

City of Hughson  
**WATER SYSTEM MASTER PLAN**  
**ERRATA NO. 1**  
**DRAFT**  
April 2007



**CITY OF HUGHSON**  
**WATER SYSTEM MASTER PLAN**  
**ERRATA NO. 1**

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**WATER SYSTEM MASTER PLAN - ERRATA NO. 1**

## 1.0 BACKGROUND

The City of Hughson's (City) Water System Master Plan, submitted as a Final Draft January 2007 (Final Draft Plan), identifies facilities required to properly serve the City's water users. Since the Final Draft Plan was published, there has been a recommendation to increase the residential fire flow criteria.

The purpose of this Erratum, prepared by Carollo Engineers, P.C. (Carollo), is to update the residential fire flow criteria and recommended improvements to meet the new criteria. Tables and figures presented in this Erratum are intended to clarify and supersede the tables and figures contained in the previously issued Final Draft Plan.

## 2.0 PROPOSED RESIDENTIAL FIRE FLOW CRITERIA

Since the Final Draft Plan was completed, the City's Fire Marshall has recommended increasing all residential fire flow requirements to 3,000 gallons per minute (gpm) for a duration of two hours. Table 1 lists the updated fire flow requirements for each land use within the City.

<b>Table 1 Updated Fire Flow Requirements</b> Water System Master Plan - Errata No.1 City of Hughson				
<b>Land Use Type</b>	<b>Final Draft Plan<sup>1</sup></b>		<b>Revised Criteria</b>	
	<b>Fire Flow Requirement (gpm)</b>	<b>Fire Flow Duration (hours)</b>	<b>Fire Flow Requirement (gpm)</b>	<b>Fire Flow Duration (hours)</b>
Rural Residential (LDR)	750	2	3,000	2
Single Family Residential (MDR)	1,000	2	3,000	2
Multi Family Residential (HDR)	1,500	2	3,000	2
High Density Residential (HDR)	1,500	2	3,000	2
Commercial (DC, NC, GC, SC)	3,000	3	3,000	3
Light Industrial (IND)	3,000	3	3,000	3
Schools	4,000	4	4,000	4

Note:  
1. From Table 3.6 of the Final Draft Plan.

### **3.0 SYSTEM EVALUATION UPDATE**

The fire flow criteria are used for the following system evaluations:

1. Water Supply: Determine the required water supply under maximum day demand (MDD) plus fire flow conditions
2. Storage: Determine the amount of fire flow storage
3. Distribution System: Determine the pipeline improvements needs to meet MDD plus fire flow demand with a minimum residual pressure of 20 psi.

The first two evaluations, water supply and storage, are not impacted by the new residential fire flow criteria, because the criterion for schools is more conservative. As shown in Table 1, the higher fire flow criterion for schools (4,000 gpm for 4 hours) has not changed, and thus, governs the supply and storage requirements.

Hence, only the distribution system analysis is affected by the revised criteria. Carollo used the hydraulic model to run the MDD plus fire analysis and determined that pipelines of 6-inch diameter and smaller, would need to be replaced when the fire flow criteria of 3,000 gpm for all residential areas are applied. It was assumed that the residential fire demand would be applied to multiple fire hydrants located near the fire. For this reason, improvements to dead end pipelines located in cul-de-sacs were not recommended.

Pipelines of 4-inch diameter and smaller were already included as part of the 2007 CIP under the category "Small Diameter Pipeline Replacements". Thus, the only additional improvements that were identified with the new fire flow criteria are pipelines of 6-inch diameter. These included 20,650 ft (3.9 miles) of 6-inch diameter pipeline at a cost of approximately \$4.0 Million.

Other recommended improvements listed in the Final Draft Plan were re-evaluated to determine the impact of replacing the 6-inch diameter pipelines to meet the new fire flow criteria. It was determined that Improvement P-4 could be shortened and connected to the existing 12-inch diameter pipeline crossing the railroad tracks on East Whitmore Avenue. This reduced the existing system improvement P-4 cost from \$393,000 to \$23,000.

