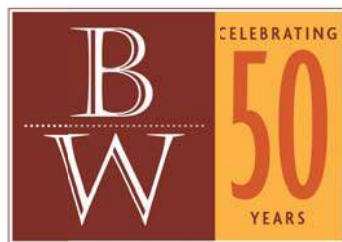




City of Chula Vista

Salt Creek Sewer Basin Development Impact Fee Study

**Final Report
June 2015**



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TABLE OF CONTENTS

SECTION 1:	EXECUTIVE SUMMARY	1
1.1	Background	1
1.2	Purpose	1
1.3	Recommended DIF	2
1.4	Legal Overview	2
SECTION 2:	INTRODUCTION	4
2.1	1994 Wilson Study	4
2.2	2004 City Update	4
SECTION 3:	BASIN DESCRIPTION	6
3.1	Basin Area	6
3.2	Sewerage Facilities	6
3.3	Wastewater Duty Factors	13
3.4	EDU Projections	14
SECTION 4:	2050 BUILD-OUT CAPACITY ANALYSIS	18
4.1	Flow Projection	19
4.2	Hydraulic Model Development	21
4.3	Hydraulic Analysis	25
4.4	Capital Improvement Program and Cost Estimates	26
SECTION 5:	DIF ANALYSIS	31
5.1	Current DIF Program	31
5.2	Fee Methodology	31
5.3	Project Costs	32
5.4	Developer Credits	32
5.5	Construction Funding	33
5.6	Environmental Mitigation	34
5.7	DIF Administration	34
5.8	Available Reserves	34
5.9	Development Impact Fee Calculation	34
5.10	DIF Comparison	35
SECTION 6:	CONCLUSIONS	37
6.1	Recommendations	37
6.2	Updates	37
6.3	Environmental Review	37
6.4	Annual Adjustment	38
6.5	Study Limitations	38

APPENDIX A: Development Area Wastewater Flow & EDU Projections (Remaining Only)

APPENDIX B: 2050 Land Use and Wastewater Flow Projections (Existing and Remaining Connections)

APPENDIX C: Salt Creek Interceptor (detail)

APPENDIX D: Salt Creek Improvement Plan

APPENDIX E: Proposed Trunk Sewers

APPENDIX F: 2050 CIP Pipeline Proposed in 2014 WWMP

APPENDIX G: 2050 PWWF Model Result with Existing Pipeline Conditions

APPENDIX H: 2050 PWWF Model Result with Proposed Future Diameters

APPENDIX I: Salt Creek Sewer Lateral Improvements – Bond Estimate

APPENDIX J: Wolf Canyon Sewer Trunk Facilities

TABLE OF TABLES

Table 1: DIF Calculation	2
Table 2: List of Facilities	11
Table 3: Wastewater Duty Factor Comparison.....	13
Table 4: EDU Conversion Factors.....	14
Table 5: Salt Creek Basin Remaining Acreage and Units	15
Table 6: Change in EDUs	17
Table 7: 2050 Salt Creek Interceptor Wastewater Flow Projections.....	20
Table 8: Pipeline Unit Costs	28
Table 9: Future Capital Improvement Projects with Cost Estimate	29
Table 10: Project Costs.....	32
Table 11: Financing Cost	33
Table 12: DIF Calculation	35
Table 13: DIF Comparison	35
Table 14: Comparison of DIF Studies	36

TABLE OF FIGURES

Figure 1: Study Area & Proposed Trunk Lines	12
Figure 2: Existing and Proposed New Developments.....	16
Figure 3: Hunte Parkway Extension	23
Figure 4: Normalized Diurnal Curves	24

SECTION 1: Executive Summary

1.1 Background

The City first developed a sewer analysis and basin plan for the Salt Creek Sewer Basin in 1994. The purpose of the basin plan was to project development in the basin, determine sewer facilities needed to serve development, and to calculate an impact fee to recover the cost of those facilities. The 1994 Study included the Salt Creek Interceptor Reaches 1 through 8 at a total cost of \$8.2 million. At that time, Reach 9 was assumed to be a regional facility that would serve customers outside of the Salt Creek Basin. The cost of Reaches 1 through 8 was spread among nearly 29,000 equivalent dwelling units (EDUs) in the basin to calculate a Salt Creek Sewer Basin development impact fee (DIF) of \$284 per EDU. The City adopted the DIF with Ordinance No. 2617 on December 6, 1994. The concept of the DIF is that customers benefiting from capital facilities should pay their proportionate share for the construction of those facilities.

The DIF was revised in 2004 by City staff to reflect the final construction cost of the Salt Creek Sewer, to include Reach 9A, the Rock Mountain Road/Main Street and Heritage Road Trunk Sewer lines located in the Wolf Canyon Basin, to add developer credits and financing costs, and to revise the remaining EDUs predicted to develop in the basin. The 2004 study increased the cost recovered by the DIF from \$8.2 million to \$34.1 million and adjusted the remaining EDUs from 28,737 to 25,668. The 2004 study increased the Salt Creek DIF from \$284 to \$1,330 per EDU.

1.2 Purpose

The purpose of this report is to update the Salt Creek Basin development impact fee originally established in 1994 and last updated in 2004. The 2015 update of the Salt Creek DIF is necessary for the following reasons:

- To reflect the updated development projections
- To reflect the updated wastewater generation rates of various land use types
- To revise the list of facilities to be financed by the DIF
- To update the construction cost of the Rock Mountain Road/Main Street and Heritage Road Trunk Sewers
- To update financing costs, developer contributions, environmental mitigation, and administrative costs

1.3 Recommended DIF

The Salt Creek DIF is calculated based on the costs of capital facilities less available DIF fund reserves divided by the remaining EDUs within the basin benefitting from the facilities. The 2015 updated fee is based on the final cost of the Salt Creek Interceptor (Reaches 1-9A) and estimated costs for the Wolf Canyon Trunk Sewer lines (Rock Mountain Road/Main Street, Heritage Road, and lines identified in the 2014 Wastewater Master Plan Update). The fee also accounts for developer credits, financing costs, environmental mitigation, administrative costs, and available fund reserves. In total, \$27.5 million in costs are attributable to the Salt Creek DIF. These costs are divided amongst the 20,668 EDUs remaining in the Salt Creek Sewer Basin. Table 1 shows the DIF calculation. The 2015 updated fee is \$1,330 and is equal to the current fee.

Table 1: DIF Calculation
City of Chula Vista
Salt Creek DIF Study

	Amount
Cost Category	
Outstanding Loan Payments	\$24,575,429
Future Construction Cost	7,603,478
Outstanding Developer Credits	0
Environmental Mitigation	1,000,000
DIF Administration Cost	120,000
Less: DIF Fund Reserve	<u>(5,805,114)</u>
Subtotal	\$27,493,793
Remaining EDUs	20,668
New DIF (per EDU)	\$1,330

Note: The City will maintain a loan repayment reserve of \$1.3 million.

1.4 Legal Overview

In California, the basic statutory standards governing water and sewer capacity fees are embodied in Government Code Section 66013, 66016, and 66022 (Mitigation Fee Act). The development impact fee, as described in this report is essentially a capacity fee attributable to a specific development area – the Salt Creek Basin. The Salt Creek DIF is governed by the same statutory requirements as capacity fees or connection fees. Government Code 66013 provides the fundamental provisions:

- a) Notwithstanding any other provisions of law, when a local agency imposes fees for water connections or sewer connections, or imposes capacity charges, those fees or charges shall not exceed the estimated reasonable cost of providing the service for

which the fee or charge is imposed, unless a question regarding the amount the fee or charge imposed in excess of the estimated reasonable cost of providing the services or materials is submitted to, and approved by, a popular vote of two-thirds of those electors voting on the issue.

b) As used in this section

- 1) "Sewer connection" means the connection of a building to a public sewer system.
- 2) "Water connection" means the connection of a building to a public water system, as defined in subdivision (e) of Section 4010.1 of the Health and Safety Code.
- 3) "Capacity charges" means charges for facilities in existence at the time the charge is imposed or charges for new facilities to be constructed in the future which are of benefit to the person or property being charged.
- 4) "Local agency" means a local agency as defined in Section 66000.

c) Any judicial action or proceeding to attack, review, set aside, void, or annul the ordinance, resolution, or motion imposing a fee or capacity charge subject to this section shall be brought pursuant to Section 66022. Section 66013 indicates that any connection fee must be based on an estimate of the reasonable cost of providing service. The legislative history of this provision indicates that the legislature did not intend to limit the types of costs that would be included.

SECTION 2: Introduction

The City of Chula Vista (City) provides wastewater collection throughout its service area of over 50 square miles. The service area is comprised of 8 drainage basins that route wastewater flow through connections to regional sewerage facilities located along the San Diego Bay to the west and the Sweetwater River to the north. Last year, the City completed the 2014 Wastewater Master Plan Update (WWMP) which revised the City's wastewater generation rates and developed a City-wide capacity fee for new customers connecting to the wastewater system. In addition to the City-wide capacity fee, the City also collects development impact fees (DIFs) for drainage basin-specific facilities. This report updates the development impact fee for the Salt Creek Basin.

The Salt Creek Basin is defined as the area served by the Salt Creek Interceptor, a 16.5 mile sewer line that begins west of the Upper Otay Reservoir and ultimately ties into the City of San Diego's Metro sewer line just west of Interstate 5 near Main Street. The interceptor is divided into nine reaches, which are points of slope change or connections with other major tributary sewer lines. The Wolf Canyon Basin is also served by the Salt Creek Interceptor and is therefore considered part of the Salt Creek Basin for engineering purposes and financial planning. The Salt Creek DIF is collected from new connections in both the Salt Creek Basin and the Wolf Canyon Basin.

2.1 1994 Wilson Study

The City first commissioned a basin plan for the Salt Creek Sewer Basin in 1994. The study was performed by Wilson Engineering and defined the fee benefit area from which DIFs would be collected. Wilson Engineering calculated the DIF to include project costs of \$8.2 million reflecting Reaches 1 through 8. Although the Wolf Canyon Sewer Basin was considered part of the Salt Creek Basin, no additional facilities were envisioned for the Wolf Canyon Basin. It was assumed that customers could connect to the Salt Creek Interceptor via laterals. Wilson Engineering defined an EDU as generating 280 gallons per day of wastewater flow and determined a DIF customer base of 28,737 EDUs. The 1994 Study calculated a DIF of \$284 per EDU.

