

LIST OF TABLES

Table 3.1: Volume of Sanitary Overflow for a 5-Year Design Storm

Area No.	Area Name	SSO No.	SSO ID	Volume of SSO (CF)	Total SSO Per Area (CF)
6	Lost Creek	47	LCWS197OF	5.85E+04	5.85E+04
7	West Street	38	WS219OF	2.97E+04	8.20E+04
		39	WS225OF	7.45E+03	
		41	WS312OF	0.00E+00	
		42	WS480OF	9.79E+02	
		43	WS516OF	0.00E+00	
		44	WS476OF	1.31E+04	
		45	WS471OF	1.66E+04	
		46	WS599OF	2.32E+03	
		56	WS002OF	1.16E+04	
8	Koop Road	60	WS474OF	3.39E+02	8.82E+04
		23	KR209OF	4.27E+02	
		24	KR205OF	1.03E+04	
		25	KR331OF	4.71E+03	
		26	KR351OF	7.05E+02	
		27	KR410OF	6.02E+03	
		29	KR439OF	5.38E+03	
		31	KR401OF	2.58E+04	
9	Allentown Road	32	KR377OF	1.06E+04	1.09E+05
		28	KR476OF	2.43E+04	
		17	AR004OF	1.22E+04	
		18	AR181OF	3.99E+03	
		20	AR201OF	9.97E+03	
		21	AR200OF	8.47E+03	
		22	AR251OF	3.01E+03	
		50	AR129OF	2.57E+04	
10	Cole Street	51	AR551OF	0.00E+00	7.27E+03
		61	AR023OF	1.72E+04	
		62	AR025OF	0.00E+00	
		63	AR328OF	2.86E+04	
		49	CS088OF	7.27E+03	
		10	CS132OF	0.00E+00	
11	Findlay Road			0.00E+00	0.00E+00
12	15 th Street			0.00E+00	0.00E+00
City of Lima Total Overflow (CF)					3.45E+05
City of Lima Total Overflow (MG)					2.55E+06

Table 3.2: Volume of Sanitary Overflow for a 10-Year Design Storm

Area No.	Area Name	SSO No.	SSO ID	Volume of SSO (CF)	Total SSO Per Area (CF)
6	Lost Creek	47	LCWS197OF	7.02E+04	7.02E+04
7	West Street	38	W5219OF	3.67E+04	1.13E+05
		39	W5225OF	9.79E+03	
		41	WS312OF	0.00E+00	
		42	WS480OF	3.40E+03	
		43	WS516OF	0.00E+00	
		44	WS476OF	1.59E+04	
		45	WS471OF	2.12E+04	
		46	WS599OF	4.37E+03	
		56	WS002OF	2.06E+04	
8	Koop Road	60	WS474OF	6.83E+02	1.13E+05
		23	KR209OF	1.45E+03	
		24	KR205OF	1.44E+04	
		25	KR331OF	6.91E+03	
		26	KR351OF	1.09E+03	
		27	KR410OF	8.18E+03	
		29	KR439OF	6.58E+03	
		31	KR401OF	3.42E+04	
		32	KR377OF	1.60E+04	
9	Allentown Road	28	KR476OF	2.44E+04	1.35E+05
		17	AR004OF	1.54E+04	
		18	AR181OF	7.15E+03	
		20	AR201OF	1.19E+04	
		21	AR200OF	1.10E+04	
		22	AR251OF	4.77E+03	
		50	AR129OF	3.28E+04	
		51	AR551OF	0.00E+00	
		61	AR023OF	1.90E+04	
10	Cole Street	62	AR025OF	0.00E+00	1.03E+04
		63	AR328OF	3.33E+04	
10	Cole Street	49	CS088OF	1.03E+04	1.03E+04
		10	CS132OF	0.00E+00	
11	Findlay Road			0.00E+00	0.00E+00
12	15 th Street			0.00E+00	0.00E+00
City of Lima Total Overflow (CF)					4.42E+05
City of Lima Total Overflow (MG)					3.27E+06

Table 3.3: Volume of Sanitary Overflow for a 25-Year Design Storm

Area No.	Area Name	SSO No.	SSO ID	Volume of SSO (CF)	Total SSO Per Area (CF)
6	Lost Creek	47	LCWS197OF	8.17E+04	8.17E+04
7	West Street	38	W5219OF	4.61E+04	1.52E+05
		39	W5225OF	1.33E+04	
		41	WS312OF	0.00E+00	
		42	WS480OF	5.36E+03	
		43	WS516OF	0.00E+00	
		44	WS476OF	1.92E+04	
		45	WS471OF	2.58E+04	
		46	WS599OF	7.34E+03	
		56	WS002OF	3.41E+04	
		60	WS474OF	1.17E+03	
8	Koop Road	23	KR209OF	3.14E+03	1.47E+05
		24	KR205OF	2.00E+04	
		25	KR331OF	9.85E+03	
		26	KR351OF	1.86E+03	
		27	KR410OF	1.09E+04	
		29	KR439OF	8.44E+03	
		31	KR401OF	4.41E+04	
		32	KR377OF	2.40E+04	
9	Allentown Road	17	AR004OF	1.86E+04	1.72E+05
		18	AR181OF	1.20E+04	
		20	AR201OF	1.45E+04	
		21	AR200OF	1.47E+04	
		22	AR251OF	7.35E+03	
		50	AR129OF	4.35E+04	
		51	AR551OF	0.00E+00	
		61	AR023OF	2.11E+04	
		62	AR025OF	0.00E+00	
		63	AR328OF	3.99E+04	
10	Cole Street	49	CS088OF	1.48E+04	1.48E+04
		10	CS132OF	0.00E+00	
11	Findlay Road			0.00E+00	0.00E+00
12	15 th Street			0.00E+00	0.00E+00
City of Lima Total Overflow (CF)					5.67E+05
City of Lima Total Overflow (MG)					4.20E+06

Table 3.4: Volume of Sanitary Overflow for a 100-Year Design Storm

Area No.	Area Name	SSO No.	SSO ID	Volume of SSO (f ³)	Total SSO Per Area (f ³)
6	Lost Creek	47	LCWS197OF	9.74E+04	9.74E+04
7	West Street	38	W5219OF	6.08E+04	2.17E+05
		39	W5225OF	1.93E+04	
		41	WS312OF	3.26E+02	
		42	WS480OF	8.23E+03	
		43	WS516OF	0.00E+00	
		44	WS476OF	2.43E+04	
		45	WS471OF	3.22E+04	
		46	WS599OF	1.28E+04	
		56	WS002OF	5.72E+04	
		60	WS474OF	2.06E+03	
8	Koop Road	23	KR209OF	6.49E+03	2.05E+05
		24	KR205OF	2.95E+04	
		25	KR331OF	1.50E+04	
		26	KR351OF	4.00E+03	
		27	KR410OF	1.57E+04	
		29	KR439OF	1.21E+04	
		31	KR401OF	5.94E+04	
		32	KR377OF	3.80E+04	
9	Allentown Road	17	AR004OF	2.29E+04	2.36E+05
		18	AR181OF	2.12E+04	
		20	AR201OF	1.94E+04	
		21	AR200OF	2.14E+04	
		22	AR251OF	1.20E+04	
		50	AR129OF	6.25E+04	
		51	AR551OF	0.00E+00	
		61	AR023OF	2.48E+04	
		62	AR025OF	0.00E+00	
		63	AR328OF	5.18E+04	
10	Cole Street	49	CS088OF	2.18E+04	2.32E+04
		10	CS132OF	1.40E+03	
11	Findlay Road			0.00E+00	0.00E+00
12	15 th Street			0.00E+00	0.00E+00
City of Lima Total Overflow (CF)					7.79E+05
City of Lima Total Overflow (MG)					5.76E+06

Table 4.1: Improvement Cost Summary

	2005			
	5-Y	10-Y	25-Y	100-Y
Lost Creak	\$2,559,520	\$3,807,169	\$4,327,343	\$6,444,341
West Street	\$3,842,360	\$4,628,474	\$5,136,622	\$6,174,801
Koop Road	\$3,417,764	\$3,926,369	\$4,258,055	\$5,108,161
Allentown Road	\$3,440,391	\$3,829,421	\$4,191,478	\$4,925,369
Cole Street	\$333,392	\$380,288	\$520,899	\$1,786,725
Findlay Road	\$1,556,451	\$1,642,744	\$1,884,148	\$1,816,240
15th Street	\$156,000	\$156,000	\$520,730	\$857,294
Total	\$15,305,877	\$18,370,465	\$20,839,275	\$27,112,933

Table 4.1.1: Lost Creek Sanitary System, Detailed Sanitary Sewer Improvement for 5-Y, 10-Y, 25-Y and 100-Y Design Storms.