### **4.0 CAPITAL IMPROVEMENT PLAN UPDATE**

The capital improvement program is updated to include replacement of the 6-inch pipelines and the shortening of improvement P-4 (Final Draft Plan Improvement). Phasing of the improvements were adjusted to give priority to the "Small Diameter Pipeline Replacements." As shown in Table 2, the total CIP increased from \$50.8 million to \$54.5 million.

<b>Table 2      Summary of Capital Improvement Program Updates</b>	
Water System Master Plan - Errata No.1 City of Hughson	
Final Draft Plan CIP Total	\$50,829,000
Additional Residential Fire Flow Improvements	\$4,002,000
Reduction of Project P-4	-\$370,000
<b>Revised CIP Total</b>	<b>\$54,461,000</b>

A detailed summary with all CIP project is presented in Table 3, while the locations of all projects are shown on Figure 1. It should be noted that Table 3 replaces Table ES.1 and Table 7.2 of the Final Draft Plan, while Figure 1 replaces Figure ES.5 and Figure 5.1 of the Final Draft Plan.

**Table 3 Capital Improvement Program**  
**Water System Master Plan - Errata No. 1**  
**City of Hughson**

Itemized Cost Estimate															Capital Improvement Schedule				Financing							
No.	Coded No.	Type of Improv.	Completion Year	Description/ Street	Description / Limits	Pipeline and App. Costs					Other Infrastr. Costs (\$)	Construction Cost (\$)	Construction Cost plus Contingency <sup>1</sup> (\$)	Eng., Design & Constr. Mgmt <sup>2</sup> (\$)	Legal & Administr. <sup>3</sup> (\$)	Capital Improv. Cost <sup>4</sup> (\$)	Phase I 2005-10 (\$)	Phase II 2010-15 (\$)	Phase III 2015-20 (\$)	Phase IV 2020-25 (\$)	Future Users Benefit (%)	Total Capital Cost (\$)	Future Users Cost (\$)	Existing Users Cost (\$)		
						Ex. Size/ Diam. (in)	New Size/ Diam. (in)	Length (ft)	Unit Cost (\$)	Pipe Cost (\$)																
<b>Existing System Improvements</b>																										
1	P-1	Pipe	2005-2010	Whitmore Ave.	East of 7th Street to Geer Road	-	12	2,600	136	353,438		353,000	458,900	68,835	45,890	574,000	574,000				0%	574,000	0	574,000		
2	P-2	Pipe	2005-2010	Euclid Ave.	Whitmore Ave. to Locust Street	-	12	1,350	136	183,516		184,000	239,200	35,880	23,920	299,000	299,000				0%	299,000	0	299,000		
3	P-3	Pipe	2005-2010	Hughson Ave	Santa Fe Ave to 2nd Street	-	8	200	114	22,872		23,000	29,900	4,485	2,990	37,000	37,000				0%	37,000	0	37,000		
4	P-4	Pipe	2005-2010	Whitmore Ave	600' e/o Tully Road to 3rd Street	-	12	100	136	13,594		14,000	18,200	2,730	1,820	23,000	23,000				0%	23,000	0	23,000		
6	P-5	Pipe	2005-2010	4th Street	280' s/o Pine Street to alleyway s/o Hughson Street	-	8	300	114	34,308		34,000	44,200	6,630	4,420	55,000	55,000				0%	55,000	0	55,000		
