16. CAPITAL NEEDS ANALYSIS

This section is a capital needs analysis for a 15 year period from 2010 through 2024. It is intended to be used as a planning tool for the development of the District's capital improvement program (CIP).

16.1 Capital Needs

An analysis of the District's capital needs for a 15 year period from 2010 through 2024 is based on the recommendations in this plan. Figure 16-1 illustrates the annual costs of projected capital projects (in 2009 dollars). On this figure the annual costs are split between rate funded project costs and project costs to be funded by others.

The District's capital needs are divided into five project categories: production (source of supply), storage, distribution, special, and potential. The annual costs for all projects by each of the five categories are shown on Figure 16-2. Tables 16-1 and 16-2 provide the annual costs by project in 2009 dollars and escalated at 3 percent per year, respectively. The projects within each of the five categories as well as the assumptions used to develop planning level costs for each project are described in the following sections.

16.2 Production (source of supply) Projects

Projects in this category are related to the District's surface water and groundwater supply infrastructure. A graph of the annual costs in 2009 dollars is shown on Figure 16-3. Table 16-3 provides a list of the production projects along with the key assumptions used to develop planning level costs for these projects.

As part of this plan, a detailed analysis of the District's groundwater well replacement project was performed to estimate when and where the District's wells should be replaced. Appendix U contains the detailed calculations associated with this well replacement analysis. The well replacement project consists of replacing existing groundwater wells that have outlived their useful life. The assumptions used to determine a well's useful life and the resulting year that each well's capacity is considered no longer available are based on the District's Groundwater Well Asset Management Plan (GWAMP) ranking score combined with the importance of each well to District operations. The GWAMP ranks each well with a score based on factors including well conditions (age, construction, depth of annular/sanitary seal, casing diameter/thickness, historical sand production), well performance (production capacity, efficiency, specific capacity), and water quality. There are 95 points possible, with more points associated with the wells in the poorest condition and less points associated with wells in the best condition. The importance of each well with respect to District operations is indicated based on the wells listed as key facilities in Section 12, Infrastructure Reliability Plan (submitted to the District as a separately bound document for security reasons). The well useful life assumptions are as follows:

- Key facilities
  - GWAMP score greater than or equal to 48 points (out of total 95 points possible) – 50 years useful life
  - GWAMP score less than 48 points – 55 years useful life
- Non-key facilities
  - GWAMP score greater than or equal to 48 points – 60 years useful life
  - GWAMP score less than 48 points – 65 years useful life

The assumed useful life for each well is added to the year that each well was constructed in order to determine the year the District could expect to lose each well. Based on maintaining 2009 overall capacity in the NSA and SSA, a well replacement schedule is developed to replace well capacity as it is projected to be lost. Any new replacement well is assumed to have a minimum capacity of 1,500 gpm. For the replacement of a well with a current capacity greater than 1,500 gpm, it is assumed the replaced capacity would match the current capacity of the well. Because the District has multiple wells with current capacity below 1,500 gpm, as wells are being replaced, it is assumed that the District will be able to reduce the quantity of well facilities overall. For years when multiple wells are lost, the location of the replacement well(s) is also based upon providing capacity in subareas to more closely match the estimated demand in each subarea.

The cost assumptions for well replacement are based on a three year process. The costs do not include a standby generator, but it is assumed that any new replacement well will be wired for standby power to be added in the future, if necessary. It is also assumed that no wellhead treatment is required and the raw water quality will meet the water quality standards and regulations. The three year replacement process and cost assumptions are described as follows:

- Year 1 - $250,000 - Property selection, environmental review (CEQA) ,property acquisition, drill test hole
- Year 2 - $400,000 - Well design, drill production well
- Year 3 - $1,400,000 - Build pump station, equip well

16.3 Storage Projects

Projects in this category are related to the District's storage infrastructure. A graph of annual costs in 2009 dollars is shown on Figure 16-4. Table 16-4 provides a list of the storage projects along with the key assumptions used to develop planning level costs for these projects.

16.4 Distribution Projects

Projects in this category are related to the District's distribution infrastructure. This includes projects such as pipelines, meters, valves, fire hydrants, and interties. A graph of the annual costs in 2009 dollars is shown on Figure 16-5. Table 16-5 provides a list of the distribution projects along with the key assumptions used to develop planning level costs for these projects.

As part of this plan, a detailed analysis of the District's meter retrofit program and the meter replacement program was performed to estimate annual costs. Appendix U contains the detailed calculations associated with meter retrofit and replacement analysis.

The costs estimated for the meter retrofit program are based on the size and location of the currently unmetered connections. The cost assumptions include materials and labor for contractors to install the meters. The costs assumed for each meter retrofit, by size are as follows:

- ¾-in meter - $1,600/meter retrofit
- 1-in meter - $1,700/meter retrofit
- 1.5-in meter - $1,800/meter retrofit

The resulting total cost for the District's meter retrofit project is divided by 13 years (2010 through 2022) to determine the annual cost for the meter retrofit program. This is based on the District completing the meter retrofit program by 2022.