2.2 2004 City Update

The Salt Creek DIF was last updated in 2004 by the City. The 2004 Study updated the 1994 Wilson Study to reflect the final construction cost of facilities and the financing mechanisms used by the City. Reaches 1, 2A, and 2B were constructed by developers at the developers' expense. Thus, the 2004 Study includes developer credits for the construction cost of those

Reaches. The final project cost of Reaches constructed by the City (Reaches 3, 4A, 5B, 6, 7, 8, and 9A) was updated. As available, the City utilized DIF reserves to fund project costs. However, the City also relied on loans made from the Trunk Sewer Capital Reserve Fund to the Salt Creek DIF fund. Reaches 4B and 5A were constructed by San Diego Gas and Electric (SDG&E) but were funded at the City's expense via a loan from the Trunk Sewer Capital Reserve Fund. The 2004 Study added the estimated financing costs associated with these loans. The 1994 Wilson Study did not include financing costs.

The 2004 Study reflected the City's revised plan for Reach 9 and the Wolf Canyon Basin. Reach 9 was redefined as Reach 9A, Reach 9B, and Reach 9B'. Reach 9A was considered to be a Salt Creek Basin facility and was included in the DIF. Reaches 9B and 9B' were considered to be regional facilities. These facilities were described in the 2004 Study but their project costs were not included in the DIF. The cost for Reaches 9B and 9B' are obligated to the Trunk Sewer Capital Reserve Fund. Trunk lines for the Wolf Canyon Basin (Rock Mountain Road/Main Street and Heritage Road Trunk Sewers) were added to the DIF at a cost of \$5.7 million.

From the 1994 Wilson Study to the 2004 Study, the DIF cost recovery amount was increased from \$8.2 million to \$34.1 million to reflect the actual construction cost of facilities, new facility costs for Reach 9A and the Wolf Canyon Basin, and the financing costs of the loans from the Trunk Sewer Capital Reserve Fund. The 2004 Study defined an EDU as generating 265 gallons per day of wastewater flow and determined a DIF customer base of 25,668 EDUs. The 2004 Study calculated a DIF of \$1,330 per EDU.

Since the adoption of the 2004 updated DIF, the City has had various changes in planned development and reduced flows due to water conservation efforts. For this reason, past infrastructure planning assumptions needed to be reexamined.

SECTION 3: Basin Description

3.1 Basin Area

The Salt Creek Sewer Basin is located in the eastern part of the City which conveys wastewater flow from EastLake, Otay Ranch, Rolling Hills Ranch, portions of the Otay River Basin, and unincorporated areas north and east of the Otay Lakes. The Salt Creek Basin includes the Wolf Canyon Sewer Basin located to the southwest of the Salt Creek Basin.

The 2004 Update to the Sewer Basin Plan provides the following description of the Salt Creek sewer alignment:

The Salt Creek Trunk Sewer generally begins just west of the Upper Otay Reservoir, then proceeds southerly parallel to the Salt Creek and the Otay Valley Rivers, then turns Westerly along Main Street, continuing under the I-805 Freeway along Main Street to Industrial Blvd., after which it goes under the 1-5 Freeway and terminates at a junction structure that ties it to the City of San Diego's Metro Sewer line just west of Interstate 5 on Frontage Road. The line was segregated into nine Reaches, which were divided primarily at points of major slope changes and locations where significant amount of sewage flow from tributary properties entered the line.

3.2 Sewerage Facilities

Facilities making up the Salt Creek Interceptor are described below.¹ The interceptor is comprised of Reaches 1 through 9A and the Wolf Canyon Trunk Sewers.

3.2.1 Constructed by Others

Reaches 1, 2A and 2B were constructed by developers for the benefit of their development areas. The developers constructed these facilities at their own cost and dedicated them to the City in exchange for credits that could be used at a future date to offset other costs that the developer may owe. The 2004 Basin Plan noted \$553,472 in developer credits outstanding. Since 2004, the developers expended their credits and there are no remaining credits. For the 2015 study, the cost of Reaches 1, 2A, and 2B are included as project costs and developer credits are shown as \$0.

¹ Facilities descriptions taken from the 2004 Update to the Salt Creek Sewer Basin Plan

Descriptions of facilities constructed by others - Reaches 1, 2A, 2B, 4B and 5A - are provided below.

Reach 1

Reach 1 was constructed by Pacific Bay Homes to serve the Rolling Hills Communities in Fiscal Year (FY) 1998. It consists of approximately 4,517 linear feet of 15" PVC pipe. Based on the cost estimate a provided by Pacific Bay Homes to the City, the total cost of this Reach including construction, inspection and administration is \$173,613.

Reach 2

Reaches 2A and 2B were constructed by the Eastlake Company to serve Eastlake Trails North Community in FY2001. Detailed cost estimates for Reaches 2A and 2B are provided as an appendix to the 2004 Update to the Salt Creek Sewer Basin Plan.

Reach 2A consists of 2,204 linear feet of 18" PVC. Based on the cost estimate and addendums provided by the Eastlake Company to the City, the total cost of this Reach including construction, inspection and administration is \$112,199.

Reach 2B was constructed by Eastlake Company to serve Eastlake Trails South community. It consists of 2,327 feet of 18" PVC pipe. Reach 2B currently ends at the Olympic Parkway Pump Station. Based on the cost estimate and addendums provided by the Eastlake Company to the City, the total cost of this Reach including construction, inspection and administration is \$267,660.

Reach 4B

Reaches 4B and 5A were constructed by San Diego Gas and Electric but were funded by the City. At the time of construction, Salt Creek DIF funds were not available so the City issued a loan from the Trunk Sewer Capital Reserve Fund to the Salt Creek DIF. The loan used to fund Reaches 4B and 5A is still outstanding and is included in the DIF calculation.

Reach 4B was constructed by SDG&E as part of a joint project with the City of Chula Vista. SDG&E was reimbursed \$341,509 for this segment. This Reach consists of 2,608 linear feet of 24" PVC pipe. For the engineering design for Reaches 4B and 5A, the City paid a total of \$58,814. Of this amount, \$33,883 was exclusively for the design of Reach 4B. The total cost for Reach 4B, including construction, design, inspection and administration, is \$390,422.

Reach 5A

Reach 5A consists of 1,919 linear feet of 24" PVC pipe and was also constructed by San Diego Gas & Electric (SDG&E) as part of the joint project with the City of Chula Vista. The total reimbursed to SDG&E for the construction of Reach 5A was \$251,286. The City paid \$24,931 for the design services for this Reach. The total cost for Reach 5A, including construction, engineering services, inspection and administration, is \$287,278.

3.2.2 Constructed by City

Reaches 3, 4A, 5B, 6, 7, 8, and 9 were constructed by the City and are described below.

Reach 3

Reach 3 consists of 2,391 linear feet (L. F.) of dual 20" PVC and 194 L. F. of single 20" PVC pipe. Reach 3 begins at the Olympic Parkway Pump Station and terminates at the northerly portion of Reach 4A. This Reach cost \$1,526,107.

Reach 4A

Reach 4A consists of 3,452 L. F. of dual 24" PVC, 562 L. F. of single 24" PVC and 2,310 L. F. 10" PVC pipe. The total cost for Reach 4A is \$2,921,271.

Reach 5B

Reach 5B consists of 3,654 L. F. of 30" PVC pipe. The construction cost for Reach 5B is \$1,295,895; this cost includes construction, engineering services, inspection and administration.

Reach 6

The cost for Reach 6, including construction, engineering services, inspection and administration, is \$973,024. Reach 6 consists of 2,924 linear feet of 30" PVC pipe.

Reach 7

Reach 7 consists of 8,420 L. F. of 36" PVC pipe. The cost, including construction, engineering services, inspection and administration, for Reach 7 is \$3,222,772.

Reach 8

Reach 8A consists of 2,542 linear feet of 42" PVC pipe and has a cost, including construction, engineering services, inspection and administration, of \$1,218,959.

Reach 8B consists of 3,952 linear feet of 42" PVC; it has a cost, including construction, engineering services, inspection and administration, of \$1,895,193.

Reach 9

Reach 9 is the final segment of the Salt Creek Interceptor, which connects the system to the existing 72" City of San Diego Metro Sewer Interceptor on West Frontage Road. Reach 9 consists of approximately 26,300 linear feet of 42" and 48" PVC. The total cost, including construction, engineering services, inspection and administration is \$17,709,228.

To expedite the construction of this trunk line, Reach 9 was further divided into 3 sub-reaches, Reaches 9A, 9B and 9B'. Reach 9A consists of approximately of 1,500 linear feet of 42" PVC and 9,400 linear feet 45" PVC totaling 10,900 linear feet and cost \$6,115,322 to construct. Reaches 9B and 9B' are regional facilities benefitting customers both inside and outside the basin. Reaches 9B and 9B' were funded with Trunk Sewer Capital Reserve Funds. The cost of Reach 9A is included in the Salt Creek DIF calculation; Reaches 9B and 9B' are regional facilities and their costs are not recoverable through the Salt Creek DIF.

Wolf Canyon Trunk Sewer

The 2004 DIF contemplated additional improvements within the Wolf Canyon basin that would be needed to serve the southwestern edge of the basin located west of the SR-125. These improvements are referred as the Heritage Road trunk sewer lines and the Rock Mountain Road/Main Street trunk sewer. The alignment of Rock Mountain Road/Main Street trunk sewer is still being developed and Heritage Road is under construction at this time. This 2015 Study updated the Heritage Road and Rock Mountain Road/Main Street trunk sewer costs with the most current information available. Section 4.4: Capital Improvement Program and Cost Estimates provides a description and detailed cost estimate for the Wolf Canyon Trunk Sewer. In total, the Wolf Canyon Trunk Sewer projected cost is \$7,282,642.

More recent analyses by various land owners and staff have determined that the Rock Mountain Road/Main Street trunk sewer would be needed to serve the Village 4 and Village 7 properties. Current studies for Village 4 indicate that Rock Mountain Road/Main Street trunk sewer will be needed to serve this development. Additionally, while current studies for Village 7 contemplate a temporary sewer main through Village 8 West, the permanent solution to serve Village 4 and Village 7 developments would be the Rock Mountain Road/Main Street trunk sewer in Main Street.