7	P-6	Pipe	2005-2010	Portia Way	250' s/o Locust Street to Pine Street	-	8	50	114	5,718		6,000	7,800	1,170	780	10,000	10,000				0%	10,000	0	10,000		
															<b>CIP Subtotal (Existing System Improvements)</b>				<b>998,000</b>	<b>998,000</b>				<b>998,000</b>	<b>0</b>	<b>998,000</b>
<b>Small Diameter Pipeline Replacement</b>																										
8	P-7	Pipe	2015-2020	Mulberry Way	Fox Road north to cul-de-sac	4/6	8	1,350	114	154,386		154,000	200,200	30,030	20,020	250,000	250,000				0%	250,000	0	250,000		
9	P-8	Pipe	2015-2020	1st Street	Locust St to Hughson Ave	4	8	1,000	114	114,360		114,000	148,200	22,230	14,820	185,000			185,000		0%	185,000	0	185,000		
10	P-9	Pipe	2005-2010	2nd Street	Locust St to alleyway s/o Hughson Ave	6/6	8	950	114	108,642		109,000	141,700	21,255	14,170	177,000	177,000				0%	177,000	0	177,000		
11	P-10	Pipe	2020-2025	3rd Street	Whitmore Ave to Fox Rd	4/6	8	2,300	114	263,028		263,000	341,900	51,285	34,190	427,000	427,000				0%	427,000	0	427,000		
12	P-11	Pipe	2010-2015	4th Street	Locust St to Fox Rd	4/6	8	2,600	114	297,336		297,000	386,100	57,915	38,610	483,000			483,000		0%	483,000	0	483,000		
13	P-12A	Pipe	2005-2010	5th Street	Locust St to Fox Rd	4/6	8	1,200	114	137,232		137,000	178,100	26,715	17,810	223,000			223,000		0%	223,000	0	223,000		
14	P-12B	Pipe	2005-2010	5th Street	alleyway s/o Pine St to Elm St	4	8	350	114	40,026		40,000	52,000	7,800	5,200	65,000			65,000		0%	65,000	0	65,000		
15	P-13	Pipe	2005-2010	6th Street	Hughson Ave to Whitmore Ave	6	8	730	114	83,483		83,000	107,900	16,185	10,790	135,000			135,000		0%	135,000	0	135,000		
16	P-14A	Pipe	2010-2015	Pine Street	3" loops from Pine street to alleyway	3	8	900	114	102,924		103,000	133,900	20,085	13,390	167,000	167,000				0%	167,000	0	167,000		
17	P-14B	Pipe	2010-2015	Pine Street	Tully Road to 1st Street	4	8	300	114	34,308		34,000	44,200	6,630	4,420	55,000	55,000				0%	55,000	0	55,000		
18	P-15	Pipe	2005-2010	Hughson Ave	5th St to 7th St	6	8	700	114	80,052		80,000	104,000	15,600	10,400	130,000			130,000		0%	130,000	0	130,000		
19	P-16	Pipe	2015-2020	Alleyway s/o Hughson Ave	2nd St to 5th St	6	8	1,350	114	154,386		154,000	200,200	30,030	20,020	250,000			250,000		0%	250,000	0	250,000		
20	P-17	Pipe	2020-2025	Elm Street	4th St to 5th St	3	8	300	114	34,308		34,000	44,200	6,630	4,420	55,000			55,000		0%	55,000	0	55,000		
21	P-18	Pipe	2010-2015	Alleyway w/o 5th St	Elm St to alleyway s/o of Hughson Ave	3	8	200	114	22,872		23,000	29,900	4,485	2,990	37,000			37,000		0%	37,000	0	37,000		
22	P-19	Pipe	2020-2025	Alleyway s/o Pine St	1st Street to alleyway e/o 2nd Street; 3rd Street to 5th Street	6	8	1,550	114	177,258		177,000	230,100	34,515	23,010	288,000			288,000		0%	288,000	0	288,000		
23	P-20	Pipe	2010-2015	Elm Street	3rd Street to alleyway w/o Charles Street; Alleyway to alleyway s/o Hughson Ave	3	8	350	114	40,026		40,000	52,000	7,800	5,200	65,000			65,000		0%	65,000	0	65,000		