Conduit	Length (ft)	Original Diameter (ft)	5-Year	10-Year	25-Year	100-Year
LC002LC123	37	1.75				
LC003LC002	94	1.75				
LC004LC003	165	1.75				
LC005LC004	546	1.75				
LC049LC050	249.5	1.5				
LC123LC001	50	1.75	2	2	2.25	2.5
LC124LC123	88	1.75	2	2	2.25	2.5
LC127LC124	215	1.75	2	2	2.25	2.5
LC128LC127	46	1.75	2	2	2.25	2.5
LC129LC128	380	1.75	2	2	2.25	2.5
LC130LC129	43	0.67				
LC131LC130	204	0.67				
LC160LC129	285	1.75	2	2	2.25	2.5
LC161LC160	88	1.75	2	2	2.25	2.5
LC162LC161	266	1.75	2	2	2.25	2.5
LC163LC162	245	1.75	2	2	2.25	2.5
LC164LC163	161	0.67	0.83	0.83	1	1.25
LC165LC164	39	0.67	0.83	0.83	1	1.25
LC175LC165	201	0.67	1	1	1	1.25
LC176LC175	220	0.67	1	1	1	1.25
LC177LC176	223	0.67	1	1	1	1
LC178LC177	200	0.67	1	1	1	1
LC179LC178	225	0.67	1	1	1	1
LC180LC179	225	0.67	1	1	1	1
LC194LC163	306	1.75		2	2	2.25
LC195LC194	299	1.75		2	2	2.25
LC196LC195	300	1.75		2	2	2.25
LC197LC196	323	1.75		2	2	2.25
LC199LC197	247	1.75		2	2	2.25
LC200LC199	280	1.75		2	2	2.25
LC201LC200	300	1.75		2	2	2.25
LC202LC201	294	1.75		2	2	2.25
LC203LC202	307	1.75		2	2	2.25
LC245LC124	80	0.67				0.83
LC246LC245	200	0.67				0.83
LC320LC203	252	1.75		2	2.25	2.5
LC321LC320	196	1.5				1.75
LC322LC321	208	1.5				1.75
LC323LC322	287	1.5				1.75
LC324LC323	200	0.67	1	1	1	1
LC327LC324	174	0.67	1	1	1	1
LC328LC327	198	0.67	1	1	1	1
LC330LC328	200	0.67	1	1	1	1
LC331LC330	200	0.67	1	1	1	1
LC332LC331	191	0.67	1	1	1	1
LC333LC332	190	0.67	1	1	1	1

LC380LC323	279	1	1	1	1	1
LC381LC380	203	1.25				1
LC382LC381	253	1.25				1
LC383LC382	259	1.25				1
LC384LC383	121	1				1
LC410LC384	121	1				1
LC411LC410	177	1				1
LC414LC411	268	1				1
LC415LC414	275	1				1
LC416LC415	160	0.67				0.83
LC425LC416	165	0.67				0.83
LC426LC425	286	0.67				0.83
LC427LC426	300	0.67				0.83
LC428LC427	270	0.67				0.83
LC435LC428	150	0.67				0.83
LC436LC435	211	0.67				0.83
LC437LC436	308	0.67				0.83
LC500LC754	320	1.75				
LC501LC500	315	1.75				
LC502LC501	52	1.17				
LC700LC320	6	2				2.25
LC701LC700	204	2				2.25
LC702LC701	249	2				2.25
LC703LC702	215	2				2.25
LC704LC703	206	2				2.25
LC706LC705	309	2				
LC707LC706	275	2				
LC708LC707	326	2				
LC709LC708	284	1.75				2
LC710LC709	305	1.75				2
LC711LC710	34	0.67	0.83	1	1	1
LC712LC710	44	1.75				
LC713LC712	145	1.75				
LC714LC713	369	1.75				
LC716LC714	197	1.75				
LC717LC716	172	1.75				
LC750LC717	90	1.75				
LC751LC750	112	1.75				
LC752LC751	257	1.75				
LC753LC752	184	1.75				
LC754LC753	316	1.75				
LC780LC711	187	0.67	0.83	1	1	1
LC800LC780	227	0.67	0.83	1	1	1
LC810LC800	302	0.67	0.83	1	1	1
LC811LC810	302	0.67	0.83	1	1	1
LC812LC811	125	0.67	0.83	1	1	1
LC860LC812	333	0.67	0.83	1	1	1
LC885LC860	176	0.67	0.83	1	1	1
LC886LC885	255	0.67	0.83	1	1	1
LC887LC886	189	0.67	0.83	1	1	1
LC888LC887	257	0.67	0.83	1	1	1

LC920LC888	232	0.67	0.83	1	1	1
LC922LC930	20	0.67		1		
xLCKnoll	200	0.67				1
xLc1033	100	0.67			1	
xLCTPark	200	0.67		1	1	1
'Siphon1'						
'Siphon2'						
'Siphon3'						
Siphon4'						1.5

Table 4.1.2: Lost Creek Sanitary System, Pump Stations Improvement for 5-Y, 10-Y, 25-Y and 100-Y Design Storms.

Pump Station	No. of Pumps	Existing Total Pumping Rate (cfs)	Required Total Pumping Rate (cfs) for Design Storm			
			5-Year	10-Year	25-Year	100-Year
Lost Creek	3	7.35	15.00	15.00	15.00	21.00
Hickory Knoll	2	1.16	2.00	2.40	2.40	5.02
Reservoir	2	1.16	1.16	1.16	1.16	2.00

Table 4.1.3: Lost Creek Sanitary System, Detention Basin Size (CF) for 5-Y, 10-Y, 25-Y and 100-Y Design Storms.

Pump Station	Required Detention Basin (CF) for Design Storm			
	5-Year	10-Year	25-Year	100-Year
Lost Creek	5,040	23,450	40,630	45,000

Table 4.1.4: Lost Creek Sanitary System, Summary Sanitary Sewer Improvement for 5-Y, 10-Y, 25-Y and 100-Y Design Storms.

Pipe Diameter (inch)	Length			
	5_Year Feet	10_Year Feet	25_Year Feet	100_Year Feet
10	2,819	200	0	2,130
12	2,647	5,765	6,045	7,201
15	0	0	0	621
18	0	0	0	54
21	0	0	0	691
24	1,663	4,571	2,656	589
27	0	0	1,915	3,536
30	0	0	0	1,915
Total	7,129	10,536	10,616	16,737

Table 4.1.5: Lost Creek, Improvement to Achieve a Five Year Storm Event Level of Protection

Description					Estimated Cost	Total Estimated Cost
Inflow Reduction						\$192,165
Overflow Elimination						\$1,500
Lost Creek Pump Station						
Add detention basin - 5,040 CF					\$201,750	
Replace Pumps - 2,250 gpm capacity					\$187,500	
Electrical					\$75,000	\$464,250
Hichory Knoll Pump Station						
Replace Pumps - 300 gpm capacity					\$34,375	
Electrical					\$50,000	
Force Main Replacement - 6 inch					\$103,750	\$188,125
Sanitary Sewer Line Replacement	Diameter(in.)	Length (ft)	Cost/ft.	Cost		\$ 1,122,822
	10	2,819	\$133	\$374,207		
	12	2,647	\$138	\$365,202		
	15	0	\$158	\$0		
	18	0	\$178	\$0		
	21	0	\$198	\$0		
	24	1,663	\$231	\$383,413		
27	0	\$261	\$0			
30	0	\$291	\$0			
Subtotal						\$1,968,862
Contingency - 10%						\$196,886
Total Construction Cost						\$2,165,748
Technical Services - 20%						\$393,772
Total Estimated Project Cost						\$2,559,520

Table 4.1.6: Lost Creek, Improvement to Achieve a Ten Year Storm Event Level of Protection

Description					Estimated Cost	Total Estimated Cost
Inflow Reduction						\$192,165
Overflow Elimination						\$1,500
Lost Creek Pump Station						
Add detention basin - 23,450 CF					\$382,875	
Replace Pumps - 2,250 gpm capacity					\$187,500	
Electrical					\$75,000	\$645,375
Hichory Knoll Pump Station						
Replace Pumps - 530 gpm capacity					\$43,750	
Electrical					\$50,000	
Force main Replacement - 8 inch					\$120,000	\$213,750
Sanitary Sewer Line Replacement	Diameter(in.)	Length (ft)	Cost/ft.	Cost		\$ 1,875,802
	10	200	\$133	\$26,549		
	12	5,765	\$138	\$795,387		
	15	0	\$158	\$0		
	18	0	\$178	\$0		
	21	0	\$198	\$0		
	24	4,571	\$231	\$1,053,866		
	27	0	\$261	\$0		
30	0	\$291	\$0			
Subtotal						\$2,928,592
Contingency - 10%						\$292,859
Total Construction Cost						\$3,221,451
Technical Services - 20%						\$585,718
Total Estimated Project Cost						\$3,807,169

Table 4.1.7: Lost Creek, Improvement to Achieve a Twenty Five Year Storm Event Level of Protection

Description					Estimated Cost	Total Estimated Cost
Inflow Reduction						\$192,165
Overflow Elimination						\$1,500
Lost Creek Pump Station						
Add detention basin - 40,630 CF					\$708,750	
Replace Pumps - 2,250 gpm capacity					\$187,500	
Electrical					\$75,000	\$971,250
Hichory Knoll Pump Station						
Replace Pumps - 530 gpm capacity					\$47,813	
Electrical					\$50,000	
Force main Replacement - 8 inch					\$120,000	\$217,813
Sanitary Sewer Line Replacement	Diameter(in.)	Length (ft)	Cost/ft.	Cost		\$ 1,945,998
	10	0	\$133	\$0		
	12	6,045	\$138	\$834,018		
	15	0	\$158	\$0		
	18	0	\$178	\$0		
	21	0	\$198	\$0		
	24	2,656	\$231	\$612,354		
	27	1,915	\$261	\$499,626		
30	0	\$291	\$0			
Subtotal						\$3,328,725
Contingency - 10%						\$332,873
Total Construction Cost						\$3,661,598
Technical Services - 20%						\$665,745
Total Estimated Project Cost						\$4,327,343

Table 14.1.8: Lost Creek, Improvement to Achieve a One Hundred Year Storm Event Level of Protection

Description					Estimated Cost	Total Estimated Cost
Inflow Reduction						\$192,165
Overflow Elimination						\$1,500
Lost Creek Pump Station						
Add detention basin - 45,000 CF					\$687,500	
Replace Pumps - 3,140 gpm capacity					\$312,500	
Electrical					\$75,000	
Force main Replacement - 20 inch					\$65,000	\$1,140,000
Hichory Knoll Pump Station						
Replace Pumps - 1,130 gpm capacity					\$70,313	
Electrical					\$62,500	
Force main Replacement - 10 inch					\$137,500	\$270,313
Reservoir Road Pump Station						
Replace Pumps - 440 gpm capacity					\$78,750	
Electrical					\$62,500	
Force main Replacement - 8 inch					\$75,000	\$216,250
Sanitary Sewer Line Replacement	Diameter(in.)	Length (ft)	Cost/ft.	Cost		\$ 3,136,958
	10	2,130	\$133	\$282,746		
	12	7,201	\$138	\$993,509		
	15	621	\$158	\$97,866		
	18	54	\$178	\$9,614		
	21	691	\$198	\$137,139		
	24	589	\$231	\$135,797		
	27	3,536	\$261	\$922,548		
30	1,915	\$291	\$557,740			
Subtotal						\$4,957,185
Contingency - 10%						\$495,719
Total Construction Cost						\$5,452,904
Technical Services - 20%						\$991,437
Total Estimated Project Cost						\$6,444,341

Table 4.2.1: West Street Sanitary System, Detailed Sanitary Sewer Improvement for 5-Y, 10-Y, 25-Y and 100-Y Design Storms.