Additional DIF Eligible Facilities

The stretch of trunk sewer serving Village 11 is commonly referred to as the Hunte Parkway Extension (Extension). The Extension heads easterly along Hunte Parkway and south to the Salt Creek Interceptor.

In 2008, a study prepared by PBS&J recommended that a larger portion of the EUC Millenia be graded to drain to a centrally-located diversion structure. The study recommended that the diversion structure would serve as an interim solution to sewer a larger portion of the EUC by gravity to Hunte Parkway until the construction of the Rock Mountain Road/Main Street Trunk Sewer was completed. The study also recommended a permanent solution following the existing sewer system through the neighboring Village 7 development ultimately connecting to the Rock Mountain Road/Main Street Trunk Sewer.

More recent analyses by landowners of the EUC Millenia have determined that the EUC will be graded to permanently drain by gravity to the Salt Creek Interceptor via the Eastlake Parkway and Hunte Parkway sewer mains. This study determined that the Extension will actually serve Village 11 and a major portion of the EUC Millenia. Therefore, the Extension qualifies as a regional facility serving several developments within the basin and is eligible for inclusion in the 2015 DIF update. The proposed Hunte Parkway Extension capacity enhancement consists of 250-linear ft of parallel 16-inch pipeline to the existing 12-inch pipeline that connects to the Salt Creek Interceptor near the University development. The Hunte Parkway Extension is estimated to cost \$320,836 (excluding 5-year maintenance fees).

3.2.3 Facilities Summary

Table 2 provides a summary of the facilities located within the Salt Creek Basin. Not all facilities located within the basin are recoverable from the development impact fee. In summary, the Salt Creek Sewer Basin includes about 87,000 linear feet (LF) or about 16.5 miles of sewer lines with a total cost of \$40.3 million for both current and future facilities. Of the facilities located in the Salt Creek Basin, about \$28 million is recoverable from the DIF.

**Table 2: List of Facilities
City of Chula Vista
Salt Creek DIF Study**

COMPLETED FACILITIES SALT CREEK BASIN - Reaches	Length (LF)	Cost	Constructed by	Year	Costs Included in the DIF
1	4,517	\$173,613	Pacific Bay Homes	FY1998	\$173,613
2A	2,204	\$112,199	Eastlake Company	FY2001	\$112,199
2B	2,327	\$267,660	Eastlake Company	FY2001	\$267,660
3	2,585	\$1,526,107	City	FY2003	\$1,526,107
4A	6,324	\$2,921,271	City	FY2003	\$2,921,271
4B	2,608	\$390,422	SDG&E	FY1998	\$390,422
5A	1,919	\$287,278	SDG&E	FY1998	\$287,278
5B	3,654	\$1,295,895	City	FY2003	\$1,295,895
6	2,924	\$973,024	City	FY2003	\$973,024
7	8,420	\$3,222,772	City	FY2003	\$3,222,772
8A	2,542	\$1,218,959	City	FY2003	\$1,218,959
8B	3,952	\$1,895,193	City	FY2003	\$1,895,193
9A	10,903	\$6,115,322	City	FY2003	\$6,115,322
9B	14,010	\$7,657,988	City	FY2003	None - regional facility
9B'	1,329	\$3,936,373	City	FY2003	None - regional facility
Auto Park Sewer (The Crossings)	540	\$144,808	Yacoel Properties	FY2007	None - regional facility
Auto Park Extension and Environmental Review	350	\$152,815	City	FY2008	None - regional facility
Auto Park Pump Station Decommissioning	0	<u>\$392,916</u>	City	FY2010	<u>None - regional facility</u>
	71,108	\$32,684,615			\$20,399,715*
FUTURE FACILITIES	Length (LF)	Cost	To be Constructed by	Year	Costs Included in the DIF
Heritage Road	6,267	\$2,444,130	City	Future	\$2,444,130
Rock Mountain Road/Main Street	9,300	\$4,838,512	City	Future	\$4,838,512
Hunte Parkway Extension	<u>250</u>	<u>\$320,836</u>	City	Future	<u>\$320,836</u>
	15,817	\$7,603,478			\$7,603,478
TOTAL	86,925	\$40,288,093			\$28,003,193

*The City incurred \$267,762 due to additional project costs after the 2004 DIF Study was completed.

Legend

studied_pipes

DESCRIP

- Heritage Rd Trunk Sewer
- Rock Mountain Rd/Main St Trunk Sewer
- Chula Vista City Boundary
- Proposed Road Circulation Alignment

Exiting Salt Creek Trunk Sewer

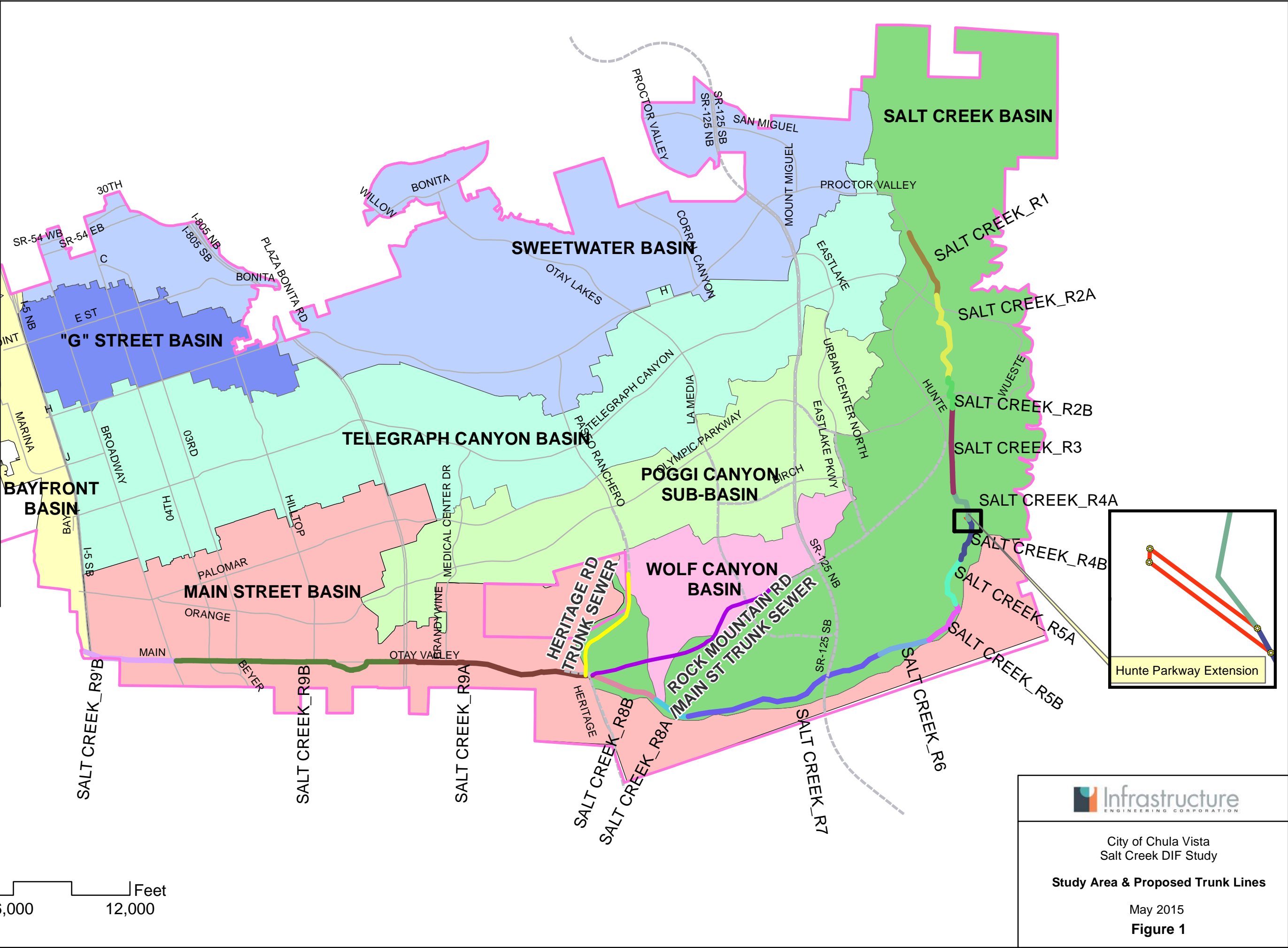
Reaches

- SALT CREEK_R1
- SALT CREEK_R2A
- SALT CREEK_R2B
- SALT CREEK_R3
- SALT CREEK_R4A
- SALT CREEK_R4B
- SALT CREEK_R5A
- SALT CREEK_R5B
- SALT CREEK_R6
- SALT CREEK_R7
- SALT CREEK_R8A
- SALT CREEK_R8B
- SALT CREEK_R9'B
- SALT CREEK_R9A
- SALT CREEK_R9B

Hunte Parkway Extension

Wastewater Basins

- "G" STREET BASIN
- BAYFRONT BASIN
- MAIN STREET BASIN
- POGGI CANYON SUB-BASIN
- SALT CREEK BASIN
- SWEETWATER BASIN
- TELEGRAPH CANYON BASIN
- WOLF CANYON BASIN



City of Chula Vista
Salt Creek DIF Study

Study Area & Proposed Trunk Lines

May 2015
Figure 1

3.3 Wastewater Duty Factors

The wastewater flow of the various land use types projected for the Salt Creek Sewer Basin is provided in Table 3. The wastewater flow is the capacity in the system that each new customer will utilize after connecting. Thus, wastewater flow is an appropriate metric to apportion the costs of Salt Creek facilities to new customers. Table 3 compares the updated wastewater generation (duty) factors of each land use type to the duty factor used in the 2004 Study. Wastewater duty factors are lower for all land use types due to water conservation measures required for new development.