24	P-21	Pipe	2015-2020	Elm Street	Charles Street to alleyway e/o Charles Street; Alleyway to alleyway s/o Hughson Ave	3	8	400	114	45,744		46,000	59,800	8,970	5,980	75,000			75,000		0%	75,000	0	75,000		
															<b>CIP Subtotal (Small Diameter Pipeline Replacement)</b>				<b>3,067,000</b>	<b>1,076,000</b>	<b>1,003,000</b>	<b>473,000</b>	<b>515,000</b>	<b>3,067,000</b>	<b>0</b>	<b>3,067,000</b>
<b>Future Supply and Storage</b>																										
25	FW-1	Well	2007	Hatch Road	Intersection of Euclid Ave. and Hatch Road	-	1,100	gpm		1,086,000	1,086,000	1,411,800	211,770	141,180	1,765,000	1,765,000				100%	1,765,000	1,765,000	0			
26	FW-2	Well	2009	Hatch Road	Intersection of Mountain View Road and Hatch Road	-	1,100	gpm		1,086,000	1,086,000	1,411,800	211,770	141,180	1,765,000	1,765,000				100%	1,765,000	1,765,000	0			
27	FT-1	Tank	2009	Hatch Road	Intersection of Mountain View Road and Hatch Road	-	0.75	MG		1,825,000	1,825,000	2,372,500	355,875	237,250	2,966,000	2,966,000				50%	2,966,000	1,483,000	1,483,000			
28	FP-1	Pump Station	2009	Hatch Road	Intersection of Mountain View Road and Hatch Road	-	1,350	gpm		294,000	294,000	382,200	57,330	38,220	478,000	478,000				50%	478,000	239,000	239,000			
28	FT-2	Tank	2012	Hatch Road	Intersection of Euclid Ave. and Hatch Road	-	0.75	MG		1,825,000	1,825,000	2,372,500	355,875	237,250	2,966,000			2,966,000		100%	2,966,000	2,966,000	0			
28	FP-2	Pump Station	2012	Hatch Road	Intersection of Euclid Ave. and Hatch Road	-	1,350	gpm		294,000	294,000	382,200	57,330	38,220	478,000			478,000		100%	478,000	478,000	0			
29	FT-3	Tank	2014	Whitmore Ave.	Intersection of Euclid Ave. and Whitmore	-	0.75	MG		1,825,000	1,825,000	2,372,500	355,875	237,250	2,966,000			2,966,000		100%	2,966,000	2,966,000	0			
29	FP-3	Pump Station	2014	Whitmore Ave.	Intersection of Euclid Ave. and Whitmore	-	1,350	gpm		294,000	294,000	382,200	57,330	38,220	478,000			478,000		100%	478,000	478,000	0			
30	FT-4	Tank	2024	Roeding Road	e/o Mountain View Rd.	-	0.75	MG		1,825,000	1,825,000	2,372,500	355,875	237,250	2,966,000			2,966,000		100%	2,966,000	2,966,000	0			
30	FP-4	Pump Station	2024	Roeding Road	e/o Mountain View Rd.	-	1,350	gpm		294,000	294,000	382,200	57,330	38,220	478,000			478,000		100%	478,000	478,000	0			
31	TID-1	TID Connection	2010	Hatch Road	Intersection of Mountain View Road and Hatch Road	-	925	gpm		250,000	250,000	325,000	48,750	32,500	406,000			406,000		100%	406,000	406,000	0			
32	TID-2	TID Connection	2014	Hatch Road	Intersection of Euclid Ave. and Hatch Road	-	925	gpm		250,000	250,000	325,000	48,750	32,500	406,000			406,000		100%	406,000	406,000	0			