Conduit	Length	Original Diameter (ft)	5-Year	10-Year	25-Year	100-Year
WS004WS002	175	1.25	2.5	2.5	2.75	2.75
WS005WS004	261	1.25				1.5
WS006WS005	417	1.25				1.5
WS050WS006	461	1.25				
WS051WS050	85	1.25				
WS070WS051	454	1.25				
WS071WS070	340	0.83				
WS072WS071	292	0.83				
WS080WS070	468	0.67				
WS100WS070	405	1				
WS101WS100	403	0.67				
WS102WS101	368	0.67				
WS110WS100	302	1				
WS111WS110	395	0.67				
WS112WS111	371	0.67				
WS200WS002	41	1.25	2.5	2.5	2.75	2.75
WS201WS200	201	1.25	2.5	2.5	2.75	2.75
WS215WS201	250	0.67			0.83	0.83
WS216WS215	375	0.67			0.83	0.83
WS218WS201	264	1.25	2.5	2.5	2.75	2.75
WS219WS218	195	1.25	2.5	2.5	2.75	2.75
WS220WS219	251	1.25	2.5	2.5	2.75	2.5
WS221WS220	267	1.25	2.5	2.5	2.5	2.5
WS222WS221	277	1.25		2.5	2.5	2.5
WS223WS222	198	1.25		1.5	1.5	1.5
WS224WS230	168	1		1.25	1.25	1.25
WS225WS224	366	1				
WS230WS223	174	1.25			1.5	
WS310WS221	307	1	1.5	1.5	1.5	1.5
WS311WS310	291	0.83	1.25	1.25	1.25	1.25
WS312WS311	54	0.83	1.25	1	1	1
WS313WS312	229	0.67				
WS320WS312	213	0.83	1	1	1	1
WS351WS350	122	1	1.5	1.5	1.75	1.75
WS353WS351	241	0.67	0.83	1	1	1
WS354WS353	300	0.67	0.83	1	1	1
WS355WS354	297	0.67	0.83	1	1	1
WS451WS355	332	0.67	0.83	1	1	1
WS470WS618	38	0.83	1.5	1.5	1.5	1.75
WS471WS470	155	0.83	1.5	1.5	1.5	1.75
WS472WS619	300	0.67	1	1	1.25	1.25
WS473WS472	270	0.67	1	1	1.25	1.25
WS474WS473	240	0.67	1	1	1.25	1.25
WS475WS474	139	0.67	1	1	1.25	1.25
WS476WS475	380	0.67	1	1	1.25	1.25
WS477WS476	402	0.67				

WS480WS476	290	0.67	1	1	1	1
WS481WS480	162	0.67	1	1	1	1
WS482WS481	114	0.67				
WS515WS471	115	0.83	1.5	1.5	1.5	1.75
WS516WS515	80	0.83	1.5	1.5	1.5	1.75
WS517WS516	125	0.83	1.5	1.5	1.5	1.75
WS518WS517	432	0.83	1.5	1.5	1.5	1.75
WS519WS518	27	0.83	1.5	1.5	1.5	1.75
WS520WS519	125	0.83	1.5	1.5	1.5	1.75
WS530WS520	348	1	1.5	1.5	1.5	1.75
WS560WS530	136	1	1.5	1.5	1.5	1.75
WS561WS560	286	0.67				0.83
WS562WS561	414	0.67				0.83
WS563WS560	210	1				
WS564WS563	136	0.67				
WS565WS564	51	0.67				
WS566WS565	125	0.67				
WS567WS563	75	0.67				
WS599WS610	132	0.83				
WS610WS470	227	0.83				
WS619WS471	265	0.67	1	1	1.25	1.25
WS710WS481	30	0.67	0.83	0.83	0.83	1
WS711WS710	130	0.67	0.83	0.83	0.83	1
WS712WS711	162	0.67	0.83	0.83	0.83	1
WS730WS712	327	0.67				0.83
WS731WS730	322	0.67				0.83
WS740WS731	325	0.67				0.83
WS741WS740	145	0.67				0.83
WS742WS741	396	0.67				0.83
WS750WS480	353	0.67				0.83
WS780WS200	41	0.83				
WS781WS780	244	0.83				
WS900WS560	118	0.83	1.25	1.25	1.25	1.5
WS901WS900	146	0.83	1.25	1.25	1.25	1.5
WS902WS901	70	0.83	1.25	1.25	1.25	1.5
WS903WS902	240	0.83	1.25	1.25	1.25	1.5
WS906WS903	204	0.83	1.25	1.25	1.25	1.5
WS907WS906	260	0.83	1.25	1.25	1.25	1.5
WS618WS351	75	0.83	1.5	1.5	1.5	1.75
WS004WS001	15	1.6	2.5	2.5	2.75	2.75

Table 4.2.2: West Street Sanitary System, Pump Stations Improvement for 5-Y, 10-Y, 25-Y and 100-Y Design Storms.

Pump Station	No. of Pumps	Existing Total Pumping Rate (cfs)	Required Total Pumping Rate (cfs) for Design Storm			
			5-Year	10-Year	25-Year	100-Year
West Street	3	6.97	26.70	26.70	26.70	26.70
Northland	2	3.34	9.20	12.00	14.00	14.00

Table 4.2.3: West Street Sanitary System, Detention Basin Size (cf) for 5-Y, 10-Y, 25-Y and 100-Y Design Storms.

Pump Station	Required Detention Basin (CF) for Design Storm			
	5-Year	10-Year	25-Year	100-Year
West Street	4,630	4,510	11,480	23,720

Table 4.2.4: West Street Sanitary System, Summary Sanitary Sewer Improvement for 5-Y, 10-Y, 25-Y and 100-Y Design Storms.

Pipe Diameter (inch)	Length			
	5_Year Feet	10_Year Feet	25_Year Feet	100_Year Feet
10	1,492	322	947	3,193
12	2,259	3,483	1,889	2,211
15	1,383	1,497	3,091	2,053
18	2,085	2,283	2,335	2,221
21	0	0	122	1,778
24	0	0	0	0
27	0	0	0	0
30	1,409	1,686	544	795
33		0	1,142	891
Total	8,628	9,271	10,070	13,142

Table 4.2.5: West Street, Improvement to Achieve a Five Year Storm Event Level of Protection

Description					Estimated Cost	Total Estimated Cost
Inflow Reduction						\$42,550
Overflow Elimination						\$7,000
West Street Pump Station Improvement						
Add detention basin - 4,630 cf					\$271,250	
Replace Pumps - 4,000 gpm capacity					\$250,000	
Electrical					\$75,000	
Structural/Mechanical					\$31,250	
Forcemain Replacement - 18 inch					\$513,125	\$1,140,625
Northland Pump Station Improvement						
Replace Pumps - 2,100 gpm capacity					\$150,000	
Electrical					\$62,500	
Forcemain Replacement - 8 inch					\$43,750	\$256,250
Sanitary Sewer Line Replacement	Diameter(in.)	Length (ft)	Cost/ft.	Cost		\$ 1,509,236
	10	1,492	\$133	\$198,055		
	12	2,259	\$138	\$311,670		
	15	1,383	\$158	\$217,952		
	18	2,085	\$178	\$371,191		
	21	0	\$198	\$0		
	24	0	\$231	\$0		
	27	0	\$261	\$0		
	30	1,409	\$291	\$410,369		
33	0	\$322	\$0			
Subtotal						\$2,955,661
Contingency - 10%						\$295,566
Total Construction Cost						\$3,251,227
Technical Services - 20%						\$591,132

Table 4.2.6: West Street, Improvement to Achieve a Ten Year Storm Event Level of Protection

Description					Estimated Cost	Total Estimated Cost
Inflow Reduction						\$42,550
Overflow Elimination						\$7,000
West Street Pump Station Improvement						
Add detention basin - 4,510 cf					\$477,250	
Replace Pumps - 4,000 gpm capacity					\$250,000	
Electrical					\$75,000	
Structural/Mechanical					\$31,250	
Forcemain Replacement - 18 inch					\$513,125	\$1,346,625
Northland Pump Station Improvement						
Replace Pumps - 2,700 gpm capacity					\$145,000	
Electrical					\$62,500	
Forcemain Replacement - 16 inch					\$300,000	\$507,500
Sanitary Sewer Line Replacement	Diameter(in	Length (ft)	Cost/ft.	Cost		\$ 1,656,689
	10	322	\$133	\$42,744		
	12	3,483	\$138	\$480,543		
	15	1,497	\$158	\$235,918		
	18	2,283	\$178	\$406,440		
	21	0	\$198	\$0		
	24	0	\$231	\$0		
	27	0	\$261	\$0		
	30	1,686	\$291	\$491,044		
33	0	\$322	\$0			
Subtotal						\$3,560,364
Contingency - 10%						\$356,036
Total Construction Cost						\$3,916,401
Technical Services - 20%						\$712,073
Total Estimated Project Cost						\$4,628,474

Table 4.2.7: West Street, Improvement to Achieve a Twenty Five Year Storm Event Level of Protection

