.001823	1.10	0.04	0.05	0.005072	0.000000	0.001823	1.10	0.04	0.05	0.005072	0.000000	0.001823	1.10	0.04	0.05
K43-K42	K43	K42	8	213	0.0146	0.005149	0.000000	0.001850	1.12	0.04	0.05	0.005149	0.000000	0.001850	1.12	0.04	0.05	0.005149	0.000000	0.001850	1.12	0.04	0.05
K48-K1107	K047	K1107	6	60	0.0101	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
K48-K47	K048	K047	6	60	0.0101	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
K49-K1107	K049	K1107	8	44	0.0517	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
LA01-LA02	LA01	LA02	8	400	0.0024	0.005905	0.000000	0.002023	0.62	0.06	0.09	0.005905	0.000000	0.002023	0.62	0.06	0.09	0.005905	0.000000	0.002023	0.62	0.06	0.09
LA0101-LA01	LA0101	LA01	8	290	0.0014	0.001129	0.000000	0.000335	0.32	0.03	0.04	0.001129	0.000000	0.000335	0.32	0.03	0.04	0.001129	0.000000	0.000335	0.32	0.03	0.04
LA02-LA03	LA02	LA03	8	308	0.0134	0.008662	0.000000	0.003068	1.27	0.05	0.07	0.008662	0.000000	0.003068	1.27	0.05	0.07	0.008662	0.000000	0.003068	1.27	0.05	0.07
LA03-LA04	LA03	LA04	8	42	0.0136	0.028002	0.000000	0.010984	1.82	0.08	0.12	0.028002	0.000000	0.010984	1.82	0.08	0.12	0.028002	0.000000	0.010984	1.82	0.08	0.12
LA0301-LA03	LA0301	LA03	8	310	0.0005	0.020068	0.000000	0.007647	0.52	0.15	0.23	0.020068	0.000000	0.007647	0.52	0.15	0.23	0.020068	0.000000	0.007647	0.52	0.15	0.23
LA0302-LA0301	LA0302	LA0301	8	290	0.0080	0.016069	0.000000	0.006006	1.28	0.07	0.10	0.016069	0.000000	0.006006	1.28	0.07	0.10	0.016069	0.000000	0.006006	1.28	0.07	0.10
LA04-LA05	LA04	LA05	8	288	0.0176	0.031156	0.000000	0.012335	2.06	0.08	0.12	0.031156	0.000000	0.012335	2.06	0.08	0.12	0.031156	0.000000	0.012335	2.06	0.08	0.12
LA05-LA06	LA05	LA06	8	348	0.0035	0.045475	0.000000	0.018606	1.30	0.14	0.21	0.045475	0.000000	0.018606	1.30	0.14	0.21	0.045475	0.000000	0.018606	1.30	0.14	0.21
LA0501-LA05	LA0501	LA05	8	130	0.0161	0.012542	0.000000	0.004588	1.52	0.05	0.08	0.012542	0.000000	0.004588	1.52	0.05	0.08	0.012542	0.000000	0.004588	1.52	0.05	0.08
LA0502-LA0501	LA0502	LA0501	8	204	0.0392	0.010543	0.000000	0.003799	1.96	0.04	0.06	0.010543	0.000000	0.003799	1.96	0.04	0.06	0.010543	0.000000	0.003799	1.96	0.04	0.06
LA0503-LA0502	LA0503	LA0502	8	250	0.0056	0.009231	0.000000	0.003288	0.95	0.06	0.09	0.009231	0.000000	0.003288	0.95	0.06	0.09	0.009231	0.000000	0.003288	0.95	0.06	0.09
LA0504-LA0503	LA0504	LA0503	8	215	0.0053	0.002840	0.000000	0.000913	0.66	0.03	0.05	0.002840	0.000000	0.000913	0.66	0.03	0.05	0.002840	0.000000	0.000913	0.66	0.03	0.05
LA0505-LA0503	LA0505	LA0503	8	135	0.0147	0.003613	0.000000	0.001186	1.01	0.03	0.04	0.003613	0.000000	0.001186	1.01	0.03	0.04	0.003613	0.000000	0.001186	1.01	0.03	0.04
LA06-LA07D	LA06	LA07D	8	392	0.0034	0.084139	0.000000	0.036318	1.55	0.19	0.29	0.084139	0.000000	0.036318	1.55	0.19	0.29	0.084139	0.000000	0.036318	1.55	0.19	0.29
LA0601-LA06	LA0601	LA06	8	125	0.0264	0.039744	0.000000	0.016072	2.55	0.08	0.12	0.039744	0.000000	0.016072	2.55	0.08	0.12	0.039744	0.000000	0.016072	2.55	0.08	0.12
LA0602-LA0601	LA0602	LA0601	8	274	0.0223	0.039744	0.000000	0.016072	2.41	0.08	0.13	0.039744	0.000000	0.016072	2.41	0.08	0.13	0.039744	0.000000	0.016072	2.41	0.08	0.13
LA0603-LA0602	LA0603	LA0602	8	240	0.0150	0.035218	0.000000	0.014093	2.02	0.09	0.13	0.035218	0.000000	0.014093	2.02	0.09	0.13	0.035218	0.000000	0.014093	2.02	0.09	0.13
LA0604-LA0603	LA0604	LA0603	8	400	0.0046	0.031163	0.000000	0.012338	1.29	0.11	0.16	0.031163	0.000000	0.012338	1.29	0.11	0.16	0.031163	0.000000	0.012338	1.29	0.11	0.16
LA0605-LA0604	LA0605	LA0604	8	560	0.0097	0.006322	0.000000	0.002179	1.03	0.04	0.06	0.006322	0.000000	0.002179	1.03	0.04	0.06	0.006322	0.000000	0.002179	1.03	0.04	0.06
LA0606-LA0604	LA0606	LA0604	8	343	0.0038	0.023196	0.000000	0.008951	1.10	0.10	0.15	0.023196	0.000000	0.008951	1.10	0.10	0.15	0.023196	0.000000	0.008951	1.10	0.10	0.15
LA0607-LA0606	LA0607	LA0606	8	236	0.0042	0.007209	0.000000	0.002513	0.80	0.06	0.08	0.007209	0.000000	0.002513	0.80	0.06	0.08	0.007209	0.000000	0.002513	0.80	0.06	0.08
LA0608-LA0607	LA0608	LA0607	8	150	0.0022	0.003825	0.000000	0.001262	0.53	0.05	0.07	0.003825	0.000000	0.001262	0.53	0.05	0.07	0.003825	0.000000	0.001262	0.53	0.05	0.07
LA0609-LA0608	LA0609	LA0608	8	205	0.0032	0.003825	0.000000	0.001262	0.60	0.04	0.07	0.003825	0.000000	0.001262	0.60	0.04	0.07	0.003825	0.000000	0.001262	0.60	0.04	0.07
LA0610-LA0609	LA0610	LA0609	8	220	0.0036	0.002668	0.000000	0.000853	0.56	0.04	0.05	0.002668	0.000000	0.000853	0.56	0.04	0.05	0.002668	0.000000	0.000853	0.56	0.04	0.05
LA0611-LA0606	LA0611	LA0606	8	350	0.0205	0.014203	0.000000	0.005252	1.71	0.05	0.08	0.014203	0.000000	0.005252	1.71	0.05	0.08	0.014203	0.000000	0.005252	1.71	0.05	0.08
LA0612-LA0611	LA0612	LA0611	8	369	0.0049	0.009639	0.000000	0.003446	0.92	0.06	0.09	0.009639	0.000000	0.003446	0.92	0.06	0.09	0.009639	0.000000	0.003446	0.92	0.06	0.09
LA0701-LA07D	LA0701	LA07D	8	176	0.0159	0.012066	0.000000	0.004399	1.49	0.05	0.08	0.012066	0.000000	0.004399	1.49	0.05	0.08	0.012066	0.000000	0.004399	1.49	0.05	0.08
LA0702-LA0701	LA0702	LA0701	8	407	0.0158	0.011208	0.000000	0.004060	1.46	0.05	0.08	0.011208	0.000000	0.004060	1.46	0.05	0.08	0.011208	0.000000	0.004060	1.46	0.05	0.08
LA0703-LA0702	LA0703	LA0702	8	540	0.0116	0.005336	0.000000	0.001812	1.04	0.04	0.06	0.005336	0.000000	0.001812	1.04	0.04	0.06	0.005336	0.000000	0.001812	1.04	0.04	0.06
LA07D-LA08	LA07D	LA08	8	370	0.0035	0.097456	0.000000	0.042607	1.62	0.21	0.31	0.097456	0.000000	0.042607	1.62	0.21	0.31	0.097456	0.000000	0.042607	1.62	0.21	0.31
LA08-LA09	LA08	LA09	8	137	0.0307	0.105193	0.000000	0.046296	3.60	0.12	0.19	0.105193	0.000000	0.046296	3.60	0.12	0.19	0.105193	0.000000	0.046296	3.60	0.12	0.19
LA0801-LA08	LA0801	LA08	8	121	0.0459	0.009019	0.000000	0.003206	1.98	0.04	0.05	0.009019	0.000000	0.003206	1.98	0.04	0.05	0.009019	0.000000	0.003206	1.98	0.04	0.05
LA0802-LA0801	LA0802	LA0801	8	245	0.0330	0.008401	0.000000	0.002968	1.72	0.04	0.06	0.008401	0.000000	0.002968	1.72	0.04	0.06	0.008401	0.000000	0.002968	1.72	0.04	0.06
LA0803-LA0802	LA0803	LA0802	8	250	0.0247	0.003881	0.000000	0.001282	1.23	0.03	0.04	0.003881	0.000000	0.001282	1.23	0.03	0.04	0.003881	0.000000	0.001282	1.23	0.03	0.04
LA09-LC13D	LA09	LC13D	8	30	0.2110	0.105193	0.000000	0.046296	7.08	0.08	0.12	0.105193	0.000000	0.046296	7.08	0.08	0.12	0.105193	0.000000	0.046296	7.08	0.08	0.12
LB01-LB02	LB01	LB02	8	355	0.0037	0.002007	0.000000	0.000626	0.52	0.03	0.05	0.002007	0.000000	0.000626	0.52	0.03	0.05	0.002007	0.000000	0.000626	0.52	0.03	0.05
LB02-LB03	LB02	LB03	8	320	0.0138	0.004734	0.000000	0.001591	1.07	0.03	0.05	0.004734	0.000000	0.001591	1.07	0.03	0.05	0.004734	0.000000	0.001591	1.07	0.03	0.05
LB03-LB04D	LB03	LB04D	8	350	0.0134	0.006860	0.000000	0.002381	1.19	0.04	0.06	0.006860	0.000000	0.002381	1.19	0.04	0.06	0.006860	0.000000	0.002381	1.19	0.04	0.06
LB0401-LB04D	LB0401	LB04D	8	351	0.0206	0.004026	0.000000	0.001334	1.17	0.03	0.04	0.004026	0.000000	0.001334	1.17	0.03	0.04	0.004026	0.000000	0.001334	1.17	0.03	0.04
LB0402-LB0401	LB0402	LB0401	8	290	0.0037	0.001713	0.000000	0.000527	0.49	0.03	0.04	0.001713	0.000000	0.000527	0.49	0.03</							

City of Brea - Sewer Master Plan (November 2021)

Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
LB0403D-LB04D	LB0403D	LB04D	8	173	0.0033	0.027514	0.000000	0.010776	1.10	0.11	0.17	0.027514	0.000000	0.010776	1.10	0.11	0.17	0.027514	0.000000	0.010776	1.10	0.11	0.17
LB0404-LB0403D	LB0404	LB0403D	8	350	0.0036	0.007454	0.000000	0.002606	0.77	0.06	0.09	0.007454	0.000000	0.002606	0.77	0.06	0.09	0.007454	0.000000	0.002606	0.77	0.06	0.09
LB0405-LB0404	LB0405	LB0404	8	290	0.0037	0.004366	0.000000	0.001457	0.66	0.05	0.07	0.004366	0.000000	0.001457	0.66	0.05	0.07	0.004366	0.000000	0.001457	0.66	0.05	0.07
LB0406-LB0403D	LB0406	LB0403D	8	350	0.0033	0.009829	0.000000	0.003520	0.81	0.07	0.10	0.009829	0.000000	0.003520	0.81	0.07	0.10	0.009829	0.000000	0.003520	0.81	0.07	0.10
LB0407-LB0406	LB0407	LB0406	8	270	0.0037	0.004247	0.000000	0.001414	0.65	0.04	0.07	0.004247	0.000000	0.001414	0.65	0.04	0.07	0.004247	0.000000	0.001414	0.65	0.04	0.07
LB0408D-LB0403D	LB0408D	LB0403D	8	345	0.0033	0.012293	0.000000	0.004489	0.87	0.08	0.11	0.012293	0.000000	0.004489	0.87	0.08	0.11	0.012293	0.000000	0.004489	0.87	0.08	0.11
LB0409-LB0408D	LB0409	LB0408D	8	173	0.0039	0.000757	0.000000	0.000217	0.39	0.02	0.03	0.000757	0.000000	0.000217	0.39	0.02	0.03	0.000757	0.000000	0.000217	0.39	0.02	0.03
LB0410-LB0408D	LB0410	LB0408D	8	350	0.0048	0.011000	0.000000	0.003978	0.96	0.07	0.10	0.011000	0.000000	0.003978	0.96	0.07	0.10	0.011000	0.000000	0.003978	0.96	0.07	0.10
LB0411-LB0410	LB0411	LB0410	8	270	0.0049	0.004977	0.000000	0.001680	0.76	0.04	0.07	0.004977	0.000000	0.001680	0.76	0.04	0.07	0.004977	0.000000	0.001680	0.76	0.04	0.07
LB04D-LB05	LB04D	LB05	8	292	0.0031	0.039400	0.000000	0.015921	1.20	0.14	0.20	0.039400	0.000000	0.015921	1.20	0.14	0.20	0.039400	0.000000	0.015921	1.20	0.14	0.20
LB05-LB06D	LB05	LB06D	8	70	0.0937	0.039400	0.000000	0.015921	3.97	0.06	0.09	0.039400	0.000000	0.015921	3.97	0.06	0.09	0.039400	0.000000	0.015921	3.97	0.06	0.09
LB0601-LB06D	LB0601	LB06D	8	21	0.0095	0.009048	0.000000	0.003217	1.14	0.05	0.08	0.009048	0.000000	0.003217	1.14	0.05	0.08	0.009048	0.000000	0.003217	1.14	0.05	0.08
LB0602-LB0601	LB0602	LB0601	8	500	0.0180	0.009048	0.000000	0.003217	1.43	0.04	0.07	0.009048	0.000000	0.003217	1.43	0.04	0.07	0.009048	0.000000	0.003217	1.43	0.04	0.07
LB06D-LB07	LB06D	LB07	8	258	0.0005	0.050766	0.000000	0.020971	0.69	0.24	0.36	0.050766	0.000000	0.020971	0.69	0.24	0.36	0.050766	0.000000	0.020971	0.69	0.24	0.36
LB07-LB08	LB07	LB08	8	60	0.0003	0.051043	0.000000	0.021095	0.58	0.28	0.41	0.051043	0.000000	0.021095	0.58	0.28	0.41	0.051043	0.000000	0.021095	0.58	0.28	0.41
LB08-LB09	LB08	LB09	8	70	0.0003	0.051043	0.000000	0.021095	0.55	0.29	0.43	0.051043	0.000000	0.021095	0.55	0.29	0.43	0.051043	0.000000	0.021095	0.55	0.29	0.43
LB09-LB10	LB09	LB10	12	214	0.0050	0.053340	0.000000	0.022129	1.48	0.12	0.12	0.053340	0.000000	0.022129	1.48	0.12	0.12	0.053340	0.000000	0.022129	1.48	0.12	0.12
LB10-LB11	LB10	LB11	12	379	0.0117	0.063525	0.000000	0.026758	2.10	0.11	0.11	0.063525	0.000000	0.026758	2.10	0.11	0.11	0.063525	0.000000	0.026758	2.10	0.11	0.11
LB1001-LB10	LB1001	LB10	8	280	0.0300	0.009561	0.000000	0.003416	1.74	0.04	0.06	0.009561	0.000000	0.003416	1.74	0.04	0.06	0.009561	0.000000	0.003416	1.74	0.04	0.06
LB1002-LB1001	LB1002	LB1001	8	214	0.0080	0.005671	0.000000	0.001936	0.94	0.04	0.06	0.005671	0.000000	0.001936	0.94	0.04	0.06	0.005671	0.000000	0.001936	0.94	0.04	0.06
LB11-LB12	LB11	LB12	12	293	0.0300	0.068432	0.000000	0.029012	2.98	0.09	0.09	0.068432	0.000000	0.029012	2.98	0.09	0.09	0.068432	0.000000	0.029012	2.98	0.09	0.09
LB12-LC12	LB12	LB13	12	207	0.0145	0.069380	0.000000	0.029449	2.32	0.11	0.11	0.069380	0.000000	0.029449	2.32	0.11	0.11	0.069380	0.000000	0.029449	2.32	0.11	0.11
LB13-LC12	LB13	LC12	12	9	0.2916	0.069380	0.000000	0.029449	6.60	0.05	0.05	0.069380	0.000000	0.029449	6.60	0.05	0.05	0.069380	0.000000	0.029449	6.60	0.05	0.05
LC05-LC06	LC05	LC06	8	270	0.0014	0.005330	0.000000	0.001810	0.51	0.06	0.09	0.005330	0.000000	0.001810	0.51	0.06	0.09	0.005330	0.000000	0.001810	0.51	0.06	0.09
LC06-LC07	LC06	LC07	8	278	0.0026	0.010354	0.000000	0.003725	0.76	0.07	0.11	0.010354	0.000000	0.003725	0.76	0.07	0.11	0.010354	0.000000	0.003725	0.76	0.07	0.11
LC07-LC08	LC07	LC08	8	268	0.0421	0.012469	0.000000	0.004559	2.12	0.04	0.06	0.012469	0.000000	0.004559	2.12	0.04	0.06	0.012469	0.000000	0.004559	2.12	0.04	0.06
LC08-LC09	LC08	LC09	8	320	0.0279	0.029504	0.000000	0.011626	2.38	0.07	0.10	0.029504	0.000000	0.011626	2.38	0.07	0.10	0.029504	0.000000	0.011626	2.38	0.07	0.10
LC0801-LC08	LC0801	LC08	8	224	0.0061	0.010482	0.000000	0.003775	1.02	0.06	0.09	0.010482	0.000000	0.003775	1.02	0.06	0.09	0.010482	0.000000	0.003775	1.02	0.06	0.09
LC0802-LC0801	LC0802	LC0801	8	219	0.0065	0.008867	0.000000	0.003147	1.00	0.06	0.08	0.008867	0.000000	0.003147	1.00	0.06	0.08	0.008867	0.000000	0.003147	1.00	0.06	0.08
LC0803-LC0802	LC0803	LC0802	8	244	0.0250	0.003054	0.000000	0.000988	1.15	0.02	0.04	0.003054	0.000000	0.000988	1.15	0.02	0.04	0.003054	0.000000	0.000988	1.15	0.02	0.04
LC0804-LC0802	LC0804	LC0802	8	240	0.0233	0.003688	0.000000	0.001213	1.19	0.03	0.04	0.003688	0.000000	0.001213	1.19	0.03	0.04	0.003688	0.000000	0.001213	1.19	0.03	0.04
LC0805-LC08	LC0805	LC08	8	227	0.0276	0.008190	0.000000	0.002887	1.61	0.04	0.06	0.008190	0.000000	0.002887	1.61	0.04	0.06	0.008190	0.000000	0.002887	1.61	0.04	0.06
LC0806-LC0805	LC0806	LC0805	8	220	0.0162	0.006501	0.000000	0.002246	1.25	0.04	0.06	0.006501	0.000000	0.002246	1.25	0.04	0.06	0.006501	0.000000	0.002246	1.25	0.04	0.06
LC0807-LC0806	LC0807	LC0806	8	270	0.0132	0.004657	0.000000	0.001563	1.05	0.03	0.05	0.004657	0.000000	0.001563	1.05	0.03	0.05	0.004657	0.000000	0.001563	1.05	0.03	0.05
LC09-LC10	LC09	LC10	8	132	0.0590	0.062294	0.000000	0.026195	3.87	0.08	0.12	0.062294	0.000000	0.026195	3.87	0.08	0.12	0.062294	0.000000	0.026195	3.87	0.08	0.12
LC0901-LC09	LC0901	LC09	8	171	0.0194	0.033026	0.000000	0.013142	2.17	0.08	0.12	0.033026	0.000000	0.013142	2.17	0.08	0.12	0.033026	0.000000	0.013142	2.17	0.08	0.12
LC0902-LC0901	LC0902	LC0901	8	331	0.0388	0.033026	0.000000	0.013142	2.76	0.07	0.10	0.033026	0.000000	0.013142	2.76	0.07	0.10	0.033026	0.000000	0.013142	2.76	0.07	0.10
LC0903-LC0902	LC0903	LC0902	8	322	0.0043	0.027828	0.000000	0.010910	1.22	0.11	0.16	0.027828	0.000000	0.010910	1.22	0.11	0.16	0.027828	0.000000	0.010910	1.22	0.11	0.16
LC0904D-LC0903	LC0904D	LC0903	8	269	0.0044	0.022260	0.000000	0.008559	1.14	0.09	0.14	0.022260	0.000000	0.008559	1.14	0.09	0.14	0.022260	0.000000	0.008559	1.14	0.09	0.14
LC0905-LC0904D	LC0905	LC0904D	8	335	0.0059	0.004432	0.000000	0.001481	0.78	0.04	0.06	0.004432	0.000000	0.001481	0.78	0.04	0.06	0.004432	0.000000	0.001481	0.78	0.04	0.06
LC0906-LC0904D	LC0906	LC0904D	8	145	0.0062	0.015864	0.000000	0.005923	1.17	0.07	0.11	0.015864	0.000000	0.005923	1.17	0.07	0.11	0.015864	0.000000	0.005923	1.17	0.07	0.11
LC0907-LC0906	LC0907	LC0906	8	145	0.0135	0.003806	0.000000	0.001255	0.99	0.03	0.05	0.003806	0.000000	0.001255	0.99	0.03	0.05	0.003806	0.000000	0.001255	0.99	0.03	0.05
LC0908-LC0907	LC0908	LC0907	8	150	0.0060	0.002335	0.000000	0.000738	0.65	0.03	0.05	0.002335	0.000000	0.000738	0.65	0.03	0.05	0.002335	0.000000	0.000738	0.65	0.03	0.05
LC0909-LC0906	LC0909	LC0906	8	200	0.0050	0.011766	0.000000	0.004280	0.99	0.07	0.10	0.011766	0.000000	0.004280	0.99	0.07	0.10	0.011766	0.000000	0.004280	0.99	0.07	0.10
LC0910-LC0909	LC0910	LC0909	8	36	0.0133	0.010316	0.000000	0.003710	1.34	0.05	0.08	0.010316	0.000000	0.003710	1.34	0.05	0.08	0.010316	0.000000	0.003710	1.34	0.05	0.08
LC0911-LC0910	LC0911	LC0910	8	310	0.0134	0.010316	0.000000	0.003710	1.34	0.05	0.08	0.010316											

City of Brea - Sewer Master Plan (November 2021)

Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
LC0912-LC0911	LC0912	LC0911	8	183	0.0134	0.001972	0.000000	0.000614	0.81	0.02	0.03	0.001972	0.000000	0.000614	0.81	0.02	0.03	0.001972	0.000000	0.000614	0.81	0.02	0.03
LC0913-LC09	LC0913	LC09	8	223	0.0450	0.003028	0.000000	0.000979	1.41	0.02	0.03	0.003028	0.000000	0.000979	1.41	0.02	0.03	0.003028	0.000000	0.000979	1.41	0.02	0.03
LC10-LC11D	LC10	LC11D	8	205	0.0333	0.063785	0.000000	0.026877	3.19	0.10	0.14	0.063785	0.000000	0.026877	3.19	0.10	0.14	0.063785	0.000000	0.026877	3.19	0.10	0.14
LC1101-LC11D	LC1101	LC11D	8	22	0.5000	0.024523	0.000000	0.009509	6.15	0.03	0.05	0.024523	0.000000	0.009509	6.15	0.03	0.05	0.024523	0.000000	0.009509	6.15	0.03	0.05
LC1102-LC1101	LC1102	LC1101	8	263	0.0455	0.024523	0.000000	0.009509	2.67	0.06	0.08	0.024523	0.000000	0.009509	2.67	0.06	0.08	0.024523	0.000000	0.009509	2.67	0.06	0.08
LC1103-LC1102	LC1103	LC1102	8	246	0.0096	0.022130	0.000000	0.008505	1.50	0.08	0.12	0.022130	0.000000	0.008505	1.50	0.08	0.12	0.022130	0.000000	0.008505	1.50	0.08	0.12
LC1104-LC1103	LC1104	LC1103	8	283	0.0035	0.017952	0.000000	0.006775	0.99	0.09	0.13	0.017952	0.000000	0.006775	0.99	0.09	0.13	0.017952	0.000000	0.006775	0.99	0.09	0.13
LC1105-LC1104	LC1105	LC1104	8	309	0.0044	0.011025	0.000000	0.003988	0.93	0.07	0.10	0.011025	0.000000	0.003988	0.93	0.07	0.10	0.011025	0.000000	0.003988	0.93	0.07	0.10
LC1106-LC1105	LC1106	LC1105	8	324	0.0044	0.006312	0.000000	0.002175	0.78	0.05	0.08	0.006312	0.000000	0.002175	0.78	0.05	0.08	0.006312	0.000000	0.002175	0.78	0.05	0.08
LC1107-LC1104	LC1107	LC1104	8	129	0.0049	0.000957	0.000000	0.000280	0.46	0.02	0.03	0.000957	0.000000	0.000280	0.46	0.02	0.03	0.000957	0.000000	0.000280	0.46	0.02	0.03
LC11D-LC12	LC11D	LC12	8	214	0.0036	0.085228	0.000000	0.036829	1.58	0.19	0.29	0.085228	0.000000	0.036829	1.58	0.19	0.29	0.085228	0.000000	0.036829	1.58	0.19	0.29
LC12-LC14	LC12	LC13D	12	278	0.0035	0.206375	0.000000	0.096308	1.94	0.26	0.26	0.206375	0.000000	0.096308	1.94	0.26	0.26	0.206375	0.000000	0.096308	1.94	0.26	0.26
LC1201-LC12	LC1201	LC12	8	19	0.5268	0.069263	0.000000	0.029395	8.59	0.05	0.08	0.069263	0.000000	0.029395	8.59	0.05	0.08	0.069263	0.000000	0.029395	8.59	0.05	0.08
LC1202-LC1201	LC1202	LC1201	8	196	0.0270	0.069263	0.000000	0.029395	3.04	0.11	0.16	0.069263	0.000000	0.029395	3.04	0.11	0.16	0.069263	0.000000	0.029395	3.04	0.11	0.16
LC1203-LC1202	LC1203	LC1202	8	246	0.0280	0.067183	0.000000	0.028437	3.05	0.10	0.15	0.067183	0.000000	0.028437	3.05	0.10	0.15	0.067183	0.000000	0.028437	3.05	0.10	0.15
LC1204-LC1203	LC1204	LC1203	8	343	0.0038	0.064307	0.000000	0.027116	1.48	0.16	0.25	0.064307	0.000000	0.027116	1.48	0.16	0.25	0.064307	0.000000	0.027116	1.48	0.16	0.25
LC1205-LC1204	LC1205	LC1204	8	175	0.0038	0.059998	0.000000	0.025147	1.45	0.16	0.24	0.059998	0.000000	0.025147	1.45	0.16	0.24	0.059998	0.000000	0.025147	1.45	0.16	0.24
LC1206-LC1205	LC1206	LC1205	8	172	0.0032	0.058292	0.000000	0.024371	1.36	0.16	0.25	0.058292	0.000000	0.024371	1.36	0.16	0.25	0.058292	0.000000	0.024371	1.36	0.16	0.25
LC1207-LC1206	LC1207	LC1206	8	465	0.0034	0.049922	0.000000	0.020592	1.33	0.15	0.22	0.049922	0.000000	0.020592	1.33	0.15	0.22	0.049922	0.000000	0.020592	1.33	0.15	0.22
LC1208-LC1207	LC1208	LC1207	8	262	0.0152	0.033703	0.000000	0.013435	2.00	0.09	0.13	0.033703	0.000000	0.013435	2.00	0.09	0.13	0.033703	0.000000	0.013435	2.00	0.09	0.13
LC1209-LC1208	LC1209	LC1208	6	250	0.0086	0.004056	0.000000	0.001345	0.90	0.04	0.08	0.004056	0.000000	0.001345	0.90	0.04	0.08	0.004056	0.000000	0.001345	0.90	0.04	0.08
LC13D-LC14	LC13D	LC14	12	19	0.0035	0.296134	0.000000	0.142604	2.15	0.32	0.32	0.296134	0.000000	0.142604	2.15	0.32	0.32	0.296134	0.000000	0.142604	2.15	0.32	0.32
LC14-OUTLETL	LC14	LC15	12	168	0.0038	0.297139	0.000000	0.143130	2.22	0.31	0.31	0.297139	0.000000	0.143130	2.22	0.31	0.31	0.297139	0.000000	0.143130	2.22	0.31	0.31
LC15-LC16	LC15	LC16	12	202	0.0084	0.297139	0.000000	0.143130	2.94	0.25	0.25	0.297139	0.000000	0.143130	2.94	0.25	0.25	0.297139	0.000000	0.143130	2.94	0.25	0.25
LC16-LC17	LC16	LC17	12	192	0.0035	0.297139	0.000000	0.143130	2.16	0.32	0.32	0.297139	0.000000	0.143130	2.16	0.32	0.32	0.297139	0.000000	0.143130	2.16	0.32	0.32
LC17-LC18	LC17	LC18	12	92	0.0035	0.297139	0.000000	0.143130	2.15	0.32	0.32	0.297139	0.000000	0.143130	2.15	0.32	0.32	0.297139	0.000000	0.143130	2.15	0.32	0.32
LC18-LC19	LC18	LC19	12	244	0.0042	0.297139	0.000000	0.143130	2.29	0.30	0.30	0.297139	0.000000	0.143130	2.29	0.30	0.30	0.297139	0.000000	0.143130	2.29	0.30	0.30
LC19-LC20	LC19	OUT_LAUREL	12	265	0.0161	0.297139	0.000000	0.143130	3.71	0.21	0.21	0.297139	0.000000	0.143130	3.71	0.21	0.21	0.297139	0.000000	0.143130	3.71	0.21	0.21
R01-V27	R01	V27	12	9	0.7464	0.185718	0.000000	0.085877	12.35	0.07	0.07	0.388334	0.000000	0.191463	15.44	0.10	0.10	0.388334	0.000000	0.191463	15.44	0.10	0.10
R02-R01	R02	R01	12	229	0.0050	0.185718	0.000000	0.085877	2.13	0.23	0.23	0.388334	0.000000	0.191463	2.63	0.33	0.33	0.388334	0.000000	0.191463	2.63	0.33	0.33
R03-R02	R03	R02	12	305	0.0050	0.166201	0.000000	0.076114	2.07	0.22	0.22	0.348969	0.000000	0.170463	2.56	0.31	0.31	0.348969	0.000000	0.170463	2.56	0.31	0.31
R04-R03	R04	R03	12	343	0.0050	0.166201	0.000000	0.076114	2.07	0.22	0.22	0.348969	0.000000	0.170463	2.56	0.31	0.31	0.348969	0.000000	0.170463	2.56	0.31	0.31
R0401-R04	R0401	R04	8	125	0.0200	0.023891	0.000000	0.009243	1.99	0.07	0.10	0.037690	0.000000	0.015171	2.28	0.08	0.13	0.037690	0.000000	0.015171	2.28	0.08	0.13
R0402-R0401	R0402	R0401	8	126	0.0050	0.020666	0.000000	0.007895	1.41	0.08	0.12	0.032320	0.000000	0.012837	1.61	0.10	0.14	0.032320	0.000000	0.012837	1.61	0.10	0.14
R0403-R0402	R0403	R0402	8	68	0.0101	0.001853	0.000000	0.000574	0.86	0.02	0.03	0.003560	0.000000	0.001167	1.05	0.03	0.04	0.003560	0.000000	0.001167	1.05	0.03	0.04
R0404-R0401	R0404	R0401	8	322	0.0050	0.004064	0.000000	0.001348	0.86	0.04	0.05	0.003560	0.000000	0.001167	0.83	0.03	0.05	0.003560	0.000000	0.001167	0.83	0.03	0.05
R0405-R0402	R0405	R0402	8	206	0.0050	0.013272	0.000000	0.004879	1.23	0.06	0.09	0.026872	0.000000	0.010503	1.52	0.09	0.13	0.026872	0.000000	0.010503	1.52	0.09	0.13
R0406-R0405	R0406	R0405	8	38	0.0050	0.010137	0.000000	0.003640	1.14	0.06	0.08	0.024112	0.000000	0.009336	1.48	0.08	0.13	0.024112	0.000000	0.009336	1.48	0.08	0.13
R0407-R0406	R0407	R0406	8	97	0.0100	0.001262	0.000000	0.000378	0.77	0.02	0.03	0.003560	0.000000	0.001167	1.05	0.03	0.04	0.003560	0.000000	0.001167	1.05	0.03	0.04
R0408-R0406	R0408	R0406	8	62	0.0050	0.009164	0.000000	0.003262	1.10	0.05	0.08	0.018505	0.000000	0.007002	1.36	0.07	0.11	0.018505	0.000000	0.007002	1.36	0.07	0.11
R0409-R0408	R0409	R0408	8	109	0.0050	0.009164	0.000000	0.003262	1.10	0.05	0.08	0.015648	0.000000	0.005835	1.29	0.07	0.10	0.015648	0.000000	0.005835	1.29	0.07	0.10
R0410-R0409	R0410	R0409	8	95	0.0100	0.002057	0.000000	0.000643	0.89	0.02	0.03	0.003560	0.000000	0.001167	1.05	0.03	0.04	0.003560	0.000000	0.001167	1.05	0.03	0.04
R0411-R0409	R0411	R0409	8	180	0.0100	0.007488	0.000000	0.002619	1.32	0.04	0.06	0.009780	0.000000	0.003501	1.43	0.05	0.07	0.009780	0.000000	0.003501	1.43	0.05	0.07
R0412-R0411	R0412	R0411	8	41	0.0101	0.004852	0.000000	0.001634	1.16	0.03	0.05	0.003560	0.000000	0.001167	1.06	0.03	0.04	0.003560	0.000000	0.001167	1.06	0.03	0.04
R0413-R0411	R0413	R0411	8	57	0.0100	0.001957	0.000000	0.000609	0.88	0.02	0.03	0.003560	0.000000	0.001167	1.05	0.03	0.04	0.003560	0.000000	0.001167	1.05	0.03	0.04

