

4.0 WASTEWATER CAPITAL IMPROVEMENTS

This section establishes the City of Fort Worth wastewater facilities and engineering studies that are eligible for inclusion in the calculation of the impact fee. The City’s existing wastewater model was updated by FNI staff to reflect the updated flows for the impact fee period, as well as include the recommended CIP projects for the impact fee period. Projects included in the CIP increase system capacity as a result of projected growth. Only those projects warranted by capacity needs derived from growth occurring during the study period (2017 to 2027) can be included in the impact fee calculation. Additionally, projects are excluded from the impact fee calculation if alternate mechanisms for cost recovery are in place. Facilities included in the impact fee study are TRA projects, wastewater treatment facilities, lift stations, interceptors and engineering studies.

Table 4-1 provides a summary of each wastewater CIP project cost and allocation for the 2017-2027 study period. The 2017 percent utilization is the portion of a project’s capacity required to serve existing development. It is not included in the impact fee analysis. The 2017-2027 percent utilization is the portion of the project’s capacity that will be required to serve development projected to occur from 2017 to 2027. The portion of a project’s total cost that is used to serve development projected to occur from 2017 through 2027 is calculated as the total cost multiplied by the 2017-2027 percent utilization. Only this portion of the cost is used in the impact fee analysis.

Figures F-1 and **F-2**, show existing and proposed facilities, respectively, for the impact fee study period. **Appendix B** describes each wastewater CIP project for the 2017-2027 planning period. The purpose of each project, the portion that are allocated to growth and the current status is also included.