Description					Estimated Cost	Total Estimated Cost
Inflow Reduction						\$42,550
Overflow Elimination						\$7,000
West Street Pump Station Improvement						
Add detention basin - 11,480 CF					\$678,875	
Replace Pumps - 4,000 gpm capacity					\$250,000	
Electrical					\$75,000	
Structural/Mechanical					\$31,250	
Forcemain Replacement - 18 inch					\$513,125	\$1,548,250
Northland Pump Station Improvement						
Replace Pumps - 3,150 gpm capacity					\$151,563	
Electrical					\$62,500	
Forcemain Replacement - 16 inch					\$300,000	\$514,063
Sanitary Sewer Line Replacement	Diameter(in.)	Length (ft)	Cost/ft.	Cost		\$ 1,839,385
	10	947	\$133	\$125,709		
	12	1,889	\$138	\$260,622		
	15	3,091	\$158	\$487,122		
	18	2,335	\$178	\$415,698		
	21	122	\$198	\$24,213		
	24	0	\$231	\$0		
	27	0	\$261	\$0		
30	544	\$291	\$158,439			
33	1,142	\$322	\$367,583			
Subtotal						\$3,951,247
Contingency - 10%						\$395,125
Total Construction Cost						\$4,346,372
Technical Services - 20%						\$790,249
Total Estimated Project Cost						\$5,136,622

Table 4.2.8: West Street, Improvement to Achieve a One Hundred Year Storm Event Level of Protection

Description					Estimated Cost	Total Estimated Cost
Inflow Reduction						\$42,550
Overflow Elimination						\$7,000
West Street Pump Station Improvement						
Add detention basin - 23,720 CF					\$843,750	
Replace Pumps - 4,000 gpm capacity					\$312,500	
Electrical					\$75,000	
Structural/Mechanical					\$31,250	
Forcemain Replacement - 20 inch					\$600,000	\$1,862,500
Northland Pump Station Improvement						
Replace Pumps - 3,150 gpm capacity					\$156,250	
Electrical					\$62,500	
Forcemain Replacement - 16 inch					\$300,000	\$518,750
Sanitary Sewer Line Replacement	Diameter(in.)	Length (ft)	Cost/ft.	Cost		\$ 2,319,047
	10	3,193	\$133	\$423,853		
	12	2,211	\$138	\$305,048		
	15	2,053	\$158	\$323,540		
	18	2,221	\$178	\$395,402		
	21	1,778	\$198	\$352,870		
	24	0	\$231	\$0		
	27	0	\$261	\$0		
	30	795	\$291	\$231,542		
33	891	\$322	\$286,792			
Subtotal						\$4,749,847
Contingency - 10%						\$474,985
Total Construction Cost						\$5,224,832
Technical Services - 20%						\$949,969
Total Estimated Project Cost						\$6,174,801

**Table 4.3.1: Koop Road Sanitary System, Detailed Sanitary Sewer Improvement
for 5-Y, 10-Y, 25-Y and 100-Y Design Storms.**

Conduit	Length	Original Diameter (ft)	5-Year	10-Year	25-Year	100-Year
KR002KR001	20	1.25	2	2	2.25	2.25
KR003KR002	20	1.25	1.25	1.25	1.25	1.25
KR004KR003	165	1.25	1.25	1.25	1.25	1.25
KR005KR002	50	1.25	2	2	2.25	2.5
KR020KR005	685	1.25	2	2	2.25	2.5
KR021KR020	352	1.25	2	2	2.25	2.5
KR022KR021	347	1.25	2	2	2.25	2.5
KR023KR022	343	1.25	2	2	2.25	2.5
KR024KR023	377	1.25	2	2	2.25	2.5
KR025KR024	382	1.25	2	2	2.25	2.5
KR026KR025	335	1.25	2	2	2.25	2.5
KR027KR026	34	1.25	2	2	2.25	2.5
KR028KR027	220	1.25	2	2	2.25	2.5
KR029KR028	91	1.25	2	2	2.25	2.5
KR030KR065	10	0.67	2	2	2.25	2.5
KR031KR030	187	1.25	2	2	2.25	2.5
KR032KR031	181	1.25	2	2	2.25	2.5
KR033KR032	176	1	1.5	1.5	1.75	2
KR034KR033	194	1	1.5	1.5	1.75	2
KR035KR034	36	1	1.5	1.5	1.75	2
KR036KR035	153	1	1.5	1.5	1.75	2
KR038KR036	46	1	1.5	1.5	1.75	2
KR039KR030	88	0.67				
KR050KR038	172	1	1.5	1.5	1.5	2
KR051KR050	183	0.83			1	1
KR052KR051	106	0.67		0.83	0.83	0.83
KR053KR052	266	0.67		0.83	0.83	0.83
KR054KR053	220	0.67		0.83	0.83	0.83
KR055KR054	145	0.67		0.83	0.83	0.83
KR056KR055	344	0.67		0.83	0.83	0.83
KR057KR055	73	0.67				
KR065KR029	90	1.25	2	2	2.25	2.5
KR070KR039	166	0.67				
KR071KR070	194	0.67				
KR072KR071	123	0.67				
KR150KR032	211	1	1.25	1.25	1.25	1.5
KR151KR150	117	0.67				
KR152KR151	147	0.67				
KR153KR152	163	0.67				
KR154KR153	99	0.67				
KR155KR154	192	0.67				
KR156KR155	150	0.67				
KR157KR156	114	0.67				
KR158KR157	79	0.67				
KR159KR158	164	0.67				
KR160KR159	179	0.67				

KR161KR160	138	0.67				
KR162KR161	152	0.67				
KR170KR150	152	1	1.25	1.25	1.25	1.5
KR173KR170	158	1	1.25	1.25	1.25	1.5
KR180KR173	250	0.67	1.25	1.25	1.25	1.5
KR200KR180	200	0.67	1.25	1.25	1.25	1.5
KR201KR200	230	0.67	1.25	1.25	1.25	1.5
KR202KR201	180	0.67	1.25	1.25	1.25	1.5
KR203KR202	160	0.67	1.25	1.25	1.25	1.5
KR204KR203	43	0.67	1.25	1.25	1.25	1.5
KR205KR204	247	0.67	1.25	1.25	1.25	1.5
KR206KR205	250	0.67	1.25	1.25	1.25	1.5
KR207KR206	200	0.67	1.25	1.25	1.25	1.5
KR208KR207	200	0.67	1.25	1.25	1.25	1.5
KR209KR213	138	0.67	1.25	1.25	1.25	1.5
KR213KR208	250	0.67	1.25	1.25	1.25	1.5
KR285KR209	200	0.67	1	1	1	1
KR286KR285	210	0.67	1	1	1	1
KR287KR286	288	0.67				
KR289KR287	339	0.67				
KR290KR289	196	0.67				
KR291KR290	103	0.67				
KR300KR286	56	0.67	1	1	1	1
KR301KR300	248	0.67	1	1	1	1
KR302KR330	56	0.67	1	1	1	1
KR330KR301	50	0.67	1	1	1	1
KR331KR330	295	0.67				
KR340KR302	300	0.67	1	1	1	1
KR341KR340	50	0.67	1	1	1	1
KR351KR341	293	0.67				
KR360KR050	50	0.83	1.5	1.5	1.75	1.75
KR361KR360	192	0.83	1.5	1.5	1.75	1.75
KR362KR361	89	0.83	1.5	1.5	1.75	1.75
KR363KR362	188	0.83	1.5	1.5	1.75	1.75
KR364KR363	200	0.83	1.5	1.5	1.75	1.75
KR365KR364	174	0.83	1.5	1.5	1.75	1.75
KR375KR365	35	0.83	1.5	1.5	1.75	1.75
KR376KR375	199	0.83	1.5	1.5	1.75	1.75
KR377KR376	200	0.83	1.5	1.5	1.75	1.75
KR378KR377	245	0.67				
KR379KR378	225	0.67				
KR380KR379	266	0.67				
KR381KR380	262	0.67				
KR382KR381	270	0.67				
KR383KR382	283	0.83				
KR400KR377	253	0.83	1.5	1.5	1.75	1.75
KR401KR400	98	0.83	1.5	1.5	1.75	1.75
KR402KR401	212	0.83	1.25	1.25	1.5	1.75
KR403KR402	250	0.83	1.25	1.25	1.5	1.75
KR404KR403	249	0.83	1.25	1.25	1.5	1.75
KR405KR404	143	0.83	1.25	1.25	1.5	1.75

KR406KR405	191	0.83	1.25	1.25	1.5	1.75
KR407KR406	151	0.83	1.25	1.25	1.5	1.75
KR408KR407	141	0.83	1.25	1.25	1.5	1.75
KR409KR408	174	0.67	1	1	1	1.25
KR410KR409	172	0.67	1	1	1	1.25
KR411KR410	282	0.67	1	1	1	1.25
KR412KR411	264	0.67	1	1	1	1.25
KR413KR412	76	0.67	0.83	1	1	1.25
KR414KR413	210	0.67	0.83	1	1	1.25
KR415KR414	205	0.67	0.83	1	1	1.25
KR416KR415	60	0.67	0.83	1	1	1.25
KR439KR416	107	0.67	0.83	1	1	1.25
KR441KR439	412	0.67	0.83	1	1	1.25
KR442KR441	179	0.67	0.83	1	1	1.25
KR443KR442	88	0.67	0.83	1	1	1.25
KR475KR412	210	0.67	0.83	0.83	0.83	0.83
KR476KR475	205	0.67	0.83	0.83	0.83	0.83
KR510KR406	255	0.67				
KR511KR510	224	0.67				
KR512KR511	254	0.67				
KR513KR512	52	0.67				
KR514KR513	180	0.67				
KR515KR514	190	0.67				
KR520KR513	118	0.67				
KR540KR562	90	0.67		0.83	0.83	0.83
KR541KR540	246	0.67		0.83	0.83	0.83
KR542KR541	236	0.67		0.83	0.83	0.83
KR543KR542	245	0.67		0.83	0.83	0.83
KR545KR543	249	0.67		0.83	0.83	0.83
KR546KR545	219	0.67		0.83	0.83	0.83
KR562KR401	152	0.67		0.83	0.83	0.83
KR564KR540	320	0.67				
KR565KR564	100	0.67				
KR566KR565	290	0.67				
KR567KR566	140	0.67				
KR576KR362	240	0.67				
KR577KR576	249	0.67				
KR578KR577	240	0.67				
KR579KR578	214	0.67				
KR583KR375	300	0.67				
KR584KR583	260	0.67				
KR585KR584	272	0.67				
KR587KR377	540	0.67				
KR588KR587	290	0.67				
KR601KR004	160	1.25				
KR602KR601	83	1.25				
KR602KR862	240	0.67				
KR610KR602	150	1				
KR611KR610	280	1				
KR612KR611	280	0.67				
KR613KR612	480	0.67				