City of Brea - Sewer Master Plan (November 2021)

Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
R05-R04	R05	R04	12	96	0.0050	0.147539	0.000000	0.066871	2.00	0.20	0.20	0.320291	0.000000	0.155292	2.50	0.30	0.30	0.320291	0.000000	0.155292	2.50	0.30	0.30
R0501-R05	R0501	R05	8	64	0.0493	0.026915	0.000000	0.010521	2.82	0.06	0.09	0.068025	0.000000	0.028824	3.73	0.09	0.14	0.068025	0.000000	0.028824	3.73	0.09	0.14
R0502-R0501	R0502	R0501	8	223	0.0176	0.026915	0.000000	0.010521	1.97	0.07	0.11	0.068025	0.000000	0.028824	2.60	0.12	0.17	0.068025	0.000000	0.028824	2.60	0.12	0.17
R0503-R0502	R0503	R0502	8	200	0.0050	0.026260	0.000000	0.010243	1.51	0.09	0.13	0.068025	0.000000	0.028824	2.01	0.14	0.21	0.068025	0.000000	0.028824	2.01	0.14	0.21
R0504-R0503	R0504	R0503	8	148	0.0100	0.003187	0.000000	0.001035	1.02	0.03	0.04	0.005827	0.000000	0.001994	1.22	0.04	0.05	0.005827	0.000000	0.001994	1.22	0.04	0.05
R0505-R0503	R0505	R0503	8	182	0.0050	0.023809	0.000000	0.009208	1.47	0.08	0.12	0.063683	0.000000	0.026830	1.97	0.13	0.20	0.063683	0.000000	0.026830	1.97	0.13	0.20
R0506-R0505	R0506	R0505	8	166	0.0100	0.003102	0.000000	0.001005	1.01	0.03	0.04	0.005827	0.000000	0.001994	1.22	0.04	0.05	0.005827	0.000000	0.001994	1.22	0.04	0.05
R0507-R0505	R0507	R0505	8	182	0.0046	0.021408	0.000000	0.008203	1.38	0.08	0.12	0.059316	0.000000	0.024836	1.87	0.13	0.20	0.059316	0.000000	0.024836	1.87	0.13	0.20
R0508-R0507	R0508	R0507	8	119	0.0060	0.021408	0.000000	0.008203	1.26	0.09	0.13	0.059316	0.000000	0.024836	1.71	0.14	0.21	0.059316	0.000000	0.024836	1.71	0.14	0.21
R0509-R0508	R0509	R0508	8	230	0.0065	0.016105	0.000000	0.006020	1.19	0.07	0.11	0.034654	0.000000	0.013847	1.50	0.11	0.16	0.034654	0.000000	0.013847	1.50	0.11	0.16
R0510-R0509	R0510	R0509	8	178	0.0101	0.003382	0.000000	0.001104	0.86	0.03	0.05	0.010196	0.000000	0.003663	1.21	0.05	0.08	0.010196	0.000000	0.003663	1.21	0.05	0.08
R0511-R0510	R0511	R0510	8	173	0.0051	0.002929	0.000000	0.000944	0.65	0.03	0.05	0.007021	0.000000	0.002442	0.85	0.05	0.08	0.007021	0.000000	0.002442	0.85	0.05	0.08
R0512-R0511	R0512	R0511	8	238	0.0050	0.002283	0.000000	0.000720	0.60	0.03	0.05	0.003711	0.000000	0.001221	0.70	0.04	0.06	0.003711	0.000000	0.001221	0.70	0.04	0.06
R0513-R0509	R0513	R0509	8	195	0.0100	0.012720	0.000000	0.004658	1.29	0.06	0.09	0.023225	0.000000	0.008963	1.55	0.08	0.12	0.023225	0.000000	0.008963	1.55	0.08	0.12
R0514-R0513	R0514	R0513	8	39	0.0051	0.011982	0.000000	0.004365	1.00	0.07	0.10	0.020298	0.000000	0.007742	1.17	0.09	0.13	0.020298	0.000000	0.007742	1.17	0.09	0.13
R0515-R0514	R0515	R0514	8	247	0.0074	0.011237	0.000000	0.004071	1.12	0.06	0.09	0.017333	0.000000	0.006521	1.28	0.07	0.11	0.017333	0.000000	0.006521	1.28	0.07	0.11
R0516-R0515	R0516	R0515	8	265	0.0144	0.009261	0.000000	0.003299	1.33	0.05	0.07	0.014324	0.000000	0.005300	1.52	0.06	0.09	0.014324	0.000000	0.005300	1.52	0.06	0.09
R0517-R0516	R0517	R0516	8	73	0.0101	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.007021	0.000000	0.002442	1.08	0.04	0.07	0.007021	0.000000	0.002442	1.08	0.04	0.07
R0518-R0517	R0518	R0517	8	46	0.0098	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.003711	0.000000	0.001221	0.88	0.03	0.05	0.003711	0.000000	0.001221	0.88	0.03	0.05
R0519-R0508	R0519	R0508	8	39	0.0061	0.006333	0.000000	0.002183	0.88	0.05	0.07	0.025137	0.000000	0.009768	1.34	0.09	0.14	0.025137	0.000000	0.009768	1.34	0.09	0.14
R0520-R0519	R0520	R0519	8	153	0.0057	0.006333	0.000000	0.002183	0.86	0.05	0.07	0.022231	0.000000	0.008547	1.25	0.09	0.13	0.022231	0.000000	0.008547	1.25	0.09	0.13
R0521-R0520	R0521	R0520	8	292	0.0124	0.005805	0.000000	0.001986	1.10	0.04	0.06	0.019291	0.000000	0.007326	1.58	0.07	0.10	0.019291	0.000000	0.007326	1.58	0.07	0.10
R0522-R0521	R0522	R0521	8	254	0.0100	0.000422	0.000000	0.000115	0.46	0.01	0.02	0.010196	0.000000	0.003663	1.21	0.05	0.08	0.010196	0.000000	0.003663	1.21	0.05	0.08
R0523-R0522	R0523	R0522	8	300	0.0130	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.007021	0.000000	0.002442	1.18	0.04	0.06	0.007021	0.000000	0.002442	1.18	0.04	0.06
R0524-R0523	R0524	R0523	8	73	0.0100	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.003711	0.000000	0.001221	0.89	0.03	0.05	0.003711	0.000000	0.001221	0.89	0.03	0.05
R0525-R0521	R0525	R0521	8	354	0.0090	0.004575	0.000000	0.001533	0.91	0.04	0.06	0.007021	0.000000	0.002442	1.04	0.05	0.07	0.007021	0.000000	0.002442	1.04	0.05	0.07
R0526-R0525	R0526	R0525	8	131	0.0100	0.001880	0.000000	0.000583	0.72	0.02	0.04	0.003711	0.000000	0.001221	0.89	0.03	0.05	0.003711	0.000000	0.001221	0.89	0.03	0.05
R0527-R0516	R0527	R0516	8	229	0.0204	0.003960	0.000000	0.001310	1.16	0.03	0.04	0.004861	0.000000	0.001637	1.24	0.03	0.05	0.004861	0.000000	0.001637	1.24	0.03	0.05
R06-R05	R06	R05	8	71	0.0049	0.126039	0.000000	0.056349	1.98	0.22	0.33	0.265160	0.000000	0.126468	2.41	0.33	0.49	0.265160	0.000000	0.126468	2.41	0.33	0.49
R0601-R06	R0601	R06	8	304	0.0050	0.019304	0.000000	0.007331	1.15	0.09	0.13	0.040349	0.000000	0.016338	1.43	0.12	0.18	0.040349	0.000000	0.016338	1.43	0.12	0.18
R0602-R0601	R0602	R0601	8	213	0.0050	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.006735	0.000000	0.002334	0.84	0.05	0.08	0.006735	0.000000	0.002334	0.84	0.05	0.08
R0603-R0601	R0603	R0601	8	118	0.0051	0.016330	0.000000	0.006112	1.32	0.07	0.10	0.032320	0.000000	0.012837	1.62	0.10	0.14	0.032320	0.000000	0.012837	1.62	0.10	0.14
R0604-R0603	R0604	R0603	8	114	0.0294	0.005247	0.000000	0.001779	1.72	0.03	0.04	0.008594	0.000000	0.003042	2.00	0.03	0.05	0.008594	0.000000	0.003042	2.00	0.03	0.05
R0605-R0604	R0605	R0604	8	29	0.0296	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.003560	0.000000	0.001167	1.53	0.02	0.03	0.003560	0.000000	0.001167	1.53	0.02	0.03
R0606-R0603	R0606	R0603	8	92	0.0100	0.011899	0.000000	0.004333	1.52	0.05	0.08	0.022424	0.000000	0.008628	1.84	0.07	0.10	0.022424	0.000000	0.008628	1.84	0.07	0.10
R0607-R0606	R0607	R0606	8	44	0.0099	0.011899	0.000000	0.004333	1.52	0.05	0.08	0.019618	0.000000	0.007461	1.76	0.06	0.10	0.019618	0.000000	0.007461	1.76	0.06	0.10
R0608-R0607	R0608	R0607	8	96	0.0105	0.004824	0.000000	0.001624	1.17	0.03	0.05	0.003560	0.000000	0.001167	1.07	0.03	0.04	0.003560	0.000000	0.001167	1.07	0.03	0.04
R0609-R0607	R0609	R0607	8	39	0.0160	0.006263	0.000000	0.002157	1.47	0.03	0.05	0.013891	0.000000	0.005127	1.87	0.05	0.07	0.013891	0.000000	0.005127	1.87	0.05	0.07
R0610-R0609	R0610	R0609	8	139	0.0138	0.006263	0.000000	0.002157	1.40	0.03	0.05	0.010953	0.000000	0.003960	1.66	0.05	0.07	0.010953	0.000000	0.003960	1.66	0.05	0.07
R0611-R0610	R0611	R0610	8	67	0.0186	0.002945	0.000000	0.000950	1.23	0.02	0.03	0.007944	0.000000	0.002793	1.67	0.04	0.05	0.007944	0.000000	0.002793	1.67	0.04	0.05
R0612-R0611	R0612	R0611	8	28	0.0186	0.001039	0.000000	0.000306	0.90	0.01	0.02	0.003560	0.000000	0.001167	1.31	0.02	0.04	0.003560	0.000000	0.001167	1.31	0.02	0.04
R0613-R0604	R0613	R0604	8	157	0.0239	0.002949	0.000000	0.000993	1.12	0.02	0.04	0.002160	0.000000	0.000708	1.02	0.02	0.03	0.002160	0.000000	0.000708	1.02	0.02	0.03
R0613-R0611	R0613	R0611	8	149	0.0100	0.001911	0.000000	0.000644	0.73	0.02	0.04	0.001399	0.000000	0.000459	0.66	0.02	0.03	0.001399	0.000000	0.000459	0.66	0.02	0.03
R07-R06	R07	R06	8	117	0.0321	0.110871	0.000000	0.049018	3.71	0.13	0.19	0.233474	0.000000	0.110130	4.61	0.18	0.28	0.233474	0.000000	0.110130	4.61	0.18	0.28
R08-R07	R08	R07	8	204	0.0050	0.110567	0.000000	0.048872	1.92	0.20	0.30	0.233474	0.000000	0.110130	2.35	0.30	0.45	0.233474	0.000000	0.110130	2.35	0.30	0.45
R09-R08	R09	R08	8	252	0.0050	0.109543	0.000000	0.048380	1.91	0.20	0.30	0.233474	0.000000	0.110130	2.34	0.30	0.45	0.233474	0.000000	0.110130	2.34	0.30	0.45

City of Brea - Sewer Master Plan (November 2021)

Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
R0901-R09	R0901	R09	8	280	0.0145	0.001779	0.000000	0.000549	0.81	0.02	0.03	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
R10-R09	R10	R09	8	130	0.0050	0.107494	0.000000	0.047397	1.90	0.20	0.30	0.233474	0.000000	0.110130	2.35	0.30	0.45	0.233474	0.000000	0.110130	2.35	0.30	0.45
R1001-R1001	R1001	R10	8	52	0.0149	0.036889	0.000000	0.014821	2.04	0.09	0.13	0.048242	0.000000	0.019840	2.22	0.10	0.15	0.048242	0.000000	0.019840	2.22	0.10	0.15
R1002-R1001	R1002	R1001	8	32	0.0100	0.036889	0.000000	0.014821	1.78	0.10	0.15	0.046018	0.000000	0.018848	1.90	0.11	0.16	0.046018	0.000000	0.018848	1.90	0.11	0.16
R1003-R1002	R1003	R1002	8	80	0.0050	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.003065	0.000000	0.000992	0.66	0.04	0.05	0.003065	0.000000	0.000992	0.66	0.04	0.05
R1004-R1002	R1004	R1002	8	61	0.0099	0.036889	0.000000	0.014821	1.77	0.10	0.15	0.041542	0.000000	0.016864	1.84	0.10	0.16	0.041542	0.000000	0.016864	1.84	0.10	0.16
R1005-R1004	R1005	R1004	8	47	0.0101	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.013475	0.000000	0.004960	1.32	0.06	0.09	0.013475	0.000000	0.004960	1.32	0.06	0.09
R1006-R1005	R1006	R1005	8	69	0.0101	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.008422	0.000000	0.002976	1.14	0.05	0.07	0.008422	0.000000	0.002976	1.14	0.05	0.07
R1007-R1006	R1007	R1006	8	79	0.0050	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.003065	0.000000	0.000992	0.66	0.04	0.05	0.003065	0.000000	0.000992	0.66	0.04	0.05
R1008-R1006	R1008	R1006	8	30	0.0099	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.003065	0.000000	0.000992	0.84	0.03	0.05	0.003065	0.000000	0.000992	0.84	0.03	0.05
R1009-R1004	R1009	R1004	8	81	0.0100	0.036889	0.000000	0.014821	1.78	0.10	0.15	0.027833	0.000000	0.010912	1.63	0.09	0.13	0.027833	0.000000	0.010912	1.63	0.09	0.13
R1010-R1009	R1010	R1009	8	109	0.0050	0.036889	0.000000	0.014821	1.39	0.12	0.18	0.023141	0.000000	0.008928	1.21	0.09	0.14	0.023141	0.000000	0.008928	1.21	0.09	0.14
R1011-R1010	R1011	R1010	8	77	0.0050	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.003065	0.000000	0.000992	0.66	0.04	0.05	0.003065	0.000000	0.000992	0.66	0.04	0.05
R1012-R1010	R1012	R1010	8	57	0.0049	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.018364	0.000000	0.006944	1.13	0.08	0.13	0.018364	0.000000	0.006944	1.13	0.08	0.13
R1013-R1012	R1013	R1012	8	36	0.0100	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.005800	0.000000	0.001984	1.02	0.04	0.06	0.005800	0.000000	0.001984	1.02	0.04	0.06
R1014-R1013	R1014	R1013	8	56	0.0101	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.003065	0.000000	0.000992	0.84	0.03	0.05	0.003065	0.000000	0.000992	0.84	0.03	0.05
R1015-R1012	R1015	R1012	8	96	0.0050	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.003065	0.000000	0.000992	0.66	0.04	0.05	0.003065	0.000000	0.000992	0.66	0.04	0.05
R1016-R1012	R1016	R1012	8	116	0.0050	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.008422	0.000000	0.002976	0.90	0.06	0.09	0.008422	0.000000	0.002976	0.90	0.06	0.09
R1017-R1016	R1017	R1016	8	92	0.0050	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.003065	0.000000	0.000992	0.66	0.04	0.05	0.003065	0.000000	0.000992	0.66	0.04	0.05
R1018-R1016	R1018	R1016	8	52	0.0050	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.003065	0.000000	0.000992	0.66	0.04	0.05	0.003065	0.000000	0.000992	0.66	0.04	0.05
R1019-R1005	R1019	R1005	8	83	0.0050	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.003065	0.000000	0.000992	0.66	0.04	0.05	0.003065	0.000000	0.000992	0.66	0.04	0.05
R1020-R1009	R1020	R1009	8	77	0.0051	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.003065	0.000000	0.000992	0.66	0.04	0.05	0.003065	0.000000	0.000992	0.66	0.04	0.05
R11-R19	R11	R19	8	157	0.0050	0.076131	0.000000	0.032576	1.72	0.17	0.25	0.194480	0.000000	0.090290	2.23	0.27	0.41	0.194480	0.000000	0.090290	2.23	0.27	0.41
R12-R11	R12	R11	8	236	0.0050	0.075397	0.000000	0.032235	1.72	0.17	0.25	0.194480	0.000000	0.090290	2.24	0.27	0.41	0.194480	0.000000	0.090290	2.24	0.27	0.41
R13-R12	R13	R12	8	103	0.0050	0.073993	0.000000	0.031583	1.70	0.17	0.25	0.194480	0.000000	0.090290	2.23	0.27	0.41	0.194480	0.000000	0.090290	2.23	0.27	0.41
R14-R13	R14	R13	8	264	0.0050	0.073674	0.000000	0.031435	1.71	0.16	0.25	0.194480	0.000000	0.090290	2.24	0.27	0.41	0.194480	0.000000	0.090290	2.24	0.27	0.41
R1401-R14	R1401	R14	8	217	0.0200	0.026285	0.000000	0.010254	2.05	0.07	0.11	0.063020	0.000000	0.026527	2.66	0.11	0.16	0.063020	0.000000	0.026527	2.66	0.11	0.16
R1402-R1401	R1402	R1401	8	89	0.0166	0.008195	0.000000	0.002889	1.35	0.04	0.06	0.035543	0.000000	0.014234	2.10	0.09	0.13	0.035543	0.000000	0.014234	2.10	0.09	0.13
R1403-R1402	R1403	R1402	8	54	0.0050	0.005641	0.000000	0.001925	0.79	0.05	0.07	0.032559	0.000000	0.012940	1.35	0.11	0.16	0.032559	0.000000	0.012940	1.35	0.11	0.16
R1404-R1403	R1404	R1403	8	12	0.0048	0.005641	0.000000	0.001925	0.78	0.05	0.07	0.031058	0.000000	0.012293	1.31	0.11	0.16	0.031058	0.000000	0.012293	1.31	0.11	0.16
R1405-R1404	R1405	R1404	8	12	0.0048	0.004586	0.000000	0.001537	0.74	0.04	0.07	0.026516	0.000000	0.010352	1.25	0.10	0.15	0.026516	0.000000	0.010352	1.25	0.10	0.15
R1406-R1405	R1406	R1405	8	72	0.0100	0.004586	0.000000	0.001537	0.95	0.04	0.05	0.024988	0.000000	0.009705	1.58	0.08	0.12	0.024988	0.000000	0.009705	1.58	0.08	0.12
R1407-R1406	R1407	R1406	8	98	0.0100	0.003730	0.000000	0.001228	0.89	0.03	0.05	0.021905	0.000000	0.008411	1.52	0.08	0.12	0.021905	0.000000	0.008411	1.52	0.08	0.12
R1408-R1407	R1408	R1407	8	58	0.0050	0.003730	0.000000	0.001228	0.70	0.04	0.06	0.017208	0.000000	0.006470	1.11	0.08	0.12	0.017208	0.000000	0.006470	1.11	0.08	0.12
R1409-R1408	R1409	R1408	8	41	0.0051	0.003730	0.000000	0.001228	0.70	0.04	0.06	0.014014	0.000000	0.005176	1.05	0.07	0.11	0.014014	0.000000	0.005176	1.05	0.07	0.11
R1410-R1409	R1410	R1409	8	83	0.0050	0.003730	0.000000	0.001228	0.70	0.04	0.06	0.010755	0.000000	0.003882	0.96	0.06	0.10	0.010755	0.000000	0.003882	0.96	0.06	0.10
R1411-R1410	R1411	R1410	8	110	0.0050	0.001635	0.000000	0.000501	0.54	0.03	0.04	0.007407	0.000000	0.002588	0.86	0.05	0.08	0.007407	0.000000	0.002588	0.86	0.05	0.08
R1412-R1411	R1412	R1411	8	14	0.0052	0.001635	0.000000	0.000501	0.55	0.03	0.04	0.003914	0.000000	0.001294	0.72	0.04	0.06	0.003914	0.000000	0.001294	0.72	0.04	0.06
R1413-R1412	R1413	R1412	8	141	0.0050	0.001635	0.000000	0.000501	0.54	0.03	0.04	0.002069	0.000000	0.000647	0.59	0.03	0.04	0.002069	0.000000	0.000647	0.59	0.03	0.04
R1414-R1411	R1414	R1411	8	129	0.0050	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.002069	0.000000	0.000647	0.59	0.03	0.04	0.002069	0.000000	0.000647	0.59	0.03	0.04
R1415-R1410	R1415	R1410	8	141	0.0050	0.002303	0.000000	0.000727	0.60	0.03	0.05	0.002069	0.000000	0.000647	0.58	0.03	0.04	0.002069	0.000000	0.000647	0.58	0.03	0.04
R1416-R1409	R1416	R1409	8	129	0.0050	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.002069	0.000000	0.000647	0.59	0.03	0.04	0.002069	0.000000	0.000647	0.59	0.03	0.04
R1417-R1408	R1417	R1408	8	141	0.0050	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.002069	0.000000	0.000647	0.59	0.03	0.04	0.002069	0.000000	0.000647	0.59	0.03	0.04
R1418-R1407	R1418	R1407	8	66	0.0050	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.003914	0.000000	0.001294	0.71	0.04	0.06	0.003914	0.000000	0.001294	0.71	0.04	0.06
R1419-R1418	R1419	R1418	8	141	0.0054	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.002069	0.000000	0.000647	0.60	0.03	0.04	0.002069	0.000000	0.000647	0.60	0.03	0.04
R1420-R1406	R1420	R1406	8	89	0.0050	0.001048	0.000000	0.000309	0.48	0.02	0.03	0.002069	0.000000	0.000647	0.59	0.03	0.04	0.002069	0.000000	0.000647	0.59	0.03	0.04

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Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADFW (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADFW (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADFW (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
R1421-R1404	R1421	R1404	8	58	0.0050	0.001292	0.000000	0.000388	0.51	0.02	0.04	0.003914	0.000000	0.001294	0.71	0.04	0.06	0.003914	0.000000	0.001294	0.71	0.04	0.06
R1422-R1421	R1422	R1421	8	117	0.0050	0.001292	0.000000	0.000388	0.51	0.02	0.04	0.002069	0.000000	0.000647	0.59	0.03	0.04	0.002069	0.000000	0.000647	0.59	0.03	0.04
R1423-R1402	R1423	R1402	8	141	0.0050	0.002986	0.000000	0.000964	0.65	0.04	0.05	0.002069	0.000000	0.000647	0.58	0.03	0.04	0.002069	0.000000	0.000647	0.58	0.03	0.04
R1424-R1401	R1424	R1401	8	101	0.0187	0.019386	0.000000	0.007365	1.82	0.06	0.09	0.029551	0.000000	0.011646	2.07	0.08	0.11	0.029551	0.000000	0.011646	2.07	0.08	0.11
R1425-R1424	R1425	R1424	8	80	0.0050	0.017667	0.000000	0.006658	1.12	0.08	0.12	0.026516	0.000000	0.010352	1.26	0.10	0.15	0.026516	0.000000	0.010352	1.26	0.10	0.15
R1426-R1425	R1426	R1425	8	44	0.0050	0.017212	0.000000	0.006472	1.11	0.08	0.12	0.023451	0.000000	0.009058	1.22	0.09	0.14	0.023451	0.000000	0.009058	1.22	0.09	0.14
R1427-R1426	R1427	R1426	8	63	0.0049	0.015800	0.000000	0.005897	1.08	0.08	0.12	0.020350	0.000000	0.007764	1.16	0.09	0.13	0.020350	0.000000	0.007764	1.16	0.09	0.13
R1428-R1427	R1428	R1427	8	31	0.0051	0.015800	0.000000	0.005897	1.09	0.08	0.12	0.018785	0.000000	0.007117	1.15	0.08	0.13	0.018785	0.000000	0.007117	1.15	0.08	0.13
R1429-R1428	R1429	R1428	8	117	0.0100	0.012532	0.000000	0.004584	1.28	0.06	0.09	0.012394	0.000000	0.004529	1.28	0.06	0.09	0.012394	0.000000	0.004529	1.28	0.06	0.09
R1430-R1429	R1430	R1429	8	128	0.0100	0.011606	0.000000	0.004217	1.26	0.06	0.08	0.009094	0.000000	0.003235	1.17	0.05	0.08	0.009094	0.000000	0.003235	1.17	0.05	0.08
R1431-R1430	R1431	R1430	8	41	0.0100	0.001089	0.000000	0.000322	0.61	0.02	0.03	0.005684	0.000000	0.001941	1.01	0.04	0.06	0.005684	0.000000	0.001941	1.01	0.04	0.06
R1432-R1431	R1432	R1431	8	92	0.0050	0.001089	0.000000	0.000322	0.48	0.02	0.03	0.003914	0.000000	0.001294	0.71	0.04	0.06	0.003914	0.000000	0.001294	0.71	0.04	0.06
R1433-R1432	R1433	R1432	8	70	0.0050	0.001089	0.000000	0.000322	0.48	0.02	0.03	0.002069	0.000000	0.000647	0.59	0.03	0.04	0.002069	0.000000	0.000647	0.59	0.03	0.04
R1434-R1429	R1434	R1429	8	102	0.0050	0.001228	0.000000	0.000367	0.50	0.02	0.03	0.002069	0.000000	0.000647	0.58	0.03	0.04	0.002069	0.000000	0.000647	0.58	0.03	0.04
R1435-R1428	R1435	R1428	8	99	0.0050	0.001835	0.000000	0.000568	0.56	0.03	0.04	0.002069	0.000000	0.000647	0.59	0.03	0.04	0.002069	0.000000	0.000647	0.59	0.03	0.04
R1436-R1428	R1436	R1428	8	43	0.0049	0.002355	0.000000	0.000745	0.60	0.03	0.05	0.003914	0.000000	0.001294	0.70	0.04	0.06	0.003914	0.000000	0.001294	0.70	0.04	0.06
R1437-R1436	R1437	R1436	8	114	0.0050	0.002355	0.000000	0.000745	0.61	0.03	0.05	0.002069	0.000000	0.000647	0.58	0.03	0.04	0.002069	0.000000	0.000647	0.58	0.03	0.04
R1438-R1426	R1438	R1426	8	130	0.0050	0.001856	0.000000	0.000575	0.57	0.03	0.04	0.002069	0.000000	0.000647	0.58	0.03	0.04	0.002069	0.000000	0.000647	0.58	0.03	0.04
R1439-R1425	R1439	R1425	8	69	0.0102	0.000657	0.000000	0.000186	0.53	0.01	0.02	0.002069	0.000000	0.000647	0.75	0.03	0.04	0.002069	0.000000	0.000647	0.75	0.03	0.04
R1440-R1424	R1440	R1424	8	141	0.0050	0.000792	0.000000	0.000228	0.43	0.02	0.03	0.002069	0.000000	0.000647	0.58	0.03	0.04	0.002069	0.000000	0.000647	0.58	0.03	0.04
R1441-R1430	R1441	R1430	8	122	0.0050	0.001740	0.000000	0.000536	0.55	0.03	0.04	0.002069	0.000000	0.000647	0.58	0.03	0.04	0.002069	0.000000	0.000647	0.58	0.03	0.04
R15-R14	R15	R14	8	199	0.0050	0.050719	0.000000	0.020949	1.53	0.14	0.20	0.141217	0.000000	0.063763	2.05	0.23	0.34	0.141217	0.000000	0.063763	2.05	0.23	0.34
R16-R15	R16	R15	8	194	0.0050	0.032444	0.000000	0.012890	1.34	0.11	0.16	0.095817	0.000000	0.041829	1.84	0.19	0.28	0.095817	0.000000	0.041829	1.84	0.19	0.28
R17-R16	R17	R16	8	71	0.0049	0.031243	0.000000	0.012372	1.32	0.11	0.16	0.095817	0.000000	0.041829	1.83	0.19	0.28	0.095817	0.000000	0.041829	1.83	0.19	0.28
R1701-R17	R1701	R17	8	63	0.0100	0.011204	0.000000	0.004058	1.24	0.06	0.08	0.009722	0.000000	0.003479	1.19	0.05	0.08	0.009722	0.000000	0.003479	1.19	0.05	0.08
R1702-R1701	R1702	R1701	8	219	0.0292	0.004166	0.000000	0.001384	1.33	0.03	0.04	0.002528	0.000000	0.000805	1.15	0.02	0.03	0.002528	0.000000	0.000805	1.15	0.02	0.03
R1703-R17	R1703	R17	8	267	0.0091	0.021673	0.000000	0.008314	1.46	0.08	0.12	0.088461	0.000000	0.038350	2.22	0.16	0.23	0.088461	0.000000	0.038350	2.22	0.16	0.23
R1704-R1750	R1704	R1750	8	109	0.0230	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.008675	0.000000	0.003073	1.54	0.04	0.06	0.008675	0.000000	0.003073	1.54	0.04	0.06
R1705-R1704	R1705	R1704	8	31	0.0200	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.007528	0.000000	0.002634	1.40	0.04	0.06	0.007528	0.000000	0.002634	1.40	0.04	0.06
R1707-R1703	R1707	R1703	8	211	0.0064	0.017643	0.000000	0.006648	1.22	0.08	0.12	0.076274	0.000000	0.032643	1.88	0.16	0.24	0.076274	0.000000	0.032643	1.88	0.16	0.24
R1708-R1707	R1708	R1707	8	242	0.0093	0.017643	0.000000	0.006648	1.39	0.07	0.11	0.075329	0.000000	0.032204	2.14	0.14	0.21	0.075329	0.000000	0.032204	2.14	0.14	0.21
R1709-R1708	R1709	R1708	8	275	0.0100	0.017643	0.000000	0.006648	1.43	0.07	0.10	0.059106	0.000000	0.024741	2.05	0.12	0.19	0.059106	0.000000	0.024741	2.05	0.12	0.19
R1710-R1726	R1710	R1726	8	111	0.0100	0.010011	0.000000	0.003591	1.20	0.05	0.08	0.054264	0.000000	0.022546	1.99	0.12	0.18	0.054264	0.000000	0.022546	1.99	0.12	0.18
R1711-R1710	R1711	R1710	8	111	0.0100	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.003978	0.000000	0.001317	0.91	0.03	0.05	0.003978	0.000000	0.001317	0.91	0.03	0.05
R1712-R1711	R1712	R1711	8	75	0.0149	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.002740	0.000000	0.000878	0.93	0.03	0.04	0.002740	0.000000	0.000878	0.93	0.03	0.04
R1713-R1758	R1713	R1758	8	111	0.0100	0.010011	0.000000	0.003591	1.20	0.05	0.08	0.014928	0.000000	0.005544	1.35	0.06	0.10	0.014928	0.000000	0.005544	1.35	0.06	0.10
R1714-R1713	R1714	R1713	8	38	0.0099	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.011457	0.000000	0.004158	1.25	0.06	0.08	0.011457	0.000000	0.004158	1.25	0.06	0.08
R1715-R1714	R1715	R1714	8	33	0.0100	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.007890	0.000000	0.002772	1.12	0.05	0.07	0.007890	0.000000	0.002772	1.12	0.05	0.07
R1716-R1715	R1716	R1715	8	62	0.0100	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.004170	0.000000	0.001386	0.92	0.03	0.05	0.004170	0.000000	0.001386	0.92	0.03	0.05
R1717-R1758	R1717	R1758	8	97	0.0104	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.011457	0.000000	0.004158	1.27	0.06	0.08	0.011457	0.000000	0.004158	1.27	0.06	0.08
R1718-R1717	R1718	R1717	8	52	0.0149	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.007890	0.000000	0.002772	1.28	0.04	0.06	0.007890	0.000000	0.002772	1.28	0.04	0.06
R1719-R1718	R1719	R1718	8	73	0.0099	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.004170	0.000000	0.001386	0.92	0.04	0.05	0.004170	0.000000	0.001386	0.92	0.04	0.05
R1720-R1757	R1720	R1757	8	124	0.0100	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.021677	0.000000	0.008316	1.51	0.08	0.11	0.021677	0.000000	0.008316	1.51	0.08	0.11
R1721-R1720	R1721	R1720	8	31	0.0099	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.018330	0.000000	0.006930	1.43	0.07	0.11	0.018330	0.000000	0.006930	1.43	0.07	0.11
R1722-R1721	R1722	R1721	8	44	0.0099	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.014928	0.000000	0.005544	1.35	0.06	0.10	0.014928	0.000000	0.005544	1.35	0.06	0.10
R1723-R1722	R1723	R1722	8	10	0.0100	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.007890	0.000000	0.002772	1.12	0.05	0.07	0.007890	0.000000	0.002772	1.12	0.05	0.07

City of Brea - Sewer Master Plan (November 2021)

Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
R1724-R1723	R1724	R1723	8	51	0.0114	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.004170	0.000000	0.001386	0.96	0.03	0.05	0.004170	0.000000	0.001386	0.96	0.03	0.05
R1725-R1722	R1725	R1722	8	94	0.0146	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.004170	0.000000	0.001386	1.05	0.03	0.05	0.004170	0.000000	0.001386	1.05	0.03	0.05
R1726-R1709	R1726	R1709	8	120	0.0100	0.010011	0.000000	0.003591	1.20	0.05	0.08	0.058140	0.000000	0.024302	2.03	0.12	0.18	0.058140	0.000000	0.024302	2.03	0.12	0.18
R1727-R1726	R1727	R1726	8	117	0.0348	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.003978	0.000000	0.001317	1.40	0.03	0.04	0.003978	0.000000	0.001317	1.40	0.03	0.04
R1728-R1727	R1728	R1727	8	101	0.0250	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.001448	0.000000	0.000439	0.92	0.02	0.03	0.001448	0.000000	0.000439	0.92	0.02	0.03
R1729-R1727	R1729	R1727	8	90	0.0099	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.001448	0.000000	0.000439	0.66	0.02	0.03	0.001448	0.000000	0.000439	0.66	0.02	0.03
R1730-R1708	R1730	R1708	8	46	0.0130	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.018559	0.000000	0.007024	1.59	0.07	0.10	0.018559	0.000000	0.007024	1.59	0.07	0.10
R1731-R1730	R1731	R1730	8	46	0.0251	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.017489	0.000000	0.006585	1.96	0.06	0.08	0.017489	0.000000	0.006585	1.96	0.06	0.08
R1732-R1731	R1732	R1731	8	31	0.0250	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.016413	0.000000	0.006146	1.92	0.05	0.08	0.016413	0.000000	0.006146	1.92	0.05	0.08
R1733-R1732	R1733	R1732	8	43	0.0250	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.014243	0.000000	0.005268	1.84	0.05	0.08	0.014243	0.000000	0.005268	1.84	0.05	0.08
R1734-R1733	R1734	R1733	8	115	0.0250	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.009808	0.000000	0.003512	1.64	0.04	0.06	0.009808	0.000000	0.003512	1.64	0.04	0.06
R1735-R1734	R1735	R1734	8	94	0.0150	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.007528	0.000000	0.002634	1.27	0.04	0.06	0.007528	0.000000	0.002634	1.27	0.04	0.06
R1736-R1735	R1736	R1735	8	27	0.0098	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.005184	0.000000	0.001756	0.98	0.04	0.06	0.005184	0.000000	0.001756	0.98	0.04	0.06
R1737-R1736	R1737	R1736	8	163	0.0100	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.003978	0.000000	0.001317	0.91	0.03	0.05	0.003978	0.000000	0.001317	0.91	0.03	0.05
R1738-R1759	R1738	R1759	8	49	0.0101	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.001448	0.000000	0.000439	0.67	0.02	0.03	0.001448	0.000000	0.000439	0.67	0.02	0.03
R1739-R1735	R1739	R1735	8	94	0.0100	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.001448	0.000000	0.000439	0.67	0.02	0.03	0.001448	0.000000	0.000439	0.67	0.02	0.03
R1740-R1734	R1740	R1734	8	83	0.0100	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.001448	0.000000	0.000439	0.67	0.02	0.03	0.001448	0.000000	0.000439	0.67	0.02	0.03
R1741-R1733	R1741	R1733	8	34	0.0050	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.003978	0.000000	0.001317	0.71	0.04	0.06	0.003978	0.000000	0.001317	0.71	0.04	0.06
R1742-R1741	R1742	R1741	8	30	0.0198	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.002740	0.000000	0.000878	1.03	0.02	0.04	0.002740	0.000000	0.000878	1.03	0.02	0.04
R1743-R1742	R1743	R1742	8	90	0.0201	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.001448	0.000000	0.000439	0.85	0.02	0.03	0.001448	0.000000	0.000439	0.85	0.02	0.03
R1744-R1732	R1744	R1732	8	78	0.0100	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.001448	0.000000	0.000439	0.67	0.02	0.03	0.001448	0.000000	0.000439	0.67	0.02	0.03
R1745-R1705	R1745	R1705	8	173	0.0214	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.006365	0.000000	0.002195	1.36	0.04	0.05	0.006365	0.000000	0.002195	1.36	0.04	0.05
R1746-R1745	R1746	R1745	8	20	0.0100	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.005184	0.000000	0.001756	0.98	0.04	0.06	0.005184	0.000000	0.001756	0.98	0.04	0.06
R1747-R1746	R1747	R1746	8	22	0.0096	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.003978	0.000000	0.001317	0.89	0.03	0.05	0.003978	0.000000	0.001317	0.89	0.03	0.05
R1748-R1747	R1748	R1747	8	150	0.0100	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.002740	0.000000	0.000878	0.81	0.03	0.04	0.002740	0.000000	0.000878	0.81	0.03	0.04
R1749-R1748	R1749	R1748	8	35	0.0051	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.001448	0.000000	0.000439	0.53	0.02	0.04	0.001448	0.000000	0.000439	0.53	0.02	0.04
R1750-R1703	R1750	R1703	8	128	0.0229	0.004939	0.000000	0.001666	1.29	0.03	0.05	0.014243	0.000000	0.005268	1.78	0.05	0.08	0.014243	0.000000	0.005268	1.78	0.05	0.08
R1751-R1750	R1751	R1750	8	28	0.0524	0.004939	0.000000	0.001666	1.72	0.03	0.04	0.005184	0.000000	0.001756	1.75	0.03	0.04	0.005184	0.000000	0.001756	1.75	0.03	0.04
R1752-R1751	R1752	R1751	8	86	0.0100	0.004939	0.000000	0.001666	0.97	0.04	0.06	0.003978	0.000000	0.001317	0.91	0.03	0.05	0.003978	0.000000	0.001317	0.91	0.03	0.05
R1753-R1752	R1753	R1752	8	28	0.0201	0.004939	0.000000	0.001666	1.23	0.03	0.05	0.002740	0.000000	0.000878	1.03	0.02	0.04	0.002740	0.000000	0.000878	1.03	0.02	0.04
R1754-R1753	R1754	R1753	8	267	0.0200	0.004939	0.000000	0.001666	1.23	0.03	0.05	0.001448	0.000000	0.000439	0.85	0.02	0.03	0.001448	0.000000	0.000439	0.85	0.02	0.03
R1755-R1702	R1755	R1702	8	50	0.0190	0.003268	0.000000	0.001063	1.07	0.03	0.04	0.002528	0.000000	0.000805	0.99	0.02	0.04	0.002528	0.000000	0.000805	0.99	0.02	0.04
R1756-R0527	R1756	R0527	8	215	0.0026	0.001636	0.000000	0.000550	0.43	0.03	0.05	0.001266	0.000000	0.000416	0.40	0.03	0.04	0.001266	0.000000	0.000416	0.40	0.03	0.04
R1756-R1755	R1756	R1755	8	361	0.0096	0.003161	0.000000	0.001063	0.83	0.03	0.05	0.002445	0.000000	0.000805	0.77	0.03	0.04	0.002445	0.000000	0.000805	0.77	0.03	0.04
R1757-R1710	R1757	R1710	8	142	0.0468	0.010011	0.000000	0.003591	2.05	0.04	0.06	0.050363	0.000000	0.020790	3.35	0.08	0.12	0.050363	0.000000	0.020790	3.35	0.08	0.12
R1758-R1757	R1758	R1757	8	219	0.0130	0.010011	0.000000	0.003591	1.31	0.05	0.07	0.028246	0.000000	0.011088	1.80	0.08	0.12	0.028246	0.000000	0.011088	1.80	0.08	0.12
R1759-R1737	R1759	R1737	8	14	0.0100	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.002740	0.000000	0.000878	0.81	0.03	0.04	0.002740	0.000000	0.000878	0.81	0.03	0.04
R18-ROUTLET2	R18	OUT_ROSE	12	12	0.0199	0.185718	0.000000	0.085877	3.48	0.16	0.16	0.597914	0.000000	0.306067	4.89	0.29	0.29	0.597914	0.000000	0.306067	4.89	0.29	0.29
R19-R10	R19	R10	8	61	0.0051	0.076131	0.000000	0.032576	1.73	0.17	0.25	0.194480	0.000000	0.090290	2.25	0.27	0.41	0.194480	0.000000	0.090290	2.25	0.27	0.41
R1901-R15	R1901	R15	8	215	0.0150	0.020053	0.000000	0.007641	1.71	0.07	0.10	0.052907	0.000000	0.021934	2.28	0.11	0.16	0.052907	0.000000	0.021934	2.28	0.11	0.16
R1902-R1901	R1902	R1901	8	13	0.0152	0.015566	0.000000	0.005802	1.59	0.06	0.09	0.048466	0.000000	0.019940	2.23	0.10	0.15	0.048466	0.000000	0.019940	2.23	0.10	0.15
R1903-R1902	R1903	R1902	8	151	0.0100	0.001110	0.000000	0.000329	0.61	0.02	0.03	0.005827	0.000000	0.001994	1.02	0.04	0.06	0.005827	0.000000	0.001994	1.02	0.04	0.06
R1904-R1902	R1904	R1902	8	185	0.0100	0.014752	0.000000	0.005473	1.35	0.06	0.10	0.039471	0.000000	0.015952	1.81	0.10	0.15	0.039471	0.000000	0.015952	1.81	0.10	0.15
R1905-R1904	R1905	R1904	8	196	0.0100	0.002771	0.000000	0.000889	0.81	0.03	0.04	0.005827	0.000000	0.001994	1.02	0.04	0.06	0.005827	0.000000	0.001994	1.02	0.04	0.06
R1906-R1904	R1906	R1904	8	191	0.0100	0.010857	0.000000	0.003922	1.23	0.05	0.08	0.030292	0.000000	0.011964	1.68	0.09	0.13	0.030292	0.000000	0.011964	1.68	0.09	0.13
R1907-R1906	R1907	R1906	8	85	0.0100	0.001782	0.000000	0.000550	0.71	0.02	0.04	0.005827	0.000000	0.001994	1.02	0.04	0.06	0.005827	0.000000	0.001994	1.02	0.04	

City of Brea - Sewer Master Plan (November 2021)

Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
R1908-R1906	R1908	R1906	8	100	0.0100	0.007934	0.000000	0.002789	1.12	0.05	0.07	0.020861	0.000000	0.007976	1.50	0.07	0.11	0.020861	0.000000	0.007976	1.50	0.07	0.11
R1909-R1908	R1909	R1908	8	146	0.0100	0.001320	0.000000	0.000397	0.65	0.02	0.03	0.005827	0.000000	0.001994	1.02	0.04	0.06	0.005827	0.000000	0.001994	1.02	0.04	0.06
R1910-R1908	R1910	R1908	8	126	0.0067	0.005376	0.000000	0.001827	0.87	0.04	0.06	0.011025	0.000000	0.003988	1.08	0.06	0.09	0.011025	0.000000	0.003988	1.08	0.06	0.09
R1911-R1910	R1911	R1910	8	118	0.0100	0.004756	0.000000	0.001599	0.96	0.04	0.06	0.005827	0.000000	0.001994	1.02	0.04	0.06	0.005827	0.000000	0.001994	1.02	0.04	0.06
R20-R1712	R20	R1712	8	43	0.0293	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.001448	0.000000	0.000439	0.97	0.02	0.02	0.001448	0.000000	0.000439	0.97	0.02	0.02
R21-R0602	R21	R0602	8	25	0.0098	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.003560	0.000000	0.001167	0.87	0.03	0.05	0.003560	0.000000	0.001167	0.87	0.03	0.05
R22-V1301	R22	V1301	8	21	0.0071	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
R23-R10	R23	R10	8	42	0.0149	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
RA01-RA02	RA01	RA02	8	300	0.0613	0.037719	0.000000	0.015184	3.38	0.06	0.10	0.037719	0.000000	0.015184	3.38	0.06	0.10	0.037719	0.000000	0.015184	3.38	0.06	0.10
RA0101-RA01	RA0101	RA01	8	227	0.0277	0.005846	0.000000	0.002001	1.45	0.03	0.05	0.005846	0.000000	0.002001	1.45	0.03	0.05	0.005846	0.000000	0.002001	1.45	0.03	0.05
RA0102-RA0101	RA0102	RA0101	8	106	0.0094	0.003040	0.000000	0.000983	0.82	0.03	0.05	0.003040	0.000000	0.000983	0.82	0.03	0.05	0.003040	0.000000	0.000983	0.82	0.03	0.05
RA0103-RA01	RA0103	RA01	8	133	0.0477	0.031806	0.000000	0.012615	2.94	0.06	0.09	0.031806	0.000000	0.012615	2.94	0.06	0.09	0.031806	0.000000	0.012615	2.94	0.06	0.09
RA0104-RA0103	RA0104	RA0103	8	212	0.0404	0.031499	0.000000	0.012483	2.76	0.07	0.10	0.031499	0.000000	0.012483	2.76	0.07	0.10	0.031499	0.000000	0.012483	2.76	0.07	0.10
RA0105-RA0104	RA0105	RA0104	8	240	0.0914	0.031499	0.000000	0.012483	3.67	0.05	0.08	0.031499	0.000000	0.012483	3.67	0.05	0.08	0.031499	0.000000	0.012483	3.67	0.05	0.08
RA010501-RA0105	RA010501	RA0105	8	15	0.0753	0.031499	0.000000	0.012483	3.43	0.06	0.08	0.031499	0.000000	0.012483	3.43	0.06	0.08	0.031499	0.000000	0.012483	3.43	0.06	0.08
RA010503-RA010502	RA010503	RA010501	8	36	0.2723	0.031499	0.000000	0.012483	5.37	0.04	0.06	0.031499	0.000000	0.012483	5.37	0.04	0.06	0.031499	0.000000	0.012483	5.37	0.04	0.06
RA010504-RA010503	RA010504	RA010503	8	36	0.5123	0.031499	0.000000	0.012483	6.69	0.04	0.05	0.031499	0.000000	0.012483	6.69	0.04	0.05	0.031499	0.000000	0.012483	6.69	0.04	0.05
RA010505-RA010504	RA010505	RA010504	8	40	0.2088	0.031499	0.000000	0.012483	4.90	0.04	0.07	0.031499	0.000000	0.012483	4.90	0.04	0.07	0.031499	0.000000	0.012483	4.90	0.04	0.07
RA010506-RA010505	RA010506	RA010505	8	34	0.0100	0.031499	0.000000	0.012483	1.69	0.09	0.14	0.031499	0.000000	0.012483	1.69	0.09	0.14	0.031499	0.000000	0.012483	1.69	0.09	0.14
RA0106-RA010506	RA0106	RA010506	8	110	0.0101	0.031499	0.000000	0.012483	1.70	0.09	0.14	0.031499	0.000000	0.012483	1.70	0.09	0.14	0.031499	0.000000	0.012483	1.70	0.09	0.14
RA0107-RA0106	RA0107	RA0106	8	168	0.0179	0.012192	0.000000	0.004449	1.56	0.05	0.08	0.012192	0.000000	0.004449	1.56	0.05	0.08	0.012192	0.000000	0.004449	1.56	0.05	0.08
RA0108-RA0107	RA0108	RA0107	8	171	0.0335	0.010528	0.000000	0.003793	1.86	0.04	0.06	0.010528	0.000000	0.003793	1.86	0.04	0.06	0.010528	0.000000	0.003793	1.86	0.04	0.06
RA0109-RA0106	RA0109	RA0106	8	87	0.0100	0.019253	0.000000	0.007310	1.46	0.07	0.11	0.019253	0.000000	0.007310	1.46	0.07	0.11	0.019253	0.000000	0.007310	1.46	0.07	0.11
RA0110-RA0109	RA0110	RA0109	8	263	0.0262	0.018498	0.000000	0.006999	2.02	0.06	0.08	0.018498	0.000000	0.006999	2.02	0.06	0.08	0.018498	0.000000	0.006999	2.02	0.06	0.08
RA0111-RA0110	RA0111	RA0110	8	258	0.0116	0.012927	0.000000	0.004741	1.36	0.06	0.09	0.012927	0.000000	0.004741	1.36	0.06	0.09	0.012927	0.000000	0.004741	1.36	0.06	0.09
RA0112-RA0111	RA0112	RA0111	8	237	0.0114	0.010234	0.000000	0.003678	1.26	0.05	0.08	0.010234	0.000000	0.003678	1.26	0.05	0.08	0.010234	0.000000	0.003678	1.26	0.05	0.08
RA0113-RA0112	RA0113	RA0112	8	204	0.0140	0.006226	0.000000	0.002143	1.17	0.04	0.06	0.006226	0.000000	0.002143	1.17	0.04	0.06	0.006226	0.000000	0.002143	1.17	0.04	0.06
RA02-RA03	RA02	RA03	8	309	0.0603	0.043918	0.000000	0.017915	3.51	0.07	0.10	0.043918	0.000000	0.017915	3.51	0.07	0.10	0.043918	0.000000	0.017915	3.51	0.07	0.10
RA0201-RA02	RA0201	RA02	8	226	0.0329	0.007013	0.000000	0.002439	1.63	0.03	0.05	0.007013	0.000000	0.002439	1.63	0.03	0.05	0.007013	0.000000	0.002439	1.63	0.03	0.05
RA0202-RA0201	RA0202	RA0201	8	246	0.0132	0.004993	0.000000	0.001686	1.07	0.04	0.05	0.004993	0.000000	0.001686	1.07	0.04	0.05	0.004993	0.000000	0.001686	1.07	0.04	0.05
RA03-RA04	RA03	RA04	8	294	0.0462	0.049310	0.000000	0.020318	3.31	0.08	0.12	0.049310	0.000000	0.020318	3.31	0.08	0.12	0.049310	0.000000	0.020318	3.31	0.08	0.12
RA0301-RA03	RA0301	RA03	8	208	0.0338	0.006541	0.000000	0.002261	1.61	0.03	0.05	0.006541	0.000000	0.002261	1.61	0.03	0.05	0.006541	0.000000	0.002261	1.61	0.03	0.05
RA0302-RA0301	RA0302	RA0301	8	207	0.0141	0.003374	0.000000	0.001101	0.97	0.03	0.04	0.003374	0.000000	0.001101	0.97	0.03	0.04	0.003374	0.000000	0.001101	0.97	0.03	0.04
RA04-RA05	RA04	RA05	8	311	0.0677	0.056752	0.000000	0.023672	3.95	0.08	0.11	0.056752	0.000000	0.023672	3.95	0.08	0.11	0.056752	0.000000	0.023672	3.95	0.08	0.11
RA0401-RA04	RA0401	RA04	8	234	0.0249	0.007696	0.000000	0.002698	1.52	0.04	0.06	0.007696	0.000000	0.002698	1.52	0.04	0.06	0.007696	0.000000	0.002698	1.52	0.04	0.06
RA0402-RA0401	RA0402	RA0401	8	209	0.0105	0.005010	0.000000	0.001692	0.99	0.04	0.06	0.005010	0.000000	0.001692	0.99	0.04	0.06	0.005010	0.000000	0.001692	0.99	0.04	0.06
RA05-RA06	RA05	RA06	8	306	0.1109	0.056752	0.000000	0.023672	4.69	0.07	0.10	0.056752	0.000000	0.023672	4.69	0.07	0.10	0.056752	0.000000	0.023672	4.69	0.07	0.10
RA06-RA07	RA06	RA07	8	271	0.0782	0.056752	0.000000	0.023672	4.16	0.07	0.11	0.056752	0.000000	0.023672	4.16	0.07	0.11	0.056752	0.000000	0.023672	4.16	0.07	0.11
RA07-RA08	RA07	RA08	8	30	0.0113	0.056752	0.000000	0.023672	2.11	0.12	0.18	0.056752	0.000000	0.023672	2.11	0.12	0.18	0.056752	0.000000	0.023672	2.11	0.12	0.18
RA08-RA09	RA08	RA09	8	135	0.0052	0.079377	0.000000	0.034089	1.77	0.17	0.25	0.079377	0.000000	0.034089	1.77	0.17	0.25	0.079377	0.000000	0.034089	1.77	0.17	0.25
RA0801-RA08	RA0801	RA08	8	297	0.1040	0.024746	0.000000	0.009603	3.57	0.05	0.07	0.024746	0.000000	0.009603	3.57	0.05	0.07	0.024746	0.000000	0.009603	3.57	0.05	0.07
RA0802-RA0801	RA0802	RA0801	8	246	0.1319	0.023441	0.000000	0.009054	3.82	0.04	0.06	0.023441	0.000000	0.009054	3.82	0.04	0.06	0.023441	0.000000	0.009054	3.82	0.04	0.06
RA0803-RA0802	RA0803	RA0802	8	236	0.1044	0.021783	0.000000	0.008360	3.44	0.04	0.07	0.021783	0.000000	0.008360	3.44	0.04	0.07	0.021783	0.000000	0.008360	3.44	0.04	0.07
RA0804-RA0803	RA0804	RA0803	8	268	0.0987	0.014623	0.000000	0.005421	2.99	0.04	0.06	0.014623	0.000000	0.005421	2.99	0.04	0.06	0.014623	0.000000	0.005421	2.99	0.04	0.06
RA0805-RA0804	RA0805	RA0804	8	296	0.0836	0.005770	0.000000	0.001973	2.13	0.02	0.04	0.005770	0.000000	0.001973	2.13	0.02	0.04	0.005770	0.000000	0.001973	2.13	0.02	0.04
RA0806-RA0805	RA0806	RA0805	8	320	0.0313	0.002871	0.000000	0.000924	1.22	0.02	0.03	0.0											

City of Brea - Sewer Master Plan (November 2021)

Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
RA0807-RA0804	RA0807	RA0804	8	206	0.0342	0.002440	0.000000	0.000774	1.20	0.02	0.03	0.002440	0.000000	0.000774	1.20	0.02	0.03	0.002440	0.000000	0.000774	1.20	0.02	0.03
RA0808-RA0807	RA0808	RA0807	8	221	0.0089	0.002440	0.000000	0.000774	0.75	0.03	0.04	0.002440	0.000000	0.000774	0.75	0.03	0.04	0.002440	0.000000	0.000774	0.75	0.03	0.04
RA0809-RA0803	RA0809	RA0803	8	272	0.0280	0.004482	0.000000	0.001499	1.34	0.03	0.04	0.004482	0.000000	0.001499	1.34	0.03	0.04	0.004482	0.000000	0.001499	1.34	0.03	0.04
RA0810-RA0809	RA0810	RA0809	8	275	0.0111	0.002393	0.000000	0.000758	0.81	0.03	0.04	0.002393	0.000000	0.000758	0.81	0.03	0.04	0.002393	0.000000	0.000758	0.81	0.03	0.04
RA09-RA10	RA09	RA10	8	75	0.0700	0.081463	0.000000	0.035064	4.45	0.09	0.14	0.081463	0.000000	0.035064	4.45	0.09	0.14	0.081463	0.000000	0.035064	4.45	0.09	0.14
RA10-RA11	RA10	RA11	8	13	0.0262	0.081463	0.000000	0.035064	3.15	0.11	0.17	0.081463	0.000000	0.035064	3.15	0.11	0.17	0.081463	0.000000	0.035064	3.15	0.11	0.17
RA11-RA12	RA11	RA12	8	261	0.0234	0.083180	0.000000	0.035868	3.05	0.12	0.18	0.083180	0.000000	0.035868	3.05	0.12	0.18	0.083180	0.000000	0.035868	3.05	0.12	0.18
RA12-RA13	RA12	RA13	8	256	0.0398	0.085373	0.000000	0.036897	3.71	0.11	0.16	0.085373	0.000000	0.036897	3.71	0.11	0.16	0.085373	0.000000	0.036897	3.71	0.11	0.16
RA13-RA14	RA13	RA14	8	96	0.0158	0.138353	0.000000	0.062358	3.08	0.17	0.25	0.138353	0.000000	0.062358	3.08	0.17	0.25	0.138353	0.000000	0.062358	3.08	0.17	0.25
RA1301-RA13	RA1301	RA13	8	296	0.0713	0.059842	0.000000	0.025076	4.09	0.08	0.12	0.059842	0.000000	0.025076	4.09	0.08	0.12	0.059842	0.000000	0.025076	4.09	0.08	0.12
RA1302-RA1301	RA1302	RA1301	8	329	0.0448	0.056262	0.000000	0.023450	3.41	0.08	0.13	0.056262	0.000000	0.023450	3.41	0.08	0.13	0.056262	0.000000	0.023450	3.41	0.08	0.13
RA1303S-RA1302	RA1303S	RA1302	8	306	0.0150	0.052432	0.000000	0.021720	2.27	0.11	0.16	0.052432	0.000000	0.021720	2.27	0.11	0.16	0.052432	0.000000	0.021720	2.27	0.11	0.16
RA1304-RA1301	RA1304	RA1301	8	72	0.0040	0.001728	0.000000	0.000532	0.51	0.03	0.04	0.001728	0.000000	0.000532	0.51	0.03	0.04	0.001728	0.000000	0.000532	0.51	0.03	0.04
RA14-RA15	RA14	RA15	8	336	0.0346	0.140016	0.000000	0.063173	4.08	0.14	0.21	0.140016	0.000000	0.063173	4.08	0.14	0.21	0.140016	0.000000	0.063173	4.08	0.14	0.21
RA15-RA16	RA15	RA16	8	173	0.0347	0.143649	0.000000	0.064957	4.12	0.14	0.21	0.143649	0.000000	0.064957	4.12	0.14	0.21	0.143649	0.000000	0.064957	4.12	0.14	0.21
RA1501-RA15	RA1501	RA15	8	260	0.0721	0.005260	0.000000	0.001784	1.96	0.02	0.04	0.005260	0.000000	0.001784	1.96	0.02	0.04	0.005260	0.000000	0.001784	1.96	0.02	0.04
RA1502-RA1501	RA1502	RA1501	8	152	0.0299	0.002849	0.000000	0.000916	1.20	0.02	0.03	0.002849	0.000000	0.000916	1.20	0.02	0.03	0.002849	0.000000	0.000916	1.20	0.02	0.03
RA16-RA17D	RA16	RA17D	8	172	0.0040	0.144811	0.000000	0.065528	1.91	0.25	0.37	0.144811	0.000000	0.065528	1.91	0.25	0.37	0.144811	0.000000	0.065528	1.91	0.25	0.37
RA1701-RA17D	RA1701	RA17D	8	332	0.0206	0.004914	0.000000	0.001657	1.24	0.03	0.05	0.004914	0.000000	0.001657	1.24	0.03	0.05	0.004914	0.000000	0.001657	1.24	0.03	0.05
RA17D-RA18	RA17D	RA18	8	221	0.0220	0.149468	0.000000	0.067822	3.54	0.16	0.24	0.149468	0.000000	0.067822	3.54	0.16	0.24	0.149468	0.000000	0.067822	3.54	0.16	0.24
RA18-RA19	RA18	RA19	8	172	0.0046	0.150447	0.000000	0.068305	2.02	0.24	0.36	0.150447	0.000000	0.068305	2.02	0.24	0.36	0.150447	0.000000	0.068305	2.02	0.24	0.36
RA19-RA20S	RA19	RA20S	8	121	0.0490	0.150447	0.000000	0.068305	4.71	0.13	0.20	0.150447	0.000000	0.068305	4.71	0.13	0.20	0.150447	0.000000	0.068305	4.71	0.13	0.20
RA20S-RA21	RA20S	RA21	8	33	0.0018	0.150447	0.000000	0.068305	1.44	0.31	0.47	0.150447	0.000000	0.068305	1.44	0.31	0.47	0.150447	0.000000	0.068305	1.44	0.31	0.47
RA21-RA22	RA21	RA22	8	64	0.0011	0.164992	0.000000	0.075512	1.22	0.39	0.58	0.164992	0.000000	0.075512	1.22	0.39	0.58	0.164992	0.000000	0.075512	1.22	0.39	0.58
RA2101-RA21	RA2101	RA21	8	194	0.0311	0.019003	0.000000	0.007207	2.16	0.05	0.08	0.019003	0.000000	0.007207	2.16	0.05	0.08	0.019003	0.000000	0.007207	2.16	0.05	0.08
RA2102-RA2101	RA2102	RA2101	8	168	0.0092	0.019003	0.000000	0.007207	1.41	0.07	0.11	0.019003	0.000000	0.007207	1.41	0.07	0.11	0.019003	0.000000	0.007207	1.41	0.07	0.11
RA2103-RA2102	RA2103	RA2102	8	175	0.0677	0.017467	0.000000	0.006576	2.77	0.04	0.07	0.017467	0.000000	0.006576	2.77	0.04	0.07	0.017467	0.000000	0.006576	2.77	0.04	0.07
RA2104-RA2103	RA2104	RA2103	8	169	0.0033	0.014529	0.000000	0.005383	0.91	0.08	0.12	0.014529	0.000000	0.005383	0.91	0.08	0.12	0.014529	0.000000	0.005383	0.91	0.08	0.12
RA2105-RA2104	RA2105	RA2104	8	166	0.0628	0.013017	0.000000	0.004777	2.46	0.04	0.06	0.013017	0.000000	0.004777	2.46	0.04	0.06	0.013017	0.000000	0.004777	2.46	0.04	0.06
RA2106-RA2105	RA2106	RA2105	8	302	0.0960	0.008607	0.000000	0.003047	2.52	0.03	0.04	0.008607	0.000000	0.003047	2.52	0.03	0.04	0.008607	0.000000	0.003047	2.52	0.03	0.04
RA2107S-RA2106	RA2107S	RA2106	8	232	0.0544	0.003289	0.000000	0.001071	1.54	0.02	0.03	0.003289	0.000000	0.001071	1.54	0.02	0.03	0.003289	0.000000	0.001071	1.54	0.02	0.03
RA2108-RA2105	RA2108	RA2105	8	156	0.0279	0.002837	0.000000	0.000912	1.17	0.02	0.03	0.002837	0.000000	0.000912	1.17	0.02	0.03	0.002837	0.000000	0.000912	1.17	0.02	0.03
RA2109-RA2104	RA2109	RA2104	8	82	0.0173	0.001948	0.000000	0.000606	0.88	0.02	0.03	0.001948	0.000000	0.000606	0.88	0.02	0.03	0.001948	0.000000	0.000606	0.88	0.02	0.03
RA22-RA23	RA22	RA23	8	37	0.0011	0.164992	0.000000	0.075512	1.21	0.39	0.58	0.164992	0.000000	0.075512	1.21	0.39	0.58	0.164992	0.000000	0.075512	1.21	0.39	0.58
RA23-RA24	RA23	RA24	8	8	0.0788	0.164992	0.000000	0.075512	5.73	0.12	0.19	0.164992	0.000000	0.075512	5.73	0.12	0.19	0.164992	0.000000	0.075512	5.73	0.12	0.19
RA24-RA25	RA24	RA25	8	168	0.0577	0.285947	0.000000	0.137280	6.02	0.18	0.26	0.285947	0.000000	0.137280	6.02	0.18	0.26	0.285947	0.000000	0.137280	6.02	0.18	0.26
RA2401-RA24	RA2401	RA24	8	597	0.0260	0.136451	0.000000	0.061427	3.66	0.15	0.22	0.136451	0.000000	0.061427	3.66	0.15	0.22	0.136451	0.000000	0.061427	3.66	0.15	0.22
RA2402-RA2401	RA2402	RA2401	8	598	0.0098	0.136451	0.000000	0.061427	2.59	0.19	0.28	0.136451	0.000000	0.061427	2.59	0.19	0.28	0.136451	0.000000	0.061427	2.59	0.19	0.28
RA2403-RA2402	RA2403	RA2402	8	121	0.0230	0.136451	0.000000	0.061427	3.50	0.15	0.23	0.136451	0.000000	0.061427	3.50	0.15	0.23	0.136451	0.000000	0.061427	3.50	0.15	0.23
RA2404-RA2403	RA2404	RA2403	8	106	0.1159	0.136451	0.000000	0.061427	6.20	0.10	0.15	0.136451	0.000000	0.061427	6.20	0.10	0.15	0.136451	0.000000	0.061427	6.20	0.10	0.15
RA2405-RA2404	RA2405	RA2404	8	293	0.0127	0.083992	0.000000	0.036249	2.47	0.14	0.21	0.083992	0.000000	0.036249	2.47	0.14	0.21	0.083992	0.000000	0.036249	2.47	0.14	0.21
RA2406-RA2405	RA2406	RA2405	8	300	0.0696	0.083419	0.000000	0.035980	4.48	0.09	0.14	0.083419	0.000000	0.035980	4.48	0.09	0.14	0.083419	0.000000	0.035980	4.48	0.09	0.14
RA2407-RA2406	RA2407	RA2406	8	251	0.0492	0.083419	0.000000	0.035980	3.96	0.10	0.15	0.083419	0.000000	0.035980	3.96	0.10	0.15	0.083419	0.000000	0.035980	3.96	0.10	0.15
RA2408-RA2407	RA2408	RA2407	8	313	0.0477	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
RA2411-RA2447D	RA2411	RA2447D	8	4	0.0556	0.047794	0.000000	0.019640	3.50	0.07	0.11	0.047794	0.000000	0.019640	3.50	0.07	0.11	0.047794	0.000000	0.019640	3.50	0.07	0.11
RA2412-RA2411	RA2412	RA2411	8	206	0.2617	0.047794	0.000000	0.019640	7.22	0.05	0.07	0.047794	0.000000	0.019640									

City of Brea - Sewer Master Plan (November 2021)

Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
RA2413-RA2412	RA2413	RA2412	8	179	0.0045	0.047794	0.000000	0.019640	1.74	0.12	0.18	0.047794	0.000000	0.019640	1.74	0.12	0.18	0.047794	0.000000	0.019640	1.74	0.12	0.18
RA2414-RA2413	RA2414	RA2413	8	70	0.1846	0.047794	0.000000	0.019640	6.39	0.05	0.07	0.047794	0.000000	0.019640	6.39	0.05	0.07	0.047794	0.000000	0.019640	6.39	0.05	0.07
RA2415-RA2414	RA2415	RA2414	8	507	0.0044	0.047794	0.000000	0.019640	1.72	0.12	0.18	0.047794	0.000000	0.019640	1.72	0.12	0.18	0.047794	0.000000	0.019640	1.72	0.12	0.18
RA2416-RA2415	RA2416	RA2415	8	106	0.2749	0.047794	0.000000	0.019640	7.35	0.04	0.07	0.047794	0.000000	0.019640	7.35	0.04	0.07	0.047794	0.000000	0.019640	7.35	0.04	0.07
RA2417-RA2416	RA2417	RA2416	8	332	0.0049	0.047794	0.000000	0.019640	1.80	0.12	0.18	0.047794	0.000000	0.019640	1.80	0.12	0.18	0.047794	0.000000	0.019640	1.80	0.12	0.18
RA2418-RA2417	RA2418	RA2417	8	52	0.2542	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
RA2419-RA2418	RA2419	RA2418	8	367	0.0463	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
RA2420-RA2419	RA2420	RA2419	8	271	0.0187	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
RA2421-RA2420	RA2421	RA2420	8	115	0.0114	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
RA2422-RA2421	RA2422	RA2421	6	471	0.0089	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
RA2423-RA2412	RA2423	RA2412	8	75	0.0451	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
RA2424-RA2404	RA2424	RA2404	8	264	0.0195	0.060066	0.000000	0.025178	2.60	0.11	0.16	0.060066	0.000000	0.025178	2.60	0.11	0.16	0.060066	0.000000	0.025178	2.60	0.11	0.16
RA2444-RA2407	RA2444	RA2407	8	44	0.0057	0.054912	0.000000	0.022839	1.63	0.14	0.21	0.054912	0.000000	0.022839	1.63	0.14	0.21	0.054912	0.000000	0.022839	1.63	0.14	0.21
RA2445-RA2444	RA2445	RA2444	8	151	0.0320	0.054912	0.000000	0.022839	3.01	0.09	0.14	0.054912	0.000000	0.022839	3.01	0.09	0.14	0.054912	0.000000	0.022839	3.01	0.09	0.14
RA2446-RA2445	RA2446	RA2445	8	205	0.0362	0.047794	0.000000	0.019640	3.01	0.08	0.12	0.047794	0.000000	0.019640	3.01	0.08	0.12	0.047794	0.000000	0.019640	3.01	0.08	0.12
RA2447D-RA2446	RA2447D	RA2446	8	52	0.0599	0.047794	0.000000	0.019640	3.60	0.07	0.11	0.047794	0.000000	0.019640	3.60	0.07	0.11	0.047794	0.000000	0.019640	3.60	0.07	0.11
RA25-RA26	RA25	RA26	8	247	0.0101	0.285947	0.000000	0.137280	3.21	0.28	0.42	0.285947	0.000000	0.137280	3.21	0.28	0.42	0.285947	0.000000	0.137280	3.21	0.28	0.42
RA26-RA27	RA26	RA27	8	7	0.0743	0.285947	0.000000	0.137280	6.59	0.16	0.25	0.285947	0.000000	0.137280	6.59	0.16	0.25	0.285947	0.000000	0.137280	6.59	0.16	0.25
RA27-RA28	RA27	RA28	8	625	0.0414	0.287612	0.000000	0.138149	5.36	0.19	0.29	0.287612	0.000000	0.138149	5.36	0.19	0.29	0.287612	0.000000	0.138149	5.36	0.19	0.29
RA28-RA29D	RA28	RA29D	10	473	0.0040	0.335988	0.000000	0.163582	2.36	0.35	0.42	0.335988	0.000000	0.163582	2.36	0.35	0.42	0.335988	0.000000	0.163582	2.36	0.35	0.42
RA2801-RA28	RA2801	RA28	8	8	0.2588	0.023313	0.000000	0.009000	4.82	0.04	0.05	0.023313	0.000000	0.009000	4.82	0.04	0.05	0.023313	0.000000	0.009000	4.82	0.04	0.05
RA2802-RA2801	RA2802	RA2801	8	177	0.0260	0.023313	0.000000	0.009000	2.16	0.06	0.09	0.023313	0.000000	0.009000	2.16	0.06	0.09	0.023313	0.000000	0.009000	2.16	0.06	0.09
RA2803-RA2802	RA2803	RA2802	8	293	0.0076	0.019386	0.000000	0.007365	1.33	0.08	0.12	0.019386	0.000000	0.007365	1.33	0.08	0.12	0.019386	0.000000	0.007365	1.33	0.08	0.12
RA2804-RA2803	RA2804	RA2803	8	325	0.0359	0.014839	0.000000	0.005508	2.11	0.05	0.07	0.014839	0.000000	0.005508	2.11	0.05	0.07	0.014839	0.000000	0.005508	2.11	0.05	0.07
RA2805-RA2804	RA2805	RA2804	8	296	0.0228	0.009975	0.000000	0.003577	1.60	0.04	0.07	0.009975	0.000000	0.003577	1.60	0.04	0.07	0.009975	0.000000	0.003577	1.60	0.04	0.07
RA2806-RA2805	RA2806	RA2805	8	261	0.0368	0.004895	0.000000	0.001650	1.52	0.03	0.04	0.004895	0.000000	0.001650	1.52	0.03	0.04	0.004895	0.000000	0.001650	1.52	0.03	0.04
RA2807-RA2806	RA2807	RA2806	8	154	0.0046	0.001372	0.000000	0.000414	0.50	0.02	0.04	0.001372	0.000000	0.000414	0.50	0.02	0.04	0.001372	0.000000	0.000414	0.50	0.02	0.04
RA2808-RA2805	RA2808	RA2805	8	303	0.0035	0.002500	0.000000	0.000795	0.55	0.04	0.05	0.002500	0.000000	0.000795	0.55	0.04	0.05	0.002500	0.000000	0.000795	0.55	0.04	0.05
RA2809-RA2802	RA2809	RA2802	8	327	0.0403	0.003942	0.000000	0.001304	1.47	0.02	0.04	0.003942	0.000000	0.001304	1.47	0.02	0.04	0.003942	0.000000	0.001304	1.47	0.02	0.04
RA2810-RA28	RA2810	RA28	8	280	0.0109	0.031172	0.000000	0.012342	1.74	0.09	0.13	0.031172	0.000000	0.012342	1.74	0.09	0.13	0.031172	0.000000	0.012342	1.74	0.09	0.13
RA2811-RA2810	RA2811	RA2810	8	225	0.0048	0.028810	0.000000	0.011329	1.27	0.10	0.16	0.028810	0.000000	0.011329	1.27	0.10	0.16	0.028810	0.000000	0.011329	1.27	0.10	0.16
RA2812-RA2811	RA2812	RA2811	8	257	0.0052	0.026577	0.000000	0.010378	1.28	0.10	0.15	0.026577	0.000000	0.010378	1.28	0.10	0.15	0.026577	0.000000	0.010378	1.28	0.10	0.15
RA2813-RA2812	RA2813	RA2812	8	256	0.0371	0.017862	0.000000	0.006738	2.26	0.05	0.08	0.017862	0.000000	0.006738	2.26	0.05	0.08	0.017862	0.000000	0.006738	2.26	0.05	0.08
RA2814-RA2813	RA2814	RA2813	8	253	0.0481	0.011621	0.000000	0.004223	2.17	0.04	0.06	0.011621	0.000000	0.004223	2.17	0.04	0.06	0.011621	0.000000	0.004223	2.17	0.04	0.06
RA2815-RA2814	RA2815	RA2814	8	153	0.0586	0.002280	0.000000	0.000719	1.41	0.02	0.03	0.002280	0.000000	0.000719	1.41	0.02	0.03	0.002280	0.000000	0.000719	1.41	0.02	0.03
RA2816-RA2814	RA2816	RA2814	8	200	0.0077	0.006039	0.000000	0.002073	0.94	0.04	0.07	0.006039	0.000000	0.002073	0.94	0.04	0.07	0.006039	0.000000	0.002073	0.94	0.04	0.07
RA2817-RA2816	RA2817	RA2816	8	228	0.0032	0.003574	0.000000	0.001172	0.59	0.04	0.06	0.003574	0.000000	0.001172	0.59	0.04	0.06	0.003574	0.000000	0.001172	0.59	0.04	0.06
RA2818-RA2813	RA2818	RA2813	8	200	0.0128	0.004465	0.000000	0.001493	1.02	0.03	0.05	0.004465	0.000000	0.001493	1.02	0.03	0.05	0.004465	0.000000	0.001493	1.02	0.03	0.05
RA2819-RA2818	RA2819	RA2818	8	222	0.0032	0.003334	0.000000	0.001087	0.58	0.04	0.06	0.003334	0.000000	0.001087	0.58	0.04	0.06	0.003334	0.000000	0.001087	0.58	0.04	0.06
RA2820-RA2812	RA2820	RA2812	8	200	0.0049	0.005870	0.000000	0.002010	0.79	0.05	0.07	0.005870	0.000000	0.002010	0.79	0.05	0.07	0.005870	0.000000	0.002010	0.79	0.05	0.07
RA2821-RA2820	RA2821	RA2820	8	215	0.0032	0.004220	0.000000	0.001404	0.62	0.05	0.07	0.004220	0.000000	0.001404	0.62	0.05	0.07	0.004220	0.000000	0.001404	0.62	0.05	0.07
RA29D-RA30	RA29D	RA30	10	374	0.0044	0.341927	0.000000	0.166727	2.46	0.35	0.42	0.397435	0.000000	0.196345	2.56	0.38	0.45	0.397435	0.000000	0.196345	2.56	0.38	0.45
RA30-RA31	RA30	RA31	10	424	0.0042	0.341927	0.000000	0.166727	2.43	0.35	0.42	0.458062	0.000000	0.229108	2.62	0.41	0.50	0.458062	0.000000	0.229108	2.62	0.41	0.50
RA31-RA32	RA31	RA32	10	321	0.0043	0.344914	0.000000	0.168311	2.45	0.35	0.42	0.517998	0.000000	0.261871	2.72	0.44	0.53	0.517998	0.000000	0.261871	2.72	0.44	0.53
RA32-RA33	RA32	RA33	10	68	0.0209	0.344914	0.000000	0.168311	4.33	0.23	0.28	0.577335	0.000000	0.294634	5.00	0.30	0.36	0.577335	0.000000	0.294634	5.00	0.30	0.36
RA3201-RA33	RA3201	RA33	8	120	0.0139	0.004479	0.000000	0.00149															

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Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
RA33-RA34	RA33	RA34	10	281	0.0184	0.354066	0.000000	0.173171	4.16	0.24	0.29	0.642152	0.000000	0.330759	4.91	0.33	0.40	0.642152	0.000000	0.330759	4.91	0.33	0.40
RA34-RA35	RA34	RA35	10	434	0.0216	0.363598	0.000000	0.178244	4.45	0.24	0.28	0.651208	0.000000	0.335832	5.23	0.32	0.38	0.651208	0.000000	0.335832	5.23	0.32	0.38
RA35-RA36	RA35	RA36	10	480	0.0132	0.363598	0.000000	0.178244	3.73	0.27	0.32	0.651208	0.000000	0.335832	4.37	0.37	0.44	0.651208	0.000000	0.335832	4.37	0.37	0.44
RA36-RA37	RA36	RA37	12	433	0.0036	0.430137	0.000000	0.213967	2.41	0.38	0.38	0.714675	0.000000	0.371555	2.75	0.51	0.51	0.714675	0.000000	0.371555	2.75	0.51	0.51
RA3601-RA36	RA3601	RA36	8	389	0.0055	0.082870	0.000000	0.035723	1.82	0.17	0.26	0.082870	0.000000	0.035723	1.82	0.17	0.26	0.082870	0.000000	0.035723	1.82	0.17	0.26
RA3602-RA3601	RA3602	RA3601	8	221	0.0044	0.010347	0.000000	0.003722	0.91	0.07	0.10	0.010347	0.000000	0.003722	0.91	0.07	0.10	0.010347	0.000000	0.003722	0.91	0.07	0.10
RA3603-RA3602	RA3603	RA3602	8	45	0.0127	0.010347	0.000000	0.003722	1.32	0.05	0.08	0.010347	0.000000	0.003722	1.32	0.05	0.08	0.010347	0.000000	0.003722	1.32	0.05	0.08
RA3604-RA3603	RA3604	RA3603	8	145	0.0074	0.010347	0.000000	0.003722	1.09	0.06	0.09	0.010347	0.000000	0.003722	1.09	0.06	0.09	0.010347	0.000000	0.003722	1.09	0.06	0.09
RA3605-RA3601	RA3605	RA3601	8	220	0.0054	0.074892	0.000000	0.032001	1.76	0.16	0.24	0.074892	0.000000	0.032001	1.76	0.16	0.24	0.074892	0.000000	0.032001	1.76	0.16	0.24
RA3606D-RA3605	RA3606D	RA3605	8	56	0.0377	0.067663	0.000000	0.028658	3.39	0.10	0.14	0.067663	0.000000	0.028658	3.39	0.10	0.14	0.067663	0.000000	0.028658	3.39	0.10	0.14
RA3607-RA3606D	RA3607	RA3606D	8	37	0.2511	0.067663	0.000000	0.028658	6.59	0.06	0.09	0.067663	0.000000	0.028658	6.59	0.06	0.09	0.067663	0.000000	0.028658	6.59	0.06	0.09
RA3608-RA3607	RA3608	RA3607	8	220	0.0070	0.067663	0.000000	0.028658	1.87	0.14	0.22	0.067663	0.000000	0.028658	1.87	0.14	0.22	0.067663	0.000000	0.028658	1.87	0.14	0.22
RA37-RA38	RA37	RA38	12	422	0.0041	0.430137	0.000000	0.213967	2.52	0.37	0.37	0.714675	0.000000	0.371555	2.88	0.49	0.49	0.714675	0.000000	0.371555	2.88	0.49	0.49
RA38-RA39	RA38	RA39	12	362	0.0036	0.430738	0.000000	0.214292	2.41	0.38	0.38	0.715250	0.000000	0.371880	2.75	0.51	0.51	0.715250	0.000000	0.371880	2.75	0.51	0.51
RA39-RA40	RA39	RA40	12	574	0.0052	0.430738	0.000000	0.214292	2.75	0.35	0.35	0.715250	0.000000	0.371880	3.15	0.46	0.46	0.715250	0.000000	0.371880	3.15	0.46	0.46
RA40-RA41	RA40	RA41	12	358	0.0043	0.454723	0.000000	0.227293	2.60	0.38	0.38	0.738223	0.000000	0.384881	2.96	0.49	0.49	0.738223	0.000000	0.384881	2.96	0.49	0.49
RA4001-RA40	RA4001	RA40	8	100	0.0259	0.030469	0.000000	0.012040	2.34	0.07	0.11	0.030469	0.000000	0.012040	2.34	0.07	0.11	0.030469	0.000000	0.012040	2.34	0.07	0.11
RA4002-RA4001	RA4002	RA4001	8	15	0.0313	0.030469	0.000000	0.012040	2.50	0.07	0.10	0.030469	0.000000	0.012040	2.50	0.07	0.10	0.030469	0.000000	0.012040	2.50	0.07	0.10
RA4003-RA4002	RA4003	RA4002	8	185	0.0040	0.030469	0.000000	0.012040	1.22	0.11	0.17	0.030469	0.000000	0.012040	1.22	0.11	0.17	0.030469	0.000000	0.012040	1.22	0.11	0.17
RA4004-RA4003	RA4004	RA4003	8	168	0.0052	0.026309	0.000000	0.010264	1.28	0.10	0.15	0.026309	0.000000	0.010264	1.28	0.10	0.15	0.026309	0.000000	0.010264	1.28	0.10	0.15
RA4005-RA4004	RA4005	RA4004	8	335	0.0046	0.024124	0.000000	0.009341	1.19	0.10	0.15	0.024124	0.000000	0.009341	1.19	0.10	0.15	0.024124	0.000000	0.009341	1.19	0.10	0.15
RA41-RA42	RA41	RA42	12	359	0.0237	0.454723	0.000000	0.227293	4.81	0.24	0.24	0.738223	0.000000	0.384881	5.53	0.31	0.31	0.738223	0.000000	0.384881	5.53	0.31	0.31
RA42-RA43D	RA42	RA43D	12	370	0.0179	0.454723	0.000000	0.227293	4.35	0.26	0.26	0.738223	0.000000	0.384881	4.99	0.33	0.33	0.738223	0.000000	0.384881	4.99	0.33	0.33
RA43D-OUTLETR	RA43D	OUT_ROLLIN G_HILLS	18	935	0.0063	1.546003	0.000000	0.859536	4.07	0.55	0.37	2.202606	0.000000	1.262868	4.48	0.67	0.45	2.202606	0.000000	1.262868	4.48	0.67	0.45
RB01-RB02	RB01	RB02	8	217	0.0787	0.005257	0.000000	0.001783	2.02	0.02	0.04	0.005257	0.000000	0.001783	2.02	0.02	0.04	0.005257	0.000000	0.001783	2.02	0.02	0.04
RB02-RB03	RB02	RB03	8	218	0.1000	0.007222	0.000000	0.002518	2.42	0.03	0.04	0.007222	0.000000	0.002518	2.42	0.03	0.04	0.007222	0.000000	0.002518	2.42	0.03	0.04
RB03-RB04	RB03	RB04	8	276	0.0981	0.030297	0.000000	0.011966	3.72	0.05	0.08	0.030297	0.000000	0.011966	3.72	0.05	0.08	0.030297	0.000000	0.011966	3.72	0.05	0.08
RB0301-RB03	RB0301	RB03	8	119	0.0187	0.022446	0.000000	0.008637	1.91	0.07	0.10	0.022446	0.000000	0.008637	1.91	0.07	0.10	0.022446	0.000000	0.008637	1.91	0.07	0.10
RB0302-RB0301	RB0302	RB0301	8	89	0.0229	0.019626	0.000000	0.007464	1.97	0.06	0.09	0.019626	0.000000	0.007464	1.97	0.06	0.09	0.019626	0.000000	0.007464	1.97	0.06	0.09
RB0303-RB0302	RB0303	RB0302	8	186	0.0249	0.017560	0.000000	0.006614	1.96	0.06	0.08	0.017560	0.000000	0.006614	1.96	0.06	0.08	0.017560	0.000000	0.006614	1.96	0.06	0.08
RB0304-RB0303	RB0304	RB0303	8	59	0.0242	0.001132	0.000000	0.000336	0.84	0.02	0.02	0.001132	0.000000	0.000336	0.84	0.02	0.02	0.001132	0.000000	0.000336	0.84	0.02	0.02
RB04-RB05	RB04	RB05	8	192	0.1280	0.034768	0.000000	0.013897	4.26	0.05	0.08	0.034768	0.000000	0.013897	4.26	0.05	0.08	0.034768	0.000000	0.013897	4.26	0.05	0.08
RB05-RB06	RB05	RB06	8	236	0.0040	0.036786	0.000000	0.014776	1.29	0.12	0.18	0.036786	0.000000	0.014776	1.29	0.12	0.18	0.036786	0.000000	0.014776	1.29	0.12	0.18
RB06-RB07	RB06	RB07	8	236	0.0097	0.037543	0.000000	0.015107	1.77	0.10	0.15	0.037543	0.000000	0.015107	1.77	0.10	0.15	0.037543	0.000000	0.015107	1.77	0.10	0.15
RB07-RB08	RB07	RB08	8	188	0.0989	0.051247	0.000000	0.021187	4.37	0.07	0.10	0.051247	0.000000	0.021187	4.37	0.07	0.10	0.051247	0.000000	0.021187	4.37	0.07	0.10
RB0701-RB07	RB0701	RB07	8	209	0.0109	0.014655	0.000000	0.005434	1.39	0.06	0.09	0.014655	0.000000	0.005434	1.39	0.06	0.09	0.014655	0.000000	0.005434	1.39	0.06	0.09
RB0702-RB0701	RB0702	RB0701	8	200	0.1189	0.008459	0.000000	0.002990	2.70	0.03	0.04	0.008459	0.000000	0.002990	2.70	0.03	0.04	0.008459	0.000000	0.002990	2.70	0.03	0.04
RB0703-RB0702	RB0703	RB0702	8	105	0.0190	0.007570	0.000000	0.002650	1.38	0.04	0.06	0.007570	0.000000	0.002650	1.38	0.04	0.06	0.007570	0.000000	0.002650	1.38	0.04	0.06
RB0704-RB0703	RB0704	RB0703	8	298	0.0170	0.006807	0.000000	0.002361	1.29	0.04	0.06	0.006807	0.000000	0.002361	1.29	0.04	0.06	0.006807	0.000000	0.002361	1.29	0.04	0.06
RB0705-RB0704	RB0705	RB0704	8	226	0.0166	0.004195	0.000000	0.001395	1.10	0.03	0.05	0.004195	0.000000	0.001395	1.10	0.03	0.05	0.004195	0.000000	0.001395	1.10	0.03	0.05
RB0706-RB0701	RB0706	RB0701	8	288	0.0184	0.007027	0.000000	0.002444	1.33	0.04	0.06	0.007027	0.000000	0.002444	1.33	0.04	0.06	0.007027	0.000000	0.002444	1.33	0.04	0.06
RB0707-RB0706	RB0707	RB0706	8	295	0.0183	0.004731	0.000000	0.001590	1.18	0.03	0.05	0.004731	0.000000	0.001590	1.18	0.03	0.05	0.004731	0.000000	0.001590	1.18	0.03	0.05
RB08-RB09	RB08	RB09	8	69	0.1052	0.070761	0.000000	0.030087	4.93	0.08	0.11	0.070761	0.000000	0.030087	4.93	0.08	0.11	0.070761	0.000000	0.030087	4.93	0.08	0.11
RB0801-RB08	RB0801	RB08	8	258	0.0471	0.022532	0.000000	0.008673	2.63	0.05	0.08	0.022532	0.000000	0.008673	2.63	0.05	0.08	0.022532	0.000000	0.008673	2.63	0.05	0.08
RB09-RB10	RB09	RB10	8	54	0.0291	0.076323	0.000000	0.032666	3.21	0.11	0.16	0.076323	0.000000	0.032666	3.21	0.11	0.16	0.076323	0.000000	0.032666	3.21	0.11	0.16

City of Brea - Sewer Master Plan (November 2021)

Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
RB0901-RB09	RB0901	RB09	8	358	0.0045	0.007383	0.000000	0.002579	0.83	0.06	0.08	0.007383	0.000000	0.002579	0.83	0.06	0.08	0.007383	0.000000	0.002579	0.83	0.06	0.08
RB10-RB11	RB10	RB11	8	138	0.1101	0.076697	0.000000	0.032840	5.13	0.08	0.12	0.076697	0.000000	0.032840	5.13	0.08	0.12	0.076697	0.000000	0.032840	5.13	0.08	0.12
RB11-RB12	RB11	RB12	8	311	0.0639	0.077872	0.000000	0.033387	4.26	0.09	0.14	0.077872	0.000000	0.033387	4.26	0.09	0.14	0.077872	0.000000	0.033387	4.26	0.09	0.14
RB12-RB13	RB12	RB13	8	83	0.0910	0.077872	0.000000	0.033387	4.82	0.08	0.12	0.077872	0.000000	0.033387	4.82	0.08	0.12	0.077872	0.000000	0.033387	4.82	0.08	0.12
RB13-RB14	RB13	RB14	8	256	0.0833	0.100699	0.000000	0.044150	5.04	0.10	0.14	0.100699	0.000000	0.044150	5.04	0.10	0.14	0.100699	0.000000	0.044150	5.04	0.10	0.14
RB1301-RB13	RB1301	RB13	8	152	0.0108	0.008617	0.000000	0.003051	1.18	0.05	0.07	0.008617	0.000000	0.003051	1.18	0.05	0.07	0.008617	0.000000	0.003051	1.18	0.05	0.07
RB1302-RB1301	RB1302	RB1301	8	336	0.0046	0.008271	0.000000	0.002918	0.87	0.06	0.09	0.008271	0.000000	0.002918	0.87	0.06	0.09	0.008271	0.000000	0.002918	0.87	0.06	0.09
RB1303-RB13	RB1303	RB13	8	326	0.0180	0.018028	0.000000	0.006806	1.76	0.06	0.09	0.018028	0.000000	0.006806	1.76	0.06	0.09	0.018028	0.000000	0.006806	1.76	0.06	0.09
RB1304-RB1303	RB1304	RB1303	8	312	0.0040	0.014578	0.000000	0.005403	0.98	0.08	0.12	0.014578	0.000000	0.005403	0.98	0.08	0.12	0.014578	0.000000	0.005403	0.98	0.08	0.12
RB1305-RB1304	RB1305	RB1304	8	322	0.0040	0.007908	0.000000	0.002779	0.81	0.06	0.09	0.007908	0.000000	0.002779	0.81	0.06	0.09	0.007908	0.000000	0.002779	0.81	0.06	0.09
RB14-RB15	RB14	RB15	8	180	0.0060	0.119806	0.000000	0.053327	2.09	0.20	0.30	0.119806	0.000000	0.053327	2.09	0.20	0.30	0.119806	0.000000	0.053327	2.09	0.20	0.30
RB1401-RB14	RB1401	RB14	8	295	0.0260	0.021498	0.000000	0.008241	2.11	0.06	0.09	0.021498	0.000000	0.008241	2.11	0.06	0.09	0.021498	0.000000	0.008241	2.11	0.06	0.09
RB1402-RB1401	RB1402	RB1401	8	286	0.0100	0.016919	0.000000	0.006352	1.41	0.07	0.10	0.016919	0.000000	0.006352	1.41	0.07	0.10	0.016919	0.000000	0.006352	1.41	0.07	0.10
RB1403-RB1402	RB1403	RB1402	8	199	0.0100	0.010829	0.000000	0.003911	1.23	0.05	0.08	0.010829	0.000000	0.003911	1.23	0.05	0.08	0.010829	0.000000	0.003911	1.23	0.05	0.08
RB1404-RB1403	RB1404	RB1403	8	278	0.0141	0.007246	0.000000	0.002527	1.23	0.04	0.06	0.007246	0.000000	0.002527	1.23	0.04	0.06	0.007246	0.000000	0.002527	1.23	0.04	0.06
RB1405-RB1404	RB1405	RB1404	8	107	0.0838	0.002218	0.000000	0.000698	1.59	0.02	0.02	0.002218	0.000000	0.000698	1.59	0.02	0.02	0.002218	0.000000	0.000698	1.59	0.02	0.02
RB15-RB16	RB15	RB16	8	190	0.0271	0.121667	0.000000	0.054228	3.59	0.14	0.21	0.121667	0.000000	0.054228	3.59	0.14	0.21	0.121667	0.000000	0.054228	3.59	0.14	0.21
RB16-RB17	RB16	RB17	8	332	0.0100	0.141831	0.000000	0.064064	2.63	0.19	0.29	0.141831	0.000000	0.064064	2.63	0.19	0.29	0.141831	0.000000	0.064064	2.63	0.19	0.29
RB1601-RB16	RB1601	RB16	8	201	0.0382	0.023822	0.000000	0.009214	2.49	0.06	0.09	0.023822	0.000000	0.009214	2.49	0.06	0.09	0.023822	0.000000	0.009214	2.49	0.06	0.09
RB1602-RB1601	RB1602	RB1601	8	292	0.0440	0.011793	0.000000	0.004291	2.11	0.04	0.06	0.011793	0.000000	0.004291	2.11	0.04	0.06	0.011793	0.000000	0.004291	2.11	0.04	0.06
RB1603S-RB1602	RB1603S	RB1602	8	301	0.0180	0.006944	0.000000	0.002413	1.32	0.04	0.06	0.006944	0.000000	0.002413	1.32	0.04	0.06	0.006944	0.000000	0.002413	1.32	0.04	0.06
RB1604-RB1601	RB1604	RB1601	8	280	0.0821	0.012255	0.000000	0.004474	2.66	0.04	0.05	0.012255	0.000000	0.004474	2.66	0.04	0.05	0.012255	0.000000	0.004474	2.66	0.04	0.05
RB1605S-RB1604	RB1605S	RB1604	8	311	0.0220	0.006004	0.000000	0.002060	1.35	0.03	0.05	0.006004	0.000000	0.002060	1.35	0.03	0.05	0.006004	0.000000	0.002060	1.35	0.03	0.05
RB17-RB18	RB17	RB18	8	197	0.0884	0.143600	0.000000	0.064933	5.72	0.11	0.17	0.143600	0.000000	0.064933	5.72	0.11	0.17	0.143600	0.000000	0.064933	5.72	0.11	0.17
RB18-RB19	RB18	RB19	8	300	0.0220	0.146916	0.000000	0.066564	3.52	0.16	0.24	0.146916	0.000000	0.066564	3.52	0.16	0.24	0.146916	0.000000	0.066564	3.52	0.16	0.24
RB19-RB20	RB19	RB20	8	220	0.0040	0.149255	0.000000	0.067717	1.92	0.25	0.38	0.149255	0.000000	0.067717	1.92	0.25	0.38	0.149255	0.000000	0.067717	1.92	0.25	0.38
RB20-RB21	RB20	RB21	10	136	0.0064	0.207140	0.000000	0.096696	2.45	0.24	0.29	0.207140	0.000000	0.096696	2.45	0.24	0.29	0.207140	0.000000	0.096696	2.45	0.24	0.29
RB2001-RB20	RB2001	RB20	8	264	0.0041	0.066998	0.000000	0.028352	1.55	0.16	0.25	0.066998	0.000000	0.028352	1.55	0.16	0.25	0.066998	0.000000	0.028352	1.55	0.16	0.25
RB2002-RB2001	RB2002	RB2001	8	311	0.0388	0.035340	0.000000	0.014146	2.82	0.07	0.10	0.035340	0.000000	0.014146	2.82	0.07	0.10	0.035340	0.000000	0.014146	2.82	0.07	0.10
RB2003-RB2002	RB2003	RB2002	8	302	0.0191	0.026573	0.000000	0.010376	2.02	0.07	0.11	0.026573	0.000000	0.010376	2.02	0.07	0.11	0.026573	0.000000	0.010376	2.02	0.07	0.11
RB2004-RB2003	RB2004	RB2003	8	310	0.0103	0.020875	0.000000	0.007982	1.52	0.07	0.11	0.020875	0.000000	0.007982	1.52	0.07	0.11	0.020875	0.000000	0.007982	1.52	0.07	0.11
RB2005-RB2004	RB2005	RB2004	8	275	0.0100	0.015598	0.000000	0.005815	1.37	0.07	0.10	0.015598	0.000000	0.005815	1.37	0.07	0.10	0.015598	0.000000	0.005815	1.37	0.07	0.10
RB2006-RB2005	RB2006	RB2005	8	275	0.0100	0.011975	0.000000	0.004363	1.27	0.06	0.09	0.011975	0.000000	0.004363	1.27	0.06	0.09	0.011975	0.000000	0.004363	1.27	0.06	0.09
RB2007-RB2006	RB2007	RB2006	8	300	0.0420	0.007472	0.000000	0.002613	1.81	0.03	0.05	0.007472	0.000000	0.002613	1.81	0.03	0.05	0.007472	0.000000	0.002613	1.81	0.03	0.05
RB2008-RB2002	RB2008	RB2002	8	218	0.0059	0.006114	0.000000	0.002101	0.86	0.05	0.07	0.006114	0.000000	0.002101	0.86	0.05	0.07	0.006114	0.000000	0.002101	0.86	0.05	0.07
RB2009-RB2008	RB2009	RB2008	8	241	0.0141	0.004236	0.000000	0.001410	1.04	0.03	0.05	0.004236	0.000000	0.001410	1.04	0.03	0.05	0.004236	0.000000	0.001410	1.04	0.03	0.05
RB2010-RB2001	RB2010	RB2001	8	235	0.0036	0.031448	0.000000	0.012461	1.18	0.12	0.18	0.031448	0.000000	0.012461	1.18	0.12	0.18	0.031448	0.000000	0.012461	1.18	0.12	0.18
RB2011-RB2010	RB2011	RB2010	8	200	0.0452	0.029231	0.000000	0.011509	2.81	0.06	0.09	0.029231	0.000000	0.011509	2.81	0.06	0.09	0.029231	0.000000	0.011509	2.81	0.06	0.09
RB2012D-RB2011	RB2012D	RB2011	8	268	0.0040	0.026424	0.000000	0.010313	1.17	0.10	0.16	0.026424	0.000000	0.010313	1.17	0.10	0.16	0.026424	0.000000	0.010313	1.17	0.10	0.16
RB2013-RB2012D	RB2013	RB2012D	8	257	0.0040	0.020372	0.000000	0.007773	1.08	0.09	0.14	0.020372	0.000000	0.007773	1.08	0.09	0.14	0.020372	0.000000	0.007773	1.08	0.09	0.14
RB2014-RB2013	RB2014	RB2013	8	78	0.0040	0.014608	0.000000	0.005415	0.97	0.08	0.12	0.014608	0.000000	0.005415	0.97	0.08	0.12	0.014608	0.000000	0.005415	0.97	0.08	0.12
RB2015-RB2014	RB2015	RB2014	8	216	0.0055	0.014608	0.000000	0.005415	1.09	0.07	0.11	0.014608	0.000000	0.005415	1.09	0.07	0.11	0.014608	0.000000	0.005415	1.09	0.07	0.11
RB2016D-RB2015	RB2016D	RB2015	8	55	0.0058	0.011012	0.000000	0.003983	1.02	0.06	0.09	0.011012	0.000000	0.003983	1.02	0.06	0.09	0.011012	0.000000	0.003983	1.02	0.06	0.09
RB2017D-RB2016D	RB2017D	RB2016D	8	223	0.0040	0.008122	0.000000	0.002861	0.82	0.06	0.09	0.008122	0.000000	0.002861	0.82	0.06	0.09	0.008122	0.000000	0.002861	0.82	0.06	0.09
RB2018-RB2017D	RB2018	RB2017D	8	65	0.0040	0.004164	0.000000	0.001384	0.67	0.04	0.07	0.004164	0.000000	0.001384	0.67	0.04	0.07	0.004164	0.000000	0.001384	0.67	0.04	0.07
RB2019-RB2018	RB2019	RB2018	8	175	0.0046	0.004164	0.000000	0.001384	0.70	0.04													