**Table 4-1
Wastewater Capital Improvement Projects 2017 - 2027**

Project ID	Project Title	Project Phase	TRA Project Cost	Fort Worth Participation Cost	Initial Project Cost	Project Cost in 2017 Dollars*	Start Date	Completion Date	Added Capacity (MGD)	% Allocated to Existing 2017 Capacity	Cost Allocated to Existing 2017 Capacity	% Allocated to 2017-2027 Impact Fees	Cost Allocated to 2017-2027 Impact Fees	% Allocated to Impact Fees after 2027	Cost Allocated to Impact Fees after 2027	
TRINITY RIVER AUTHORITY PROJECTS																
-	Denton Creek WWTP Expansion	Const	\$47,595,000	\$26,177,250	-	\$26,177,250	2008	2010	6.5 MGD	55.0%	\$14,397,488	30.0%	\$7,853,175	15.0%	\$3,926,588	
2013 Ph. 2	CB-1 30-inch Parallel Relief Interceptor	Const	\$5,317,548	\$2,924,651	-	\$3,086,970	2013	2016	-	0.0%	\$0	12.0%	\$370,436	88.0%	\$2,716,533	
3828.642	25HC-1 Relief Int. (740H - 460H) 12,500 LF	Land	\$1,241,000	\$682,550	-	\$720,432	2016	2017	-	0.0%	\$0	50.0%	\$360,216	50.0%	\$360,216	
3828.642	25HC-1 Relief Int. (740H - 460H) 12,500 LF	Const	\$14,363,000	\$7,899,650	-	\$8,338,081	2016	2017	-	0.0%	\$0	50.0%	\$4,169,040	50.0%	\$4,169,040	
6828.644	25HC-3 Relief Int. (1320H to 740H) 13,100 LF	Land	\$1,795,000	\$987,250	-	\$1,042,042	2016	2017	-	0.0%	\$0	100.0%	\$1,042,042	0.0%	\$0	
6828.644	25HC-3 Relief Int. (1320H to 740H) 13,100 LF	Const	\$15,904,000	\$8,747,200	-	\$9,232,670	2016	2017	-	0.0%	\$0	100.0%	\$9,232,670	0.0%	\$0	
6828.202	25HC-5 Relief & MS 12.0HC (1780H-2995H)	Land	\$765,000	\$420,750	-	\$444,102	2016	2018	-	0.0%	\$0	100.0%	\$444,102	0.0%	\$0	
6828.202	25HC-5 Relief & MS 12.0HC (1780H-2995H)	Const	\$5,819,000	\$3,200,450	-	\$3,378,075	2016	2018	-	0.0%	\$0	100.0%	\$3,378,075	0.0%	\$0	
3828.2004	Two Alternate Discharge 14 MGD Pumps	Eng	\$967,000	\$531,850	-	\$561,368	2016	2018	-	0.0%	\$0	50.0%	\$280,684	50.0%	\$280,684	
3828.2004	Two Alternate Discharge 14 MGD Pumps	Const	\$6,741,000	\$3,707,550	-	\$3,913,319	2019	2021	-	0.0%	\$0	50.0%	\$1,956,660	50.0%	\$1,956,660	
3828.2012	Peak Flow Storage	Eng	\$4,858,000	\$2,671,900	-	\$2,820,190	2018	2019	-	0.0%	\$0	50.0%	\$1,410,095	50.0%	\$1,410,095	
3828.2012	Peak Flow Storage	Const	\$30,560,000	\$16,808,000	-	\$17,740,844	2018	2021	-	0.0%	\$0	50.0%	\$8,870,422	50.0%	\$8,870,422	
6828.643	25HC-2 Relief Int. (2060H to 740H) 4,400 LF	Eng	\$1,007,000	\$553,850	-	\$584,589	2020	2021	-	0.0%	\$0	19.0%	\$111,072	81.0%	\$473,517	
TOTAL TRINITY RIVER AUTHORITY PROJECTS			\$136,932,548	\$75,312,901	-	\$78,039,930						TRINITY RIVER AUTHORITY PROJECTS ELIGIBLE COST		\$39,478,688		
TREATMENT FACILITIES																
WWTP-001	Mary's Creek WRF Site Selection and Land Purchase	Land	-	-	\$4,950,000	\$4,950,000	2011	2011	-	0.0%	\$0	40.0%	\$1,980,000	60.0%	\$2,970,000	
-	Deep Bed Media Filters 1-20 Modifications	Design	-	-	\$1,032,750	\$1,032,750	2011	2016	-	60.0%	\$619,650	40.0%	\$413,100	0.0%	\$0	
-	Deep Bed Media Filters 1-20 Modifications	CM\Insp	-	-	\$995,000	\$995,000	2011	2016	-	60.0%	\$597,000	40.0%	\$398,000	0.0%	\$0	
-	Deep Bed Media Filters 1-20 Modifications	Const	-	-	\$16,889,298	\$16,889,298	2011	2016	80 MGD	60.0%	\$10,133,579	40.0%	\$6,755,719	0.0%	\$0	