KR614KR613	400	0.67				
KR615KR611	257	1				
KR621KR615	65	1				
KR621KR865	63	0.67				
KR622KR621	185	1				
KR623KR622	271	1				
KR624KR623	306	1				
KR628KR624	231	1				
KR629KR628	199	1				
KR650KR629	408	1				
KR675KR650'	390	1				
KR678KR675	137	0.67				
KR700KR678	440	1				
KR701KR700	330	1				
KR702KR701	57	1				
KR703KR702	235	1				
KR706KR703	365	1				
KR774KR799	90	0.67				
KR775KR774	210	0.67				
KR814KR799	35	0.67				
KR860KR005	190	0.67				
KR861KR860	90	0.67				
KR862KR861	141	0.67				
KR863KR862	152	0.67				
KR864KR863	280	0.67				
KR865KR864	319	0.67				
KROutfall1	100	2				

Table 4.3.2: Koop Road Sanitary System, Pump Stations Improvement for 5-Y, 10-Y, 25-Y and 100-Y Design Storms.

Pump Station	No. of Pumps	Existing Total Pumping Rate (cfs)	Required Total Pumping Rate (cfs) for Design Storm			
			5-Year	10-Year	25-Year	100-Year
Koop Road	2	9.36	10.20	13.00	15.00	15.00
Gloria	2	1.20	1.20	1.20	1.20	1.20

Table 4.3.3: Koop Road Sanitary System, Detention Basin Size (cf) for 5-Y, 10-Y, 25-Y and 100-Y Design Storms.

Pump Station	Required Detention Basin (cf) for Design Storm			
	5-Year	10-Year	25-Year	100-Year
Koop Road	0	0	0	44,990

Table 4.3.4: Koop Road Sanitary System, Summary Sanitary Sewer Improvement for 5-Y, 10-Y, 25-Y and 100-Y Design Storms.

Pipe Size (inch)	Length			
	5_Year Feet	10_Year Feet	25_Year Feet	100_Year Feet
10	1,752	2,933	2,933	2,933
12	2,062	3,399	3,582	1,353
15	4,391	4,391	3,054	2,414
18	2,455	2,455	1,337	2,869
21	0	0	2,455	3,015
24	3,704	3,704	0	777
27	0	0	3,704	20
30	0	0	0	3,684
Total	14,364	16,882	17,065	17,065

Table 4.3.5: Koop Road, Improvement to Achieve a Five Year Storm Event Level of Protection

Description					Estimated Cost	Total Estimated Cost
Inflow Reduction						\$23,460
Overflow Elimination						\$5,500
Koop Road Pump Station Improvement						
Upgrade Pumps - 2,300 gpm capacity						\$100,000
Sanitary Sewer Line Replacement	Diameter(in.)	Length (ft)	Cost/ft.	Cost		\$ 2,500,089
	10	1,752	\$133	\$232,569		
	12	2,062	\$138	\$284,490		
	15	4,391	\$158	\$691,994		
	18	2,455	\$178	\$437,061		
	21	0	\$198	\$0		
	24	3,704	\$231	\$853,975		
	27	0	\$261	\$0		
	30	0	\$291	\$0		
Subtotal						\$2,629,049
Contingency - 10%						\$262,905
Total Construction Cost						\$2,891,954
Technical Services - 20%						\$525,810
Total Estimated Project Cost						\$3,417,764

Table 4.3.6: Koop Road, Improvement to Achieve a Ten Year Storm Event Level of Protection

Description					Estimated Cost	Total Estimated Cost
Inflow Reduction						\$23,460
Overflow Elimination						\$5,500
Koop Road Pump Station Improvement						
Upgarde Pumps - 2900 gpm capacity						\$150,000
Sanitary Sewer Line Replacement	Diameter(in.)	Length (ft)	Cost/ft.	Cost		\$ 2,841,324
	10	2,933	\$133	\$389,340		
	12	3,399	\$138	\$468,954		
	15	4,391	\$158	\$691,994		
	18	2,455	\$178	\$437,061		
	21	0	\$198	\$0		
	24	3,704	\$231	\$853,975		
	27	0	\$261	\$0		
30	0	\$291	\$0			
Subtotal						\$3,020,284
Contigency - 10%						\$302,028
Total Construction Cost						\$3,322,312
Technical Services - 20%						\$604,057
Total Estimated Project Cost						\$3,926,369

Table 4.3.7: Koop Road, Improvement to Achieve a Twenty Five Year Storm Event Level of Protection

Description					Estimated Cost	Total Estimated Cost
Inflow Reduction						\$23,460
Overflow Elimination						\$5,500
Koop Road Pump Station Improvement						
Replace Pumps - 3,350 gpm capacity						\$190,000
Sanitary Sewer Line Replacement	Diameter(in.)	Length (ft)	Cost/ft.	Cost		\$ 3,056,467
	10	2,933	\$133	\$389,340		
	12	3,582	\$138	\$494,202		
	15	3,054	\$158	\$481,291		
	18	1,337	\$178	\$238,025		
	21	2,455	\$198	\$487,230		
	24	0	\$231	\$0		
	27	3,704	\$261	\$966,379		
30	0	\$291	\$0			
Subtotal						\$3,275,427
Contingency - 10%						\$327,543
Total Construction Cost						\$3,602,970
Technical Services - 20%						\$655,085
Total Estimated Project Cost						\$4,258,055

Table 4.3.8: Koop Road, Improvement to Achieve a One Hundred Year Storm Event Level of Protection

Description					Estimated Cost	Total Estimated Cost
Inflow Reduction						\$23,460
Overflow Elimination						\$5,500
Koop Road Pump Station Improvement						
Replace Pumps - 3,350 gpm capacity						\$190,000
Add detention basin - 44,990 cf					\$387,500	\$387,500
Sanitary Sewer Line Replacement	Diameter(in.)	Length (ft)	Cost/ft.	Cost		\$ 3,322,895
	10	2,933	\$133	\$389,340		
	12	1,353	\$138	\$186,671		
	15	2,414	\$158	\$380,431		
	18	2,869	\$178	\$510,765		
	21	3,015	\$198	\$598,370		
	24	777	\$231	\$179,141		
	27	20	\$261	\$5,218		
	30	3,684	\$291	\$1,072,958		
Subtotal						\$3,929,355
Contingency - 10%						\$392,935
Total Construction Cost						\$4,322,290
Technical Services - 20%						\$785,871
Total Estimated Project Cost						\$5,108,161

Table 4.4.1: Allentown Road Sanitary System, Detailed Sanitary Sewer Improvement for 5-Y, 10-Y, 25-Y and 100-Y Design Storms.

Conduit	Length	Original Diameter (ft)	5-Year	10-Year	25-Year	100-Year
AR002AR001	18	0.67		0.83	0.83	0.83
AR003AR002	40	0.67		0.83	0.83	0.83
AR004AR056	172	0.67		0.83	0.83	0.83
AR005AR009	77	0.67				0.83
AR009AR004	59	0.67				0.83
AR013AR014	324	0.67	1	1	1.25	1.25
AR014AR018	349	0.67	1	1	1.25	1.25
AR018AR019	455	0.67	1	1	1.25	1.25
AR019AR020	376	0.67	1	1	1.25	1.25
AR020AR021	136	0.67	1	1.5	1.25	1.5
AR021AR040	385	0.67	1.5	1.5	1.75	1.75
AR022AR021	201	0.67	1	1	1	1
AR023AR022	80	0.67				
AR025AR023	435	0.67				
AR040AR044	98	0.67	1.5	1.5	1.75	1.75
AR044AR049	380	0.67	1.5	1.5	1.75	1.75
AR049AR090	154	1	1.5	1.5	1.75	1.75
AR056AR003	185	0.67			0.83	0.83
AR090AR091	45	1	1.5	1.5	1.75	1.75
AR091AR092	165	1	1.5	1.5	1.75	1.75
AR092AR093	243	1	1.5	1.5	1.75	1.75
AR093AR094	210	1	1.5	1.5	1.75	1.75
AR094AR095	210	0.83	1.5	1.5	1.75	1.75
AR095AR096	210	0.83	1.5	1.5	1.75	1.75
AR096AR097	100	1.5	1.75	2	2	2.25
AR098AR096	342	0.67				1
AR099AR098	260	0.67				1
AR125AR096	159	0.83	1.25	1.25	1.5	1.5
AR126AR125	153	0.83	1.25	1.25	1.5	1.5
AR129AR096	103	0.83	1.75	2	2	2.25
AR130AR129	265	0.83	1.75	2	2	2.25
AR131AR130	51	0.67	1.25	2	2	2.25
AR140AR131	250	0.67	1.25	2	2	2
AR147AR140	214	0.83	1.25	2	2	2
AR148AR147	178	0.83	1.25	1.25	1.25	1.5
AR149AR148	72	0.5				
AR150AR149	208	0.67				
AR151AR181	72	0.67	1.25	1.25	1.25	1.5
AR152AR151	150	0.83	1.25	1.25	1.25	1.5
AR153AR152	167	0.83	1.25	1.25	1.25	1.5
AR180AR148	178	0.83	1.25	1.5	1.5	1.5
AR181AR180	194	0.83	1.25	1.5	1.5	1.5
AR182AR181	199	0.67				
AR183AR182	240	0.67				
AR187AR183	225	0.67				
AR188AR187	220	0.67				