33	TID-3	TID Connection	2010	Whitmore Ave.	Intersection of Euclid Ave. and Whitmore	-	925	gpm		250,000	250,000	325,000	48,750	32,500	406,000			406,000		100%	406,000	406,000	0			
															<b>CIP Subtotal (Future Supply and Storage)</b>				<b>18,524,000</b>	<b>6,974,000</b>	<b>4,256,000</b>	<b>3,850,000</b>	<b>3,444,000</b>	<b>18,524,000</b>	<b>16,802,000</b>	<b>1,722,000</b>
<b>Future System Improvements</b>																										
34	P-22	Pipe	2005-2010	Locust Street	East of Domenic Ave. to Well 6	-	12	700	136	95,156		95,000	123,500	18,525	12,350	154,000	154,000				100%	154,000	154,000	0		
35	P-23A	Pipe	2020-2025	1,000' n/o Whitmore Ave.	w/o Mountain View Road to Santa Fe Ave.	-	12	3,000	136	407,813		408,000	530,400	79,560	53,040	663,000			663,000		100%	663,000	663,000	0		
36	P-23B	Casing	2020-2025	Santa Fe Ave.	Crossing under Santa Fe Railroad	-	12/32	300	488	146,503		147,000	191,100	28,665	19,110	239,000			239,000		100%	239,000	239,000	0		
37	P-24	Pipe	2005-2010	Santa Fe Ave.	Hatch Road to Tully Road	-	12	5,950	136	808,829		809,000	1,051,700	157,755	105,170	1,315,000	1,315,000				100%	1,315,000	1,315,000	0		
38	P-25	Pipe	2005-2010	Hatch Road	Santa Fe Ave. to Geer Road	-	12	10,850	136	1,474,923		1,475,000	1,917,500	287,625	191,750	2,397,000	2,397,000				100%	2,397,000	2,397,000	0		
39	P-26	Pipe	2005-2010	Tully Road	Narcisco Way to Hatch Road	-	12	800	136	108,750		109,000	141,700	21,255	14,170	177,000	177,000				100%	177,000	177,000	0		
40	P-27	Pipe	2005-2010	Euclid Ave	Fox Road to Hatch Road	-	12	2,800	136	380,625		381,000	495,300	74,295	49,530	619,000	619,000				100%	619,000	619,000	0		
41	P-28	Pipe	2015-2020	Euclid Ave.	Whitmore Ave. to Santa Fe Ave.	-	12	5,300	136	720,469		720,000	936,000	140,400	93,600	1,170,000			1,170,000		100%	1,170,000	1,170,000	0		
42	P-29	Pipe	2020-2025	Santa Fe Ave.	w/o 7th Street to Geer Road	-	12	6,700	136	910,782		911,000	1,184,300	177,645	118,430	1,480,000			1,480,000		100%	1,480,000	1,480,000	0		
43	P-30	Pipe	2020-2025	Mountain View Road	Whitmore Ave. to Roeding Road	-	12	2,650	136	360,235		360,000	468,000	70,200	46,800	585,000			585,000		100%	585,000	585,000	0		
44	P-31A	Pipe	2015-2020	Roeding Road	Mountain View Road to Santa Fe Ave.	-	12	3,000	136	407,813		408,000	530,400	79,560	53,040	663,000			663,000		100%	663,000	663,000	0		
45	P-31B	Casing	2015-2020	Santa Fe Ave.	Crossing under Santa Fe Railroad	-	12/32	300	488	146,503		147,000	191,100	28,665	19,110	239,000			239,000		100%	239,000	239,000	0		
46	P-32	Pipe	2020-2025	Tully Road	s/o Whitmore to Roeding Road	-	12	1,350	136	183,516		184,000	239,200	35,880	23,920	299,000			299,000		100%	299,000	299,000	0		
47	P-33	Pipe	2005-2010	Thomas Taylor Drive	From existing line e/o Thomas Taylpr Dr. to Geer Road	-	12</																			