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Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
RB2020S-RB2019	RB2020S	RB2019	8	177	0.0050	0.001029	0.000000	0.000303	0.47	0.02	0.03	0.001029	0.000000	0.000303	0.47	0.02	0.03	0.001029	0.000000	0.000303	0.47	0.02	0.03
RB2022-RB2012D	RB2022	RB2012D	8	123	0.0200	0.003422	0.000000	0.001118	1.10	0.03	0.04	0.003422	0.000000	0.001118	1.10	0.03	0.04	0.003422	0.000000	0.001118	1.10	0.03	0.04
RB2023-RB2013	RB2023	RB2013	8	170	0.0606	0.003317	0.000000	0.001081	1.60	0.02	0.03	0.003317	0.000000	0.001081	1.60	0.02	0.03	0.003317	0.000000	0.001081	1.60	0.02	0.03
RB2024-RB2016D	RB2024	RB2016D	8	243	0.0449	0.003433	0.000000	0.001122	1.46	0.02	0.03	0.003433	0.000000	0.001122	1.46	0.02	0.03	0.003433	0.000000	0.001122	1.46	0.02	0.03
RB2025-RB2017D	RB2025	RB2017D	8	187	0.0277	0.003747	0.000000	0.001234	1.27	0.03	0.04	0.003747	0.000000	0.001234	1.27	0.03	0.04	0.003747	0.000000	0.001234	1.27	0.03	0.04
RB2026-RB2003	RB2026	RB2003	8	90	0.0111	0.003371	0.000000	0.001100	0.89	0.03	0.05	0.003371	0.000000	0.001100	0.89	0.03	0.05	0.003371	0.000000	0.001100	0.89	0.03	0.05
RB21-RB22	RB21	RB22	10	37	0.0100	0.208286	0.000000	0.097278	2.88	0.22	0.26	0.208286	0.000000	0.097278	2.88	0.22	0.26	0.208286	0.000000	0.097278	2.88	0.22	0.26
RB22-RB23	RB22	RB23	10	206	0.0128	0.211558	0.000000	0.098940	3.16	0.20	0.25	0.211558	0.000000	0.098940	3.16	0.20	0.25	0.211558	0.000000	0.098940	3.16	0.20	0.25
RB23-RB24	RB23	RB24	10	189	0.0130	0.213654	0.000000	0.100006	3.18	0.20	0.25	0.213654	0.000000	0.100006	3.18	0.20	0.25	0.213654	0.000000	0.100006	3.18	0.20	0.25
RB24-RB25	RB24	RB25	8	40	0.0160	0.280261	0.000000	0.134315	3.78	0.24	0.36	0.280261	0.000000	0.134315	3.78	0.24	0.36	0.280261	0.000000	0.134315	3.78	0.24	0.36
RB2401-RB24	RB2401	RB24	8	155	0.0183	0.078612	0.000000	0.033732	2.75	0.12	0.18	0.078612	0.000000	0.033732	2.75	0.12	0.18	0.078612	0.000000	0.033732	2.75	0.12	0.18
RB2402-RB2401	RB2402	RB2401	8	242	0.0088	0.034784	0.000000	0.013904	1.67	0.10	0.15	0.034784	0.000000	0.013904	1.67	0.10	0.15	0.034784	0.000000	0.013904	1.67	0.10	0.15
RB2403-RB2402	RB2403	RB2402	8	22	0.0173	0.034784	0.000000	0.013904	2.12	0.08	0.13	0.034784	0.000000	0.013904	2.12	0.08	0.13	0.034784	0.000000	0.013904	2.12	0.08	0.13
RB2404-RB2403	RB2404	RB2403	8	93	0.0117	0.031223	0.000000	0.012364	1.79	0.09	0.13	0.031223	0.000000	0.012364	1.79	0.09	0.13	0.031223	0.000000	0.012364	1.79	0.09	0.13
RB2405-RB2404	RB2405	RB2404	8	83	0.0225	0.029161	0.000000	0.011479	2.20	0.07	0.11	0.029161	0.000000	0.011479	2.20	0.07	0.11	0.029161	0.000000	0.011479	2.20	0.07	0.11
RB2406-RB2405	RB2406	RB2405	8	110	0.0546	0.027384	0.000000	0.010721	2.94	0.06	0.09	0.027384	0.000000	0.010721	2.94	0.06	0.09	0.027384	0.000000	0.010721	2.94	0.06	0.09
RB2407-RB2406	RB2407	RB2406	8	116	0.0097	0.027384	0.000000	0.010721	1.61	0.09	0.13	0.027384	0.000000	0.010721	1.61	0.09	0.13	0.027384	0.000000	0.010721	1.61	0.09	0.13
RB2408-RB2407	RB2408	RB2407	8	207	0.0129	0.025406	0.000000	0.009882	1.74	0.08	0.12	0.025406	0.000000	0.009882	1.74	0.08	0.12	0.025406	0.000000	0.009882	1.74	0.08	0.12
RB2409-RB2408	RB2409	RB2408	8	92	0.0499	0.022621	0.000000	0.008710	2.69	0.05	0.08	0.022621	0.000000	0.008710	2.69	0.05	0.08	0.022621	0.000000	0.008710	2.69	0.05	0.08
RB2410-RB2409	RB2410	RB2409	8	43	0.0244	0.016713	0.000000	0.006268	1.91	0.05	0.08	0.016713	0.000000	0.006268	1.91	0.05	0.08	0.016713	0.000000	0.006268	1.91	0.05	0.08
RB2411-RB2410	RB2411	RB2410	8	190	0.0072	0.016713	0.000000	0.006268	1.25	0.07	0.11	0.016713	0.000000	0.006268	1.25	0.07	0.11	0.016713	0.000000	0.006268	1.25	0.07	0.11
RB2412-RB2411	RB2412	RB2411	8	164	0.0773	0.012220	0.000000	0.004460	2.60	0.04	0.05	0.012220	0.000000	0.004460	2.60	0.04	0.05	0.012220	0.000000	0.004460	2.60	0.04	0.05
RB2413-RB2412	RB2413	RB2412	8	200	0.0087	0.009706	0.000000	0.003472	1.13	0.05	0.08	0.009706	0.000000	0.003472	1.13	0.05	0.08	0.009706	0.000000	0.003472	1.13	0.05	0.08
RB2414-RB2413	RB2414	RB2413	8	227	0.0040	0.006592	0.000000	0.002280	0.77	0.05	0.08	0.006592	0.000000	0.002280	0.77	0.05	0.08	0.006592	0.000000	0.002280	0.77	0.05	0.08
RB2415-RB2409	RB2415	RB2409	8	187	0.0152	0.006095	0.000000	0.002094	1.20	0.04	0.06	0.006095	0.000000	0.002094	1.20	0.04	0.06	0.006095	0.000000	0.002094	1.20	0.04	0.06
RB2416-RB2415	RB2416	RB2415	8	125	0.0048	0.002136	0.000000	0.000670	0.58	0.03	0.05	0.002136	0.000000	0.000670	0.58	0.03	0.05	0.002136	0.000000	0.000670	0.58	0.03	0.05
RB2417-RB2407	RB2417	RB2407	8	51	0.0096	0.001101	0.000000	0.000326	0.60	0.02	0.03	0.001101	0.000000	0.000326	0.60	0.02	0.03	0.001101	0.000000	0.000326	0.60	0.02	0.03
RB2418-RB2417	RB2418	RB2417	8	70	0.0094	0.001101	0.000000	0.000326	0.60	0.02	0.03	0.001101	0.000000	0.000326	0.60	0.02	0.03	0.001101	0.000000	0.000326	0.60	0.02	0.03
RB2419-RB2405	RB2419	RB2405	8	163	0.0086	0.002393	0.000000	0.000758	0.74	0.03	0.04	0.002393	0.000000	0.000758	0.74	0.03	0.04	0.002393	0.000000	0.000758	0.74	0.03	0.04
RB2420-RB2404	RB2420	RB2404	8	167	0.0040	0.002760	0.000000	0.000885	0.59	0.04	0.05	0.002760	0.000000	0.000885	0.59	0.04	0.05	0.002760	0.000000	0.000885	0.59	0.04	0.05
RB2421-RB2403	RB2421	RB2403	8	141	0.0040	0.004594	0.000000	0.001540	0.69	0.05	0.07	0.004594	0.000000	0.001540	0.69	0.05	0.07	0.004594	0.000000	0.001540	0.69	0.05	0.07
RB2422-RB2401	RB2422	RB2401	8	57	0.0072	0.046916	0.000000	0.019248	1.70	0.12	0.18	0.046916	0.000000	0.019248	1.70	0.12	0.18	0.046916	0.000000	0.019248	1.70	0.12	0.18
RB2423-RB2422	RB2423	RB2422	8	132	0.0040	0.046667	0.000000	0.019137	1.38	0.14	0.21	0.046667	0.000000	0.019137	1.38	0.14	0.21	0.046667	0.000000	0.019137	1.38	0.14	0.21
RB2424-RB2423	RB2424	RB2423	8	76	0.0108	0.033913	0.000000	0.013526	1.78	0.09	0.14	0.033913	0.000000	0.013526	1.78	0.09	0.14	0.033913	0.000000	0.013526	1.78	0.09	0.14
RB2425-RB2423	RB2425	RB2423	8	76	0.0070	0.014245	0.000000	0.005269	1.18	0.07	0.10	0.014245	0.000000	0.005269	1.18	0.07	0.10	0.014245	0.000000	0.005269	1.18	0.07	0.10
RB25-RB26	RB25	RB26	8	20	0.0195	0.280261	0.000000	0.134315	4.06	0.23	0.35	0.280261	0.000000	0.134315	4.06	0.23	0.35	0.280261	0.000000	0.134315	4.06	0.23	0.35
RB26-RB27	RB26	RB27	8	45	0.0227	0.280261	0.000000	0.134315	4.28	0.22	0.33	0.280261	0.000000	0.134315	4.28	0.22	0.33	0.280261	0.000000	0.134315	4.28	0.22	0.33
RB27-RB28	RB27	RB28	8	156	0.0174	0.280261	0.000000	0.134315	3.90	0.24	0.36	0.280261	0.000000	0.134315	3.90	0.24	0.36	0.280261	0.000000	0.134315	3.90	0.24	0.36
RB28-RB29	RB28	RB29	8	37	0.0278	0.280261	0.000000	0.134315	4.61	0.21	0.31	0.280261	0.000000	0.134315	4.61	0.21	0.31	0.280261	0.000000	0.134315	4.61	0.21	0.31
RB29-RB30	RB29	RB30	8	90	0.0070	0.286440	0.000000	0.137537	2.81	0.31	0.46	0.286440	0.000000	0.137537	2.81	0.31	0.46	0.286440	0.000000	0.137537	2.81	0.31	0.46
RB30-RB31	RB30	RB31	8	109	0.0130	0.286440	0.000000	0.137537	3.53	0.26	0.39	0.286440	0.000000	0.137537	3.53	0.26	0.39	0.286440	0.000000	0.137537	3.53	0.26	0.39
RB31-RB32	RB31	RB32	8	116	0.0733	0.286440	0.000000	0.137537	6.56	0.17	0.25	0.286440	0.000000	0.137537	6.56	0.17	0.25	0.286440	0.000000	0.137537	6.56	0.17	0.25
RB3101-RB31	RB3101	RB31	8	97	0.0022	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
RB3102-RB3101	RB3102	RB3101	8	67	0.0337	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
RB32-RB33	RB32	RB33	8	151	0.0074	0.286440	0.000000	0.137537	2.86	0.30	0.46	0.286440	0.000000	0.137537	2.86	0.30	0.46	0.286440	0.000000	0.137537	2.86	0.30	0.46
RB33-RB34	RB33	RB34	8	250	0.0060	0.286440	0.000000	0.137537	2.65	0.32	0.48	0.286440											

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Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADFW (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADFW (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADFW (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
RB34-RB35	RB34	RB35	8	275	0.0104	0.295095	0.000000	0.142060	3.27	0.28	0.42	0.295095	0.000000	0.142060	3.27	0.28	0.42	0.295095	0.000000	0.142060	3.27	0.28	0.42
RB3401-RB34	RB3401	RB34	8	36	0.2514	0.012379	0.000000	0.004523	3.93	0.03	0.04	0.012379	0.000000	0.004523	3.93	0.03	0.04	0.012379	0.000000	0.004523	3.93	0.03	0.04
RB3402-RB3401	RB3402	RB3401	8	110	0.0049	0.012379	0.000000	0.004523	1.00	0.07	0.10	0.012379	0.000000	0.004523	1.00	0.07	0.10	0.012379	0.000000	0.004523	1.00	0.07	0.10
RB3403-RB3402	RB3403	RB3402	8	57	0.0058	0.011145	0.000000	0.004035	1.02	0.06	0.09	0.011145	0.000000	0.004035	1.02	0.06	0.09	0.011145	0.000000	0.004035	1.02	0.06	0.09
RB3404-RB3403	RB3404	RB3403	8	286	0.0044	0.010073	0.000000	0.003615	0.90	0.06	0.10	0.010073	0.000000	0.003615	0.90	0.06	0.10	0.010073	0.000000	0.003615	0.90	0.06	0.10
RB3405-RB3404	RB3405	RB3404	8	252	0.0040	0.007559	0.000000	0.002646	0.80	0.06	0.09	0.007559	0.000000	0.002646	0.80	0.06	0.09	0.007559	0.000000	0.002646	0.80	0.06	0.09
RB3406-RB3403	RB3406	RB3403	8	96	0.0411	0.001390	0.000000	0.000420	1.07	0.02	0.02	0.001390	0.000000	0.000420	1.07	0.02	0.02	0.001390	0.000000	0.000420	1.07	0.02	0.02
RB35-RB36	RB35	RB36	8	240	0.0214	0.295095	0.000000	0.142060	4.26	0.23	0.35	0.295095	0.000000	0.142060	4.26	0.23	0.35	0.295095	0.000000	0.142060	4.26	0.23	0.35
RB36-RB37	RB36	RB37	8	225	0.0136	0.295095	0.000000	0.142060	3.61	0.26	0.39	0.295095	0.000000	0.142060	3.61	0.26	0.39	0.295095	0.000000	0.142060	3.61	0.26	0.39
RB37-RB38D	RB37	RB38D	8	300	0.0040	0.295492	0.000000	0.142268	2.29	0.37	0.56	0.295492	0.000000	0.142268	2.29	0.37	0.56	0.295492	0.000000	0.142268	2.29	0.37	0.56
RB3801-RB38D	RB3801	RB38D	8	217	0.0329	0.017151	0.000000	0.006447	2.14	0.05	0.08	0.017151	0.000000	0.006447	2.14	0.05	0.08	0.017151	0.000000	0.006447	2.14	0.05	0.08
RB3802-RB3801	RB3802	RB3801	8	256	0.0160	0.014660	0.000000	0.005436	1.59	0.06	0.08	0.014660	0.000000	0.005436	1.59	0.06	0.08	0.014660	0.000000	0.005436	1.59	0.06	0.08
RB3803-RB3802	RB3803	RB3802	8	256	0.0376	0.008107	0.000000	0.002855	1.79	0.04	0.05	0.008107	0.000000	0.002855	1.79	0.04	0.05	0.008107	0.000000	0.002855	1.79	0.04	0.05
RB3804-RB3803	RB3804	RB3803	8	120	0.0068	0.003292	0.000000	0.001072	0.75	0.03	0.05	0.003292	0.000000	0.001072	0.75	0.03	0.05	0.003292	0.000000	0.001072	0.75	0.03	0.05
RB38D-RB39	RB38D	RB39	8	270	0.0263	0.324035	0.000000	0.157266	4.71	0.23	0.34	0.324035	0.000000	0.157266	4.71	0.23	0.34	0.324035	0.000000	0.157266	4.71	0.23	0.34
RB39-RB40	RB39	RB40	8	280	0.0211	0.336296	0.000000	0.163745	4.39	0.25	0.37	0.336296	0.000000	0.163745	4.39	0.25	0.37	0.336296	0.000000	0.163745	4.39	0.25	0.37
RB3901-RB39	RB3901	RB39	8	250	0.0456	0.015874	0.000000	0.005927	2.34	0.05	0.07	0.015874	0.000000	0.005927	2.34	0.05	0.07	0.015874	0.000000	0.005927	2.34	0.05	0.07
RB3902-RB3901	RB3902	RB3901	8	316	0.0307	0.013987	0.000000	0.005165	1.96	0.05	0.07	0.013987	0.000000	0.005165	1.96	0.05	0.07	0.013987	0.000000	0.005165	1.96	0.05	0.07
RB3903-RB3902	RB3903	RB3902	8	317	0.0275	0.007696	0.000000	0.002698	1.58	0.04	0.06	0.007696	0.000000	0.002698	1.58	0.04	0.06	0.007696	0.000000	0.002698	1.58	0.04	0.06
RB40-RB41	RB40	RB41	8	288	0.0135	0.341366	0.000000	0.166430	3.75	0.28	0.42	0.341366	0.000000	0.166430	3.75	0.28	0.42	0.341366	0.000000	0.166430	3.75	0.28	0.42
RB4001-RB40	RB4001	RB40	8	190	0.0598	0.007024	0.000000	0.002443	2.01	0.03	0.04	0.007024	0.000000	0.002443	2.01	0.03	0.04	0.007024	0.000000	0.002443	2.01	0.03	0.04
RB4002-RB4001	RB4002	RB4001	8	240	0.0837	0.005706	0.000000	0.001949	2.12	0.02	0.04	0.005706	0.000000	0.001949	2.12	0.02	0.04	0.005706	0.000000	0.001949	2.12	0.02	0.04
RB41-RB42	RB41	RB42	12	3	0.0567	0.360205	0.000000	0.176437	6.11	0.17	0.17	0.360205	0.000000	0.176437	6.11	0.17	0.17	0.360205	0.000000	0.176437	6.11	0.17	0.17
RB4101-RB41	RB4101	RB41	8	400	0.0758	0.025702	0.000000	0.010007	3.24	0.05	0.08	0.025702	0.000000	0.010007	3.24	0.05	0.08	0.025702	0.000000	0.010007	3.24	0.05	0.08
RB42-RB43	RB42	RB43	12	123	0.0100	0.360205	0.000000	0.176437	3.31	0.27	0.27	0.360205	0.000000	0.176437	3.31	0.27	0.27	0.360205	0.000000	0.176437	3.31	0.27	0.27
RB43-RB44	RB43	RB44	12	162	0.0049	0.365110	0.000000	0.179050	2.58	0.32	0.32	0.365110	0.000000	0.179050	2.58	0.32	0.32	0.365110	0.000000	0.179050	2.58	0.32	0.32
RB44-RB45	RB44	RB45	12	79	0.0053	0.365110	0.000000	0.179050	2.65	0.32	0.32	0.365110	0.000000	0.179050	2.65	0.32	0.32	0.365110	0.000000	0.179050	2.65	0.32	0.32
RB45-RB46	RB45	RB46	12	38	0.0118	0.552866	0.000000	0.281086	3.97	0.32	0.32	0.552866	0.000000	0.281086	3.97	0.32	0.32	0.552866	0.000000	0.281086	3.97	0.32	0.32
RB4501-RB45	RB4501	RB45	8	387	0.0422	0.217641	0.000000	0.102036	4.98	0.17	0.25	0.217641	0.000000	0.102036	4.98	0.17	0.25	0.217641	0.000000	0.102036	4.98	0.17	0.25
RB4502-RB4501	RB4502	RB4501	8	370	0.0163	0.208223	0.000000	0.097246	3.50	0.21	0.31	0.208223	0.000000	0.097246	3.50	0.21	0.31	0.208223	0.000000	0.097246	3.50	0.21	0.31
RB4503-RB4502	RB4503	RB4502	8	351	0.0147	0.188450	0.000000	0.087251	3.28	0.20	0.30	0.188450	0.000000	0.087251	3.28	0.20	0.30	0.188450	0.000000	0.087251	3.28	0.20	0.30
RB4504-RB4503	RB4504	RB4503	8	70	0.0166	0.179162	0.000000	0.082587	3.37	0.19	0.29	0.179162	0.000000	0.082587	3.37	0.19	0.29	0.179162	0.000000	0.082587	3.37	0.19	0.29
RB4505-RB4504	RB4505	RB4504	8	202	0.0142	0.179162	0.000000	0.082587	3.19	0.20	0.30	0.179162	0.000000	0.082587	3.19	0.20	0.30	0.179162	0.000000	0.082587	3.19	0.20	0.30
RB4506-RB4505	RB4506	RB4505	8	53	0.0140	0.172016	0.000000	0.079013	3.14	0.19	0.29	0.172016	0.000000	0.079013	3.14	0.19	0.29	0.172016	0.000000	0.079013	3.14	0.19	0.29
RB4507-RB4506	RB4507	RB4506	8	170	0.0199	0.172016	0.000000	0.079013	3.56	0.18	0.27	0.172016	0.000000	0.079013	3.56	0.18	0.27	0.172016	0.000000	0.079013	3.56	0.18	0.27
RB4508D-RB4507	RB4508D	RB4507	8	109	0.0048	0.171522	0.000000	0.078766	2.13	0.26	0.39	0.171522	0.000000	0.078766	2.13	0.26	0.39	0.171522	0.000000	0.078766	2.13	0.26	0.39
RB4509-RB4508D	RB4509	RB4508D	8	478	0.0046	0.122889	0.000000	0.054820	1.91	0.22	0.33	0.122889	0.000000	0.054820	1.91	0.22	0.33	0.122889	0.000000	0.054820	1.91	0.22	0.33
RB4510-RB4509	RB4510	RB4509	8	184	0.0040	0.117599	0.000000	0.052260	1.80	0.22	0.33	0.117599	0.000000	0.052260	1.80	0.22	0.33	0.117599	0.000000	0.052260	1.80	0.22	0.33
RB4511-RB4510	RB4511	RB4510	8	515	0.0032	0.070571	0.000000	0.029999	1.44	0.18	0.27	0.070571	0.000000	0.029999	1.44	0.18	0.27	0.070571	0.000000	0.029999	1.44	0.18	0.27
RB4512-RB4511	RB4512	RB4511	8	503	0.0089	0.066587	0.000000	0.028163	2.03	0.14	0.20	0.066587	0.000000	0.028163	2.03	0.14	0.20	0.066587	0.000000	0.028163	2.03	0.14	0.20
RB4513-RB4512	RB4513	RB4512	8	500	0.0128	0.061600	0.000000	0.025878	2.26	0.12	0.18	0.061600	0.000000	0.025878	2.26	0.12	0.18	0.061600	0.000000	0.025878	2.26	0.12	0.18
RB4514-RB4510	RB4514	RB4510	8	385	0.0100	0.052117	0.000000	0.021578	1.97	0.12	0.17	0.052117	0.000000	0.021578	1.97	0.12	0.17	0.052117	0.000000	0.021578	1.97	0.12	0.17
RB4515-RB4514	RB4515	RB4514	8	33	0.0052	0.042269	0.000000	0.017185	1.47	0.12	0.19	0.042269	0.000000	0.017185	1.47	0.12	0.19	0.042269	0.000000	0.017185	1.47	0.12	0.19
RB4516-RB4515	RB4516	RB4515	8	470	0.0040	0.042269	0.000000	0.017185	1.34	0.13	0.20	0.042269	0.000000	0.017185	1.34	0.13	0.20	0.042269	0.000000	0.017185	1.34	0.13	0.20
RB4517-RB4516	RB4517	RB4516	8	350	0.0043	0.010336	0.000000	0.003718	0.90	0.07	0.10	0.010336	0.000000	0.003718	0.90	0.07	0.10	0.010336	0.000000	0.003718	0.90	0.07	0.10
RB4518-RB4516	RB4518	RB4516	8	37	0.0127	0.010382	0.000000	0.003736	1.32	0.05	0.08	0.010											

City of Brea - Sewer Master Plan (November 2021)

Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
RB4519-RB4514	RB4519	RB4514	8	175	0.0080	0.008078	0.000000	0.002844	1.04	0.05	0.08	0.008078	0.000000	0.002844	1.04	0.05	0.08	0.008078	0.000000	0.002844	1.04	0.05	0.08
RB4520-RB4505	RB4520	RB4505	8	30	0.1073	0.009146	0.000000	0.003255	2.67	0.03	0.04	0.009146	0.000000	0.003255	2.67	0.03	0.04	0.009146	0.000000	0.003255	2.67	0.03	0.04
RB4521-RB4520	RB4521	RB4520	8	368	0.0168	0.009146	0.000000	0.003255	1.40	0.04	0.07	0.009146	0.000000	0.003255	1.40	0.04	0.07	0.009146	0.000000	0.003255	1.40	0.04	0.07
RB4522D-RB4508D	RB4522D	RB4508D	8	271	0.0032	0.056532	0.000000	0.023572	1.35	0.16	0.24	0.056532	0.000000	0.023572	1.35	0.16	0.24	0.056532	0.000000	0.023572	1.35	0.16	0.24
RB4523D-RB4522D	RB4523D	RB4522D	8	293	0.0032	0.047104	0.000000	0.019332	1.28	0.15	0.22	0.047104	0.000000	0.019332	1.28	0.15	0.22	0.047104	0.000000	0.019332	1.28	0.15	0.22
RB4524D-RB4523D	RB4524D	RB4523D	8	321	0.0032	0.038831	0.000000	0.015671	1.21	0.13	0.20	0.038831	0.000000	0.015671	1.21	0.13	0.20	0.038831	0.000000	0.015671	1.21	0.13	0.20
RB4525-RB4524D	RB4525	RB4524D	8	285	0.0032	0.031973	0.000000	0.012687	1.14	0.12	0.18	0.031973	0.000000	0.012687	1.14	0.12	0.18	0.031973	0.000000	0.012687	1.14	0.12	0.18
RB4526-RB4525	RB4526	RB4525	8	245	0.0036	0.029102	0.000000	0.011454	1.16	0.11	0.17	0.029102	0.000000	0.011454	1.16	0.11	0.17	0.029102	0.000000	0.011454	1.16	0.11	0.17
RB4527-RB4526	RB4527	RB4526	8	140	0.0032	0.023972	0.000000	0.009277	1.05	0.11	0.16	0.023972	0.000000	0.009277	1.05	0.11	0.16	0.023972	0.000000	0.009277	1.05	0.11	0.16
RB4528-RB4527	RB4528	RB4527	8	451	0.0048	0.019357	0.000000	0.007353	1.14	0.09	0.13	0.019357	0.000000	0.007353	1.14	0.09	0.13	0.019357	0.000000	0.007353	1.14	0.09	0.13
RB4529-RB4528	RB4529	RB4528	8	453	0.0048	0.012932	0.000000	0.004743	1.00	0.07	0.11	0.012932	0.000000	0.004743	1.00	0.07	0.11	0.012932	0.000000	0.004743	1.00	0.07	0.11
RB4530-RB4522D	RB4530	RB4522D	8	245	0.0080	0.007013	0.000000	0.002439	1.00	0.05	0.07	0.007013	0.000000	0.002439	1.00	0.05	0.07	0.007013	0.000000	0.002439	1.00	0.05	0.07
RB4531-RB4530	RB4531	RB4530	8	63	0.0079	0.002033	0.000000	0.000635	0.68	0.03	0.04	0.002033	0.000000	0.000635	0.68	0.03	0.04	0.002033	0.000000	0.000635	0.68	0.03	0.04
RB4532-RB4523D	RB4532	RB4523D	8	136	0.0133	0.006141	0.000000	0.002111	1.14	0.04	0.06	0.006141	0.000000	0.002111	1.14	0.04	0.06	0.006141	0.000000	0.002111	1.14	0.04	0.06
RB4533-RB4524D	RB4533	RB4524D	8	136	0.0133	0.004051	0.000000	0.001343	1.01	0.03	0.05	0.004051	0.000000	0.001343	1.01	0.03	0.05	0.004051	0.000000	0.001343	1.01	0.03	0.05
RB4534-RB4503	RB4534	RB4503	8	351	0.0155	0.008991	0.000000	0.003195	1.35	0.05	0.07	0.008991	0.000000	0.003195	1.35	0.05	0.07	0.008991	0.000000	0.003195	1.35	0.05	0.07
RB4535-RB4502	RB4535	RB4502	8	82	0.0365	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
RB46-RB47	RB46	RB47	12	175	0.0149	0.682333	0.000000	0.353315	4.57	0.34	0.34	0.682333	0.000000	0.353315	4.57	0.34	0.34	0.682333	0.000000	0.353315	4.57	0.34	0.34
RB4601D-RB46	RB4601D	RB46	8	6	0.0500	0.157743	0.000000	0.071913	4.81	0.14	0.20	0.157743	0.000000	0.071913	4.81	0.14	0.20	0.157743	0.000000	0.071913	4.81	0.14	0.20
RB4602-RB4601D	RB4602	RB4601D	8	38	0.0103	0.157743	0.000000	0.071913	2.74	0.20	0.30	0.157743	0.000000	0.071913	2.74	0.20	0.30	0.157743	0.000000	0.071913	2.74	0.20	0.30
RB4603-RB4602	RB4603	RB4602	8	126	0.0038	0.124247	0.000000	0.055479	1.79	0.23	0.35	0.124247	0.000000	0.055479	1.79	0.23	0.35	0.124247	0.000000	0.055479	1.79	0.23	0.35
RB4604-RB4603	RB4604	RB4603	8	197	0.0054	0.124247	0.000000	0.055479	2.04	0.21	0.32	0.124247	0.000000	0.055479	2.04	0.21	0.32	0.124247	0.000000	0.055479	2.04	0.21	0.32
RB4605-RB4604	RB4605	RB4604	8	40	0.0028	0.106912	0.000000	0.047119	1.53	0.23	0.35	0.106912	0.000000	0.047119	1.53	0.23	0.35	0.106912	0.000000	0.047119	1.53	0.23	0.35
RB4606-RB4605	RB4606	RB4605	8	120	0.0049	0.064627	0.000000	0.027263	1.63	0.15	0.23	0.064627	0.000000	0.027263	1.63	0.15	0.23	0.064627	0.000000	0.027263	1.63	0.15	0.23
RB4607-RB4606	RB4607	RB4606	8	265	0.0122	0.063501	0.000000	0.026747	2.24	0.12	0.18	0.063501	0.000000	0.026747	2.24	0.12	0.18	0.063501	0.000000	0.026747	2.24	0.12	0.18
RB4608-RB4607	RB4608	RB4607	8	100	0.0466	0.057343	0.000000	0.023940	3.48	0.08	0.13	0.057343	0.000000	0.023940	3.48	0.08	0.13	0.057343	0.000000	0.023940	3.48	0.08	0.13
RB4609D-RB4608	RB4609D	RB4608	8	355	0.0179	0.054370	0.000000	0.022594	2.45	0.10	0.15	0.054370	0.000000	0.022594	2.45	0.10	0.15	0.054370	0.000000	0.022594	2.45	0.10	0.15
RB4610-RB4609D	RB4610	RB4609D	8	175	0.0097	0.049199	0.000000	0.020268	1.92	0.11	0.17	0.049199	0.000000	0.020268	1.92	0.11	0.17	0.049199	0.000000	0.020268	1.92	0.11	0.17
RB4611-RB4610	RB4611	RB4610	8	195	0.0030	0.048772	0.000000	0.020077	1.26	0.15	0.23	0.048772	0.000000	0.020077	1.26	0.15	0.23	0.048772	0.000000	0.020077	1.26	0.15	0.23
RB4612-RB4611	RB4612	RB4611	8	185	0.0030	0.047935	0.000000	0.019703	1.26	0.15	0.23	0.047935	0.000000	0.019703	1.26	0.15	0.23	0.047935	0.000000	0.019703	1.26	0.15	0.23
RB4613-RB4612	RB4613	RB4612	8	400	0.0632	0.047935	0.000000	0.019703	3.67	0.07	0.11	0.047935	0.000000	0.019703	3.67	0.07	0.11	0.047935	0.000000	0.019703	3.67	0.07	0.11
RB4614-RB4609D	RB4614	RB4609D	8	145	0.0568	0.001542	0.000000	0.000470	1.24	0.01	0.02	0.001542	0.000000	0.000470	1.24	0.01	0.02	0.001542	0.000000	0.000470	1.24	0.01	0.02
RB4615-RB4608	RB4615	RB4608	8	125	0.0740	0.002926	0.000000	0.000943	1.65	0.02	0.03	0.002926	0.000000	0.000943	1.65	0.02	0.03	0.002926	0.000000	0.000943	1.65	0.02	0.03
RB4616-RB4605	RB4616	RB4605	8	355	0.0300	0.048278	0.000000	0.019856	2.83	0.09	0.13	0.048278	0.000000	0.019856	2.83	0.09	0.13	0.048278	0.000000	0.019856	2.83	0.09	0.13
RB4617D-RB4616	RB4617D	RB4616	8	170	0.0347	0.023227	0.000000	0.008964	2.39	0.06	0.09	0.023227	0.000000	0.008964	2.39	0.06	0.09	0.023227	0.000000	0.008964	2.39	0.06	0.09
RB4618-RB4617D	RB4618	RB4617D	8	238	0.0521	0.010987	0.000000	0.003973	2.19	0.04	0.06	0.010987	0.000000	0.003973	2.19	0.04	0.06	0.010987	0.000000	0.003973	2.19	0.04	0.06
RB4619-RB4617D	RB4619	RB4617D	8	415	0.0425	0.013553	0.000000	0.004991	2.18	0.04	0.06	0.013553	0.000000	0.004991	2.18	0.04	0.06	0.013553	0.000000	0.004991	2.18	0.04	0.06
RB4620-RB4616	RB4620	RB4616	8	270	0.0766	0.002831	0.000000	0.000910	1.66	0.02	0.03	0.002831	0.000000	0.000910	1.66	0.02	0.03	0.002831	0.000000	0.000910	1.66	0.02	0.03
RB4621-RB4616	RB4621	RB4616	6	101	0.0277	0.024057	0.000000	0.009313	2.32	0.07	0.14	0.024057	0.000000	0.009313	2.32	0.07	0.14	0.024057	0.000000	0.009313	2.32	0.07	0.14
RB4622-RB4621	RB4622	RB4621	6	94	0.0276	0.024057	0.000000	0.009313	2.32	0.07	0.14	0.024057	0.000000	0.009313	2.32	0.07	0.14	0.024057	0.000000	0.009313	2.32	0.07	0.14
RB4623-RB4622	RB4623	RB4622	6	210	0.0681	0.018228	0.000000	0.006888	2.93	0.05	0.10	0.018228	0.000000	0.006888	2.93	0.05	0.10	0.018228	0.000000	0.006888	2.93	0.05	0.10
RB4624-RB4604	RB4624	RB4604	8	29	0.0369	0.018420	0.000000	0.006967	2.28	0.05	0.08	0.018420	0.000000	0.006967	2.28	0.05	0.08	0.018420	0.000000	0.006967	2.28	0.05	0.08
RB4625-RB4624	RB4625	RB4624	6	475	0.0622	0.018420	0.000000	0.006967	2.84	0.05	0.10	0.018420	0.000000	0.006967	2.84	0.05	0.10	0.018420	0.000000	0.006967	2.84	0.05	0.10
RB4626-RB4602	RB4626	RB4602	8	196	0.0063	0.040567	0.000000	0.016434	1.55	0.12	0.17	0.040567	0.000000	0.016434	1.55	0.12	0.17	0.040567	0.000000	0.016434	1.55	0.12	0.17
RB4627-RB4626	RB4627	RB4626	8	15	0.1747	0.018240	0.000000	0.006893	3.90	0.04	0.05	0.018240	0.000000	0.006893	3.90	0.04	0.05	0.018240	0.000000	0.006893	3.90	0.04	0.05
RB462																							