AR200AR153	153	0.67	1.25	1.25	1.25	1.5
AR201AR200	198	0.67	1.25	1.25	1.25	1.25
AR202AR201	58	0.67	1.25	1.25	1.25	1.25
AR210AR181	389	0.67	0.83	0.83	0.83	1
AR211AR210	146	0.67	0.83	0.83	0.83	1
AR229AR202	250	0.67	0.83	0.83	1	1
AR230AR229	263	0.67	0.83	0.83	1	1
AR231AR230	95	0.67	0.83	0.83	0.83	1
AR232AR231	245	0.67	0.83	0.83	0.83	1
AR233AR232	105	0.67	0.83	0.83	0.83	1
AR234AR233	99	0.67	0.83	0.83	0.83	1
AR235AR234	107	0.67	0.83	0.83	0.83	1
AR236AR235	153	0.67				
AR237AR236	147	0.67				
AR238AR237	20	0.67				
AR239AR238	233	0.67				
AR240AR239	22	0.67				
AR241AR240	200	0.67				
AR242AR241	130	0.67				
AR243AR242	130	0.67				
AR244AR243	185	0.67				
AR250AR230	115	0.67				0.83
AR251AR250	231	0.83				
AR280AR201	212	0.67				
AR281AR280	206	0.67				
AR282AR281	153	0.67				
AR283AR282	144	0.67				
AR284AR283	25	0.67				
AR285AR284	138	0.67				
AR286AR285	162	0.67				
AR287AR286	55	0.67				
AR320AR130	248	0.67	1.5	1.75	1.5	2
AR321AR320	250	0.67	1.5	1.75	1.75	2
AR322AR321	250	0.67	1.5	1.75	1.75	2
AR323AR322	242	0.67	1.5	1.75	1.75	2
AR324AR323	260	0.67	1.5	1.5	1.75	1.75
AR325AR324	165	0.67	1.5	1.5	1.75	1.75
AR326AR325	158	0.67	1.5	1.5	1.75	1.75
AR327AR326	216	0.67	1.5	1.5	1.75	1.75
AR328AR327	103	0.67	1.5	1.5	1.75	1.75
AR329AR328	300	0.67				
AR333AR327	103	0.67	1.5	1.5	1.75	1.75
AR335AR333	221	0.67	1.5	1.5	1.25	1.5
AR390AR126	300	0.67	1.25	1.25	1.5	1.5
AR391AR390	305	0.67	1.25	1.25	1.5	1.5
AR392AR391	297	0.67	1.25	1.25	1.5	1.5
AR393AR392	298	0.67	1.25	1.25	1.5	1.5
AR394AR393	172	0.67	1.25	1.25	1.5	1.5
AR395AR394	156	0.67				
AR396AR395	298	0.67				
AR402AR394	247	0.67	1	1.25	1.25	1.25

AR450AR126	362	0.83				1
AR455AR450	290	0.83				1
AR551AR580	25	0.83				
AR552AR551	330	0.83				
AR700AR552	276	0.83				
AR702AR700	240	0.83				
AR714AR455	190	0.67				0.83
AR715AR702	100	0.83				
AR716AR715	255	0.83				
ARFreeout	100	2.5				

Table 4.4.2: Allentown Road Sanitary System, Pump Stations Improvement for 5-Y, 10-Y, 25-Y and 100-Y Design Storms.

Pump Station	No. of Pumps	Existing Total Pumping Rate (cfs)	Required Total Pumping Rate (cfs) for Design Storm			
			5-Year	10-Year	25-Year	100-Year
Allentown	2	7.20	14.00	14.00	16.00	23.00
Cable Rd	2	4.02	4.02	4.02	4.02	4.02
Latham AVE.	1	0.40	1.00	1.20	1.50	2.00

Table 4.4.3: Allentown Road Sanitary System, Detention Basin Size (cf) for 5-Y, 10-Y, 25-Y and 100-Y Design Storms.

Pump Station	Required Detention Basin (cf) for Design Storm			
	5-Year	10-Year	25-Year	100-Year
Allentown	33,470	59,980	78,440	78,900

Table 4.4.4: Allentown Road Sanitary System, Summary Sanitary Sewer Improvement for 5-Y, 10-Y, 25-Y and 100-Y Design Storms.

Pipe Size (inch)	Length			
	5_Year Feet	10_Year Feet	25_Year Feet	100_Year Feet
10	1,699	1,929	1,601	856
12	2,088	1,705	714	3,154
15	3,547	2,907	3,084	2,007
18	4,316	3,834	2,304	3,133
21	468	990	3,847	3,105
24	0	983	983	1,454
27	0	0	0	519
30	0	0	0	0
Total	12,118	12,348	12,533	14,228

Table 4.4.5: Allentown Road, Improvement to Achieve a Five Year Storm Event Level of Protection

Description					Estimated Cost	Total Estimated Cost
Inflow Reduction						\$46,230
Overflow Elimination						\$5,000
Allentown Road Pump Station						
Add detention basin - 33,470 cf					\$57,625	
Replace Pumps - 3,150 gpm capacity					\$187,500	
Electrical					\$75,000	
Forcemain Replacement - 16 inch					\$275,000	\$595,125
Latham Road Pump Station						
Replace Pumps - 450 gpm capacity					\$16,250	
Electrical					\$50,000	\$66,250
Sanitary Sewer Line Replacement	Diameter(in.)	Length (ft)	Cost/ft.	Cost		\$ 1,933,850
	10	1,699	\$133	\$225,533		
	12	2,088	\$138	\$288,078		
	15	3,547	\$158	\$558,985		
	18	4,316	\$178	\$768,373		
	21	468	\$198	\$92,881		
	24	0	\$231	\$0		
	27	0	\$261	\$0		
30	0	\$291	\$0			
Subtotal						\$2,646,455
Contingency - 10%						\$264,645
Total Construction Cost						\$2,911,100
Technical Services - 20%						\$529,291
Total Estimated Project Cost						\$3,440,391

Table 4.4.6: Allentown Road, Improvement to Achieve a Ten Year Storm Event Level of Protection

Description					Estimated Cost	Total Estimated Cost
Inflow Reduction						\$46,230
Overflow Elimination						\$5,000
Allentown Road Pump Station						
Add detention basin - 59,980 cf					\$235,625	
Replace Pumps - 3,150 gpm capacity					\$187,500	
Electrical					\$75,000	
Forcemain Replacement - 16 inch					\$275,000	\$773,125
Latham Road Pump Station						
Replace Pumps - 540 gpm capacity					\$16,250	
Electrical					\$50,000	\$66,250
Sanitary Sewer Line Replacement	Diameter(in.)	Length (ft)	Cost/ft.	Cost		\$ 2,055,103
	10	1,929	\$133	\$256,064		
	12	1,705	\$138	\$235,236		
	15	2,907	\$158	\$458,125		
	18	3,834	\$178	\$682,563		
	21	990	\$198	\$196,480		
	24	983	\$231	\$226,635		
	27	0	\$261	\$0		
30	0	\$291	\$0			
Subtotal						\$2,945,708
Contingency - 10%						\$294,571
Total Construction Cost						\$3,240,279
Technical Services - 20%						\$589,142
Total Estimated Project Cost						\$3,829,421

Table 4.4.7: Allentown Road, Improvement to Achieve a Twenty Five Year Storm Event Level of Protection

Description					Estimated Cost	Total Estimated Cost
Inflow Reduction						\$46,230
Overflow Elimination						\$5,000
Allentown Road Pump Station						
Add detention basin - 78,440 cf					\$371,875	
Replace Pumps - 3,600 gpm capacity					\$187,500	
Electrical					\$75,000	
Forcemain Replacement - 16 inch					\$275,000	\$909,375
Latham Road Pump Station						
Replace Pumps - 680 gpm capacity					\$16,250	
Electrical					\$50,000	\$66,250
Sanitary Sewer Line Replacement	Diameter(in.)	Length (ft)	Cost/ft.	Cost		\$ 2,197,359
	10	1,601	\$133	\$212,524		
	12	714	\$138	\$98,509		
	15	3,084	\$158	\$486,019		
	18	2,304	\$178	\$410,179		
	21	3,847	\$198	\$763,493		
	24	983	\$231	\$226,635		
	27	0	\$261	\$0		
30	0	\$291	\$0			
Subtotal						\$3,224,214
Contingency - 10%						\$322,421
Total Construction Cost						\$3,546,636
Technical Services - 20%						\$644,843
Total Estimated Project Cost						\$4,191,478

Table 4.4.8: Allentown Road, Improvement to Achieve a One Hundred Year Storm Event Level of Protection

Description					Estimated Cost	Total Estimated Cost
Inflow Reduction						\$46,230
Overflow Elimination						\$5,000
Allentown Road Pump Station						
Add detention basin - 78,900 cf					\$606,250	
Replace Pumps - 5,160 gpm capacity					\$187,500	
Electrical					\$75,000	
Forcemain Replacement - 16 inch					\$275,000	\$1,143,750
Latham Road Pump Station						
Replace Pumps - 900 gpm capacity					\$20,313	
Electrical					\$50,000	
Forcemain Replacement - 6 inch					\$13,750	\$84,063
Sanitary Sewer Line Replacement	Diameter(in.)	Length (ft)	Cost/ft.	Cost		\$ 2,509,703
	10	856	\$133	\$113,629		
	12	3,154	\$138	\$435,152		
	15	2,007	\$158	\$316,290		
	18	3,133	\$178	\$557,765		
	21	3,105	\$198	\$616,232		
	24	1,454	\$231	\$335,227		
	27	519	\$261	\$135,408		
30	0	\$291	\$0			
Subtotal						\$3,788,746
Contingency - 10%						\$378,875
Total Construction Cost						\$4,167,620
Technical Services - 20%						\$757,749
Total Estimated Project Cost						\$4,925,369

Table 4.5.1: Cole Street Sanitary System, Detailed Sanitary Sewer Improvement for 5-Y, 10-Y, 25-Y and 100-Y Design Storms.