**Table 3 Capital Improvement Program**  
**Water System Master Plan - Errata No. 1**  
**City of Hughson**

Itemized Cost Estimate															Capital Improvement Schedule				Financing					
No.	Coded No.	Type of Improv.	Completion Year	Description / Street	Description / Limits	Pipeline and App. Costs					Other Infrastr. Costs (\$)	Construction Cost (\$)	Construction Cost plus Contingency <sup>1</sup> (\$)	Eng., Design & Constr. Mgmt <sup>2</sup> (\$)	Legal & Administr. <sup>3</sup> (\$)	Capital Improv. Cost <sup>4</sup> (\$)	Phase I 2005-10 (\$)	Phase II 2010-15 (\$)	Phase III 2015-20 (\$)	Phase IV 2020-25 (\$)	Future Users Benefit (%)	Total Capital Cost (\$)	Future Users Cost (\$)	Existing Users Cost (\$)
						Ex. Size/ Diam. (in)	New Size/ Diam. (in)	Length (ft)	Unit Cost (\$)	Pipe Cost (\$)														
53	P-39	Pipe	2015-2020	Service Road	Santa Fe Ave. to Geer Road	-	12	1,400	136	190,313		190,000	247,000	37,050	24,700	309,000			309,000		100%	309,000	309,000	0
54	P-40	Pipe	2010-2015	Geer Road	Santa Fe Ave. to Hatch Road	-	12	12,300	136	1,672,032		1,672,000	2,173,600	326,040	217,360	2,717,000		2,717,000			100%	2,717,000	2,717,000	0
55	P-41	Pipe	2020-2025	Whitmore Ave.	1,280' w/o Tully Road to 500' w/o Mountain View Road	-	12	1,850	136	251,484		251,000	326,300	48,945	32,630	408,000			408,000		100%	408,000	408,000	0
56	P-42	Pipe	2020-2025	3,150' w/o Tully Road	Whitmore Ave. to 2,600' n/o Whitmore Ave.	-	12	2,600	136	353,438		353,000	458,900	68,835	45,890	574,000			574,000		100%	574,000	574,000	0
57	P-43A	Pipe	2020-2025	2,600' n/o Whitmore Ave.	Santa Fe Ave. to 1,570' w/o Santa Fe Road	-	12	1,600	136	217,500		218,000	283,400	42,510	28,340	354,000			354,000		100%	354,000	354,000	0
58	P-43B	Casing	2020-2025	Santa Fe Ave.	Crossing under Santa Fe Railroad	-	12/32	300	488	146,503		147,000	191,100	28,665	19,110	239,000			239,000		100%	239,000	239,000	0
59	P-44A	Pipe	2020-2025	1,570' w/o Tully Road	Santa Fe Ave. to Whitmore Ave.	-	12	2,700	136	367,031		367,000	477,100	71,565	47,710	596,000			596,000		100%	596,000	596,000	0
60	P-44B	Casing	2020-2025	Santa Fe Ave.	Crossing under Santa Fe Railroad	-	12/32	300	488	146,503		147,000	191,100	28,665	19,110	239,000			239,000		100%	239,000	239,000	0
61	P-45	Pipe	2010-2015	Locust Street	Euclid Ave. to Geer Road	-	12	1,300	136	176,719		177,000	230,100	34,515	23,010	288,000		288,000			100%	288,000	288,000	0
62	P-46	Pipe	2010-2015	Fox Road	e/o Euclid Ave. to Geer Road	-	12	1,300	136	176,719		177,000	230,100	34,515	23,010	288,000		288,000			100%	288,000	288,000	0
63	P-47	Pipe	2005-2010	Mountain View Road	Hatch Road to Santa Fe Ave.	-	12	1,600	136	217,500		218,000	283,400	42,510	28,340	354,000			354,000		100%	354,000	354,000	0
64	P-48	Pipe	2015-2020	1,300' w/o Tully Road	Roeding Road to Whitmore Ave.	-	12	2,600	136	353,438		353,000	458,900	68,835	45,890	574,000			574,000		100%	574,000	574,000	0
65	P-49	Pipe	2015-2020	1,300' s/o Whitmore Ave.	Mountain View Road to 1,300' e/o Tully Road	-	12	3,950	136	536,953		537,000	698,100	104,715	69,810	873,000			873,000		100%	873,000	873,000	0
66	P-50	Pipe	2015-2020	1,300' e/o Tully Road	Roeding Road to 1,300' n/o Roeding Road	-	12	1,300	136	176,719		177,000	230,100	34,515	23,010	288,000			288,000		100%	288,000	288,000	0