City of Brea - Sewer Master Plan (November 2021)

Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
RB4629-RB4628	RB4629	RB4628	8	498	0.0030	0.013687	0.000000	0.005045	0.87	0.08	0.12	0.013687	0.000000	0.005045	0.87	0.08	0.12	0.013687	0.000000	0.005045	0.87	0.08	0.12
RB4631-RB4626	RB4631	RB4626	8	390	0.0522	0.022501	0.000000	0.008660	2.73	0.05	0.08	0.022501	0.000000	0.008660	2.73	0.05	0.08	0.022501	0.000000	0.008660	2.73	0.05	0.08
RB4632-RB4631	RB4632	RB4631	8	78	0.0164	0.010454	0.000000	0.003764	1.45	0.05	0.07	0.010454	0.000000	0.003764	1.45	0.05	0.07	0.010454	0.000000	0.003764	1.45	0.05	0.07
RB47-RB48	RB47	RB48	12	283	0.0255	0.685557	0.000000	0.355130	5.55	0.29	0.29	0.685557	0.000000	0.355130	5.55	0.29	0.29	0.685557	0.000000	0.355130	5.55	0.29	0.29
RB48-RB49	RB48	RB49	12	342	0.0116	0.693322	0.000000	0.359504	4.20	0.36	0.36	0.693322	0.000000	0.359504	4.20	0.36	0.36	0.693322	0.000000	0.359504	4.20	0.36	0.36
RB49-RB50	RB49	RB50	12	106	0.0200	0.693322	0.000000	0.359504	5.11	0.31	0.31	0.693322	0.000000	0.359504	5.11	0.31	0.31	0.693322	0.000000	0.359504	5.11	0.31	0.31
RB50-RB51	RB50	RB51	12	20	0.0045	0.701075	0.000000	0.363876	2.98	0.47	0.47	0.701075	0.000000	0.363876	2.98	0.47	0.47	0.701075	0.000000	0.363876	2.98	0.47	0.47
RB5001-RB50	RB5001	RB50	8	148	0.0730	0.011998	0.000000	0.004372	2.53	0.04	0.05	0.011998	0.000000	0.004372	2.53	0.04	0.05	0.011998	0.000000	0.004372	2.53	0.04	0.05
RB5002-RB5001	RB5002	RB5001	8	43	0.0337	0.010592	0.000000	0.003818	1.87	0.04	0.06	0.010592	0.000000	0.003818	1.87	0.04	0.06	0.010592	0.000000	0.003818	1.87	0.04	0.06
RB5003-RB5002	RB5003	RB5002	8	312	0.0497	0.010592	0.000000	0.003818	2.13	0.04	0.06	0.010592	0.000000	0.003818	2.13	0.04	0.06	0.010592	0.000000	0.003818	2.13	0.04	0.06
RB5004-RB5003	RB5004	RB5003	8	353	0.0030	0.006138	0.000000	0.002110	0.68	0.06	0.08	0.006138	0.000000	0.002110	0.68	0.06	0.08	0.006138	0.000000	0.002110	0.68	0.06	0.08
RB5005-RB5001	RB5005	RB5001	8	29	0.0172	0.001249	0.000000	0.000374	0.77	0.02	0.03	0.001249	0.000000	0.000374	0.77	0.02	0.03	0.001249	0.000000	0.000374	0.77	0.02	0.03
RB5006-RB5005	RB5006	RB5005	8	180	0.1033	0.001249	0.000000	0.000374	1.43	0.01	0.02	0.001249	0.000000	0.000374	1.43	0.01	0.02	0.001249	0.000000	0.000374	1.43	0.01	0.02
RB51-RB52	RB51	RB52	12	332	0.0043	0.704224	0.000000	0.365653	2.94	0.48	0.48	0.704224	0.000000	0.365653	2.94	0.48	0.48	0.704224	0.000000	0.365653	2.94	0.48	0.48
RB52-RB53	RB52	RB53	12	16	0.0044	0.704224	0.000000	0.365653	2.95	0.48	0.48	0.704224	0.000000	0.365653	2.95	0.48	0.48	0.704224	0.000000	0.365653	2.95	0.48	0.48
RB53-RB54	RB53	RB54	12	113	0.0046	0.704224	0.000000	0.365653	3.00	0.47	0.47	0.704224	0.000000	0.365653	3.00	0.47	0.47	0.704224	0.000000	0.365653	3.00	0.47	0.47
RB54-RB55	RB54	RB55	12	100	0.0046	0.704224	0.000000	0.365653	3.00	0.47	0.47	0.704224	0.000000	0.365653	3.00	0.47	0.47	0.704224	0.000000	0.365653	3.00	0.47	0.47
RB55-RB56	RB55	RB56	12	136	0.0046	0.711707	0.000000	0.369878	3.00	0.47	0.47	0.711707	0.000000	0.369878	3.00	0.47	0.47	0.711707	0.000000	0.369878	3.00	0.47	0.47
RB56-RB57	RB56	RB57	12	308	0.0044	0.715868	0.000000	0.372229	2.98	0.48	0.48	0.715868	0.000000	0.372229	2.98	0.48	0.48	0.715868	0.000000	0.372229	2.98	0.48	0.48
RB57-RB58	RB57	RB58	12	48	0.0110	0.715868	0.000000	0.372229	4.16	0.37	0.37	0.715868	0.000000	0.372229	4.16	0.37	0.37	0.715868	0.000000	0.372229	4.16	0.37	0.37
RB58-RB59D	RB58	RB59D	12	47	0.0053	0.715868	0.000000	0.372229	3.18	0.46	0.46	0.715868	0.000000	0.372229	3.18	0.46	0.46	0.715868	0.000000	0.372229	3.18	0.46	0.46
RB5901-RB59D	RB5901	RB59D	8	349	0.0402	0.078562	0.000000	0.033709	3.63	0.10	0.15	0.111935	0.000000	0.049530	4.03	0.12	0.18	0.111935	0.000000	0.049530	4.03	0.12	0.18
RB5902-RB5901	RB5902	RB5901	8	346	0.0416	0.069180	0.000000	0.029357	3.54	0.09	0.14	0.102854	0.000000	0.045178	3.98	0.11	0.17	0.102854	0.000000	0.045178	3.98	0.11	0.17
RB5903-RB5902	RB5903	RB5902	8	191	0.0173	0.069180	0.000000	0.029357	2.60	0.12	0.18	0.102854	0.000000	0.045178	2.92	0.14	0.21	0.102854	0.000000	0.045178	2.92	0.14	0.21
RB5904-RB5903	RB5904	RB5903	8	214	0.0052	0.066141	0.000000	0.027958	1.67	0.15	0.23	0.066141	0.000000	0.027958	1.67	0.15	0.23	0.066141	0.000000	0.027958	1.67	0.15	0.23
RB59D-RB60D	RB59D	RB60D	10	215	0.0044	0.775301	0.000000	0.405938	2.99	0.57	0.69	0.803057	0.000000	0.421759	3.01	0.59	0.71	0.803057	0.000000	0.421759	3.01	0.59	0.71
RB6001-RB60D	RB6001	RB60D	8	183	0.0124	0.097601	0.000000	0.042676	2.55	0.15	0.23	0.097601	0.000000	0.042676	2.55	0.15	0.23	0.097601	0.000000	0.042676	2.55	0.15	0.23
RB6002-RB6001	RB6002	RB6001	8	280	0.0260	0.094673	0.000000	0.041286	3.29	0.12	0.19	0.094673	0.000000	0.041286	3.29	0.12	0.19	0.094673	0.000000	0.041286	3.29	0.12	0.19
RB6003-RB6002	RB6003	RB6002	8	315	0.0232	0.094673	0.000000	0.041286	3.16	0.13	0.19	0.094673	0.000000	0.041286	3.16	0.13	0.19	0.094673	0.000000	0.041286	3.16	0.13	0.19
RB6004-RB6003	RB6004	RB6003	8	317	0.0162	0.094673	0.000000	0.041286	2.78	0.14	0.21	0.094673	0.000000	0.041286	2.78	0.14	0.21	0.094673	0.000000	0.041286	2.78	0.14	0.21
RB6005-RB6004	RB6005	RB6004	8	303	0.0070	0.062935	0.000000	0.026488	1.84	0.14	0.21	0.062935	0.000000	0.026488	1.84	0.14	0.21	0.062935	0.000000	0.026488	1.84	0.14	0.21
RB6006-RB6005	RB6006	RB6005	8	95	0.0068	0.053715	0.000000	0.022298	1.74	0.13	0.19	0.053715	0.000000	0.022298	1.74	0.13	0.19	0.053715	0.000000	0.022298	1.74	0.13	0.19
RB6007-RB6006	RB6007	RB6006	8	196	0.0526	0.031929	0.000000	0.012668	3.04	0.06	0.09	0.031929	0.000000	0.012668	3.04	0.06	0.09	0.031929	0.000000	0.012668	3.04	0.06	0.09
RB6008-RB6007	RB6008	RB6007	8	191	0.0256	0.031441	0.000000	0.012458	2.35	0.07	0.11	0.031441	0.000000	0.012458	2.35	0.07	0.11	0.031441	0.000000	0.012458	2.35	0.07	0.11
RB6009-RB6008	RB6009	RB6008	6	113	0.0061	0.030616	0.000000	0.012103	1.46	0.11	0.22	0.030616	0.000000	0.012103	1.46	0.11	0.22	0.030616	0.000000	0.012103	1.46	0.11	0.22
RB6010-RB6009	RB6010	RB6009	8	203	0.0095	0.029668	0.000000	0.011696	1.64	0.09	0.13	0.029668	0.000000	0.011696	1.64	0.09	0.13	0.029668	0.000000	0.011696	1.64	0.09	0.13
RB6011-RB6010	RB6011	RB6010	8	319	0.0097	0.021529	0.000000	0.008254	1.50	0.08	0.11	0.021529	0.000000	0.008254	1.50	0.08	0.11	0.021529	0.000000	0.008254	1.50	0.08	0.11
RB6012-RB6006	RB6012	RB6006	6	199	0.0116	0.023325	0.000000	0.009005	1.69	0.08	0.17	0.023325	0.000000	0.009005	1.69	0.08	0.17	0.023325	0.000000	0.009005	1.69	0.08	0.17
RB6013-RB6012	RB6013	RB6012	6	9	0.2544	0.021024	0.000000	0.008044	4.84	0.04	0.08	0.021024	0.000000	0.008044	4.84	0.04	0.08	0.021024	0.000000	0.008044	4.84	0.04	0.08
RB6014-RB6013	RB6014	RB6013	6	155	0.0242	0.021024	0.000000	0.008044	2.13	0.07	0.13	0.021024	0.000000	0.008044	2.13	0.07	0.13	0.021024	0.000000	0.008044	2.13	0.07	0.13
RB6015-RB6014	RB6015	RB6014	6	360	0.0326	0.018211	0.000000	0.006881	2.26	0.06	0.11	0.018211	0.000000	0.006881	2.26	0.06	0.11	0.018211	0.000000	0.006881	2.26	0.06	0.11
RB6016-RB6005	RB6016	RB6005	8	305	0.0119	0.011538	0.000000	0.004190	1.33	0.05	0.08	0.011538	0.000000	0.004190	1.33	0.05	0.08	0.011538	0.000000	0.004190	1.33	0.05	0.08
RB6017-RB6004	RB6017	RB6004	8	146	0.0122	0.033343	0.000000	0.013279	1.85	0.09	0.13	0.033343	0.000000	0.013279	1.85	0.09	0.13	0.033343	0.000000	0.013279	1.85	0.09	0.13
RB6018-RB6017	RB6018	RB6017	8	150	0.0530	0.033343	0.000000	0.013279	3.09	0.06	0.09	0.033343	0.000000	0.013279	3.09	0.06	0.09	0.033343	0.000000	0.013279	3.09	0.06	0.09
RB6019-RB6018	RB6019	RB6018	8	276	0.0071	0.020027	0.000000	0.007630	1.31	0.08	0.12	0.020027	0.000000	0.007630	1.31	0.08	0.12	0.020027	0.000000	0.007630	1.31	0.08	0.12
RB60D-RB61	RB60D	RB61	10	118	0.0051	0.849983	0.000000	0.448614	3.22	0.58	0.70												

City of Brea - Sewer Master Plan (November 2021)

Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
RB61-RB62	RB61	RB62	10	80	0.0200	0.851801	0.000000	0.449657	5.46	0.38	0.45	0.879336	0.000000	0.465478	5.51	0.39	0.46	0.879336	0.000000	0.465478	5.51	0.39	0.46
RB62-RB63D	RB62	RB63D	10	50	0.0060	0.851801	0.000000	0.449657	3.45	0.55	0.66	0.879336	0.000000	0.465478	3.47	0.56	0.68	0.879336	0.000000	0.465478	3.47	0.56	0.68
RB6301-RB63D	RB6301	RB63D	8	92	0.0051	0.076508	0.000000	0.032752	1.74	0.17	0.25	0.076508	0.000000	0.032752	1.74	0.17	0.25	0.076508	0.000000	0.032752	1.74	0.17	0.25
RB6302-RB6301	RB6302	RB6301	8	388	0.0051	0.076508	0.000000	0.032752	1.73	0.17	0.25	0.076508	0.000000	0.032752	1.73	0.17	0.25	0.076508	0.000000	0.032752	1.73	0.17	0.25
RB6303D-RB6302	RB6303D	RB6302	8	177	0.0043	0.065455	0.000000	0.027643	1.56	0.16	0.24	0.065455	0.000000	0.027643	1.56	0.16	0.24	0.065455	0.000000	0.027643	1.56	0.16	0.24
RB6304-RB6303D	RB6304	RB6303D	8	197	0.0029	0.047463	0.000000	0.019492	1.24	0.15	0.23	0.047463	0.000000	0.019492	1.24	0.15	0.23	0.047463	0.000000	0.019492	1.24	0.15	0.23
RB6305-RB6304	RB6305	RB6304	8	18	0.0250	0.046187	0.000000	0.018923	2.62	0.09	0.13	0.046187	0.000000	0.018923	2.62	0.09	0.13	0.046187	0.000000	0.018923	2.62	0.09	0.13
RB6306-RB6305	RB6306	RB6305	8	58	0.1360	0.046187	0.000000	0.018923	4.74	0.06	0.09	0.046187	0.000000	0.018923	4.74	0.06	0.09	0.046187	0.000000	0.018923	4.74	0.06	0.09
RB6307-RB6306	RB6307	RB6306	8	300	0.0140	0.046187	0.000000	0.018923	2.14	0.10	0.15	0.046187	0.000000	0.018923	2.14	0.10	0.15	0.046187	0.000000	0.018923	2.14	0.10	0.15
RB6308-RB6307	RB6308	RB6307	8	232	0.0100	0.044923	0.000000	0.018361	1.88	0.11	0.16	0.044923	0.000000	0.018361	1.88	0.11	0.16	0.044923	0.000000	0.018361	1.88	0.11	0.16
RB6309-RB6304	RB6309	RB6304	4	70	0.1617	0.001838	0.000000	0.000569	2.09	0.01	0.04	0.001838	0.000000	0.000569	2.09	0.01	0.04	0.001838	0.000000	0.000569	2.09	0.01	0.04
RB6310-RB6309	RB6310	RB6309	4	70	0.0200	0.001838	0.000000	0.000569	1.01	0.02	0.07	0.001838	0.000000	0.000569	1.01	0.02	0.07	0.001838	0.000000	0.000569	1.01	0.02	0.07
RB63D-RB64	RB63D	RB64	10	32	0.0100	0.908719	0.000000	0.482409	4.27	0.48	0.58	0.936101	0.000000	0.498230	4.30	0.49	0.59	0.936101	0.000000	0.498230	4.30	0.49	0.59
RB64-RB65	RB64	RB65	12	678	0.0060	0.909930	0.000000	0.483108	3.54	0.50	0.50	0.937310	0.000000	0.498929	3.57	0.51	0.51	0.937310	0.000000	0.498929	3.57	0.51	0.51
RB65-RB66	RB65	RB66	12	275	0.0189	0.922262	0.000000	0.490229	5.42	0.37	0.37	0.949610	0.000000	0.506050	5.47	0.37	0.37	0.949610	0.000000	0.506050	5.47	0.37	0.37
RB6501-RB65	RB6501	RB65	8	30	0.0230	0.018794	0.000000	0.007121	1.94	0.06	0.09	0.018794	0.000000	0.007121	1.94	0.06	0.09	0.018794	0.000000	0.007121	1.94	0.06	0.09
RB6502-RB6501	RB6502	RB6501	8	155	0.0200	0.018794	0.000000	0.007121	1.85	0.06	0.09	0.018794	0.000000	0.007121	1.85	0.06	0.09	0.018794	0.000000	0.007121	1.85	0.06	0.09
RB6503-RB6502	RB6503	RB6502	8	175	0.1129	0.017256	0.000000	0.006490	3.29	0.04	0.06	0.017256	0.000000	0.006490	3.29	0.04	0.06	0.017256	0.000000	0.006490	3.29	0.04	0.06
RB6504-RB6503	RB6504	RB6503	8	176	0.0030	0.011718	0.000000	0.004261	0.83	0.08	0.11	0.011718	0.000000	0.004261	0.83	0.08	0.11	0.011718	0.000000	0.004261	0.83	0.08	0.11
RB6505-RB6504	RB6505	RB6504	8	320	0.0044	0.007351	0.000000	0.002567	0.82	0.06	0.08	0.007351	0.000000	0.002567	0.82	0.06	0.08	0.007351	0.000000	0.002567	0.82	0.06	0.08
RB6506-RB6505	RB6506	RB6505	8	162	0.0181	0.005824	0.000000	0.001993	1.25	0.04	0.05	0.005824	0.000000	0.001993	1.25	0.04	0.05	0.005824	0.000000	0.001993	1.25	0.04	0.05
RB6507-RB6506	RB6507	RB6506	8	78	0.0178	0.003425	0.000000	0.001119	1.06	0.03	0.04	0.003425	0.000000	0.001119	1.06	0.03	0.04	0.003425	0.000000	0.001119	1.06	0.03	0.04
RB6508-RB6503	RB6508	RB6503	8	153	0.0299	0.003105	0.000000	0.001006	1.23	0.02	0.04	0.003105	0.000000	0.001006	1.23	0.02	0.04	0.003105	0.000000	0.001006	1.23	0.02	0.04
RB6509-RB6504	RB6509	RB6504	8	117	0.0200	0.002535	0.000000	0.000807	1.01	0.02	0.04	0.002535	0.000000	0.000807	1.01	0.02	0.04	0.002535	0.000000	0.000807	1.01	0.02	0.04
RB66-RA43D	RB66	RA43D	12	45	0.0089	1.165469	0.000000	0.632243	4.36	0.52	0.52	1.576509	0.000000	0.877987	4.67	0.63	0.63	1.576509	0.000000	0.877987	4.67	0.63	0.63
RB6601-RB66	RB6601	RB66	8	358	0.0216	0.291334	0.000000	0.140093	4.25	0.23	0.34	0.711951	0.000000	0.370016	5.37	0.38	0.57	0.711951	0.000000	0.370016	5.37	0.38	0.57
RB6602-RB6601	RB6602	RB6601	8	355	0.0300	0.284339	0.000000	0.136441	4.76	0.21	0.31	0.705484	0.000000	0.366364	6.07	0.34	0.51	0.705484	0.000000	0.366364	6.07	0.34	0.51
RB6603-RB6602	RB6603	RB6602	8	361	0.0084	0.284339	0.000000	0.136441	2.99	0.29	0.44	0.705484	0.000000	0.366364	3.62	0.54	0.81	0.705484	0.000000	0.366364	3.62	0.54	0.81
RB6604-RB6603	RB6604	RB6603	8	275	0.0084	0.280040	0.000000	0.134200	2.98	0.29	0.43	0.623190	0.000000	0.320156	3.58	0.48	0.72	0.623190	0.000000	0.320156	3.58	0.48	0.72
RB6605-RB6604	RB6605	RB6604	8	120	0.0063	0.280040	0.000000	0.134200	2.69	0.31	0.47	0.280040	0.000000	0.134200	2.69	0.31	0.47	0.280040	0.000000	0.134200	2.69	0.31	0.47
RB6606-RB6605	RB6606	RB6605	8	288	0.0048	0.231745	0.000000	0.109243	2.31	0.30	0.46	0.231745	0.000000	0.109243	2.31	0.30	0.46	0.231745	0.000000	0.109243	2.31	0.30	0.46
RB6607-RB6606	RB6607	RB6606	8	333	0.0052	0.231745	0.000000	0.109243	2.37	0.30	0.45	0.231745	0.000000	0.109243	2.37	0.30	0.45	0.231745	0.000000	0.109243	2.37	0.30	0.45
RB6608-RB6607	RB6608	RB6607	8	88	0.0036	0.218463	0.000000	0.102455	2.05	0.32	0.48	0.218463	0.000000	0.102455	2.05	0.32	0.48	0.218463	0.000000	0.102455	2.05	0.32	0.48
RB6609-RB6608	RB6609	RB6608	8	165	0.0078	0.218463	0.000000	0.102455	2.72	0.26	0.39	0.218463	0.000000	0.102455	2.72	0.26	0.39	0.218463	0.000000	0.102455	2.72	0.26	0.39
RB6610-RB6609	RB6610	RB6609	8	403	0.0081	0.183144	0.000000	0.084584	2.63	0.23	0.35	0.183144	0.000000	0.084584	2.63	0.23	0.35	0.183144	0.000000	0.084584	2.63	0.23	0.35
RB6611-RB6610	RB6611	RB6610	8	125	0.0065	0.183144	0.000000	0.084584	2.42	0.25	0.37	0.183144	0.000000	0.084584	2.42	0.25	0.37	0.183144	0.000000	0.084584	2.42	0.25	0.37
RB6612-RB6611	RB6612	RB6611	8	250	0.0430	0.141373	0.000000	0.063839	4.42	0.13	0.20	0.141373	0.000000	0.063839	4.42	0.13	0.20	0.141373	0.000000	0.063839	4.42	0.13	0.20
RB6613-RB6612	RB6613	RB6612	8	130	0.0087	0.141373	0.000000	0.063839	2.50	0.20	0.30	0.141373	0.000000	0.063839	2.50	0.20	0.30	0.141373	0.000000	0.063839	2.50	0.20	0.30
RB6614-RB6613	RB6614	RB6613	8	210	0.0099	0.015064	0.000000	0.005599	1.35	0.06	0.10	0.015064	0.000000	0.005599	1.35	0.06	0.10	0.015064	0.000000	0.005599	1.35	0.06	0.10
RB6615-RB6614	RB6615	RB6614	8	100	0.0109	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
RB6616-RB6615	RB6616	RB6615	8	39	0.0067	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
RB6617-RB6616	RB6617	RB6616	8	232	0.0045	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
RB6618-RB6617	RB6618	RB6617	8	154	0.0101	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
RB6619-RB6614	RB6619	RB6614	8	30	0.0077	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
RB6620-RB6619	RB6620	RB6619	8	90	0.0051	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
RB6621-RB6611	RB6621	RB6611	8	55	0.0082	0.050263	0.0																

City of Brea - Sewer Master Plan (November 2021)

Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
RB6622-RB66	RB6622	RB66	6	40	0.0098	0.005630	0.000000	0.001921	1.04	0.04	0.09	0.005630	0.000000	0.001921	1.04	0.04	0.09	0.005630	0.000000	0.001921	1.04	0.04	0.09
RB6623-RB6622	RB6623	RB6622	6	266	0.0918	0.005630	0.000000	0.001921	2.27	0.03	0.05	0.005630	0.000000	0.001921	2.27	0.03	0.05	0.005630	0.000000	0.001921	2.27	0.03	0.05
RB6624-RB6623	RB6624	RB6623	6	88	0.0661	0.005630	0.000000	0.001921	2.03	0.03	0.06	0.005630	0.000000	0.001921	2.03	0.03	0.06	0.005630	0.000000	0.001921	2.03	0.03	0.06
RB6625-RB6624	RB6625	RB6624	6	270	0.0076	0.005630	0.000000	0.001921	0.96	0.05	0.09	0.005630	0.000000	0.001921	0.96	0.05	0.09	0.005630	0.000000	0.001921	0.96	0.05	0.09
V01-V02	V01	V02	8	194	0.0032	0.000634	0.000000	0.000179	0.35	0.02	0.03	0.000634	0.000000	0.000179	0.35	0.02	0.03	0.000634	0.000000	0.000179	0.35	0.02	0.03
V02-V03	V02	V03	8	245	0.0100	0.006600	0.000000	0.002283	1.06	0.04	0.07	0.006600	0.000000	0.002283	1.06	0.04	0.07	0.006600	0.000000	0.002283	1.06	0.04	0.07
V0201-V02	V0201	V02	8	161	0.0038	0.006122	0.000000	0.002104	0.74	0.05	0.08	0.006122	0.000000	0.002104	0.74	0.05	0.08	0.006122	0.000000	0.002104	0.74	0.05	0.08
V0202-V0201	V0202	V0201	8	109	0.0041	0.003289	0.000000	0.001071	0.63	0.04	0.06	0.003289	0.000000	0.001071	0.63	0.04	0.06	0.003289	0.000000	0.001071	0.63	0.04	0.06
V03-V04	V03	V04	8	153	0.0160	0.006600	0.000000	0.002283	1.25	0.04	0.06	0.006600	0.000000	0.002283	1.25	0.04	0.06	0.006600	0.000000	0.002283	1.25	0.04	0.06
V04-V05	V04	V05	8	308	0.0090	0.006600	0.000000	0.002283	1.02	0.04	0.07	0.006600	0.000000	0.002283	1.02	0.04	0.07	0.006600	0.000000	0.002283	1.02	0.04	0.07
V05-V06	V05	V06	8	184	0.0032	0.006600	0.000000	0.002283	0.71	0.06	0.09	0.006600	0.000000	0.002283	0.71	0.06	0.09	0.006600	0.000000	0.002283	0.71	0.06	0.09
V06-V07	V06	V07	8	240	0.0036	0.006600	0.000000	0.002283	0.74	0.06	0.08	0.006600	0.000000	0.002283	0.74	0.06	0.08	0.006600	0.000000	0.002283	0.74	0.06	0.08
V0601-V06	V0601	V06	8	155	0.0038	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
V07-V08	V07	V08	8	127	0.0057	0.006600	0.000000	0.002283	0.87	0.05	0.07	0.006600	0.000000	0.002283	0.87	0.05	0.07	0.006600	0.000000	0.002283	0.87	0.05	0.07
V0701-V07	V0701	V07	8	404	0.0102	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
V0702-V0701	V0702	V0701	8	250	0.0052	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
V0703-V0702	V0703	V0702	8	275	0.0052	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
V08-V09	V08	V09	8	138	0.0050	0.006600	0.000000	0.002283	0.83	0.05	0.08	0.006600	0.000000	0.002283	0.83	0.05	0.08	0.006600	0.000000	0.002283	0.83	0.05	0.08
V09-V10	V09	V10	8	217	0.0087	0.006600	0.000000	0.002283	1.01	0.04	0.07	0.006600	0.000000	0.002283	1.01	0.04	0.07	0.006600	0.000000	0.002283	1.01	0.04	0.07
V10-V11	V10	V11	8	170	0.0096	0.006600	0.000000	0.002283	1.04	0.04	0.07	0.006600	0.000000	0.002283	1.04	0.04	0.07	0.006600	0.000000	0.002283	1.04	0.04	0.07
V11-V12	V11	V12	8	55	0.0065	0.006600	0.000000	0.002283	0.91	0.05	0.07	0.006600	0.000000	0.002283	0.91	0.05	0.07	0.006600	0.000000	0.002283	0.91	0.05	0.07
V1101-V11	V1101	V11	8	145	0.0074	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
V1102-V1101	V1102	V1101	8	218	0.0089	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
V1103-V1102	V1103	V1102	8	232	0.0232	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
V1104-V1102	V1104	V1102	8	93	0.0100	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
V12-V1301	V12	V1301	8	170	0.0070	0.006600	0.000000	0.002283	0.93	0.05	0.07	0.006600	0.000000	0.002283	0.93	0.05	0.07	0.006600	0.000000	0.002283	0.93	0.05	0.07
V13-V14	V13	V14	8	17	0.0071	0.006600	0.000000	0.002283	0.94	0.05	0.07	0.006600	0.000000	0.002283	0.94	0.05	0.07	0.006600	0.000000	0.002283	0.94	0.05	0.07
V1301-V13	V1301	V13	8	66	0.0070	0.006600	0.000000	0.002283	0.93	0.05	0.07	0.006600	0.000000	0.002283	0.93	0.05	0.07	0.006600	0.000000	0.002283	0.93	0.05	0.07
V14-V15	V14	V15	8	135	0.0199	0.006600	0.000000	0.002283	1.34	0.04	0.06	0.006600	0.000000	0.002283	1.34	0.04	0.06	0.006600	0.000000	0.002283	1.34	0.04	0.06
V1401PLACENTIA-V14	V1401PLACENTIA	V14	8	214	0.0039	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
V15-V16	V15	V16	8	22	0.0027	0.009001	0.000000	0.003199	0.74	0.07	0.10	0.009001	0.000000	0.003199	0.74	0.07	0.10	0.009001	0.000000	0.003199	0.74	0.07	0.10
V1501-V15	V1501	V15	8	6	0.0583	0.002849	0.000000	0.000916	1.51	0.02	0.03	0.002849	0.000000	0.000916	1.51	0.02	0.03	0.002849	0.000000	0.000916	1.51	0.02	0.03
V1502-V1501	V1502	V1501	8	43	0.0044	0.002849	0.000000	0.000916	0.62	0.04	0.05	0.002849	0.000000	0.000916	0.62	0.04	0.05	0.002849	0.000000	0.000916	0.62	0.04	0.05
V1503PLACENTIA-V150	V1503PLACENTIA	V1502	8	303	0.0051	0.002849	0.000000	0.000916	0.65	0.03	0.05	0.002849	0.000000	0.000916	0.65	0.03	0.05	0.002849	0.000000	0.000916	0.65	0.03	0.05
V16-V17	V16	V17	8	124	0.0021	0.009590	0.000000	0.003427	0.69	0.08	0.11	0.009590	0.000000	0.003427	0.69	0.08	0.11	0.009590	0.000000	0.003427	0.69	0.08	0.11
V17-V18	V17	V18	8	213	0.0062	0.011561	0.000000	0.004199	1.06	0.06	0.09	0.011561	0.000000	0.004199	1.06	0.06	0.09	0.011561	0.000000	0.004199	1.06	0.06	0.09
V18-V19	V18	V19	8	85	0.0089	0.013580	0.000000	0.005002	1.27	0.06	0.09	0.013580	0.000000	0.005002	1.27	0.06	0.09	0.013580	0.000000	0.005002	1.27	0.06	0.09
V19-V20	V19	V20	8	154	0.0071	0.032135	0.000000	0.012757	1.52	0.10	0.15	0.032135	0.000000	0.012757	1.52	0.10	0.15	0.032135	0.000000	0.012757	1.52	0.10	0.15
V1901-V19	V1901	V19	8	95	0.0057	0.019258	0.000000	0.007312	1.20	0.08	0.12	0.019258	0.000000	0.007312	1.20	0.08	0.12	0.019258	0.000000	0.007312	1.20	0.08	0.12
V1902-V1901	V1902	V1901	8	335	0.0042	0.019258	0.000000	0.007312	1.08	0.09	0.13	0.019258	0.000000	0.007312	1.08	0.09	0.13	0.019258	0.000000	0.007312	1.08	0.09	0.13
V1903-V1902	V1903	V1902	8	335	0.0036	0.013117	0.000000	0.004817	0.91	0.08	0.12	0.013117	0.000000	0.004817	0.91	0.08	0.12	0.013117	0.000000	0.004817	0.91	0.08	0.12
V1904-V1903	V1904	V1903	8	282	0.0036	0.006386	0.000000	0.002203	0.73	0.05	0.08	0.006386	0.000000	0.002203	0.73	0.05	0.08	0.006386	0.000000	0.002203	0.73	0.05	0.08
V20-V21	V20	V21	8	350	0.0074	0.038715	0.000000	0.015620	1.62	0.11	0.16	0.038715	0.000000	0.015620	1.62	0.11	0.16	0.038715	0.000000	0.015620	1.62	0.11	0.16
V21-V22	V21	V22	8	350	0.0072	0.041989	0.000000	0.017061	1.65	0.11	0.17	0.041989	0.000000	0.017061	1.65	0.11	0.17	0.041989	0.000000	0.017061	1.65	0.11	0.17