Conduit	Length	Original Diameter (ft)	5-Year	10-Year	25-Year	100-Year
CS002CS001	30	1.25				1.5
CS003CS002	98	1.25				1.5
CS004CS003	395	1.25				1.5
CS005CS004	290	1.25				1.5
CS006CS005	340	1.25				1.5
CS020CS006	290	1.25				1.5
CS050CS020	290	1.25				
CS070CS050	318	1.25				
CS080CS070	318	1.25				
CS081CS080	323	1.25				
CS082CS081	380	0.83			1	1.25
CS083CS082	375	0.83			1	1.25
CS084CS083	347	0.83	1	1	1	1.25
CS085CS084	375	0.83	1	1	1	1.25
CS086CS085	375	0.67	1	1	1	1
CS087CS086	378	0.67	1	0.83	1	1
CS088CS087	130	0.67	1	0.83	1	1
CS130CS088	257	0.67		0.83	1	1
CS131CS130	257	0.67				1
CS132CS131	336	0.67				0.83
CS250CS081	291	0.67	0.83	0.83	0.83	1

Table 4.5.2: Cole Street Sanitary System, Pump Stations Improvement for 5-Y, 10-Y, 25-Y and 100-Y Design Storms.

Pump Station	No. of Pumps	Existing Total Pumping Rate (cfs)	Required Total Pumping Rate (cfs) for Design Storm			
			5-Year	10-Year	25-Year	100-Year
Cole Street	2	3.56	2.26	2.65	3.15	4.00

Table 4.5.3: Cole Street Sanitary System, Summary Sanitary Sewer Improvement for 5-Y, 10-Y, 25-Y and 100-Y Design Storms.

Pipe Size	Length			
	5_Year	10_Year	25_Year	100_Year
(inch)	Feet	Feet	Feet	Feet
10	1,174	1,056	291	336
12	722	1,097	2,617	1,688
15	0	0	0	1,477
18	0	0	0	1,443
21	0	0	0	0
24	0	0	0	0
27	0	0	0	0
30	0	0	0	0
Total	1,896	2,153	2,908	4,944

Table 4.5.4: Cole Street, Improvement to Achieve a Five Year Storm Event Level of Protection

Description					Estimated Cost	Total Estimated Cost
Inflow Reduction						\$1,000
Overflow Elimination						
Sanitary Sewer Line Replacement	Diameter(in.)	Length (ft)	Cost/ft.	Cost		\$ 255,455
	10	1,174	\$133	\$155,842		
	12	722	\$138	\$99,613		
	15	0	\$158	\$0		
	18	0	\$178	\$0		
	21	0	\$198	\$0		
	24	0	\$231	\$0		
	27	0	\$261	\$0		
	30	0	\$291	\$0		
Subtotal						\$256,455
Contingency - 10%						\$25,646
Total Construction Cost						\$282,101
Technical Services - 20%						\$51,291
Total Estimated Project Cost						\$333,392

Table 4.5.5: Cole Street, Improvement to Achieve a Ten Year Storm Event Level of Protection

Description					Estimated Cost	Total Estimated Cost
Inflow Reduction						\$1,000
Overflow Elimination						
Sanitary Sewer Line Replacement	Diameter(in.)	Length (ft)	Cost/ft.	Cost		\$ 291,529
	10	1,056	\$133	\$140,178		
	12	1,097	\$138	\$151,351		
	15	0	\$158	\$0		
	18	0	\$178	\$0		
	21	0	\$198	\$0		
	24	0	\$231	\$0		
	27	0	\$261	\$0		
30	0	\$291	\$0			
Subtotal						\$292,529
Contingency - 10%						\$29,253
Total Construction Cost						\$321,782
Technical Services - 20%						\$58,506
Total Estimated Project Cost						\$380,288

Table 4.5.6: Cole Street, Improvement to Achieve a Twenty Five Year Storm Event Level of Protection

Description					Estimated Cost	Total Estimated Cost
Inflow Reduction						\$1,000
Overflow Elimination						
Sanitary Sewer Line Replacement	Diameter(in.)	Length (ft)	Cost/ft.	Cost		\$ 399,691
	10	291	\$133	\$38,629		
	12	2,617	\$138	\$361,063		
	15	0	\$158	\$0		
	18	0	\$178	\$0		
	21	0	\$198	\$0		
	24	0	\$231	\$0		
	27	0	\$261	\$0		
30	0	\$291	\$0			
Subtotal						\$400,691
Contingency - 10%						\$40,069
Total Construction Cost						\$440,761
Technical Services - 20%						\$80,138
Total Estimated Project Cost						\$520,899

Table 4.5.7: Cole Street, Improvement to Achieve a One Hundred Year Storm Event Level of Protection

Description					Estimated Cost	Total Estimated Cost
Inflow Reduction						\$1,000
Overflow Elimination						
Cole Street Pump Station Improvement						
Replace Pumps - 900 gpm capacity					\$137,500	
Electrical					\$62,500	
Forcemain Replacement - 16 inch					\$406,250	\$606,250
Sanitary Sewer Line Replacement	Diameter(in.)	Length (ft)	Cost/ft.	Cost		\$ 767,154
	10	336	\$133	\$44,602		
	12	1,688	\$138	\$232,890		
	15	1,477	\$158	\$232,766		
	18	1,443	\$178	\$256,896		
	21	0	\$198	\$0		
	24	0	\$231	\$0		
	27	0	\$261	\$0		
30	0	\$291	\$0			
Subtotal						\$1,374,404
Contingency - 10%						\$137,440
Total Construction Cost						\$1,511,845
Technical Services - 20%						\$274,881
Total Estimated Project Cost						\$1,786,725

Table 4.6.1: Findlay Road Sanitary System, Detailed Sanitary Sewer Improvement for 5-Y, 10-Y, 25-Y and 100-Y Design Storms.

Conduit	Length	Original Diameter (ft)	5-Year	10-Year	25-Year	100-Year
FR003FR002	200	0.83	1.75	1.75	1.75	1.75
FR013FR014	70	1.5				1.75
FR014FR015	36	1.5	1.75	1.75	1.75	2
FR015FR016	5	1.5	1.75	1.75	1.75	2
FR016FR031	180	1.5	1.75	1.75	1.75	2
FR031FR032	110	1.5	1.75	1.75	1.75	2
FR032FR033	250	1.5	1.75	1.75	1.75	2
FR052FR013	345	1.5				1.75
FR055FR052	307	1.5				
FR058FR055	309	1.5				
FR070FR058	11	1.5				
FR149FR150	279	0.83				
FR150FR151	120	0.83				
FR152FR196	455	1.25				
FR170FR070	273	1.5				
FR171FR170	319	1.5				
FR172FR171	20	1.5				
FR178FR172	151	1.5				
FR179FR178	180	1.5				
FR185FR179	312	1.5				
FR186FR185	300	1.5				
FR188FR187	400	1.5				
FR189FR188	400	1.5				
FR190FR189	400	1.5				
FR191FR190	400	1.5				
FR192FR191	325	1.5				
FR193FR192	400	1.25				
FR194FR193	400	1.25				
FR195FR194	400	1.25				
FR196FR195	400	1.25				
FR301FR300	100	0.67				
FR302FR301	10	0.67				
FR531FR530	320	1	1.5	1.5	1.5	1.75
FR532FR531	320	1	1.5	1.5	1.5	1.75
FR533FR532	200	1	1.5	1.5	1.5	1.75
FR534FR533	160	1	1.5	1.5	1.5	1.75
FR560FR534	97	1	1.5	1.5	1.5	1.75
FR561FR560	337	1	1.25	1.5	1.5	1.75
FR562FR561	256	1	1.25	1.5	1.5	1.75
FR563FR562	285	1	1.25	1.5	1.5	1.75
FR564FR563	317	0.83	1.25	1.25	1.25	1.5
FR566FR564	170	0.83	1.25	1.25	1.25	1.5
FR680FR566	247	0.83	1.25	1.25	1.25	1.5
FR681FR680	227	0.83	1.25	1.25	1.25	1.5
FR682FR681	309	0.83	1.25	1.25	1.5	1.5
FR683FR682	303	0.83	1.25	1.25	1.5	1.5

FR684FR683	221	0.67	1.25	1.25	1.5	1.5
FR685FR684	150	0.67	1.25	1.25	1.25	1.25
FR686FR685	100	0.67	1	1	1.25	1.25
FR687FR686	430	0.67	1	1	1	1.25
FR700FR687	260	0.83	1	1	1	1.25
FR701FR700	341	0.83	1	1	1	1.25

Table 4.6.2: Findlay Road Sanitary System, Pump Stations Improvement for 5-Y, 10-Y, 25-Y and 100-y Design Storms.

Pump Station	No. of Pumps	Existing Total Pumping Rate (cfs)	Required Total Pumping Rate (cfs) for Design Storm			
			5-Year	10-Year	25-Year	100-Year
FINDLAY RD	2	0.45				
SUGAR ST	2	3.12	2.67	2.67	2.67	2.67
ROBB AVE	2	0.60	2.00	2.00	2.00	2.40
BIBLE RD	2	1.11	0.80	0.80	0.80	0.90
NEUBRCHT	2	1.78	1.23	1.23	1.23	1.23

Table 4.6.3: Findlay Road Sanitary System, Summary Sanitary Sewer Improvement for 5-Y, 10-Y, 25-Y and 100-Y Design Storms.