**Table 3: Wastewater Duty Factor Comparison
City of Chula Vista
Salt Creek DIF Study**

Land Use	Wastewater Duty Factor	
	2004 Study	2015 Study
Single Family	265 gpd	230 gpd
Multi-Family	199 gpd	182 gpd
Park	500 gpd/acre	410 gpd
CPF	2,500 gpd/acre	1,313 gpd/acre
School	15 gpd/student	1,181 gpd/acre
Commercial	2,500 gpd/acre	1,401 gpd/acre
Industrial	2,500 gpd/acre	712 gpd/acre
University	20 gpd/student	1,080 gpd/acre

Source: City of Chula Vista, 2004, Update to the Salt Creek Sewer Basin Plan; IEC, 2014 Wastewater Master Plan Update
CPF- Community Public Facility; gpd - gallons per day

3.4 EDU Projections

For the purpose of calculating the development impact fee, projected development was converted to equivalent dwelling units based on the updated wastewater duty factors determined by IEC. An equivalent dwelling unit is equal to the wastewater flow generated by a single family residential customer, which is 230 gallons per day (gpd). For example, a park is estimated to produce 410 gallons per day of wastewater flow per acre. 410 gpd divided by 230 gpd results in an EDU factor of 1.78 for parkland. Thus, each acre of parkland development is equal to 1.78 EDUs, see Table 4.

Table 4: EDU Conversion Factors
City of Chula Vista
Salt Creek DIF Study

Land Use	Wastewater Duty Factor	Units	EDU Factor
Single Family	230	gpd per acre	1.00
Multi-Family	182	gpd per acre	0.79
Park	410	gpd per acre	1.78
CPF	1,313	gpd per acre	5.71
School	1,181	gpd per acre	5.13
Commercial sq-ft	80	gpd per 1,000 sq ft	0.0003
Commercial acre	1,401	gpd per acre	6.09
Industrial	712	gpd per acre	3.10
University	1,080	gpd per acre	4.70

Source: IEC, 2014 Wastewater Master Plan Update
 CPF- Community Public Facility; gpd - gallons per day; sq ft - square feet

Table 5 shows the development projection by land use type for the Salt Creek Basin through build-out. Table 5 is based on the wastewater duty factors estimated in the 2014 Wastewater Master Plan and the development acreages and residential units provided by the City. Appendix A provides the estimated remaining wastewater flow of each development area. In total, the remaining EDUs in the Salt Creek Basin are estimated to produce a wastewater flow of 4.75 million gallons per day.

In total, an estimated 20,668 EDUs are remaining in the Salt Creek Basin to be developed through build-out. As shown, more than half of the remaining development is projected to be multi-family units. Table 6 compares the EDU count calculated in the 2004 Salt Creek DIF Study to the EDU count calculated in this 2015 update. Across the basin, this study projects a count of 20,668 EDUs remaining, a change from the 25,668 EDUs projected in 2004. Some areas of the basin have been developed since 2004 which reduced the remaining EDUs.

**Table 5: Salt Creek Basin Remaining Acreage and Units
City of Chula Vista
Salt Creek DIF Study**

Development Area	Nonresidential Acreage							Residential Units		TOTAL REMAINING EDUS
	Park	CPF	School	Comm sq-ft	Comm acre	Industrial	University	Single Family	Multi- Family	
Bella Lago	0.0	0.0	0.0	0.0	0.0	0.0	0.0	53	0	53
Eastlake Woods/Trails	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15	0	15
Eastlake Vistas	0.0	0.0	0.0	15,000	0.00	0.0	0.0	0	230	187
Village 8 West	27.9	5.8	31.6	300,000	0.0	0.0	0.0	621	1,429	2,101
Village 8 East*	7.3	4.2	10.8	20,000	0.0	0.0	0.0	943	2,617	3,113
Village 9	27.5	5.0	19.8	1,500,000	0.0	0.0	0.0	266	3,734	3,922
Regional Technology Park ⁺	0.0	0.0	0.0	1,850,000	0.0	0.0	0.0	0	0	643
University	0.0	0.0	0.0	0.0	0.0	0.0	290.0	0	0	1,362
Village 10*	7.6	4.3	9.2	0.0	0.0	0.0	0.0	695	1,045	1,607
Village 11	0.0	0.0	32.6	0.0	0.0	0.0	0.0	0	89	238
Planning Area 20	188.0	0.0	0.0	0.0	15.0	0.0	0.0	0	0	427
Birch Foundation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	128	0	128
Village 2* ⁺⁺	5.1	1.4	9.5	0	0.0	36.5	0.0	517	659	1,217
Village 3*	7.9	4.2	8.3	20,000	11.3	39.9	0.0	1,002	595	1,753
Village 4	62.8	0.0	0.0	0.0	0.0	0.0	0.0	453	0	565
Village 7 ⁺⁺	0.0	6.3	0.0	0.0	0.0	0.0	0.0	81	0	117
Planning Area 12 (EUC) ^{++*}	23.2	10.7	6.0	3,487,000	0.0	0.0	0.0	0	2,993	3,219
Total	357.3	41.9	127.8	7,192,000	26.3	76.4	290.0	4,774	13,391	20,668 EDUs
	acres	acres	acres	sq-ft	acres	acres	acres	units	units	

EDU - equivalent dwelling units, one EDU = 230 gallons per day wastewater flow

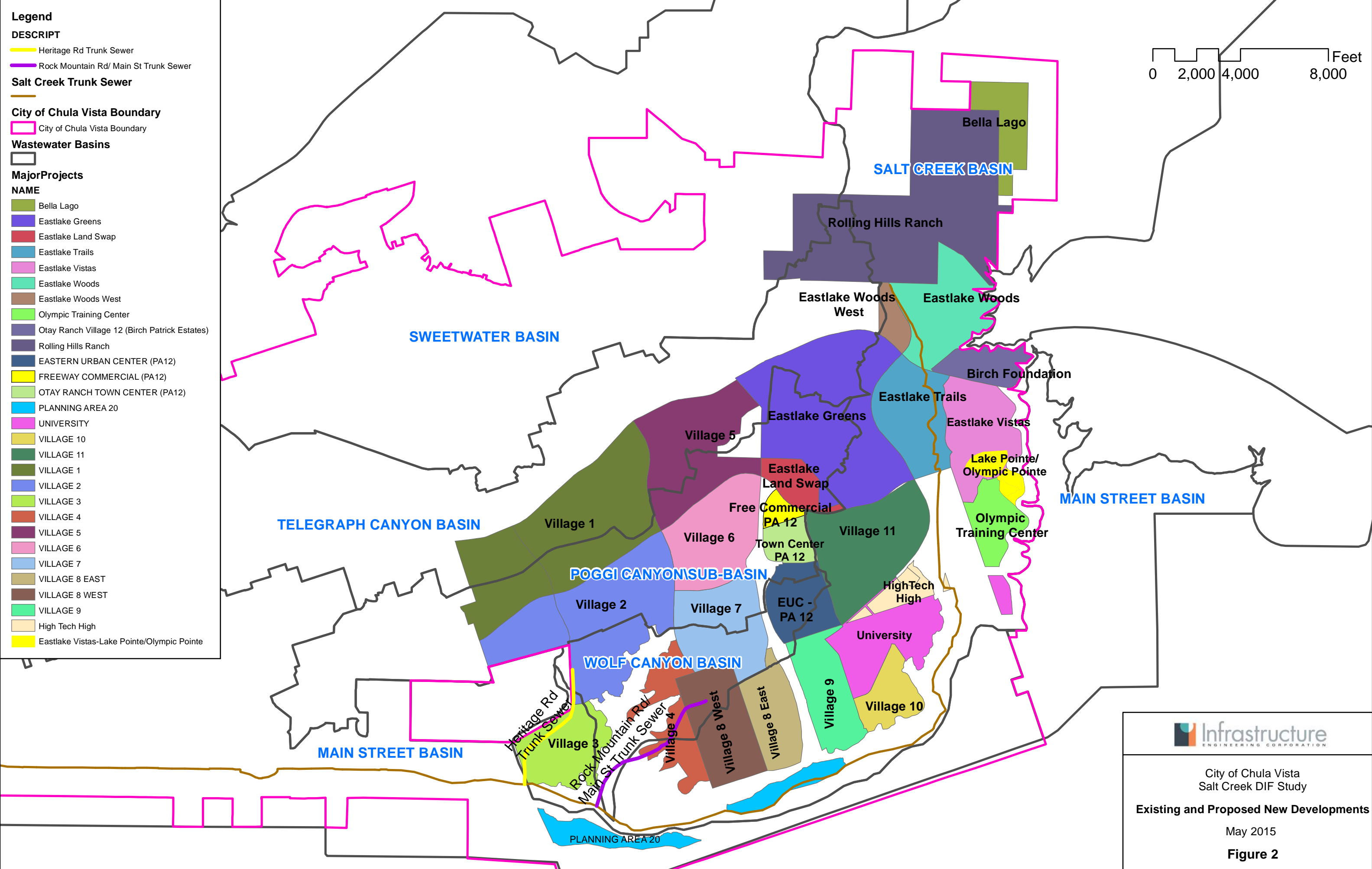
Source: development projections - City of Chula Vista; wastewater duty factors - IEC, 2014 Wastewater Collection System Master Plan

* Proposed General Plan Land Use

** Net Reduction of 495 EDUs is based on the preferred alternative of permanently diverting into Poggi Basin 529 EDUs at 215 gpd/EDU converted to 230 gpd/EDU basis (per EUC Tech Sewer Study PBS&J, 1/2008).

⁺ The adopted General Plan has a (floor area ratio) FAR of between 0.25 and 0.75 for the 85 acre (3,700,000 sq ft) Regional Technology Park. Based on a City's FAR assumption of 0.50 that would generate about 1,850,000 sq ft.