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Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
V22-V23	V22	V23	8	340	0.0072	0.047223	0.000000	0.019385	1.70	0.12	0.18	0.047223	0.000000	0.019385	1.70	0.12	0.18	0.047223	0.000000	0.019385	1.70	0.12	0.18
V23-V24	V23	V24	8	344	0.0072	0.052728	0.000000	0.021853	1.76	0.13	0.19	0.052728	0.000000	0.021853	1.76	0.13	0.19	0.052728	0.000000	0.021853	1.76	0.13	0.19
V2301-V23	V2301	V23	8	108	0.0338	0.003817	0.000000	0.001259	1.37	0.03	0.04	0.003817	0.000000	0.001259	1.37	0.03	0.04	0.003817	0.000000	0.001259	1.37	0.03	0.04
V24-V25	V24	V25	8	284	0.0072	0.073345	0.000000	0.031283	1.94	0.15	0.22	0.073345	0.000000	0.031283	1.94	0.15	0.22	0.073345	0.000000	0.031283	1.94	0.15	0.22
V2401-V24	V2401	V24	8	216	0.0129	0.020167	0.000000	0.007688	1.62	0.07	0.10	0.020167	0.000000	0.007688	1.62	0.07	0.10	0.020167	0.000000	0.007688	1.62	0.07	0.10
V2402-V2401	V2402	V2401	8	350	0.0120	0.018203	0.000000	0.006878	1.53	0.07	0.10	0.018203	0.000000	0.006878	1.53	0.07	0.10	0.018203	0.000000	0.006878	1.53	0.07	0.10
V2403-V2402	V2403	V2402	8	350	0.0046	0.013520	0.000000	0.004978	1.00	0.07	0.11	0.013520	0.000000	0.004978	1.00	0.07	0.11	0.013520	0.000000	0.004978	1.00	0.07	0.11
V2404-V2403	V2404	V2403	8	325	0.0072	0.008763	0.000000	0.003107	1.03	0.05	0.08	0.008763	0.000000	0.003107	1.03	0.05	0.08	0.008763	0.000000	0.003107	1.03	0.05	0.08
V25-V26	V25	V26	8	187	0.0076	0.185491	0.000000	0.085763	2.57	0.24	0.36	0.208769	0.000000	0.097523	2.66	0.25	0.38	0.208769	0.000000	0.097523	2.66	0.25	0.38
V2501-V25	V2501	V25	8	316	0.0102	0.121118	0.000000	0.053962	2.54	0.18	0.26	0.145205	0.000000	0.065722	2.67	0.19	0.29	0.145205	0.000000	0.065722	2.67	0.19	0.29
V2502-V2501	V2502	V2501	8	325	0.0096	0.118702	0.000000	0.052793	2.47	0.18	0.27	0.142827	0.000000	0.064553	2.60	0.19	0.29	0.142827	0.000000	0.064553	2.60	0.19	0.29
V2503-V2502	V2503	V2502	8	350	0.0237	0.114303	0.000000	0.050670	3.36	0.14	0.21	0.138500	0.000000	0.062430	3.56	0.15	0.23	0.138500	0.000000	0.062430	3.56	0.15	0.23
V2504-V2503	V2504	V2503	8	51	0.0337	0.102173	0.000000	0.044853	3.69	0.12	0.18	0.126582	0.000000	0.056613	3.93	0.13	0.20	0.126582	0.000000	0.056613	3.93	0.13	0.20
V2505-V2504	V2505	V2504	8	126	0.0052	0.101504	0.000000	0.044534	1.89	0.19	0.29	0.125925	0.000000	0.056294	2.01	0.21	0.32	0.125925	0.000000	0.056294	2.01	0.21	0.32
V2506-V2505	V2506	V2505	8	283	0.0099	0.101504	0.000000	0.044534	2.39	0.16	0.24	0.125925	0.000000	0.056294	2.54	0.18	0.27	0.125925	0.000000	0.056294	2.54	0.18	0.27
V2507-V2506	V2507	V2506	8	155	0.0101	0.079417	0.000000	0.034108	2.24	0.14	0.21	0.104298	0.000000	0.045868	2.42	0.16	0.25	0.104298	0.000000	0.045868	2.42	0.16	0.25
V2508-V2507	V2508	V2507	8	190	0.0197	0.078174	0.000000	0.033528	2.82	0.12	0.18	0.103084	0.000000	0.045288	3.06	0.14	0.21	0.103084	0.000000	0.045288	3.06	0.14	0.21
V2509-V2503	V2509	V2503	8	370	0.0078	0.010490	0.000000	0.003778	1.11	0.06	0.09	0.010490	0.000000	0.003778	1.11	0.06	0.09	0.010490	0.000000	0.003778	1.11	0.06	0.09
V2510-V2509	V2510	V2509	8	69	0.0071	0.002823	0.000000	0.000907	0.73	0.03	0.05	0.002823	0.000000	0.000907	0.73	0.03	0.05	0.002823	0.000000	0.000907	0.73	0.03	0.05
V2511-V2506	V2511	V2506	8	60	0.0080	0.011081	0.000000	0.004010	1.15	0.06	0.09	0.011081	0.000000	0.004010	1.15	0.06	0.09	0.011081	0.000000	0.004010	1.15	0.06	0.09
V2512-V2511	V2512	V2511	8	158	0.0047	0.011081	0.000000	0.004010	0.95	0.07	0.10	0.011081	0.000000	0.004010	0.95	0.07	0.10	0.011081	0.000000	0.004010	0.95	0.07	0.10
V2513-V2527	V2513	V2527	8	117	0.0044	0.024309	0.000000	0.009419	1.18	0.10	0.15	0.051230	0.000000	0.021179	1.47	0.14	0.21	0.051230	0.000000	0.021179	1.47	0.14	0.21
V2514-V2513	V2514	V2513	8	312	0.0044	0.019727	0.000000	0.007506	1.10	0.09	0.13	0.046956	0.000000	0.019266	1.43	0.14	0.20	0.046956	0.000000	0.019266	1.43	0.14	0.20
V2515-V2516	V2515	V2516	8	37	0.0044	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
V2516-V2514	V2516	V2514	8	144	0.0058	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.029817	0.000000	0.011760	1.37	0.10	0.15	0.029817	0.000000	0.011760	1.37	0.10	0.15
V2517-V2516	V2517	V2516	8	85	0.0058	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.029817	0.000000	0.011760	1.38	0.10	0.15	0.029817	0.000000	0.011760	1.38	0.10	0.15
V2518-V2517	V2518	V2517	8	58	0.0533	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.012834	0.000000	0.004704	2.32	0.04	0.06	0.012834	0.000000	0.004704	2.32	0.04	0.06
V2519-V2518	V2519	V2518	8	265	0.0050	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.006783	0.000000	0.002352	0.84	0.05	0.08	0.006783	0.000000	0.002352	0.84	0.05	0.08
V2520-V2518	V2520	V2518	8	41	0.0051	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.003585	0.000000	0.001176	0.69	0.04	0.06	0.003585	0.000000	0.001176	0.69	0.04	0.06
V2521-V2519	V2521	V2519	8	155	0.0100	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.003585	0.000000	0.001176	0.88	0.03	0.05	0.003585	0.000000	0.001176	0.88	0.03	0.05
V2522-V2517	V2522	V2517	8	141	0.0066	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.015758	0.000000	0.005880	1.19	0.07	0.11	0.015758	0.000000	0.005880	1.19	0.07	0.11
V2523-V2522	V2523	V2522	8	53	0.0049	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.003585	0.000000	0.001176	0.69	0.04	0.06	0.003585	0.000000	0.001176	0.69	0.04	0.06
V2524-V2522	V2524	V2522	8	163	0.0050	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.009849	0.000000	0.003528	0.94	0.06	0.09	0.009849	0.000000	0.003528	0.94	0.06	0.09
V2525-V2524	V2525	V2524	8	161	0.0050	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.006783	0.000000	0.002352	0.84	0.05	0.08	0.006783	0.000000	0.002352	0.84	0.05	0.08
V2526-V2525	V2526	V2525	8	141	0.0050	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.003585	0.000000	0.001176	0.69	0.04	0.06	0.003585	0.000000	0.001176	0.69	0.04	0.06
V2527-V2508	V2527	V2508	8	117	0.0044	0.078174	0.000000	0.033528	1.66	0.17	0.26	0.103084	0.000000	0.045288	1.80	0.20	0.30	0.103084	0.000000	0.045288	1.80	0.20	0.30
V2528-V2527	V2528	V2527	8	285	0.0046	0.051381	0.000000	0.021247	1.79	0.12	0.19	0.051381	0.000000	0.021247	1.79	0.12	0.19	0.051381	0.000000	0.021247	1.79	0.12	0.19
V2529-V2528	V2529	V2528	8	42	0.0040	0.051381	0.000000	0.021247	1.71	0.13	0.19	0.051381	0.000000	0.021247	1.71	0.13	0.19	0.051381	0.000000	0.021247	1.71	0.13	0.19
V2530-V2529	V2530	V2529	8	230	0.0040	0.051098	0.000000	0.021120	1.71	0.13	0.19	0.051098	0.000000	0.021120	1.71	0.13	0.19	0.051098	0.000000	0.021120	1.71	0.13	0.19
V2531-V2530	V2531	V2530	8	66	0.0050	0.051098	0.000000	0.021120	1.53	0.14	0.21	0.051098	0.000000	0.021120	1.53	0.14	0.21	0.051098	0.000000	0.021120	1.53	0.14	0.21
V2532-V2531	V2532	V2531	8	215	0.0050	0.051098	0.000000	0.021120	1.54	0.14	0.20	0.051098	0.000000	0.021120	1.54	0.14	0.20	0.051098	0.000000	0.021120	1.54	0.14	0.20
V26-OUTLETV	V26	OUT_VALENCIA	10	387	0.0101	0.186323	0.000000	0.086181	2.80	0.20	0.24	0.209592	0.000000	0.097941	2.89	0.22	0.26	0.209592	0.000000	0.097941	2.89	0.22	0.26
V2601-V26	V2601	V26	8	227	0.0171	0.000760	0.000000	0.000218	0.66	0.01	0.02	0.000760	0.000000	0.000218	0.66	0.01	0.02	0.000760	0.000000	0.000218	0.66	0.01	0.02
V27-V28	V27	V28	12	20	0.0200	0.185718	0.000000	0.085877	3.48	0.16	0.16	0.388334	0.000000	0.191463	4.33	0.23	0.23	0.388334	0.000000	0.191463	4.33	0.23	0.23

City of Brea - Sewer Master Plan (November 2021)  
Sewer Model Results

Model Data						Existing Condition						Near-Term Future Condition (without SOI or Carbon Canyon Developments)						Future Condition (with SOI or Carbon Canyon Developments)					
Pipe ID	U/S MH	D/S MH	Diameter (in)	Length (ft)	Slope	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D	PDWF (mgd)	Unpeakable ADWF (mgd)	ADWF (mgd)	PDWF Velocity (ft/s)	PDWF Water Depth (ft)	PDWF d/D
V28-V01	V28	La_Floresta_LS	12	24	0.0198	0.185718	0.000000	0.085877	3.47	0.16	0.16	0.388334	0.000000	0.191463	4.31	0.23	0.23	0.388334	0.000000	0.191463	4.31	0.23	0.23
V30-V2515	V30	V2515	8	37	0.0044	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
V31-V2513	V31	V2513	8	20	0.0050	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
V32-V2529	V32	V2529	8	6	0.0033	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
V33-V2531	V33	V2531	1.25	18	0.0150	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
V34-V2532	V34	V2532	8	20	0.0100	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00
V35-V2532	V35	V2532	8	34	0.0176	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00	0.000000	0.000000	0.000000	0.00	0.00	0.00

## **7-2 Siphon Analysis**

Siphon S-2 Hydraulic Analysis Results

General Information									Existing Condition Average Dry Weather Flow										
MODEL ID	PIPE SIZE (in)	FULL ELEMENT NAME	TYPE	STATION	INVERT ELEVATION (ft)	CALCULATED SLOPE	BARREL (quantity)	CROSS SECTION	WATER SURFACE ELEVATION (ft)	DEPTH (ft)	Q (cfs)	VELOC. (ft/s)	VELOC. HEAD (ft)	ENERGY GRADE LINE (ft)	CRITICAL DEPTH (ft)	FROUDE NUMBER	SLOPE	NORMAL DEPTH (ft)	
FB56		FB56	Outlet	472.91	315.04	0.0000	1	Circular Pipe	*317.290	2.25	1.50	0.38	0.00	317.29	0.4090	0.0000	0.0000	0.00	
FB55-FB56	27"	FB55-FB56	Reach	808.44	315.40	0.0011	1	Circular Pipe	*317.297	1.90	1.50	0.42	0.00	317.30	0.4090	0.0500	0.0011	0.58	
FB55		FB55	Junction	810.94	315.40	0.0000	1	Circular Pipe	*317.297	1.90	1.41	0.39	0.00	317.30	0.3970	0.0000	0.0000	0.00	
		FB45-FB55.1	Reach	813.44	315.41	0.0040	1	Circular Pipe	*317.297	1.89	1.41	0.40	0.00	317.30	0.3970	0.0480	0.0040	0.41	
FB45-FB55	27"	FB45-FB55	Reach	1017.44	315.65	0.0012	1	Circular Pipe	*317.301	1.65	1.41	0.45	0.00	317.30	0.3970	0.0630	0.0012	0.55	
		FB44-FB45.1	Reach	1025.44	315.66	0.0013	1	Circular Pipe	*317.302	1.64	1.41	0.45	0.00	317.30	0.3970	0.0640	0.0013	0.55	
FB44-FB45	27"	FB44-FB45	Reach	1419.44	315.97	0.0008	1	Circular Pipe	*317.314	1.34	1.41	0.57	0.01	317.32	0.3970	0.0950	0.0008	0.61	
FB43-FB44		FB43-FB44	Reach	1766.41	316.52	0.0016	1	Circular Pipe	*317.340	0.82	1.41	1.08	0.02	317.36	0.3970	0.2440	0.0016	0.51	
FB42-FB43	27"	FB42-FB43	Reach	1886.00	316.70	0.0015	1	Circular Pipe	*317.373	0.67	1.41	1.41	0.03	317.40	0.3970	0.3570	0.0015	0.52	
		FB41-FB42.1	Transition	1892.00	316.76	0.0100	1	Circular Pipe	*317.321	0.56	1.41	2.64	0.11	317.43	0.4700	0.7110	0.0100	0.00	
FB41-FB42	27"	FB41-FB42	Reach	1896.50	316.80	0.0089	1	Circular Pipe	*317.290	0.49	1.41	3.16	0.16	317.45	0.4700	0.9230	0.0089	0.41	
	15" Siphon	FB41	Junction	1897.00	316.73	-0.1400	1	Circular Pipe	*317.385	0.66	1.35	2.07	0.07	317.45	0.4590	0.0000	-0.1400	0.00	
		FB40-FB41.1.1.1	Reach	1899.50	316.65	-0.0320	1	Circular Pipe	*317.408	0.76	1.35	1.73	0.05	317.45	0.4590	0.3820	-0.0320	1.25	
		FB40-FB41.1.1	Reach	1920.50	306.95	-0.4619	1	Circular Pipe	*317.445	10.50	1.35	1.10	0.02	317.46	0.4590	0.0000	-0.4619	1.25	
		FB40-FB41.1	Reach	1930.50	302.95	-0.4000	1	Circular Pipe	*317.449	14.50	1.35	1.10	0.02	317.47	0.4590	0.0000	-0.4000	1.25	
		FB40-FB41.2	Reach	1980.50	302.95	0.0000	1	Circular Pipe	*317.471	14.52	1.35	1.10	0.02	317.49	0.4590	0.0000	0.0000	1.25	
		FB40-FB41.3	Reach	1990.50	306.95	0.4000	1	Circular Pipe	*317.476	10.53	1.35	1.10	0.02	317.49	0.4590	0.0000	0.4000	0.16	
FB40-FB41			FB40-FB41	Reach	2001.50	316.95	0.9091	1	Circular Pipe	*317.408	0.46	1.35	3.31	0.17	317.58	0.4590	1.0040	0.9091	0.13
			WallEnt	WallEnt	2001.50	316.97	0.0000	1	Circular Pipe	*317.603	0.63	1.35	1.58	0.04	317.64	0.4010	0.0000	0.0000	0.00
FB4001-FB40	24"	FB4001-FB40	Reach	2004.25	316.97	0.0000	1	Circular Pipe	*317.606	0.64	1.35	1.57	0.04	317.64	0.4010	0.4080	0.0000	2.00	
		FB4002-FB4001.1	Reach	2008.25	316.98	0.0025	1	Circular Pipe	*317.607	0.63	1.35	1.60	0.04	317.65	0.4010	0.4180	0.0025	0.47	
		FB4002-FB4001.2	Reach	2238.30	317.41	0.0019	1	Circular Pipe	*317.912	0.50	1.35	2.19	0.07	317.99	0.4010	0.6460	0.0019	0.50	
FB4002-FB4001	24"	FB4002-FB4001	Reach	2242.30	317.42	0.0025	1	Circular Pipe	*317.918	0.50	1.35	2.21	0.08	317.99	0.4010	0.6560	0.0025	0.47	
		FB4003-FB4002.1.1	Reach	2515.30	317.97	0.0020	1	Circular Pipe	*318.462	0.49	1.35	2.24	0.08	318.54	0.4010	0.6700	0.0020	0.49	
		FB4003-FB4002.1	Reach	2519.30	317.98	0.0025	1	Circular Pipe	*318.469	0.49	1.35	2.27	0.08	318.55	0.4010	0.6790	0.0025	0.47	
FB4003-FB4002	24"	FB4003-FB4002	Reach	2570.79	318.08	0.0019	1	Circular Pipe	*318.576	0.50	1.35	2.22	0.08	318.65	0.4010	0.6610	0.0019	0.50	
		FB4003	Headwrk	2570.79	318.08	0.0000	1	Circular Pipe	*318.576	0.50	1.35	2.22	0.08	318.65	0.4010	0.0000	0.0000	0.00	

0.66 Depth @ Siphon D/S

0.63 Depth @ Siphon U/S

Siphon S-2 Hydraulic Analysis Results

General Information									Existing Condition Peak Dry Weather Flow										
MODEL ID	PIPE SIZE (in)	FULL ELEMENT NAME	TYPE	STATION	INVERT ELEVATION (ft)	CALCULATED SLOPE	BARREL (quantity)	CROSS SECTION	WATER SURFACE ELEVATION (ft)	DEPTH (ft)	Q (cfs)	VELOC. (ft/s)	VELOC. HEAD (ft)	ENERGY GRADE LINE (ft)	CRITICAL DEPTH (ft)	FROUDE NUMBER	SLOPE	NORMAL DEPTH (ft)	
FB56		FB56	Outlet	472.91	315.04	0.0000	1	Circular Pipe	*317.290	2.25	2.76	0.69	0.01	317.30	0.56	0.0000	0.0000	0.00	
FB55-FB56	27"	FB55-FB56	Reach	808.44	315.40	0.0011	1	Circular Pipe	*317.313	1.91	2.76	0.77	0.01	317.32	0.56	0.0900	0.0011	0.80	
FB55		FB55	Junction	810.94	315.40	0.0000	1	Circular Pipe	*317.316	1.92	2.56	0.71	0.01	317.32	0.54	0.0000	0.0000	0.00	
		FB45-FB55.1	Reach	813.44	315.41	0.0040	1	Circular Pipe	*317.316	1.91	2.56	0.71	0.01	317.32	0.54	0.0850	0.0040	0.55	
FB45-FB55	27"	FB45-FB55	Reach	1017.44	315.65	0.0012	1	Circular Pipe	*317.328	1.68	2.56	0.81	0.01	317.34	0.54	0.1120	0.0012	0.75	
		FB44-FB45.1	Reach	1025.44	315.66	0.0013	1	Circular Pipe	*317.329	1.67	2.56	0.81	0.01	317.34	0.54	0.1130	0.0013	0.74	
FB44-FB45	27"	FB44-FB45	Reach	1419.44	315.97	0.0008	1	Circular Pipe	*317.366	1.40	2.56	0.99	0.02	317.38	0.54	0.1600	0.0008	0.84	
FB43-FB44		FB43-FB44	Reach	1766.41	316.52	0.0016	1	Circular Pipe	*317.438	0.92	2.56	1.68	0.04	317.48	0.54	0.3570	0.0016	0.70	
FB42-FB43	27"	FB42-FB43	Reach	1886.00	316.70	0.0015	1	Circular Pipe	*317.506	0.81	2.56	2.00	0.06	317.57	0.54	0.4580	0.0015	0.71	
		FB41-FB42.1	Transition	1892.00	316.76	0.0100	1	Circular Pipe	*317.351	0.59	2.56	4.49	0.31	317.66	0.64	1.1690	0.0100	0.00	
FB41-FB42	27"	FB41-FB42	Reach	1896.50	316.80	0.0089	1	Circular Pipe	*317.441	0.64	2.56	4.05	0.25	317.70	0.64	1.0030	0.0089	0.57	
	15" Siphon	FB41	Junction	1897.00	316.73	-0.1400	1	Circular Pipe	*317.601	0.87	2.42	2.66	0.11	317.71	0.62	0.0000	-0.1400	0.00	
		FB40-FB41.1.1.1	Reach	1899.50	316.65	-0.0320	1	Circular Pipe	*317.629	0.98	2.42	2.35	0.09	317.71	0.62	0.4140	-0.0320	1.25	
		FB40-FB41.1.1	Reach	1920.50	306.95	-0.4619	1	Circular Pipe	*317.684	10.73	2.42	1.98	0.06	317.74	0.62	0.0000	-0.4619	1.25	
		FB40-FB41.1	Reach	1930.50	302.95	-0.4000	1	Circular Pipe	*317.698	14.75	2.42	1.98	0.06	317.76	0.62	0.0000	-0.4000	1.25	
		FB40-FB41.2	Reach	1980.50	302.95	0.0000	1	Circular Pipe	*317.768	14.82	2.42	1.98	0.06	317.83	0.62	0.0000	0.0000	1.25	
		FB40-FB41.3	Reach	1990.50	306.95	0.4000	1	Circular Pipe	*317.782	10.83	2.42	1.98	0.06	317.84	0.62	0.0000	0.4000	0.21	
FB40-FB41			FB40-FB41	Reach	2001.50	316.95	0.9091	1	Circular Pipe	*317.725	0.78	2.42	3.03	0.14	317.87	0.62	0.6590	0.9091	0.17
			WallEnt	WallEnt	2001.50	316.97	0.0000	1	Circular Pipe	*317.903	0.93	2.42	1.69	0.04	317.95	0.54	0.0000	0.0000	0.00
FB4001-FB40	24"	FB4001-FB40	Reach	2004.25	316.97	0.0000	1	Circular Pipe	*317.905	0.94	2.42	1.68	0.04	317.95	0.54	0.3490	0.0000	2.00	
		FB4002-FB4001.1	Reach	2008.25	316.98	0.0025	1	Circular Pipe	*317.906	0.93	2.42	1.70	0.05	317.95	0.54	0.3550	0.0025	0.63	
		FB4002-FB4001.2	Reach	2238.30	317.41	0.0019	1	Circular Pipe	*318.113	0.70	2.42	2.46	0.09	318.21	0.54	0.6040	0.0019	0.68	
FB4002-FB4001	24"	FB4002-FB4001	Reach	2242.30	317.42	0.0025	1	Circular Pipe	*318.117	0.70	2.42	2.49	0.10	318.21	0.54	0.6130	0.0025	0.63	
		FB4003-FB4002.1.1	Reach	2515.30	317.97	0.0020	1	Circular Pipe	*318.635	0.67	2.42	2.65	0.11	318.74	0.54	0.6710	0.0020	0.67	
		FB4003-FB4002.1	Reach	2519.30	317.98	0.0025	1	Circular Pipe	*318.642	0.66	2.42	2.67	0.11	318.75	0.54	0.6780	0.0025	0.63	
FB4003-FB4002	24"	FB4003-FB4002	Reach	2570.79	318.08	0.0019	1	Circular Pipe	*318.749	0.67	2.42	2.63	0.11	318.86	0.54	0.6650	0.0019	0.67	
		FB4003	Headwrk	2570.79	318.08	0.0000	1	Circular Pipe	*318.749	0.67	2.42	2.63	0.11	318.86	0.54	0.0000	0.0000	0.00	

0.87 Depth @ Siphon D/S

0.93 Depth @ Siphon U/S

Siphon S-2 Hydraulic Analysis Results

General Information									Existing Condition Peak Wet Weather Flow									
MODEL ID	PIPE SIZE (in)	FULL ELEMENT NAME	TYPE	STATION	INVERT ELEVATION (ft)	CALCULATED SLOPE	BARREL (quantity)	CROSS SECTION	WATER SURFACE ELEVATION (ft)	DEPTH (ft)	Q (cfs)	VELOC. (ft/s)	VELOC. HEAD (ft)	ENERGY GRADE LINE (ft)	CRITICAL DEPTH (ft)	FROUDE NUMBER	SLOPE	NORMAL DEPTH (ft)
FB56		FB56	Outlet	472.91	315.04	0.0000	1	Circular Pipe	*317.290	2.25	3.45	0.87	0.01	317.30	0.63	0.0000	0.0000	0.00
FB55-FB56	27"	FB55-FB56	Reach	808.44	315.40	0.0011	1	Circular Pipe	*317.326	1.93	3.45	0.95	0.01	317.34	0.63	0.1110	0.0011	0.90
FB55		FB55	Junction	810.94	315.40	0.0000	1	Circular Pipe	*317.330	1.93	3.21	0.88	0.01	317.34	0.61	0.0000	0.0000	0.00
		FB45-FB55.1	Reach	813.44	315.41	0.0040	1	Circular Pipe	*317.330	1.92	3.21	0.89	0.01	317.34	0.61	0.1040	0.0040	0.62
FB45-FB55	27"	FB45-FB55	Reach	1017.44	315.65	0.0012	1	Circular Pipe	*317.350	1.70	3.21	1.00	0.02	317.37	0.61	0.1360	0.0012	0.85
		FB44-FB45.1	Reach	1025.44	315.66	0.0013	1	Circular Pipe	*317.351	1.69	3.21	1.00	0.02	317.37	0.61	0.1370	0.0013	0.83
FB44-FB45	27"	FB44-FB45	Reach	1419.44	315.97	0.0008	1	Circular Pipe	*317.407	1.44	3.21	1.20	0.02	317.43	0.61	0.1890	0.0008	0.95
FB43-FB44		FB43-FB44	Reach	1766.41	316.52	0.0016	1	Circular Pipe	*317.504	0.98	3.21	1.92	0.06	317.56	0.61	0.3910	0.0016	0.78
FB42-FB43	27"	FB42-FB43	Reach	1886.00	316.70	0.0015	1	Circular Pipe	*317.586	0.89	3.21	2.21	0.08	317.66	0.61	0.4780	0.0015	0.79
		FB41-FB42.1	Transition	1892.00	316.76	0.0100	1	Circular Pipe	*317.431	0.67	3.21	4.78	0.35	317.79	0.72	1.1480	0.0100	0.00
FB41-FB42	27"	FB41-FB42	Reach	1896.50	316.80	0.0089	1	Circular Pipe	*317.520	0.72	3.21	4.38	0.30	317.82	0.72	1.0030	0.0089	0.64
	15" Siphon	FB41	Junction	1897.00	316.73	-0.1400	1	Circular Pipe	*317.701	0.97	3.03	2.96	0.14	317.84	0.70	0.0000	-0.1400	0.00
		FB40-FB41.1.1.1	Reach	1899.50	316.65	-0.0320	1	Circular Pipe	*317.730	1.08	3.03	2.69	0.11	317.84	0.70	0.4130	-0.0320	1.25
		FB40-FB41.1.1	Reach	1920.50	306.95	-0.4619	1	Circular Pipe	*317.794	10.84	3.03	2.47	0.09	317.89	0.70	0.0000	-0.4619	1.25
		FB40-FB41.1	Reach	1930.50	302.95	-0.4000	1	Circular Pipe	*317.816	14.87	3.03	2.47	0.09	317.91	0.70	0.0000	-0.4000	1.25
		FB40-FB41.2	Reach	1980.50	302.95	0.0000	1	Circular Pipe	*317.926	14.98	3.03	2.47	0.09	318.02	0.70	0.0000	0.0000	1.25
		FB40-FB41.3	Reach	1990.50	306.95	0.4000	1	Circular Pipe	*317.948	11.00	3.03	2.47	0.09	318.04	0.70	0.0000	0.4000	0.23
FB40-FB41		FB40-FB41	Reach	2001.50	316.95	0.9091	1	Circular Pipe	*317.961	1.01	3.03	2.85	0.13	318.09	0.70	0.4820	0.9091	0.19
		WallEnt	2001.50	316.97	0.0000	1	Circular Pipe	*318.135	1.17	3.03	1.60	0.04	318.17	0.61	0.0000	0.0000	0.00	
FB4001-FB40	24"	FB4001-FB40	Reach	2004.25	316.97	0.0000	1	Circular Pipe	*318.136	1.17	3.03	1.59	0.04	318.18	0.61	0.2860	0.0000	2.00
		FB4002-FB4001.1	Reach	2008.25	316.98	0.0025	1	Circular Pipe	*318.137	1.16	3.03	1.61	0.04	318.18	0.61	0.2900	0.0025	0.71
		FB4002-FB4001.2	Reach	2238.30	317.41	0.0019	1	Circular Pipe	*318.270	0.86	3.03	2.35	0.09	318.36	0.61	0.5120	0.0019	0.76
FB4002-FB4001	24"	FB4002-FB4001	Reach	2242.30	317.42	0.0025	1	Circular Pipe	*318.273	0.85	3.03	2.37	0.09	318.36	0.61	0.5200	0.0025	0.71
		FB4003-FB4002.1.1	Reach	2515.30	317.97	0.0020	1	Circular Pipe	*318.719	0.75	3.03	2.82	0.12	318.84	0.61	0.6670	0.0020	0.75
		FB4003-FB4002.1	Reach	2519.30	317.98	0.0025	1	Circular Pipe	*318.726	0.75	3.03	2.84	0.13	318.85	0.61	0.6730	0.0025	0.71
FB4003-FB4002	24"	FB4003-FB4002	Reach	2570.79	318.08	0.0019	1	Circular Pipe	*318.832	0.75	3.03	2.80	0.12	318.95	0.61	0.6620	0.0019	0.76
		FB4003	Headwrk	2570.79	318.08	0.0000	1	Circular Pipe	*318.832	0.75	3.03	2.80	0.12	318.95	0.61	0.0000	0.0000	0.00