Pipe Size (inch)	Length			
	5_Year Feet	10_Year Feet	25_Year Feet	100_Year Feet
10	0	0	0	0
12	1,131	1,131	1,031	0
15	2,822	1,944	1,211	1,281
18	1,097	1,975	2,808	1,182
21	781	781	1,621	2,590
24	0	0	0	581
27	0	0	0	0
30	0	0	0	0
Total	5,831	5,831	6,671	5,634

Table 4.6.4: Findlay Road, Improvement to Achieve a Five Year Storm Event Level of Protection

Description					Estimated Cost	Total Estimated Cost
Inflow Reduction						\$158,700
Robb Road Pump Station						
Replace Pumps - 898 gpm capacity					\$37,500	
Electrical					\$50,000	\$87,500
Sanitary Sewer Line Replacement	Diameter(in.)	Length (ft)	Cost/ft.	Cost		\$ 951,070
	10	0	\$133	\$0		
	12	1,131	\$138	\$156,042		
	15	2,822	\$158	\$444,729		
	18	1,097	\$178	\$195,298		
	21	781	\$198	\$155,001		
	24	0	\$231	\$0		
	27	0	\$261	\$0		
30	0	\$291	\$0			
Subtotal						\$1,197,270
Contingency - 10%						\$119,727
Total Construction Cost						\$1,316,997
Technical Services - 20%						\$239,454
Total Estimated Project Cost						\$1,556,451

Table 4.6.5: Findlay Road, Improvement to Achieve a Ten Year Storm Event Level of Protection

Description					Estimated Cost	Total Estimated Cost
Inflow Reduction						\$158,700
Robb Road Pump Station						
Replace Pumps - 898 gpm capacity					\$44,063	
Electrical					\$50,000	
Forcemain Replacement - 8 inch					\$41,875	\$135,938
Sanitary Sewer Line Replacement	Diameter(in.)	Length (ft)	Cost/ft.	Cost		\$ 969,012
	10	0	\$133	\$0		
	12	1,131	\$138	\$156,042		
	15	1,944	\$158	\$306,362		
	18	1,975	\$178	\$351,607		
	21	781	\$198	\$155,001		
	24	0	\$231	\$0		
	27	0	\$261	\$0		
30	0	\$291	\$0			
Subtotal						\$1,263,650
Contingency - 10%						\$126,365
Total Construction Cost						\$1,390,015
Technical Services - 20%						\$252,730
Total Estimated Project Cost						\$1,642,744

Table 4.6.6: Findlay Road, Improvement to Achieve a Twenty Five Year Storm Event Level of Protection

Description					Estimated Cost	Total Estimated Cost
Inflow Reduction						\$158,700
Robb Road Pump Station						
Replace Pumps - 898 gpm capacity					\$44,063	
Electrical					\$50,000	
Forcemain Replacement - 8 inch					\$41,875	\$135,938
Sanitary Sewer Line Replacement	Diameter(in.)	Length (ft)	Cost/ft.	Cost		\$ 1,154,707
	10	0	\$133	\$0		
	12	1,031	\$138	\$142,245		
	15	1,211	\$158	\$190,846		
	18	2,808	\$178	\$499,906		
	21	1,621	\$198	\$321,711		
	24	0	\$231	\$0		
	27	0	\$261	\$0		
30	0	\$291	\$0			
Subtotal						\$1,449,345
Contingency - 10%						\$144,934
Total Construction Cost						\$1,594,279
Technical Services - 20%						\$289,869
Total Estimated Project Cost						\$1,884,148

Table 4.6.7: Findlay Road, Improvement to Achieve a One Hundred Year Storm Event Level of Protection

Description					Estimated Cost	Total Estimated Cost
Inflow Reduction						\$158,700
Robb Road Pump Station						
Replace Pumps - 1,077 gpm capacity					\$65,625	
Electrical					\$62,500	
Forcemain Replacement - 10 inch					\$50,000	\$178,125
Sanitary Sewer Line Replacement	Diameter(in.)	Length (ft)	Cost/ft.	Cost		\$ 1,060,283
	10	0	\$133	\$0		
	12	0	\$138	\$0		
	15	1,281	\$158	\$201,877		
	18	1,182	\$178	\$210,430		
	21	2,590	\$198	\$514,023		
	24	581	\$231	\$133,952		
	27	0	\$261	\$0		
30	0	\$291	\$0			
Subtotal						\$1,397,108
Contingency - 10%						\$139,711
Total Construction Cost						\$1,536,819
Technical Services - 20%						\$279,422
Total Estimated Project Cost						\$1,816,240

Table 4.7.1: 15th Street Sanitary System, Detailed Sanitary Sewer Improvement for 5-Y, 10-Y, 25-Y and 100-Y Design Storms.

Conduit	Length	Original Diameter (ft)	5-Year	10-Year	25-Year	100-Year
FS003FS002	100	1				
FS004FS003	256	0.83				
FS005FS004	279	0.67			0.83	0.83
FS020FS005	211	0.67			0.83	0.83
FS021FS020	247	0.67			0.83	0.83
FS024FS021	329	0.67			0.83	0.83
FS050FS024	307	0.67			0.83	0.83
FS055FS050	278	0.67				
FS058FS055	336	0.67				
FS085FS003	47	1				
FS090FS085	323	0.67				
FS100FS085	286	0.83				1
FS101FS100	290	0.83				1
FS102FS101	286	0.83				1
FS103FS102	233	0.67			0.83	1
FS120FS103	293	0.67			0.83	0.83
FS180FS120	304	0.67			0.83	0.83
FS210FS180	280	0.67				

Table 4.7.2: 15th Street Sanitary System, Pump Stations Improvement for 5-Y, 10-Y, 25-Y and 100-Y Design Storms.

Pump Station	No. of Pumps	Existing Total Pumping Rate (cfs)	Required Total Pumping Rate (cfs) for Design Storm			
			5-Year	10-Year	25-Year	100-Year
15th Street	2	1.76	2.28	2.58	3.28	4.38

Table 4.7.3: 15th Street Sanitary System, Summary Sanitary Sewer Improvement for 5-Y, 10-Y, 25-Y and 100-Y Design Storms.

Pipe Size (inch)	Length			
	5_Year Feet	10_Year Feet	25_Year Feet	100_Year Feet
10	0	0	2,203	1,970
12	0	0	0	1,095
15	0	0	0	0
18	0	0	0	0
21	0	0	0	0
24	0	0	0	0
27	0	0	0	0
30	0	0	0	0
Total	0	0	2,203	3,065

Table 4.7.4: 15th Street, Improvement to Achieve a Five Year Storm Event Level of Protection

Description					Estimated Cost	Total Estimated Cost
Overflow Elimination						
No Improvement necessary						
15 th Street Pump Station						
Replace Pumps - 500 gpm capacity					\$70,000	
Electerical					\$50,000	\$120,000
Sanitary Sewer Line Replacement	Diameter(in.)	Length (ft)	Cost/ft.	Cost		\$ -
	10	0	\$133	\$0		
	12	0	\$138	\$0		
	15	0	\$158	\$0		
	18	0	\$178	\$0		
	21	0	\$198	\$0		
	24	0	\$231	\$0		
	27	0	\$261	\$0		
30	0	\$291	\$0			
Subtotal						\$120,000
Contingency - 10%						\$12,000
Total Construction Cost						\$132,000
Technical Services - 20%						\$24,000
Total Estimated Project Cost						\$156,000

Table 4.7.5: 15th Street, Improvement to Achieve a Ten Year Storm Event Level of Protection

Description					Estimated Cost	Total Estimated Cost
Overflow Elimination						
No Improvement necessary						
15 th Street Pump Station						
Replace Pumps - 580 gpm capacity					\$70,000	
Electrical					\$50,000	\$120,000
Sanitary Sewer Line Replacement	Diameter(in.)	Length (ft)	Cost/ft.	Cost		\$ -
	10	0	\$133	\$0		
	12	0	\$138	\$0		
	15	0	\$158	\$0		
	18	0	\$178	\$0		
	21	0	\$198	\$0		
	24	0	\$231	\$0		
	27	0	\$261	\$0		
30	0	\$291	\$0			
Subtotal						\$120,000
Contingency - 10%						\$12,000
Total Construction Cost						\$132,000
Technical Services - 20%						\$24,000
Total Estimated Project Cost						\$156,000

Table 4.7.6: 15th Street, Improvement to Achieve a Twenty Five Year Storm Event Level of Protection

Description					Estimated Cost	Total Estimated Cost
Inflow Reduction						
15 th Street Pump Station						
Replace Pump - 740 gpm capacity					\$58,125	
Electerical					\$50,000	\$108,125
Sanitary Sewer Line Replacement	Diameter(in.)	Length (ft)	Cost/ft.	Cost		
	10	2,203	\$133	\$292,436		
	12	0	\$138	\$0		
	15	0	\$158	\$0		
	18	0	\$178	\$0		\$ 292,436
	21	0	\$198	\$0		
	24	0	\$231	\$0		
	27	0	\$261	\$0		
30	0	\$291	\$0			
Subtotal						\$400,561
Contigency - 10%						\$40,056
Total Construction Cost						\$440,617
Technical Services - 20%						\$80,112
Total Estimated Project Cost						\$520,730

Table 4.7.7: 15th Street, Improvement to Achieve a One Hundred Year Storm Event Level of Protection

Description					Estimated Cost	Total Estimated Cost
Inflow Reduction						
15 th Street Pump Station						
Replace Pump - 980 gpm capacity					\$78,125	
Electerical					\$62,500	
Forcemain Replacement - 10 inch					\$106,250	\$246,875
Sanitary Sewer Line Replacement	Diameter(in.)	Length (ft)	Cost/ft.	Cost		\$ 412,582
	10	1,970	\$133	\$261,507		
	12	1,095	\$138	\$151,075		
	15	0	\$158	\$0		
	18	0	\$178	\$0		
	21	0	\$198	\$0		
	24	0	\$231	\$0		
	27	0	\$261	\$0		
	30	0	\$291	\$0		
Subtotal						\$659,457
Contigency - 10%						\$65,946
Total Construction Cost						\$725,403
Technical Services - 20%						\$131,891
Total Estimated Project Cost						\$857,294