67	P-51	Pipe	2020-2025	Elm Street	3rd Street to Santa Fe Avenue	-	12	280	136	38,063		38,000	49,400	7,410	4,940	62,000			62,000		100%	62,000	62,000	0
											<b>CIP Subtotal (Future System Improvements)</b>				<b>22,480,000</b>	<b>5,601,000</b>	<b>5,579,000</b>	<b>5,562,000</b>	<b>5,738,000</b>	<b>22,480,000</b>	<b>22,480,000</b>	<b>0</b>		
<b>Improvements Required to Meet 3,000 gpm Residential Fire Flow Criteria</b>																								
68	FF P-52	Pipe	2015-2020	Santa Fe Avenue/Charles Street	East Whitmore Avenue to n/o Roeding Road	6	12	2,300	136	312,656		313,000	406,900	61,035	40,690	509,000			509,000		50%	509,000	254,500	254,500
69	FF P-53	Pipe	2015-2020	4th Street	s/o Whitmore Avenue to Santa Fe Avenue	6	8	600	114	68,616		69,000	89,700	13,455	8,970	112,000			112,000		0%	112,000	0	112,000
70	FF P-54	Pipe	2015-2020	5th Street	Whitmore Avenue to 7th Street	6	8	1,800	114	205,848		206,000	267,800	40,170	26,780	335,000			335,000		0%	335,000	0	335,000
71	FF P-55	Pipe	2015-2020	6th Street	Whitmore Avenue to 5th Street	6	8	1,300	114	148,668		149,000	193,700	29,055	19,370	242,000			242,000		0%	242,000	0	242,000
72	FF P-56	Pipe	2015-2020	4th Street	Whitmore Avenue to 7th Street	6	8	1,600	114	182,976		183,000	237,900	35,685	23,790	297,000			297,000		0%	297,000	0	297,000
73	FF P-57	Pipe	2020-2025	Whitmore Avenue	Charles Street to 7th Street	6	8	1,300	114	148,668		149,000	193,700	29,055	19,370	242,000			242,000		0%	242,000	0	242,000
74	FF P-58	Pipe	2020-2025	Charles Street	Whitmore Avenue to 350' n/o Whitmore Avenue	6	8	350	114	40,026		40,000	52,000	7,800	5,200	65,000			65,000		0%	65,000	0	65,000
75	FF P-59	Pipe	2015-2020	7th Street	Santa Fe Avenue to s/o Whitmore Avenue	6	12	1,350	136	183,516		184,000	238,200	35,880	23,920	299,000			299,000		50%	299,000	149,500	149,500
76	FF P-60	Pipe	2015-2020	7th Street	Whitmore Avenue to s/o Whitmore Avenue	6	12	600	136	81,563		82,000	106,600	15,990	10,660	133,000			133,000		50%	133,000	66,500	66,500
77	FF P-61	Pipe	2020-2025	Pine Street	7th Street to e/o 7th Street	6	8	1,100	114	125,796		126,000	163,800	24,570	16,380	205,000			205,000		0%	205,000	0	205,000
78	FF P-62	Pipe	2020-2025	Metcalf Way	Tully Road to w/o Tully Road	6	8	1,150	114	131,514		132,000	171,600	25,740	17,160	215,000			215,000		0%	215,000	0	215,000
79	FF P-63	Pipe	2020-2025	White Pine Way	Charlie Street to White Birch Drive	6	8	550	114	62,898		63,000	81,900	12,285	8,190	102,000			102,000		0%	102,000	0	102,000
80	FF P-64	Pipe	2020-2025	Sugar Maple Way	White Pine Way to Willow Street	6	8	900	114	102,924		103,000	133,900	20,085	13,390	167,000			167,000		0%	167,000	0	167,000
81	FF P-65	Pipe	2020-2025	White Birch Drive	White Pine Way to Willow Street	6	8	900	114	102,924		103,000	133,900	20,085	13,390	167,000			167,000		0%	167,000	0	167,000
82	FF P-66	Pipe	2020-2025	Willow Street	Sugar Maple Way to Mulberry Avenue	6	8	600	114	68,616		69,000	89,700	13,455	8,970	112,000			112,000		0%	112,000	0	112,000
83	FF P-67	Pipe	2020-2025	Fox Road	2nd Street to 5th Street	6	8	1,350	114	154,386		154,000	200,200	30,030	20,020	250,000			250,000		0%	250,000	0	250,000