⁺⁺ Portions of Village 2, Village 7 and EUC are located within the Poggi Canyon Basin



Legend

DESCRIPT

- Heritage Rd Trunk Sewer
- Rock Mountain Rd/ Main St Trunk Sewer

Salt Creek Trunk Sewer

—

City of Chula Vista Boundary

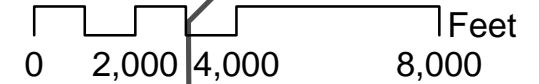
 City of Chula Vista Boundary


Wastewater Basins

MajorProjects

NAME

- Bella Lago
- Eastlake Greens
- Eastlake Land Swap
- Eastlake Trails
- Eastlake Vistas
- Eastlake Woods
- Eastlake Woods West
- Olympic Training Center
- Otay Ranch Village 12 (Birch Patrick Estates)
- Rolling Hills Ranch
- EASTERN URBAN CENTER (PA12)
- FREEWAY COMMERCIAL (PA12)
- OTAY RANCH TOWN CENTER (PA12)
- PLANNING AREA 20
- UNIVERSITY
- VILLAGE 10
- VILLAGE 11
- VILLAGE 1
- VILLAGE 2
- VILLAGE 3
- VILLAGE 4
- VILLAGE 5
- VILLAGE 6
- VILLAGE 7
- VILLAGE 8 EAST
- VILLAGE 8 WEST
- VILLAGE 9
- High Tech High
- Eastlake Vistas-Lake Pointe/Olympic Pointe




 City of Chula Vista
 Salt Creek DIF Study
Existing and Proposed New Developments
 May 2015
Figure 2

**Table 6: Change in EDUs
City of Chula Vista
Salt Creek DIF Study**

Development Area	Equivalent Dwelling Units		Difference
	2004 Study	2015 Study	
Village 8 (East and West)	1,663	5,214	3,551
University	not included	1,362	1,362
Village 2	466	1,217	751
Planning Area 20	not included	427	427
Village 9	3,526	3,922	396
Regional Technology Park	not included	643	643
Birch Foundation	not included	128	128
Planning Area 12 (EUC)	3,111	3,219	108
Eastlake Greens	8	build-out**	(8)
Bella Lago	140	53	(87)
Village 4	705	565	(140)
Eastlake Woods/Trails	160	15	(145)
Village 16*	411	not included	(411)
Misc.	596	not included	(596)
Village 3	2,427	1,753	(674)
Rolling Hills Ranch	723	build-out**	(723)
Eastlake Vistas-Lake Pointe & Olympic Pointe	1,109	187	(922)
Village 10	2,540	1,607	(933)
Village 7	1,635	117	(1,518)
Village 11	1,986	238	(1,748)
Village 14*	1,838	not included	(1,838)
Village 13*	<u>2,624</u>	<u>not included</u>	<u>(2,624)</u>
Total	25,668	20,668	(5,000)

*Not included; County service areas.

**Development area is at build-out. No future development will occur.

3.4.1 County Properties

The 2015 Study does not include the areas in the County known as Village 13, 14, and 16. Although these properties were included in the 2004 DIF, it is assumed that once the County development has been defined and authorized, and subsequent to the necessary technical sewer studies by the County, the DIF will be updated by the City. The approved County General Plan indicates these areas represent 4,500 EDUs.

3.4.2 Diverted EDUs

A smaller portion of Planning Area 12 (the Eastern Urban Center – EUC Millenia) is located in the Poggi Canyon Basin. The 2008 PB&J EUC Sewer Tech Study identified 189 EDUs located within the Poggi Canyon Basin. The most current grading proposal for the EUC indicates an increase in flows permanently diverted from the Salt Creek Basin to the Poggi Canyon Basin. A total estimated flow equal to 495 EDUs will be permanently diverted to the Poggi Canyon Basin. This diversion is permanent in nature and no additional impacts as previously identified in the 2009 Poggi DIF Update are anticipated.

SECTION 4: 2050 Build-out Capacity Analysis

IEC completed a Wastewater Master Plan Update (WWMP) for the City in May 2014 which evaluated the system capacity through 2050 and developed a capital improvement program (CIP) for rehabilitation and expansion to accommodate system discrepancies. A hydraulic model was developed in support of the evaluation. IEC modified the hydraulic model with updated land use projections of major developments in planning year 2050, which was provided by the City, to re-evaluate the Salt Creek Trunk Sewer and developed additional CIP projects with cost estimates.

The purpose of this section is to analyze the hydraulic capacity of the Salt Creek Interceptor and recommended pipeline sizes of the two trunk sewers it serves, which includes the Heritage Road Trunk Sewer and the Rock Mountain Road/Main Street Trunk Sewer. Four CIP projects proposed in 2014 WWMP, which are P29, P30, P42, and P43, and the Hunte Parkway Extension Project were also analyzed for their hydraulic capacity as they were affected by the proposed developments flows and connected to the Salt Creek Interceptor. The Hunte Parkway Extension improvement plans have been approved by the City. Both the Hunte Parkway Extension improvement project and P30 from 2014 WWMP propose improvement for the same pipeline segment, but with different methods. The Hunte Parkway Extension improvement project proposes to install a new pipeline parallel to the pipeline segment, and P30 proposes to upsize the pipeline segment.

The Salt Creek Trunk Sewer is currently divided into nine reaches, approximately north from Stone Gate Street to east of I-805 Freeway. Since the Salt Creek DIF was established in 1994, the DIF continued to be revised and updated for growth and developments within the Salt Creek Sewer Basin and its adjacent basins, such as Poggi Canyon Basin and Wolf Canyon Basin. Population growth and developments proposed within these basins may increase wastewater delivered to the Salt Creek Trunk Sewer and require rehabilitation and additional facilities to support the additional development. This study added the Heritage Road Trunk Sewer and Rock Mountain Road/Main Street Trunk Sewer for evaluation under 2050 PWWF conditions. These two trunk sewers are proposed to be served by the Salt Creek Interceptor. In order to have sufficient fund for the construction of the Salt Creek Interceptor, a hydraulic capacity analysis is needed to identify deficient pipelines, develop additional capital improvements, if necessary, to eliminate system deficiencies and increase the system's hydraulic performance, and update the costs associated with the additional capital improvements.

4.1 Flow Projection

The Salt Creek Trunk Sewer mainly serves the Salt Creek Basin, Wolf Canyon Basin, Poggi Canyon Basin, and Main Street Basin, therefore, population growth and developments within these areas would have potential impact on the Salt Creek Trunk Sewer. In the 2014 WWMP study, IEC has developed wastewater flow projections for the City through 2050. Information on major developments is provided by the City with land use types and area under parcel level. Flows associated with these proposed developments were projected based on the General Plan Dwelling Units (DU) per acre. The City provided IEC updates on land use projections with targeted buildout information of the development projects and added few more development projects within the study area by planning year 2050 into consideration. Flow projections for each development project in 2050 is updated by calculating the maximum buildout of each land use type for each proposed development.

Table 7 lists the 2050 wastewater flow projections for proposed new developments to the Salt Creek Sewer Interceptor. Detailed land use buildout information with corresponding tributary manholes along the Salt Creek Interceptor can be seen in Appendix B and Appendix C, respectively.

**Table 7: 2050 Salt Creek Interceptor Wastewater Flow Projections
City of Chula Vista
Salt Creek DIF Study**

Proposed Development Project	Wastewater Flow (gpd)
Bella Lago	32,200
Eastlake Trails	244,951
Eastlake Woods and West Development	193,772
Eastlake Greens & Landswap Development 1 (Salt Creek Basin)	232,300
Eastlake Greens & Landswap Development 1 (Poggi Basin)	460,308
Eastlake Vistas-Lake Pointe & Olympic Pointe	119,140
Eastlake Vistas	387,646
Olympic Training Center	153,057 *
Village 2 (Salt Creek Basin)	279,985
Village 2 (Poggi Basin)**	757,928
Village 3	403,146
Village 4	130,020
Village 7 (Salt Creek Basin)	212,170
Village 7 (Poggi Basin)**	198,303
Village 8 West	483,323
Village 8 East	716,046
Village 9	901,992
Regional Technology Park	148,000
University	313,200
Village 10	369,667
Village 11	554,806
Ping. Area 12 (EUC) (Salt Creek Basin)	740,483
Ping. Area 12 (EUC) (Poggi Basin)**	113,932
Ping. Area 12 -(Freeway Commercial) (Poggi Basin)**	149,524
Ping. Area 20	98,095
Birch Foundation	29,440
Rolling Hills Ranch	303,692
High Tech High	<u>93,012</u>
Total	8,820,138

*Flow adopted from Table 3-1 of the 2014 WWMP. Assumed 100% Return-To-Sewer Ratio to account for future buildout.

**Wastewater flows projected from the Poggi Basin are for hydraulic analysis purposes only.

The total sewer flows projected for the listed proposed developments in 2014 WWMP was approximately 8.34 mgd by planning year 2050, and the new sewer flows projected in this study are 8.82 mgd with an incremental flow increase of 0.48 mgd. The Salt Creek Interceptor is assumed to collect flows from Salt Creek Basin, Main Street Basin, and Wolf Canyon Basin only. The Heritage Road Trunk Sewer is proposed to serve the Village 2 and a large portion of Village 3 development areas while Rock Mountain Road/Main Street Trunk Sewer is proposed to serve a small portion of Village 3, Village 4, and Village 7 development areas.

4.2 Hydraulic Model Development

As part of the City's Wastewater Master Plan performed in July 2014, IEC developed an InfoSWMM sewer system hydraulic model from the sewer system GIS database. This platform combines a fully dynamic hydraulic modeling engine developed and approved by the Environmental Protection Agency (EPA) with the GIS interface that can take advantage of the data that the City has built into its sewer system GIS database. This model was used and revised for the hydraulic capacity analysis in this study.

4.2.1 Model Revision

Three flow conditions were analyzed in this study, which were Average Dry Weather Flow (ADWF), Peak Dry Weather Flow (PDWF), and Peak Wet Weather Flow (PWWF) conditions. The base flows (ADWF) developed for 2050 in 2014 WWMP have been updated with the new flow projections in this study to account for the incremental flow increase, per the updated development information provided by the City.

The model network has been reviewed for consistency with the City's as-built plans. Several inconsistencies in pipe sizes, connections, and slopes were discovered and corrected based upon verification of as-built plans.

There are dual pipelines along Salt Creek Interceptor between Olympic Parkway and the connections with the Olympic Training Center laterals, as shown in Figure A-1-2 and Figure A-1-3 in Appendix C. With verification from the City, one of the parallel pipelines is used as an overflow facility. Therefore, the model was run with single pipeline to be conservative for analysis.

The Hunte Parkway Extension is a Salt Creek sewer lateral improvement project that proposed a parallel 16-inch pipeline to the existing 12-inch pipeline that connects to Salt Creek Interceptor near the University Development Project site. Its plans have been approved by the City and can be seen in Appendix D. The same 12-inch pipeline has been recommended for upsizing to 18 inches in diameter in the 2014 WWMP, as shown in Figure 3. Per the City request, IEC has modeled the Hunte Parkway extension as a CIP alternative for evaluation.