WWTP-009	VCWRF Peak Flow Diversion Structure (Equalization Basin for Peak Flows)	CM\Const	-	-	\$30,921,046	\$30,921,046	2012	2016	100 MG	15.0%	\$4,638,157	85.0%	\$26,282,889	0.0%	\$0	
WWTP-012-1	VCWRF Replace Primary Clarifiers 1-12 & Grit System (Phase 2B of 191 MGD expansion)	Study\Eng	-	-	\$3,785,000	\$4,194,916	2016	2019	-	0.0%	\$0	88.0%	\$3,691,526	12.0%	\$503,390	
WWTP-001-1	Mary's Creek Satellite Plant (MP-053)	Permitting\Eng	-	-	\$4,850,000	\$5,375,255	2017	2021	-	0.0%	\$0	40.0%	\$2,150,102	60.0%	\$3,225,153	
WWTP-012-2	VCWRF Replace Primary Clarifiers 1-12 & Grit System (Phase 2B of 191 MGD expansion)	CM\Const	-	-	\$10,574,070	\$11,719,242	2019	2020	25 MGD	0.0%	\$0	88.0%	\$10,312,933	12.0%	\$1,406,309	
WWTP-012-3	VCWRF Replace Primary Clarifiers 1-12 & Grit System (Phase 2B of 191 MGD expansion)	CM\Const	-	-	\$10,574,070	\$11,719,242	2021	2021	-	0.0%	\$0	88.0%	\$10,312,933	12.0%	\$1,406,309	
WWTP-001-2	Mary's Creek Satellite Plant (MP-053)	Const	-	-	\$56,150,000	\$62,231,045	2023	2025	5 MGD	0.0%	\$0	40.0%	\$24,892,418	60.0%	\$37,338,627	
WWTP-013	VCWRF South Influent Lift Station (V-3)	Eng	-	-	\$1,000,000	\$1,108,300	2023	2024	-	0.0%	\$0	88.0%	\$975,304	12.0%	\$132,996	
WWTP-013	VCWRF South Influent Lift Station (V-3)	Const	-	-	\$5,000,000	\$5,541,500	2023	2024	-	0.0%	\$0	88.0%	\$4,876,520	12.0%	\$664,980	
TOTAL WASTEWATER TREATMENT PLANTS			-	-	\$146,721,234	\$156,677,593						WASTEWATER TREATMENT PLANTS ELIGIBLE COST		\$93,041,443		
REGIONAL LIFT STATIONS & INTERCEPTORS																
WWMP-9	Casino Beach Lift Station and Force Main	Eng	-	-	\$430,850	\$430,850	2013	2017	-	0.0%	\$0	85.0%	\$366,223	15.0%	\$64,628	
WWMP-9	Casino Beach Lift Station and Force Main	Const	-	-	\$2,872,320	\$2,872,320	2013	2017	0.3 MGD	0.0%	\$0	85.0%	\$2,441,472	15.0%	\$430,848	
WWMP-28	Dosier Creek 20-inch Force Main	Eng	-	-	\$288,290	\$319,512	2015	2016	-	0.0%	\$0	50.0%	\$159,756	50.0%	\$159,756	
WWMP-28	Dosier Creek 20-inch Force Main	Const	-	-	\$2,402,400	\$2,662,580	2015	2018	-	0.0%	\$0	50.0%	\$1,331,290	50.0%	\$1,331,290	
LS-5	Tarleton Regional Lift Station LS-5 (Upsize)	Eng	-	-	\$250,000	\$277,075	2017	2018	-	0.0%	\$0	45.0%	\$124,684	55.0%	\$152,391	
LS-5	Tarleton Regional Lift Station LS-5 (Upsize)	Const	-	-	\$2,500,000	\$2,770,750	2017	2018	12 MGD	0.0%	\$0	45.0%	\$1,246,838	55.0%	\$1,523,913	
LS-6	Walsh Ranch LS & Force Main IVB	Eng	-	-	\$200,000	\$221,660	2020	2021	-	0.0%	\$0	80.0%	\$177,328	20.0%	\$44,332	
LS-6	Walsh Ranch LS & Force Main IVB	Const	-	-	\$1,288,000	\$1,427,490	2020	2021	1 MGD	0.0%	\$0	80.0%	\$1,141,992	20.0%	\$285,498	
LS-1A	Bonds Ranch Lift Station "A" & Force Main	Eng	-	-	\$200,000	\$221,660	2020	2023	-	0.0%	\$0	72.0%	\$159,595	28.0%	\$62,065	
LS-1A	Bonds Ranch Lift Station "A" & Force Main	Const	-	-	\$1,400,000	\$1,551,620	2020	2023	2 MGD	0.0%	\$0	72.0%	\$1,117,166	28.0%	\$434,454	
LS-1B	Bonds Ranch Lift Station "B" & Force Main	Eng	-	-	\$200,000	\$221,660	2020	2023	-	0.0%	\$0	72.0%	\$159,595	28.0%	\$62,065	
LS-1B	Bonds Ranch Lift Station "B" & Force Main	Const	-	-	\$1,400,000	\$1,551,620	2020	2023	2 MGD	0.0%	\$0	72.0%	\$1,117,166	28.0%	\$434,454	