84	FF P-68	Pipe	2020-2025	2nd Street	Fox Road to Walker Lane	6	8	650	114	74,334		74,000	96,200	14,430	9,620	120,000			120,000		0%	120,000	0	120,000
85	FF P-69	Pipe	2020-2025	Walker Lane	2nd Street to Tully Road	6	8	700	114	80,052		80,000	104,000	15,600	10,400	130,000			130,000		0%	130,000	0	130,000
86	FF P-70	Pipe	2020-2025	1st Street	Walker Lane to Locust Street	6	8	500	114	57,180		57,000	74,100	11,115	7,410	93,000			93,000		0%	93,000	0	93,000
87	FF P-71	Pipe	2020-2025	Locust Street	Charles Street to 4th Street	6	8	350	114	40,026		40,000	52,000	7,800	5,200	65,000			65,000		0%	65,000	0	65,000
88	FF P-72	Pipe	2015-2020	Whitmore Avenue	Charles Street to Santa Fe Avenue	6	12	300	136	40,781		41,000	53,300	7,995	5,330	67,000			67,000		50%	67,000	33,500	33,500
89	FF P-73	Pipe	2020-2025	Tully Road	n/o Narcisco Way to s/o Narcisco Way	6	8	400	114	45,744		46,000	59,800	8,970	5,980	75,000			75,000		0%	75,000	0	75,000
											<b>CIP Subtotal (3,000 gpm Residential Fire Flow)</b>				<b>4,002,000</b>			<b>1,994,000</b>	<b>2,008,000</b>	<b>2</b>	<b>4,002,000</b>	<b>504,000</b>	<b>3,498,000</b>	
<b>Miscellaneous System Improvements</b>																								
90	M-1	Fire hydrants				Quantity	Size	Unit Cost (\$)																
						400	hydrants	\$500	per hydrant	200,000	n/a	n/a	n/a	n/a	200,000	57,500	49,000	47,500	46,300	85%	200,000	169,373	30,627	
91	M-2	SCADA Upgrade				some	telemetry			50,000	n/a	n/a	n/a	n/a	50,000	50,000				50%	50,000	25,000	25,000	
92	M-3	SCADA Replacements				2	rms (2015 and 2025)	\$1,000,000	per system	2,000,000	n/a	n/a	n/a	n/a	2,000,000				1,000,000	50%	2,000,000	1,000,000	1,000,000	
93	M-4	Water Meters				7,537	meters	\$200		1,507,400	n/a	n/a	n/a	n/a	1,507,000	350,267	152,200	700,533	304,400	61%	1,507,000	912,958	594,042	
94	M-5	VFD Pump for Well No. 5				100	hp	\$50,000	per pump	50,000	50,000	65,000	9,750	6,500	81,000	81,000				50%	81,000	40,500	40,500	
95	M-6	Well Pump Covers				7	well sites	\$10,000	per site	70,000	70,000	91,000	13,650	9,100	114,000	114,000				50%	114,000	57,000	57,000	
96	M-7	Land Acquisition				4	1-acre sites	\$200,000	per acre	800,000	n/a	n/a	n/a	n/a	800,000	200,000	200,000	200,000	200,000	100%	800,000	800,000	0	
97	M-8	Water Quality Study (TID and Groundwater Supply)				1	study	50,000	per study	50,000	n/a	n/a	n/a	n/a	50,000	50,000				50%	50,000	25,000	25,000	
98	M-9	Chlorine Storage Study				1	study	50,000	per study	50,000	n/a	n/a	n/a	n/a	50,000	50,000				50%	50,000	25,000	25,000	
99	M-10	Development of GIS				1	GIS system	\$50,000	per system	50,000	n/a	n/a	n/a	n/a	50,000			50,000		50%	50,000	25,000	25,000	
100	M-11	Backup Power for new wells				2	alls at 100 hp each	\$50,000	per 100 hp	100,000	100,000	130,000	19,500	13,000	163,000	163,000				100%	163,000	163,000	0	
101	M-12	Backup Power for new booster stations				4	'S at 100 hp each	\$50,000	per 100 hp	200,000	200,000	260,000	39,000	26,000	325,000	81,250	81,250	81,250	81,250	100%	325,000	325,000	0	
											<b>CIP Subtotal (Miscellaneous System Improvements)</b>				<b>5,390,000</b>	<b>1,197,017</b>	<b>1,532,450</b>	<b>1,029,283</b>	<b>1,631,950</b>	<b>5,390,000</b>	<b>3,567,830</b>	<b>1,822,170</b>		
											<b>CIP Totals</b>				<b>54,461,000</b>	<b>15,846,017</b>	<b>12,370,450</b>	<b>12,</b>						