0.97 Depth @ Siphon D/S

1.17 Depth @ Siphon U/S

General Information						Near-Term Future Condition (without SOI or Carbon Canyon Developments)													
						Average Dry Weather Flow													
MODEL ID	PIPE SIZE (in)	FULL ELEMENT NAME	TYPE	STATION	INVERT ELEVATION (ft)	WATER SURFACE ELEVATION (ft)	DEPTH (ft)	Q (cfs)	BARREL (quantity)	VELOC. (ft/s)	VELOC. HEAD (ft)	ENERGY GRADE LINE (ft)	SUPER ELEV (ft)	CRITICAL DEPTH (ft)	FROUDE NUMBER	SLOPE	NORMAL DEPTH (ft)	CROSS SECTION	
FB56		FB56	Outlet	472.91	315.04	*317.290	2.25	1.59	1	0.40	0.00	317.29	0	0.42	0.0000	0.0000	0.00	Circular Pipe	
FB55-FB56	27"	FB55-FB56	Reach	808.44	315.40	*317.298	2.07	1.59	1	0.41	0.00	317.30	0	0.42	0.0410	0.0006	0.71	Circular Pipe	
FB55		FB55	Junction	810.94	315.40	*317.299	2.07	1.50	1	0.39	0.00	317.30	0	0.41	0.0000	0.0000	0.00	Circular Pipe	
		FB45-FB55.1	Reach	813.44	315.41	*317.299	2.07	1.50	1	0.39	0.00	317.30	0	0.41	0.0390	0.0000	2.25	Circular Pipe	
FB45-FB55	27"	FB45-FB55	Reach	1017.44	315.65	*317.303	1.96	1.50	1	0.41	0.00	317.31	0	0.41	0.0460	0.0005	0.70	Circular Pipe	
		FB44-FB45.1	Reach	1025.44	315.66	*317.303	1.96	1.50	1	0.41	0.00	317.31	0	0.41	0.0460	0.0000	2.25	Circular Pipe	
FB44-FB45	27"	FB44-FB45	Reach	1419.44	315.97	*317.312	1.34	1.50	1	0.61	0.01	317.32	0	0.41	0.1010	0.0016	0.53	Circular Pipe	
FB43-FB44		FB43-FB44	Reach	1766.41	316.52	*317.343	0.82	1.50	1	1.14	0.02	317.36	0	0.41	0.2580	0.0016	0.53	Circular Pipe	
FB42-FB43	27"	FB42-FB43	Reach	1886.00	316.70	*317.379	0.68	1.50	1	1.48	0.03	317.41	0	0.41	0.3730	0.0015	0.54	Circular Pipe	
		FB41-FB42.1	Transition	1892.00	316.76	*317.319	0.56	1.50	1	2.83	0.12	317.44	0	0.49	0.7620	0.0100	0.00	Circular Pipe	
FB41-FB42	27"	FB41-FB42	Reach	1896.50	316.80	*317.284	0.48	1.50	1	3.42	0.18	317.47	0	0.49	1.0040	0.0089	0.42	Circular Pipe	
	15" Siphon	FB41	Junction	1897.00	316.73	*317.399	0.67	1.44	1	2.15	0.07	317.47	0	0.48	0.0000	-0.1400	0.00	Circular Pipe	
		FB40-FB41.1.1.1	Reach	1899.50	316.65	*317.424	0.77	1.44	1	1.80	0.05	317.47	0	0.48	0.3920	-0.0320	1.25	Circular Pipe	
		FB40-FB41.1.1	Reach	1920.50	306.95	*317.464	10.51	1.44	1	1.17	0.02	317.48	0	0.48	0.0000	-0.4619	1.25	Circular Pipe	
		FB40-FB41.1	Reach	1930.50	302.95	*317.468	14.52	1.44	1	1.17	0.02	317.49	0	0.48	0.0000	-0.4000	1.25	Circular Pipe	
		FB40-FB41.2	Reach	1980.50	302.95	*317.493	14.54	1.44	1	1.17	0.02	317.51	0	0.48	0.0000	0.0000	1.25	Circular Pipe	
		FB40-FB41.3	Reach	1990.50	306.95	*317.498	10.55	1.44	1	1.17	0.02	317.52	0	0.48	0.0000	0.4000	0.16	Circular Pipe	
FB40-FB41			FB40-FB41	Reach	2001.50	316.95	*317.424	0.47	1.44	1	3.38	0.18	317.60	0	0.48	1.0040	0.9091	0.13	Circular Pipe
			WallEnt	2001.50	316.97	*317.627	0.66	1.44	1	1.60	0.04	317.67	0	0.42	0.0000	0.0000	0.00	Circular Pipe	
FB4001-FB40	24"	FB4001-FB40	Reach	2004.25	316.97	*317.629	0.66	1.44	1	1.59	0.04	317.67	0	0.42	0.4060	0.0000	2.00	Circular Pipe	
		FB4002-FB4001.1	Reach	2008.25	316.98	*317.631	0.65	1.44	1	1.62	0.04	317.67	0	0.42	0.4160	0.0025	0.48	Circular Pipe	
		FB4002-FB4001.2	Reach	2238.30	317.41	*317.929	0.52	1.44	1	2.23	0.08	318.01	0	0.42	0.6460	0.0019	0.52	Circular Pipe	
FB4002-FB4001	24"	FB4002-FB4001	Reach	2242.30	317.42	*317.934	0.51	1.44	1	2.25	0.08	318.01	0	0.42	0.6570	0.0025	0.48	Circular Pipe	
		FB4003-FB4002.1.1	Reach	2515.30	317.97	*318.479	0.51	1.44	1	2.29	0.08	318.56	0	0.42	0.6710	0.0020	0.51	Circular Pipe	
		FB4003-FB4002.1	Reach	2519.30	317.98	*318.485	0.51	1.44	1	2.31	0.08	318.57	0	0.42	0.6790	0.0025	0.48	Circular Pipe	
FB4003-FB4002	24"	FB4003-FB4002	Reach	2570.79	318.08	*318.592	0.51	1.44	1	2.27	0.08	318.67	0	0.42	0.6620	0.0019	0.51	Circular Pipe	
		FB4003	Headwrk	2570.79	318.08	*318.592	0.51	1.44	1	2.27	0.08	318.67	0	0.42	0.0000	0.0000	0.00	Circular Pipe	

@ Siphon D/S 0.67 d/D 0.30  
 @ Siphon U/S 0.66 d/D 0.33

General Information						Near-Term Future Condition (without SOI or Carbon Canyon Developments) Peak Dry Weather Flow												
MODEL ID	PIPE SIZE (in)	FULL ELEMENT NAME	TYPE	STATION	INVERT ELEVATION (ft)	WATER SURFACE ELEVATION (ft)	DEPTH (ft)	Q (cfs)	BARREL (quantity)	VELOC. (ft/s)	VELOC. HEAD (ft)	ENERGY GRADE LINE (ft)	SUPER ELEV (ft)	CRITICAL DEPTH (ft)	FROUDE NUMBER	SLOPE	NORMAL DEPTH (ft)	CROSS SECTION
FB56		FB56	Outlet	472.91	315.04	*317.290	2.25	2.91	1	0.73	0.01	317.30	0	0.58	0.0000	0.0000	0.00	Circular Pipe
FB55-FB56	27"	FB55-FB56	Reach	808.44	315.40	*317.316	1.92	2.91	1	0.81	0.01	317.33	0	0.58	0.0950	0.0011	0.82	Circular Pipe
FB55		FB55	Junction	810.94	315.40	*317.318	1.92	2.71	1	0.75	0.01	317.33	0	0.56	0.0000	0.0000	0.00	Circular Pipe
		FB45-FB55.1	Reach	813.44	315.41	*317.318	1.91	2.71	1	0.76	0.01	317.33	0	0.56	0.0890	0.0040	0.57	Circular Pipe
FB45-FB55	27"	FB45-FB55	Reach	1017.44	315.65	*317.333	1.68	2.71	1	0.85	0.01	317.34	0	0.56	0.1170	0.0012	0.78	Circular Pipe
		FB44-FB45.1	Reach	1025.44	315.66	*317.333	1.67	2.71	1	0.86	0.01	317.34	0	0.56	0.1190	0.0013	0.76	Circular Pipe
FB44-FB45	27"	FB44-FB45	Reach	1419.44	315.97	*317.375	1.41	2.71	1	1.04	0.02	317.39	0	0.56	0.1670	0.0008	0.86	Circular Pipe
FB43-FB44		FB43-FB44	Reach	1766.41	316.52	*317.453	0.93	2.71	1	1.74	0.05	317.50	0	0.56	0.3670	0.0016	0.72	Circular Pipe
FB42-FB43	27"	FB42-FB43	Reach	1886.00	316.70	*317.525	0.83	2.71	1	2.06	0.07	317.59	0	0.56	0.4640	0.0015	0.73	Circular Pipe
		FB41-FB42.1	Transition	1892.00	316.76	*317.370	0.61	2.71	1	4.56	0.32	317.69	0	0.66	1.1640	0.0100	0.00	Circular Pipe
FB41-FB42	27"	FB41-FB42	Reach	1896.50	316.80	*317.460	0.66	2.71	1	4.13	0.26	317.72	0	0.66	1.0030	0.0089	0.59	Circular Pipe
	15" Siphon	FB41	Junction	1897.00	316.73	*317.623	0.89	2.57	1	2.74	0.12	317.74	0	0.64	0.0000	-0.1400	0.00	Circular Pipe
		FB40-FB41.1.1.1	Reach	1899.50	316.65	*317.652	1.00	2.57	1	2.44	0.09	317.74	0	0.64	0.4180	-0.0320	1.25	Circular Pipe
		FB40-FB41.1.1	Reach	1920.50	306.95	*317.710	10.76	2.57	1	2.10	0.07	317.78	0	0.64	0.0000	-0.4619	1.25	Circular Pipe
		FB40-FB41.1	Reach	1930.50	302.95	*317.725	14.78	2.57	1	2.10	0.07	317.79	0	0.64	0.0000	-0.4000	1.25	Circular Pipe
		FB40-FB41.2	Reach	1980.50	302.95	*317.805	14.86	2.57	1	2.10	0.07	317.87	0	0.64	0.0000	0.0000	1.25	Circular Pipe
		FB40-FB41.3	Reach	1990.50	306.95	*317.821	10.87	2.57	1	2.10	0.07	317.89	0	0.64	0.0000	0.4000	0.21	Circular Pipe
FB40-FB41			FB40-FB41	Reach	2001.50	316.95	*317.792	0.84	2.57	1	2.93	0.13	317.92	0	0.64	0.5960	0.9091	0.17
			WallEnt	2001.50	316.97	*317.962	0.99	2.57	1	1.65	0.04	318.00	0	0.56	0.0000	0.0000	0.00	Circular Pipe
FB4001-FB40	24"	FB4001-FB40	Reach	2004.25	316.97	*317.964	0.99	2.57	1	1.65	0.04	318.01	0	0.56	0.3300	0.0000	2.00	Circular Pipe
		FB4002-FB4001.1	Reach	2008.25	316.98	*317.965	0.99	2.57	1	1.67	0.04	318.01	0	0.56	0.3350	0.0025	0.65	Circular Pipe
		FB4002-FB4001.2	Reach	2238.30	317.41	*318.148	0.74	2.57	1	2.45	0.09	318.24	0	0.56	0.5840	0.0019	0.70	Circular Pipe
FB4002-FB4001	24"	FB4002-FB4001	Reach	2242.30	317.42	*318.152	0.73	2.57	1	2.47	0.09	318.25	0	0.56	0.5930	0.0025	0.65	Circular Pipe
		FB4003-FB4002.1.1	Reach	2515.30	317.97	*318.657	0.69	2.57	1	2.70	0.11	318.77	0	0.56	0.6710	0.0020	0.69	Circular Pipe
		FB4003-FB4002.1	Reach	2519.30	317.98	*318.663	0.68	2.57	1	2.72	0.11	318.78	0	0.56	0.6770	0.0025	0.65	Circular Pipe
FB4003-FB4002	24"	FB4003-FB4002	Reach	2570.79	318.08	*318.770	0.69	2.57	1	2.68	0.11	318.88	0	0.56	0.6640	0.0019	0.69	Circular Pipe
		FB4003	Headwrk	2570.79	318.08	*318.770	0.69	2.57	1	2.68	0.11	318.88	0	0.56	0.0000	0.0000	0.00	Circular Pipe

@ Siphon D/S 0.89 d/D 0.40  
 @ Siphon U/S 0.99 d/D 0.50

General Information					Near-Term Future Condition (without SOI or Carbon Canyon Developments) Peak Wet Weather Flow													
MODEL ID	PIPE SIZE (in)	FULL ELEMENT NAME	TYPE	STATION	INVERT ELEVATION (ft)	WATER SURFACE ELEVATION (ft)	DEPTH (ft)	Q (cfs)	BARREL (quantity)	VELOC. (ft/s)	VELOC. HEAD (ft)	ENERGY GRADE LINE (ft)	SUPER ELEV (ft)	CRITICAL DEPTH (ft)	FROUDE NUMBER	SLOPE	NORMAL DEPTH (ft)	CROSS SECTION
FB56		FB56	Outlet	472.91	315.04	*317.290	2.25	3.64	1	0.91	0.01	317.30	0	0.65	0.0000	0.0000	0.00	Circular Pipe
FB55-FB56	27"	FB55-FB56	Reach	808.44	315.40	*317.330	1.93	3.64	1	1.00	0.02	317.35	0	0.65	0.1160	0.0011	0.93	Circular Pipe
FB55		FB55	Junction	810.94	315.40	*317.334	1.93	3.40	1	0.93	0.01	317.35	0	0.62	0.0000	0.0000	0.00	Circular Pipe
		FB45-FB55.1	Reach	813.44	315.41	*317.335	1.93	3.40	1	0.94	0.01	317.35	0	0.62	0.1090	0.0040	0.63	Circular Pipe
FB45-FB55	27"	FB45-FB55	Reach	1017.44	315.65	*317.357	1.71	3.40	1	1.05	0.02	317.37	0	0.62	0.1430	0.0012	0.88	Circular Pipe
		FB44-FB45.1	Reach	1025.44	315.66	*317.358	1.70	3.40	1	1.06	0.02	317.38	0	0.62	0.1440	0.0013	0.86	Circular Pipe
FB44-FB45	27"	FB44-FB45	Reach	1419.44	315.97	*317.420	1.45	3.40	1	1.25	0.02	317.44	0	0.62	0.1970	0.0008	0.98	Circular Pipe
FB43-FB44		FB43-FB44	Reach	1766.41	316.52	*317.524	1.00	3.40	1	1.98	0.06	317.59	0	0.62	0.3980	0.0016	0.81	Circular Pipe
FB42-FB43	27"	FB42-FB43	Reach	1886.00	316.70	*317.609	0.91	3.40	1	2.26	0.08	317.69	0	0.62	0.4810	0.0015	0.82	Circular Pipe
		FB41-FB42.1	Transition	1892.00	316.76	*317.454	0.69	3.40	1	4.86	0.37	317.82	0	0.74	1.1410	0.0100	0.00	Circular Pipe
FB41-FB42	27"	FB41-FB42	Reach	1896.50	316.80	*317.542	0.74	3.40	1	4.47	0.31	317.85	0	0.74	1.0030	0.0089	0.67	Circular Pipe
	15" Siphon	FB41	Junction	1897.00	316.73	*317.727	1.00	3.22	1	3.07	0.15	317.87	0	0.72	0.0000	-0.1400	0.00	Circular Pipe
		FB40-FB41.1.1.1	Reach	1899.50	316.65	*317.757	1.11	3.22	1	2.80	0.12	317.88	0	0.72	0.4100	-0.0320	1.25	Circular Pipe
		FB40-FB41.1.1	Reach	1920.50	306.95	*317.824	10.87	3.22	1	2.62	0.11	317.93	0	0.72	0.0000	-0.4619	1.25	Circular Pipe
		FB40-FB41.1	Reach	1930.50	302.95	*317.849	14.90	3.22	1	2.62	0.11	317.96	0	0.72	0.0000	-0.4000	1.25	Circular Pipe
		FB40-FB41.2	Reach	1980.50	302.95	*317.973	15.02	3.22	1	2.62	0.11	318.08	0	0.72	0.0000	0.0000	1.25	Circular Pipe
		FB40-FB41.3	Reach	1990.50	306.95	*317.998	11.05	3.22	1	2.62	0.11	318.10	0	0.72	0.0000	0.4000	0.24	Circular Pipe
FB40-FB41			FB40-FB41	Reach	2001.50	316.95	*318.038	1.09	3.22	1	2.84	0.12	318.16	0	0.72	0.4300	0.9091	0.19
		WallEnt	2001.50	316.97	*318.219	1.25	3.22	1	1.56	0.04	318.26	0	0.63	0.0000	0.0000	0.00	Circular Pipe	
FB4001-FB40	24"	FB4001-FB40	Reach	2004.25	316.97	*318.220	1.25	3.22	1	1.56	0.04	318.26	0	0.63	0.2660	0.0000	2.00	Circular Pipe
		FB4002-FB4001.1	Reach	2008.25	316.98	*318.221	1.24	3.22	1	1.57	0.04	318.26	0	0.63	0.2700	0.0025	0.73	Circular Pipe
		FB4002-FB4001.2	Reach	2238.30	317.41	*318.336	0.93	3.22	1	2.26	0.08	318.42	0	0.63	0.4720	0.0019	0.79	Circular Pipe
FB4002-FB4001	24"	FB4002-FB4001	Reach	2242.30	317.42	*318.338	0.92	3.22	1	2.29	0.08	318.42	0	0.63	0.4790	0.0025	0.73	Circular Pipe
		FB4003-FB4002.1.1	Reach	2515.30	317.97	*318.745	0.78	3.22	1	2.86	0.13	318.87	0	0.63	0.6630	0.0020	0.77	Circular Pipe
		FB4003-FB4002.1	Reach	2519.30	317.98	*318.752	0.77	3.22	1	2.88	0.13	318.88	0	0.63	0.6690	0.0025	0.73	Circular Pipe
FB4003-FB4002	24"	FB4003-FB4002	Reach	2570.79	318.08	*318.857	0.78	3.22	1	2.85	0.13	318.98	0	0.63	0.6600	0.0019	0.78	Circular Pipe
		FB4003	Headwrk	2570.79	318.08	*318.857	0.78	3.22	1	2.85	0.13	318.98	0	0.63	0.0000	0.0000	0.00	Circular Pipe

@ Siphon D/S 1.00 d/D 0.44  
 @ Siphon U/S 1.25 d/D 0.62

General Information						Future Condition (with SOI or Carbon Canyon Developments) Average Dry Weather Flow													
MODEL ID	PIPE SIZE (in)	FULL ELEMENT NAME	TYPE	STATION	INVERT ELEVATION (ft)	WATER SURFACE ELEVATION (ft)	DEPTH (ft)	Q (cfs)	BARREL (quantity)	VELOC. (ft/s)	VELOC. HEAD (ft)	ENERGY GRADE LINE (ft)	SUPER ELEV (ft)	CRITICAL DEPTH (ft)	FROUDE NUMBER	SLOPE	NORMAL DEPTH (ft)	CROSS SECTION	
FB56		FB56	Outlet	472.91	315.04	*317.290	2.25	3.16	1	0.80	0.01	317.30	0	0.60	0.0000	0.0000	0.00	Circular Pipe	
FB55-FB56	27"	FB55-FB56	Reach	808.44	315.40	*317.320	1.92	3.16	1	0.88	0.01	317.33	0	0.60	0.1020	0.0011	0.86	Circular Pipe	
FB55		FB55	Junction	810.94	315.40	*317.322	1.92	3.08	1	0.85	0.01	317.33	0	0.59	0.0000	0.0000	0.00	Circular Pipe	
		FB45-FB55.1	Reach	813.44	315.41	*317.322	1.91	3.08	1	0.85	0.01	317.33	0	0.59	0.1010	0.0040	0.60	Circular Pipe	
FB45-FB55	27"	FB45-FB55	Reach	1017.44	315.65	*317.340	1.69	3.08	1	0.96	0.01	317.35	0	0.59	0.1320	0.0012	0.83	Circular Pipe	
		FB44-FB45.1	Reach	1025.44	315.66	*317.341	1.68	3.08	1	0.97	0.01	317.36	0	0.59	0.1330	0.0013	0.82	Circular Pipe	
FB44-FB45	27"	FB44-FB45	Reach	1419.44	315.97	*317.393	1.42	3.08	1	1.16	0.02	317.41	0	0.59	0.1850	0.0008	0.93	Circular Pipe	
FB43-FB44		FB43-FB44	Reach	1766.41	316.52	*317.487	0.97	3.08	1	1.88	0.06	317.54	0	0.59	0.3880	0.0016	0.77	Circular Pipe	
FB42-FB43	27"	FB42-FB43	Reach	1886.00	316.70	*317.568	0.87	3.08	1	2.18	0.07	317.64	0	0.59	0.4770	0.0015	0.78	Circular Pipe	
		FB41-FB42.1	Transition	1892.00	316.76	*317.415	0.66	3.08	1	4.72	0.35	317.76	0	0.71	1.1520	0.0100	0.00	Circular Pipe	
FB41-FB42	27"	FB41-FB42	Reach	1896.50	316.80	*317.505	0.71	3.08	1	4.32	0.29	317.79	0	0.71	1.0030	0.0089	0.63	Circular Pipe	
FB41	15" Siphon	FB41	Junction	1897.00	316.73	*317.650	0.92	3.02	1	3.11	0.15	317.80	0	0.70	0.0000	-0.1400	0.00	Circular Pipe	
		FB40-FB41.1.1.1	Reach	1899.50	316.65	*317.688	1.04	3.02	1	2.77	0.12	317.81	0	0.70	0.4530	-0.0320	1.25	Circular Pipe	
		FB40-FB41.1.1	Reach	1920.50	306.95	*317.759	10.81	3.02	1	2.46	0.09	317.85	0	0.70	0.0000	-0.4619	1.25	Circular Pipe	
		FB40-FB41.1	Reach	1930.50	302.95	*317.780	14.83	3.02	1	2.46	0.09	317.87	0	0.70	0.0000	-0.4000	1.25	Circular Pipe	
		FB40-FB41.2	Reach	1980.50	302.95	*317.889	14.94	3.02	1	2.46	0.09	317.98	0	0.70	0.0000	0.0000	1.25	Circular Pipe	
		FB40-FB41.3	Reach	1990.50	306.95	*317.911	10.96	3.02	1	2.46	0.09	318.01	0	0.70	0.0000	0.4000	0.23	Circular Pipe	
FB40-FB41		FB40-FB41	Reach	2001.50	316.95	*317.913	0.96	3.02	1	2.97	0.14	318.05	0	0.70	0.5340	0.9091	0.19	Circular Pipe	
			WallEnt	2001.50	316.97	*318.097	1.13	3.02	1	1.65	0.04	318.14	0	0.61	0.0000	0.0000	0.00	Circular Pipe	
FB4001-FB40	24"	FB4001-FB40	Reach	2004.25	316.97	*318.098	1.13	3.02	1	1.65	0.04	318.14	0	0.61	0.3030	0.0000	2.00	Circular Pipe	
		FB4002-FB4001.1	Reach	2008.25	316.98	*318.099	1.12	3.02	1	1.67	0.04	318.14	0	0.61	0.3080	0.0025	0.71	Circular Pipe	
		FB4002-FB4001.2	Reach	2238.30	317.41	*318.249	0.84	3.02	1	2.41	0.09	318.34	0	0.61	0.5350	0.0019	0.76	Circular Pipe	
FB4002-FB4001	24"	FB4002-FB4001	Reach	2242.30	317.42	*318.252	0.83	3.02	1	2.44	0.09	318.34	0	0.61	0.5430	0.0025	0.71	Circular Pipe	
		FB4003-FB4002.1.1	Reach	2515.30	317.97	*318.717	0.75	3.02	1	2.82	0.12	318.84	0	0.61	0.6680	0.0020	0.75	Circular Pipe	
		FB4003-FB4002.1	Reach	2519.30	317.98	*318.724	0.74	3.02	1	2.83	0.12	318.85	0	0.61	0.6730	0.0025	0.71	Circular Pipe	
FB4003-FB4002	24"	FB4003-FB4002	Reach	2570.79	318.08	*318.831	0.75	3.02	1	2.80	0.12	318.95	0	0.61	0.6620	0.0019	0.75	Circular Pipe	
		FB4003	Headwrk	2570.79	318.08	*318.831	0.75	3.02	1	2.80	0.12	318.95	0	0.61	0.0000	0.0000	0.00	Circular Pipe	

@ Siphon D/S 0.92 d/D 0.41  
 @ Siphon U/S 1.13 d/D 0.56

General Information						Future Condition (with SOI or Carbon Canyon Developments) Peak Dry Weather Flow												
MODEL ID	PIPE SIZE (in)	FULL ELEMENT NAME	TYPE	STATION	INVERT ELEVATION (ft)	WATER SURFACE ELEVATION (ft)	DEPTH (ft)	Q (cfs)	BARREL (quantity)	VELOC. (ft/s)	VELOC. HEAD (ft)	ENERGY GRADE LINE (ft)	SUPER ELEV (ft)	CRITICAL DEPTH (ft)	FROUDE NUMBER	SLOPE	NORMAL DEPTH (ft)	CROSS SECTION
FB56		FB56	Outlet	472.91	315.04	*317.290	2.25	5.41	1	1.36	0.03	317.32	0	0.79	0.0000	0.0000	0.00	Circular Pipe
FB55-FB56	27"	FB55-FB56	Reach	808.44	315.40	*317.381	1.98	5.41	1	1.46	0.03	317.41	0	0.79	0.1620	0.0011	1.17	Circular Pipe
FB55		FB55	Junction	810.94	315.40	*317.386	1.99	5.22	1	1.41	0.03	317.42	0	0.78	0.0000	0.0000	0.00	Circular Pipe
		FB45-FB55.1	Reach	813.44	315.41	*317.386	1.98	5.22	1	1.41	0.03	317.42	0	0.78	0.1570	0.0040	0.79	Circular Pipe
FB45-FB55	27"	FB45-FB55	Reach	1017.44	315.65	*317.437	1.79	5.22	1	1.54	0.04	317.47	0	0.78	0.1990	0.0012	1.11	Circular Pipe
		FB44-FB45.1	Reach	1025.44	315.66	*317.439	1.78	5.22	1	1.55	0.04	317.48	0	0.78	0.2010	0.0013	1.09	Circular Pipe
FB44-FB45	27"	FB44-FB45	Reach	1419.44	315.97	*317.566	1.60	5.22	1	1.73	0.05	317.61	0	0.78	0.2510	0.0008	1.26	Circular Pipe
FB43-FB44		FB43-FB44	Reach	1766.41	316.52	*317.733	1.21	5.22	1	2.39	0.09	317.82	0	0.78	0.4270	0.0016	1.02	Circular Pipe
FB42-FB43	27"	FB42-FB43	Reach	1886.00	316.70	*317.836	1.14	5.22	1	2.60	0.10	317.94	0	0.78	0.4840	0.0015	1.04	Circular Pipe
		FB41-FB42.1	Transition	1892.00	316.76	*317.656	0.90	5.22	1	5.54	0.48	318.13	0	0.93	1.0680	0.0100	0.00	Circular Pipe
FB41-FB42	27"	FB41-FB42	Reach	1896.50	316.80	*317.725	0.93	5.22	1	5.36	0.45	318.17	0	0.93	1.0020	0.0089	0.89	Circular Pipe
FB41	15" Siphon	FB41	Junction	1897.00	316.73	*317.915	1.19	5.08	1	4.22	0.28	318.19	0	0.91	0.0000	-0.1400	0.00	Circular Pipe
		FB40-FB41.1.1.1	Reach	1899.50	316.65	*317.940	1.29	5.08	1	4.14	0.27	318.21	0	0.91	0.0000	-0.0320	1.25	Circular Pipe
		FB40-FB41.1.1	Reach	1920.50	306.95	*318.070	11.12	5.08	1	4.14	0.27	318.34	0	0.91	0.0000	-0.4619	1.25	Circular Pipe
		FB40-FB41.1	Reach	1930.50	302.95	*318.132	15.18	5.08	1	4.14	0.27	318.40	0	0.91	0.0000	-0.4000	1.25	Circular Pipe
		FB40-FB41.2	Reach	1980.50	302.95	*318.442	15.49	5.08	1	4.14	0.27	318.71	0	0.91	0.0000	0.0000	1.25	Circular Pipe
		FB40-FB41.3	Reach	1990.50	306.95	*318.503	11.55	5.08	1	4.14	0.27	318.77	0	0.91	0.0000	0.4000	0.30	Circular Pipe
FB40-FB41		FB40-FB41	Reach	2001.50	316.95	*318.650	1.70	5.08	1	4.14	0.27	318.92	0	0.91	0.0000	0.9091	0.24	Circular Pipe
			WallEnt	2001.50	316.97	*318.989	2.02	5.08	1	1.62	0.04	319.03	0	0.79	0.0000	0.0000	0.00	Circular Pipe
FB4001-FB40	24"	FB4001-FB40	Reach	2004.25	316.97	*318.990	2.02	5.08	1	1.62	0.04	319.03	0	0.79	0.0000	0.0000	2.00	Circular Pipe
		FB4002-FB4001.1	Reach	2008.25	316.98	*318.992	2.01	5.08	1	1.62	0.04	319.03	0	0.79	0.0000	0.0025	0.94	Circular Pipe
		FB4002-FB4001.2	Reach	2238.30	317.41	*319.090	1.68	5.08	1	1.80	0.05	319.14	0	0.79	0.2290	0.0019	1.02	Circular Pipe
FB4002-FB4001	24"	FB4002-FB4001	Reach	2242.30	317.42	*319.091	1.67	5.08	1	1.81	0.05	319.14	0	0.79	0.2320	0.0025	0.94	Circular Pipe
		FB4003-FB4002.1.1	Reach	2515.30	317.97	*319.235	1.27	5.08	1	2.43	0.09	319.33	0	0.79	0.4100	0.0020	1.00	Circular Pipe
		FB4003-FB4002.1	Reach	2519.30	317.98	*319.238	1.26	5.08	1	2.44	0.09	319.33	0	0.79	0.4150	0.0025	0.94	Circular Pipe
FB4003-FB4002	24"	FB4003-FB4002	Reach	2570.79	318.08	*319.281	1.20	5.08	1	2.58	0.10	319.38	0	0.79	0.4530	0.0019	1.01	Circular Pipe
		FB4003	Headwrk	2570.79	318.08	*319.281	1.20	5.08	1	2.58	0.10	319.38	0	0.79	0.0000	0.0000	0.00	Circular Pipe

@ Siphon D/S 1.19 d/D 0.53  
 @ Siphon U/S 2.02 d/D 1.01

General Information					Future Condition (with SOI or Carbon Canyon Developments) Peak Wet Weather Flow													
MODEL ID	PIPE SIZE (in)	FULL ELEMENT NAME	TYPE	STATION	INVERT ELEVATION (ft)	WATER SURFACE ELEVATION (ft)	DEPTH (ft)	Q (cfs)	BARREL (quantity)	VELOC. (ft/s)	VELOC. HEAD (ft)	ENERGY GRADE LINE (ft)	SUPER ELEV (ft)	CRITICAL DEPTH (ft)	FROUDE NUMBER	SLOPE	NORMAL DEPTH (ft)	CROSS SECTION
FB56		FB56	Outlet	472.91	315.04	*317.290	2.25	6.77	1	1.70	0.04	317.33	0	0.89	0.0000	0.0000	0.00	Circular Pipe
FB55-FB56	27"	FB55-FB56	Reach	808.44	315.40	*317.435	2.04	6.77	1	1.79	0.05	317.48	0	0.89	0.1860	0.0011	1.34	Circular Pipe
FB55		FB55	Junction	810.94	315.40	*317.443	2.04	6.53	1	1.72	0.05	317.49	0	0.87	0.0000	0.0000	0.00	Circular Pipe
		FB45-FB55.1	Reach	813.44	315.41	*317.444	2.03	6.53	1	1.73	0.05	317.49	0	0.87	0.1800	0.0040	0.90	Circular Pipe
FB45-FB55	27"	FB45-FB55	Reach	1017.44	315.65	*317.521	1.87	6.53	1	1.85	0.05	317.57	0	0.87	0.2250	0.0012	1.28	Circular Pipe
		FB44-FB45.1	Reach	1025.44	315.66	*317.524	1.86	6.53	1	1.85	0.05	317.58	0	0.87	0.2270	0.0013	1.25	Circular Pipe
FB44-FB45	27"	FB44-FB45	Reach	1419.44	315.97	*317.701	1.73	6.53	1	1.99	0.06	317.76	0	0.87	0.2660	0.0008	1.46	Circular Pipe
FB43-FB44		FB43-FB44	Reach	1766.41	316.52	*317.900	1.38	6.53	1	2.55	0.10	318.00	0	0.87	0.4170	0.0016	1.16	Circular Pipe
FB42-FB43	27"	FB42-FB43	Reach	1886.00	316.70	*318.006	1.31	6.53	1	2.73	0.12	318.12	0	0.87	0.4630	0.0015	1.18	Circular Pipe
		FB41-FB42.1	Transition	1892.00	316.76	*317.788	1.03	6.53	1	6.05	0.57	318.36	0	1.03	1.0020	0.0100	0.00	Circular Pipe
FB41-FB42	27"	FB41-FB42	Reach	1896.50	316.80	*317.873	1.07	6.53	1	5.82	0.53	318.40	0	1.03	0.9040	0.0089	1.15	Circular Pipe
FB41	15" Siphon	FB41	Junction	1897.00	316.73	*318.014	1.28	6.35	1	5.18	0.42	318.43	0	1.02	0.0000	-0.1400	0.00	Circular Pipe
		FB40-FB41.1.1.1	Reach	1899.50	316.65	*318.038	1.39	6.35	1	5.18	0.42	318.45	0	1.02	0.0000	-0.0320	1.25	Circular Pipe
		FB40-FB41.1.1	Reach	1920.50	306.95	*318.241	11.29	6.35	1	5.18	0.42	318.66	0	1.02	0.0000	-0.4619	1.25	Circular Pipe
		FB40-FB41.1	Reach	1930.50	302.95	*318.337	15.39	6.35	1	5.18	0.42	318.75	0	1.02	0.0000	-0.4000	1.25	Circular Pipe
		FB40-FB41.2	Reach	1980.50	302.95	*318.821	15.87	6.35	1	5.18	0.42	319.24	0	1.02	0.0000	0.0000	1.25	Circular Pipe
		FB40-FB41.3	Reach	1990.50	306.95	*318.918	11.97	6.35	1	5.18	0.42	319.33	0	1.02	0.0000	0.4000	0.33	Circular Pipe
FB40-FB41		FB40-FB41	Reach	2001.50	316.95	*319.148	2.20	6.35	1	5.18	0.42	319.56	0	1.02	0.0000	0.9091	0.27	Circular Pipe
			WallEnt	2001.50	316.97	*319.676	2.71	6.35	1	2.02	0.06	319.74	0	0.89	0.0000	0.0000	0.00	Circular Pipe
FB4001-FB40	24"	FB4001-FB40	Reach	2004.25	316.97	*319.678	2.71	6.35	1	2.02	0.06	319.74	0	0.89	0.0000	0.0000	2.00	Circular Pipe
		FB4002-FB4001.1	Reach	2008.25	316.98	*319.682	2.70	6.35	1	2.02	0.06	319.75	0	0.89	0.0000	0.0025	1.07	Circular Pipe
		FB4002-FB4001.2	Reach	2238.30	317.41	*319.863	2.45	6.35	1	2.02	0.06	319.93	0	0.89	0.0000	0.0019	1.17	Circular Pipe
FB4002-FB4001	24"	FB4002-FB4001	Reach	2242.30	317.42	*319.866	2.45	6.35	1	2.02	0.06	319.93	0	0.89	0.0000	0.0025	1.07	Circular Pipe
		FB4003-FB4002.1.1	Reach	2515.30	317.97	*320.081	2.11	6.35	1	2.02	0.06	320.14	0	0.89	0.0000	0.0020	1.15	Circular Pipe
		FB4003-FB4002.1	Reach	2519.30	317.98	*320.085	2.11	6.35	1	2.02	0.06	320.15	0	0.89	0.0000	0.0025	1.07	Circular Pipe
FB4003-FB4002	24"	FB4003-FB4002	Reach	2570.79	318.08	*320.125	2.05	6.35	1	2.02	0.06	320.19	0	0.89	0.0000	0.0019	1.16	Circular Pipe
		FB4003	Headwrk	2570.79	318.08	*320.125	2.05	6.35	1	2.02	0.06	320.19	0	0.89	0.0000	0.0000	0.00	Circular Pipe

@ Siphon D/S 1.28 d/D 0.57  
 @ Siphon U/S 2.71 d/D 1.35

## **8-1 CCTV Summary**













































































































































































































































