WWC-080	108-inch Third Barrel Interceptor Parallel to M-280 and M-338 MP-018	Eng	-	-	\$5,175,080	\$5,735,541	2021	2025	-	0.0%	\$0	64.0%	\$3,670,746	36.0%	\$2,064,795	
WWC-080	108-inch Third Barrel Interceptor Parallel to M-280 and M-338 MP-018	Const	-	-	\$43,125,600	\$47,796,102	2021	2025	-	0.0%	\$0	64.0%	\$30,589,506	36.0%	\$17,206,597	
LS-4	Live Oak Creek Regional Lift Station & Force Main LS-4	Eng	-	-	\$400,000	\$443,320	2022	2023	-	0.0%	\$0	100.0%	\$443,320	0.0%	\$0	
LS-4	Live Oak Creek Regional Lift Station & Force Main LS-4	Const	-	-	\$2,000,000	\$2,216,600	2022	2023	1.12 MGD	0.0%	\$0	100.0%	\$2,216,600	0.0%	\$0	
LS-9	Lake Arlington - VC Drainage Basin Lift Station & Force Main MP-013	Eng	-	-	\$3,034,440	\$3,363,070	2022	2023	-	0.0%	\$0	60.0%	\$2,017,842	40.0%	\$1,345,228	
LS-9	Lake Arlington - VC Drainage Basin Lift Station & Force Main MP-013	Const	-	-	\$20,229,600	\$22,420,466	2022	2023	25 MGD	0.0%	\$0	60.0%	\$13,452,279	40.0%	\$8,968,186	
LS-1C	Bonds Ranch Lift Station "C" & Force Main	Eng	-	-	\$200,000	\$221,660	2023	2025	-	0.0%	\$0	24.0%	\$53,198	76.0%	\$168,462	
LS-1C	Bonds Ranch Lift Station "C" & Force Main	Const	-	-	\$1,750,000	\$1,939,525	2023	2025	3 MGD	0.0%	\$0	24.0%	\$465,486	76.0%	\$1,474,039	
LS-12	5.5 MGD Richardson Slough Lift Station Expansion and 20-inch Force Main in the Clear Fork Basin	Eng	-	-	\$207,160	\$229,595	2024	2025	-	0.0%	\$0	10.0%	\$22,960	90.0%	\$206,636	
LS-12	5.5 MGD Richardson Slough Lift Station Expansion and 20-inch Force Main in the Clear Fork Basin	Const	-	-	\$1,680,000	\$1,861,944	2025	2025	5.5 MGD	0.0%	\$0	10.0%	\$186,194	90.0%	\$1,675,750	
LS-13	1.1 MGD Lake Country #4 Lift Station Expansion in the Marine Creek Basin	Eng	-	-	\$93,600	\$103,737	2024	2025	-	0.0%	\$0	6.0%	\$6,224	94.0%	\$97,513	
LS-13	1.1 MGD Lake Country #4 Lift Station Expansion in the Marine Creek Basin	Const	-	-	\$780,000	\$864,474	2025	2025	1.1 MGD	0.0%	\$0	6.0%	\$51,868	94.0%	\$812,606	
TOTAL LIFT STATIONS			-	-	\$92,107,340	\$101,724,832						LIFT STATIONS ELIGIBLE COST		\$62,719,329		
ENGINEERING STUDIES																
-	2009 Wastewater Master Plan 2010-2020	Study	-	-	\$4,156,850	\$4,156,850	2008	2012	-	70.0%	\$2,909,795	30.0%	\$1,247,055	0.0%	\$0	
-	Impact Fee Study - 2017-2027	Study	-	-	\$117,987	\$117,987	2015	2016	-	0.0%	\$0	100.0%	\$117,987	0.0%	\$0	
TOTAL ENGINEERING STUDIES			-	-	\$4,274,837	\$4,274,837						ENGINEERING STUDIES ELIGIBLE COST		\$1,365,042		
TOTAL WASTEWATER CIP			\$136,932,548	\$75,312,901	\$243,103,411	\$340,717,192						WASTEWATER CIP ELIGIBLE COST		\$196,604,503		

Information Sources:

2012 Wastewater System Master Plan, Freese & Nichols
 2013 Phase II Interceptor Flow Assessment, Black and Veatch
 5-year CIP Budget 2016-2021, Trinity River Authority of Texas
 2014 Denton Creek Regional Wastewater System Master Plan Update, Alan Plummer Associates
 Fort Worth Water Department Capital Improvement Program 2015-2019

*ENR factor of 10.83% used to inflate projected costs from 2012 WWMP to 2017 dollars on proposed projects only. ENR factor of 5.55% used to inflate costs from 2016 dollars to 2017 dollars on proposed projects only.