The 2014 WWMP does not include analysis for the Heritage Road Trunk Sewer and Rock Mountain Road/Main Street Trunk Sewer, but the Heritage Road Trunk Sewer is under construction concurrently with the construction of the Heritage Road street improvements at this time and recent analyses by the various land owners and the City has shown that the Rock Mountain Road/Main Street trunk sewer would be needed to serve the Village 4 and Village 7 Developments. Therefore, these two trunk sewers were added to the model for analysis in this

study. The Heritage Road Trunk Sewer locates within the vicinity of Village 2 and Village 3 developments, and is proposed to serve these two development sites. According to current studies for Village 7 development, sewer flows from Village 7 development will be diverted through Village 8 West temporarily south to the Salt Creek Interceptor, and current studies for Village 4 development indicated that it would be unlikely sewer flows from Village 4 conveyed westerly through Village 8 West development and then south to the Salt Creek Interceptor. A permanent solution serving both Village 4 and Village 7 developments is anticipated with the construction of the Rock Mountain Road/Main Street trunk sewer in Main Street.

The two trunk sewers were aligned to match the proposed road circulation alignment with minimum slope requirement to be conservative for analysis. The City has a minimum of 0.4% slope requirement for sewer construction.

The pipelines evaluated in this study include the Salt Creek Interceptor, the Heritage Road Trunk Sewer, the Rock Mountain Road/Main Street Trunk Sewer, four affected CIP projects proposed in 2014 WWMP, and the Hunte Parkway Extension. Details of Salt Creek Interceptor are shown from Figure A-1-1 to Figure A-1-13 in Appendix C, and details of the two trunk sewers are shown in Figure A-2 in Appendix E. The four CIP projects evaluated in this study are shown in Figure A-3-1 and Figure A-3-2 in Appendix F.

A



B



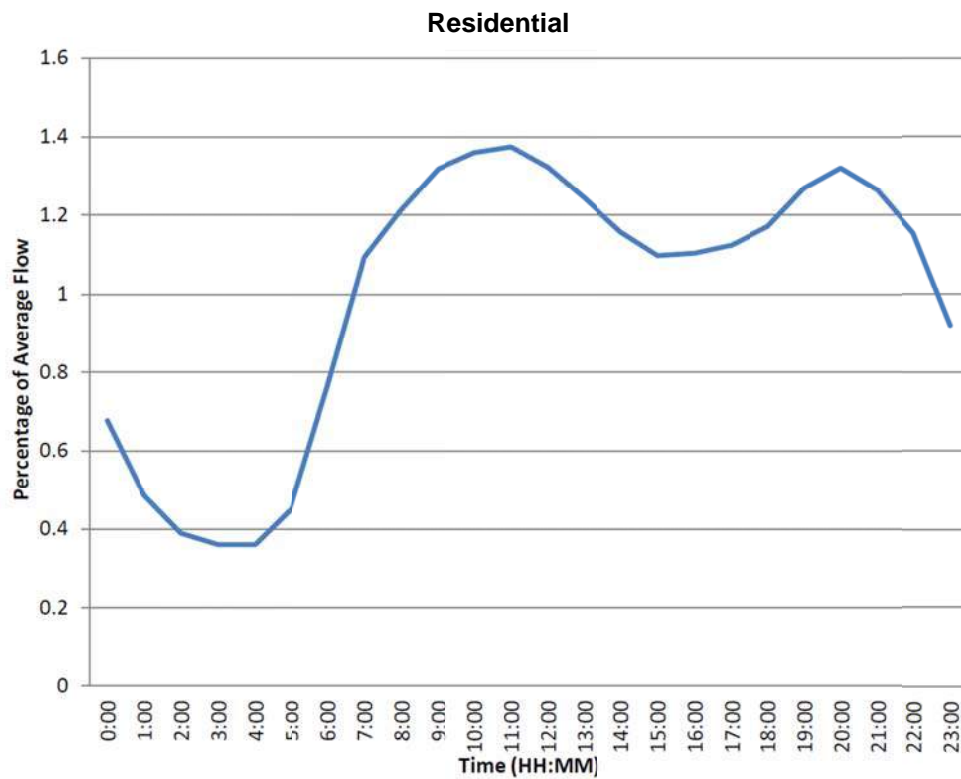
City of Chula Vista
Salt Creek DIF Study
**CIP Project P-30/
Hunte Parkway Extension**
May 2015

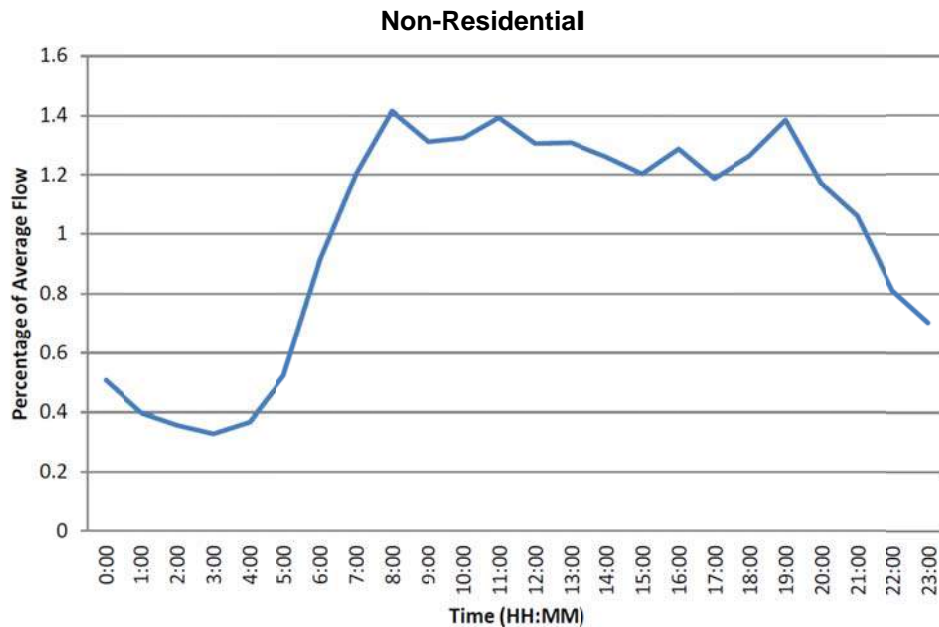
Figure 3

4.2.2 Peak Dry Weather Flow (PDWF)

PDWF was developed by peaking the average dry weather flow (ADWF) with diurnal curves to account for the variation in sewer generation that occurs over the course of a typical day. Residential and non-residential flows have different usage patterns, so two diurnal curves were extracted from flow monitoring data collected from the City. The normalized diurnal curves for residential and non-residential sewer flows can be seen in Figure 4 and Figure 5. Base infiltration (BI) was not included in PDWF as it is usually small under dry weather conditions and due to lack of information.

Figure 4: Normalized Diurnal Curves





4.2.3 Peak Wet Weather Flow (PWWF)

The PWWF was calculated PDWF plus rainfall dependent infiltration/inflow (RDI/I) and BI, combined as Inflow/Infiltration (I/I) based on the best data available. RDI/I is storm water that enters the wastewater collection system in direct response to the intensity and duration of individual rainfall events, RDI/I may recede gradually after a storm, however, any residual flow is considered to be a general increase in GWI.

Peak values were evaluated based on consistency throughout the year from data gathered from the City’s main outfalls, removing any inconsistent peaks, resulting in an average peaking factor for I/I of 1.85. Since the maximum peaking factor for total PDWF is approximately 1.45 times ADWF, the total I/I is approximately 40% of ADWF. The total volume of I/I was averaged out across the city and multiplied accordingly to each pipeline based on its length-diameter. Then Respective I/I value was then added to the base flow per time period for PWWF.

4.3 Hydraulic Analysis

The hydraulic model is the primary tool to analyze the hydraulic capacity of the Salt Creek Interceptor and the Trunk Sewer lines that it serves. Identification of hydraulic deficient pipelines and development of capital improvement projects (CIPs) are based on the City’s design criteria.

4.3.1 Design Criteria

The following design criteria, as described in the 2014 WWMP, are used in this analysis:

For existing pipelines,

- Pipes 12-inches in diameter and smaller: 70% full at peak wet weather flow
- Pipes over 12-inches in diameter: 85% full at peak wet weather flow
- Manning's n: 0.013

For proposed new pipelines,

- Pipes 12-inches in diameter and smaller: 50% full at peak wet weather flow
- Pipes over 12-inches in diameter: 75% full at peak wet weather flow
- Manning's n: 0.013

4.3.2 Model Results

The new flows projected based on the updated land use information add an additional flow of approximately 0.48 mgd to the Salt Creek Interceptor. Table T-2 in Appendix G shows the model results for 2050 system with existing conditions under the three flow conditions. Table T-3 in Appendix H shows the model results for 2050 system with CIP projects proposed in 2014 WWMP and Hunte Parkway Extension pipeline improvement project under the three flow conditions. CIP project P30 proposed in 2014 WWMP and the Hunte Parkway Extension project that was approved by the City are two alternatives to eliminate the hydraulic deficiency in Pipe 17093. Model results showed that both alternatives are effective in eliminating the hydraulic deficiency.

Pipe ID with prefix "IECGM" are new pipelines for either Heritage Road Trunk Sewer, Rock Mountain Road/ Main Street Trunk Sewer, or the parallel pipelines of Hunte Parkway extension.

4.4 Capital Improvement Program and Cost Estimates

Since the existing lines and the affected CIP projects proposed in 2014 WWMP are able to meet the design criteria with the new 2050 flows, no additional pipeline improvements are needed on the existing system. Based on model results, three CIP projects are identified, which included the Heritage Road Trunk Sewer and the Rock Mountain Road/ Main Street Trunk Sewer, to serve Village 2, Village 3, Village 4, and Village 7 (See Figure A-2 in Appendix E), and the Hunte Parkway Extension project (See Figure 2).

The Heritage Road Trunk Sewer is aligned along Heritage Road from Santa Victoria Road to Main Street with approximately 6,300 ft. It is recommended for sizing of 15 inches in diameter. The Rock Mountain Road/Main Street Trunk Sewer is aligned along Rock Mountain Road/Main Street from Magdalena Avenue to Heritage Road with approximately 9,300 ft. Its sewer lines

between Magdalena Avenue and La Media Road are recommended for sizing of 12 inches in diameter, and its sewer lines between La Media Road and Heritage Road are recommended for sizing of 15 inches in diameter. The Hunte Parkway Extension is chosen over CIP project P30 as an alternative for Pipe 17093 as it has been approved by the City.

4.4.1 Cost Estimates

Capital improvement costs of the Heritage Road Trunk Sewer, Rock Mountain Road/Main Street Trunk Sewer, and the Hunte Parkway Extension project were estimated in this section. Capital improvement costs of both trunk sewers were estimated based on the unit costs developed from the previous projects done by IEC in a similar manner. The unit cost for the Rock Mountain Road/Main Street Trunk Sewer were adjusted due to uncertainties with the construction phasing of the sewer and road improvements associated with Main Street between Village 8 West development and Heritage Road. The capital improvement costs of the Hunte Parkway Extension project were adopted from the City's Bond Estimate for the Hunte Parkway Extension project, as shown in Appendix J.

These estimates are based on the best available data at the time of this study; however, since prices of materials and labor fluctuate with time, new estimates should be obtained during pre-design for proposed facilities to confirm budget amounts. The ENR-CCI-LA is 10760 for November 2014. Costs estimated herein for recommended facilities should be adjusted in the future either by making new estimates or by comparing the future ENR-CCI-LA index to 10760.

The unit costs used in this study were developed based upon the previous projects done by IEC in a similar nature. Engineering, administration services and contingencies were included as a percentage of total construction costs for pipeline improvements. A factor of 20% of construction cost has been used for engineering and administration as soft costs, which includes but is not limited to the following:

- Planning and design reports
- Design
- CEQA compliance
- Permits
- Surveying
- Service during construction (submittals, as-builts)
- Inspection

Pipe materials, pavement saw cutting, removal, and replacement, traffic control, installation of miscellaneous appurtenances, excavation, bedding and backfill were taken into consideration in developing unit costs for wastewater pipeline construction. A factor of 30% of construction cost and soft cost has been used for contingency cost. Table 8 presents the pipeline unit cost.

Table 8: Pipeline Unit Costs
City of Chula Vista
Salt Creek DIF Study

Pipeline Diameter (in.)	Material	Construction Cost (\$)	Soft Cost (\$)	Contingency (\$)	Total Unit Cost (\$)
8	VCP	170	34	61	265
12	VCP	200	40	72	312
15	VCP	250	50	90	390

Note: Unit costs include construction cost, soft cost, and contingency cost.

Table 9 presents the cost estimates for each project based upon the unit costs, proposed location, proposed diameter, and estimated length of each project. The total cost of the Wolf Canyon Trunk Sewer is estimated to be approximately \$7.6 million.

**Table 9: Future Capital Improvement Projects with Cost Estimate
City of Chula Vista
Salt Creek DIF Study**

Project No.	Description	Location	Size (in.)	Length (LF)	Capital Cost (\$)	
SCP-1	Heritage Road Trunk Sewer*	Heritage Road From Santa Victoria Road to Main Street	15	6,267	\$2,444,130	
SCP-2	Rock Mountain Road/ Main Street Trunk Sewer	Rock Mountain Road/ Main Street between Magdalena Avenue and La Media Road	12	1,038	48,786	**
		Main Street from La Media Road to Heritage Road	15	8,262	4,789,726	+
Hunte Parkway Extension	City Approved Plans++ (Appendix D)	Please see Figure 3	16	<u>250</u>	<u>320,836</u>	++
Total				15,817	\$7,603,478	

* Heritage Road Trunk Sewer is under construction at this time. Proposed alignment provided by the City.

** Estimate based on the incremental cost from 8" to 12" pipe sizes. Village 8 West pipeline segments will require to upsize from 8" to 12" pipe sizes due to additional flows from offsite developments.

+ Capital costs for SCP-2 were calculated based on unit construction costs 66% higher than Table 8 due to uncertainties with the construction phasing of the sewer and road improvements in Main Street between Village 8 West and Heritage Road.

++ Capital costs were adopted from the City's Bond Estimate for the Salt Creek Sewer Lateral Improvement Project. 5-year maintenance expenses excluded. Development impact fees may only recover capital costs and DIF administrative costs.

The Heritage Trunk Sewer was proposed to be 3,100 LF of 10-inch pipelines and 1,500 LF of 12-inch pipelines in the 2004 Salt Creek DIF study, and is proposed to be 63,00 LF of 15-inch pipelines in this study. The Rock Mountain Road/Main Street Trunk Sewer, which was proposed to be 7,400 LF of 15-inch pipelines in the 2004 Salt Creek DIF, is now proposed to extend another 1,900 LF in this study. Within these 1,900 LF of pipelines, about 1,000 LF of pipelines were proposed sizing of 8 inches in diameter in the City's previous individual project impact study, but are required to be upsized to 12 inches in diameter in this study. The differential costs of these pipelines from size of 8-inch in diameter to 12-inch in diameter are included in the cost estimates. The alignment of the Rock Mountain Road/Main Street trunk sewer is still being developed. It is uncertain whether the Rock Mountain Road/Main Street sewer improvements would be constructed concurrent with the street improvements. Construction costs of sewer improvements that do not follow a road configuration may tend to become significant higher than a typical combined sewer and street improvements. According to the cost estimate for the Wolf Canyon sewer facilities developed in the 2004 Salt Creek DIF study (See Appendix J), there were contracted design and project management services for the Rock Mountain Road/Main Street Trunk Sewer with higher construction inspection and administration costs projected as compared to the capital improvement costs of the Heritage Road Trunk Sewer. Based on the review of the Wolf Canyon topography, construction phasing of the Main Street improvements between Village 8 West and Heritage Road and City discussions with property owners of Village 4, 7, and 8 West properties, the capital costs of the Rock Mountain Road/Main Street trunk sewer were escalated with higher unit costs, which is approximately 66% higher than the unit costs shown in Table 8. The total cost of the CIP projects is estimated to be approximately \$7.6 million.

SECTION 5: DIF Analysis

5.1 Current DIF Program

The 2004 Update to the Salt Creek Sewer Basin Plan described project costs and program costs that were eligible for DIF funding. The study included over 13.5 miles of sewer pipeline to serve development in the Salt Creek Basin and Wolf Canyon Basin. The Salt Creek Basin is now envisioned to include about 16.5 miles of pipeline. The 2015 Study removes developer credits that have since been expended, updates financing costs, adds the environmental mitigation cost, adds DIF program administrative costs, and revises the Salt Creek Basin reserve fund balance.

5.2 Fee Methodology

Although not stated explicitly, the 1994 Wilson Study used a capacity expansion fee methodology to calculate the DIF which was carried forward to the 2004 Study and is used in this update. The City's DIF studies define an area of service (i.e. the sewer basin) and the facilities needed to serve growth in that service area. The Salt Creek facilities do not provide a general benefit to connections in other basins; instead, the Salt Creek facilities serve only new growth occurring in the Salt Creek basin.

When new customers connect to the wastewater system, they use either reserve capacity available in existing facilities, or they require new capacity that must be added to the system to accommodate their needs. Under this method, each new customer would pay for the marginal cost of his use of the reserve capacity and for new facilities necessary to provide service to them. The goal of this method is to minimize or eliminate the need to raise rates in order to provide for system expansion.

Consequently, new customers pay fully for the additional facilities without imposing a burden on existing customers. Since it is likely that the timing of payments received from the capacity fees will not exactly match the timing of expenditures to provide facilities, the fee should be adjusted to reflect the time value of money. The intent is that the charge be equal to the required investment as if the construction were to occur at the time of contribution. The 2015 fee calculation includes financing costs which reflect the carrying cost of City (i.e. the City financed capital facilities upfront and is making debt service payments which will benefit new customers who connect in the future).

5.3 Project Costs

Table 10 shows the Salt Creek DIF obligated facilities costs including the cost of the Reaches constructed by the City and the Reaches constructed by others. Table 10 also estimates a construction cost for future facilities needed to serve growth consisting of the Rock Mountain Road/Main Street, Heritage Road, and the 2014 WWMP projects. The 2014 WWMP lines are new projects that was not envisioned in the 2004 study. In total, \$28 million in project costs are included in the 2015 DIF.

Line	Project Cost
Constructed by City	
Reach 1	\$173,613
Reach 2A	112,199
Reach 2B	267,660
Reach 3	1,526,107
Reach 4A	2,921,271
Reach 5B	1,295,895
Reach 6	973,024
Reach 7	3,222,772
Reach 8A	1,218,959
Reach 8B	1,895,193
Reach 9A	<u>6,115,322</u>
Subtotal	\$19,722,015*
Constructed by Others	
Reach 4B and 5A	\$677,700
Future Construction Cost	
Heritage Road Trunk Sewer (Wolf Canyon)**	2,444,130
Rock Mountain Road/Main Street Trunk Sewer (Wolf Canyon)**	4,838,512
Hunte Parkway Extension	320,836
Subtotal	\$7,603,478
Total Project Costs	\$28,003,193

*The City incurred \$267,762 due to additional project costs after the 2004 DIF was completed.

**The alignment of Rock Mountain Road/Main Street is still being developed and Heritage Road is under construction at this time.

5.4 Developer Credits

Reaches 1, 2A, and 2B were constructed by developers who were owed \$553,000 in credit for those facilities. Since 2004, all outstanding developer credits have been expended and no developer credits are included in the 2015 DIF calculation. Instead, the cost of Reaches 1, 2A, and 2B are noted as facility costs for the 2015 study.

Future Wolf Canyon Trunk Sewer lines are assumed to be constructed by the City. However, based on the provisions of Sections 15 and 16 of Ordinance No. 2617, a developer who agrees or is required to construct facilities benefitting the basin would be entitled to receive a reimbursement or credit at the City’s option. If the City issues developer credits in the future, the City should revise the DIF to include the value of the developer credits.

5.5 Construction Funding

The Salt Creek Basin facilities have been constructed through the years using funding through the Salt Creek Basin DIF fund and, where DIF funds were not available, through loans from the Trunk Sewer Capital Reserve Fund. Loans made from the Trunk Sewer Capital Reserve Fund must be repaid using DIF funds. Table 11 summarizes the history of loans from the Trunk Sewer Capital Reserve Fund to the Salt Creek DIF fund. The loans will be repaid over a term of 20 years. To date, financing costs total about \$5.9 million. For payments made into the future, the City estimates approximately \$505,000 in additional financing costs. Subtracted from the total financing cost is about \$2.5 million in debt service that has already been paid with DIFs collected from past connections. In total, the Salt Creek DIF is obligated to pay \$24.6 million in debt service costs.

**Table 11: Financing Cost
City of Chula Vista
Salt Creek DIF Study**

Loan Name	Facilities	Loan Date	Original Principal	Amount Now Due	Financing Cost through FY2014
SW210	Reaches 4B & 5A	07/01/97	\$674,180	1,108,018	\$433,838
SW219	Reaches 3, 4A, 5B, 6, 7, 8	12/29/00	7,585,500	7,661,810	2,576,393
SW219	Reaches 3, 4A, 5B, 6, 7, 8	12/04/01	1,300,000	1,676,937	376,937
SW219	Reaches 3, 4A, 5B, 6, 7, 9	08/13/02	2,524,596	3,182,833	658,237
SW225	Wolf Canyon Trunk	06/30/04	1,000,000	1,218,734	218,734
SW219	Reach 9A	08/17/04	6,115,322	7,436,646	1,321,324
SW219	Reach 7A	08/17/04	1,467,879	1,785,040	317,161
Total Loans			\$20,667,477	\$24,070,018	\$5,902,624
				Future Financing Cost	\$505,411
				Total Financing Cost	\$6,408,035
				Original Principal	\$20,667,477
				Total Loan Repayment	\$27,075,512
				Payments to Date	(\$2,500,083)
				Outstanding Loan Payments	\$24,575,429

Source: City staff

*The construction cost of facilities was \$20.4 million as shown in Table 2. In addition, the City incurred \$267,762 due to additional project costs after the 2004 DIF Study was completed.

Note: The City will maintain a loan repayment reserve of \$1.3 million.

5.6 Environmental Mitigation

Following the City's Section 10(a) permit under the Federal Endangered Species Act, a contribution of \$1,000,000 must be made to the Preserve Management Endowment Fund (PMEF) as a requirement for the Salt Creek Gravity Sewer Interceptor project. The Salt Creek Trunk Sewer is a planned facility through the preserve and the funds will be used for preserve restoration and maintenance. To see a complete account of the environmental concerns and recommendations made by the environmental community and the full explanations on how they were addressed by the City, refer to the "*Final Program Environmental Impact Report – Salt Creek Interceptor Sewer and Wolf Canyon Trunk Sewer*", prepared by Dudek & Associates dated June 2001.²

5.7 DIF Administration

BWA estimates the Salt Creek DIF administrative cost to be \$120,000 through build-out. State law requires that development impact fees and capacity fees be held in a restricted fund and used only to improve facilities needed to serve growth. The administrative portion of the DIF will be used to cover the costs of accounting for the restricted DIF fund.

5.8 Available Reserves

As of June 30, 2014, the Salt Creek DIF fund balance is \$5,805,114. The balance is made up of development impact fees paid in the past by customers connecting to the system and interest earned on the past fees. The DIF fund balance therefore represents the portion of facility costs that have already been paid for by past customers proportional to their capacity in the system. After the fund balance is applied, the outstanding cost is the portion of facilities costs attributable to the Basin's remaining EDUs.

5.9 Development Impact Fee Calculation

Table 12 calculates the Salt Creek Basin development impact fee. The fee includes construction costs for existing facilities, estimated construction costs for future facilities, financing costs, and administrative costs. Subtracted from these costs is the balance of the Salt Creek DIF reserve fund. The total cost to be recovered from the Salt Creek DIF is \$27.5 million. This cost is spread over the remaining EDUs in the basin to calculate a fee of \$1,330 per EDU.

² Environmental Mitigation description taken from the 2004 Update to the Salt Creek Sewer Basin Plan

**Table 12: DIF Calculation
City of Chula Vista
Salt Creek DIF Study**

	Amount	Source
Cost Category		
Outstanding Loan Payments	\$24,575,429	Table 11
Future Construction Cost	7,603,478	Table 9
Outstanding Developer Credits	0	City Staff
Environmental Mitigation	1,000,000	City Staff
DIF Administration Cost	120,000	City Staff
Less: DIF Fund Reserve	<u>(5,805,114)</u>	City Staff
Subtotal	<u>\$27,493,793</u>	
Remaining EDUs	20,668	Table 5
New DIF (per EDU)	\$1,330	

Note: The City will maintain a loan repayment reserve of \$1.3 million.

5.10 DIF Comparison

Table 13 provides a comparison between the fee recommended in this study, the current fee (last updated in 2004), and a hypothetical fee that represents the 2004 fee escalated to current dollars. The fee recommended in this study is the same as the current fee.

**Table 13: DIF Comparison
City of Chula Vista
Salt Creek DIF Study**

Description	Fee Amount
2004 Salt Creek Sewer Basin Plan	\$1,330 per EDU
2004 DIF escalated to 2014	\$1,747 per EDU
2015 DIF calculation	\$1,330 per EDU

Table 14 provides more detail on the change in costs attributable to the Salt Creek DIF between 2004 and 2015. The 2004 Study calculated a revenue requirement of over \$34.1 million. In comparison, this update calculates a revenue requirement of about \$27.5 million. The 2004 Study included higher financing costs and lower available reserves to offset construction costs. This 2015 Study includes higher project costs for the Rock Mountain/Main Street and Heritage Road Trunk Sewer lines and a new project – the Hunte Parkway Extension.

**Table 14: Comparison of DIF Studies
City of Chula Vista
Salt Creek DIF Study**

Description	2004 Study	2015 Study	Difference
Facility Cost/Original Principal	\$19,846,243	\$20,667,477*	4.1%
Future Project Cost			
Heritage Road	\$1,256,000	\$2,444,130	94.6%
Rock Mountain Road/Main Street	\$4,460,000	\$4,838,512	8.5%
Hunte Parkway Extension		\$320,836	
Financing Cost	\$10,788,873	\$3,907,952	-63.8%
Environmental Mitigation		\$1,000,000	
Developer Credits	\$553,472		-100.0%
DIF Administration		\$120,000	
Available Reserve	<u>(\$2,771,042)</u>	<u>(\$5,805,114)</u>	109.5%
Total	\$34,133,546	\$27,493,793	-19.5%
EDUs	25,668	20,668	-19.5%
DIF	\$1,330	\$1,330	0.0%

Note: The City will maintain a loan repayment reserve of \$1.3 million.

*The City incurred \$267,762 due to additional project costs after the 2004 DIF was completed.

SECTION 6: Conclusions

6.1 Recommendations

To provide adequate funding for the Salt Creek Basin facilities and to promote equity between customers who have already connected to the system and future customers, the City should implement the following recommendations:

- Add the Hunte Parkway Extension project cost to the DIF
- As DIF funds are available, transfer funds from the Salt Creek DIF to the Trunk Sewer Capital Reserve Fund to pay off the DIF's outstanding loans
- Maintain the Salt Creek DIF of \$1,330 per EDU
- Adjust the Salt Creek DIF by the annual change in the Engineering News Record's Construction Cost Index for Los Angeles
- Conduct a DIF study at least every ten years to reflect revised land use projections and cost information

6.2 Updates

Recommended pipeline sizes and length have been re-determined for Rock Mountain Road/Main Street Trunk Sewer and Heritage Road Trunk Sewer based on the updated development flow projections in 2050. The Hunte Parkway Extension project is recommended to add to the DIF study as it is needed to eliminate a potential pipeline failure at the connection to Salt Creek Interceptor in the ultimate system. The capital improvement costs of Rock Mountain Road/Main Street Trunk Sewer and heritage Road Trunk Sewer have been updated, and the Hunte Parkway Trunk Sewer project costs are added to the Salt Creek DIF.

6.3 Environmental Review

The City's Development Services Director has reviewed the implementation of the DIF for compliance with the California Environmental Quality Act (CEQA) and has determined that the proposed actions are not a "Project" as defined under Section 15378 of the State CEQA Guidelines because the activity consists of a governmental fiscal/administrative activity which does not involve any commitment to any specific project which may result in a potentially significant physical impact on the environment. Therefore, pursuant to Section 15060(c)(3) of the State CEQA Guidelines the activity is not subject to CEQA. Thus, no environmental review is required.

Although environmental review is not required at this time, once the scope of potential individual City projects to be funded have been defined, environmental review will be required for each project and the appropriate environmental determination will be made.

6.4 Annual Adjustment

Capacity fees and development impact fees should be adjusted regularly to prevent them from falling behind the costs of constructing new facilities. Several methods can be used to adjust the fees, including:

- ENR Construction Cost Index: ENR (Engineering News-Record) magazine publishes construction cost indices monthly for Los Angeles. This index can be used to estimate the change in the construction cost of facilities. If the ENR Index has increased by three percent since the last fee adjustment, the fee should be increased by three percent.
- U.S., California, or regional consumer price index.
- Interest rate and borrowing costs: The interest and borrowing costs for debt issued to finance sewer capital projects can be added to the capacity fee annually.

It is recommended that the City adjust its fee annually by the change in the ENR Construction Cost Index for Los Angeles. This is the most appropriate index because it directly reflects construction costs. Suggested language for implementing this policy is:

Each year, commencing on (m/d/y) and continuing thereafter on each (m/d), the capacity fee shall be adjusted by an increment based on the change in the Engineering News-Record Construction Cost Index for Los Angeles over the prior year.

However, the City Council may at its option determine, by resolution adopted prior thereto, that such adjustment shall not be effective for the next succeeding year, or may determine other amounts as appropriate.

6.5 Study Limitations

Note that this study has been prepared specifically for the purpose of updating the Salt Creek Sewer Basin development impact fee. Timing and ultimate needs for additional facilities to serve development should be determined independently by the City.