The meter replacement program is based on replacing meters every 15 years. The meter replacement schedule is determined by applying a 15 year meter life to the year meters were initially installed. An

inventory of the historical meters installed from pre-1990 through 2009 was used to project the meter replacement schedule. The costs to replace meters are substantially less than the cost to retrofit a meter. The cost assumption for meter replacement is provided in Table 16-5.

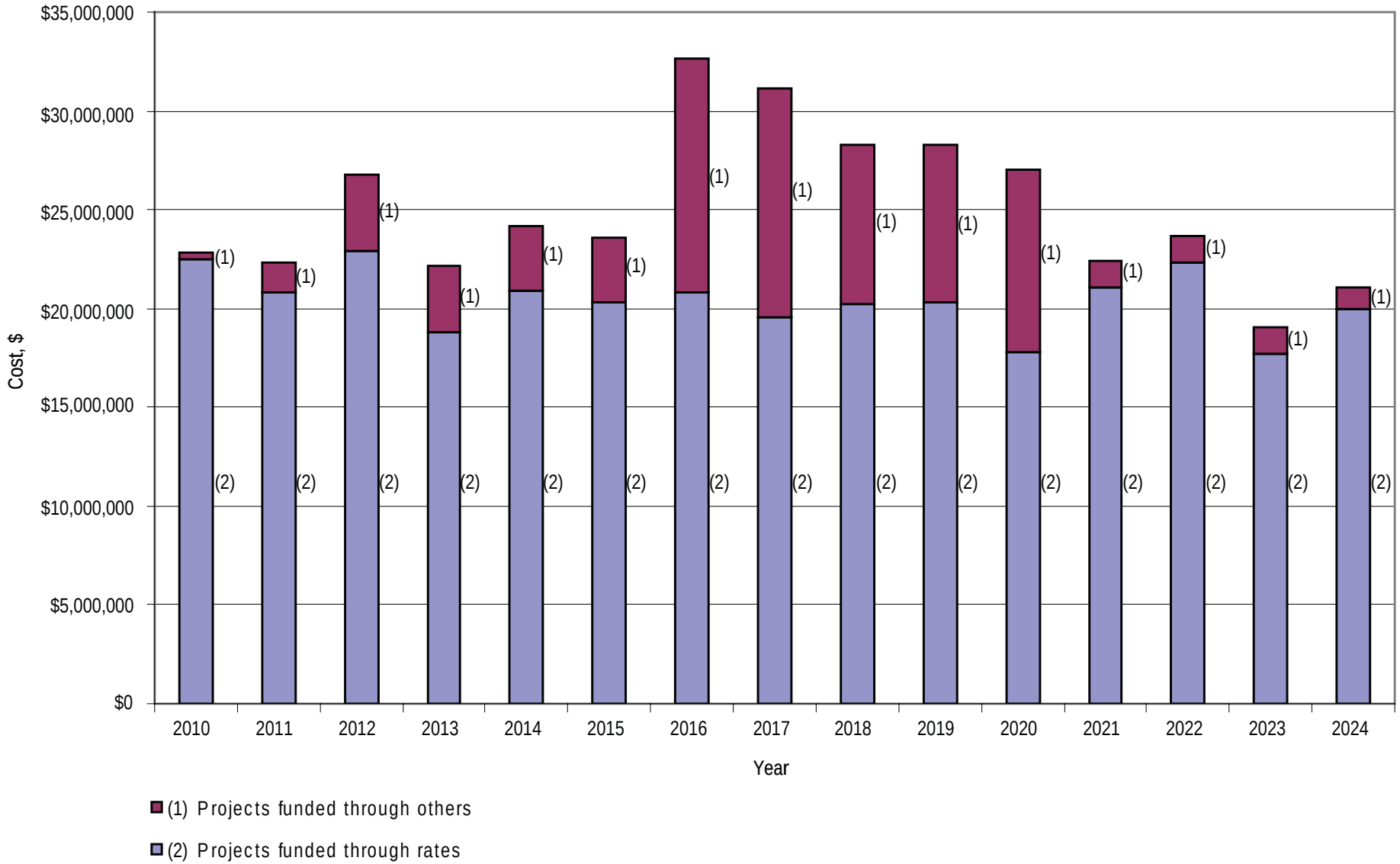
16.5 Special Projects

Special projects are those projects that do not fit into the production, storage, or distribution categories, but are important projects to include in the District's capital needs planning. Special projects include studies and plans, County improvement projects, and modeling analysis. Because there is uncertainty in the timing and extent of County improvement projects past 2016, a project titled "Undefined Future County Projects" is included with costs for 2017 through 2024. A graph of the annual costs in 2009 dollars is shown on Figure 16-6. Table 16-6 provides a list of the special projects along with the key assumptions used to develop planning level costs for these projects.

16.6 Potential Projects

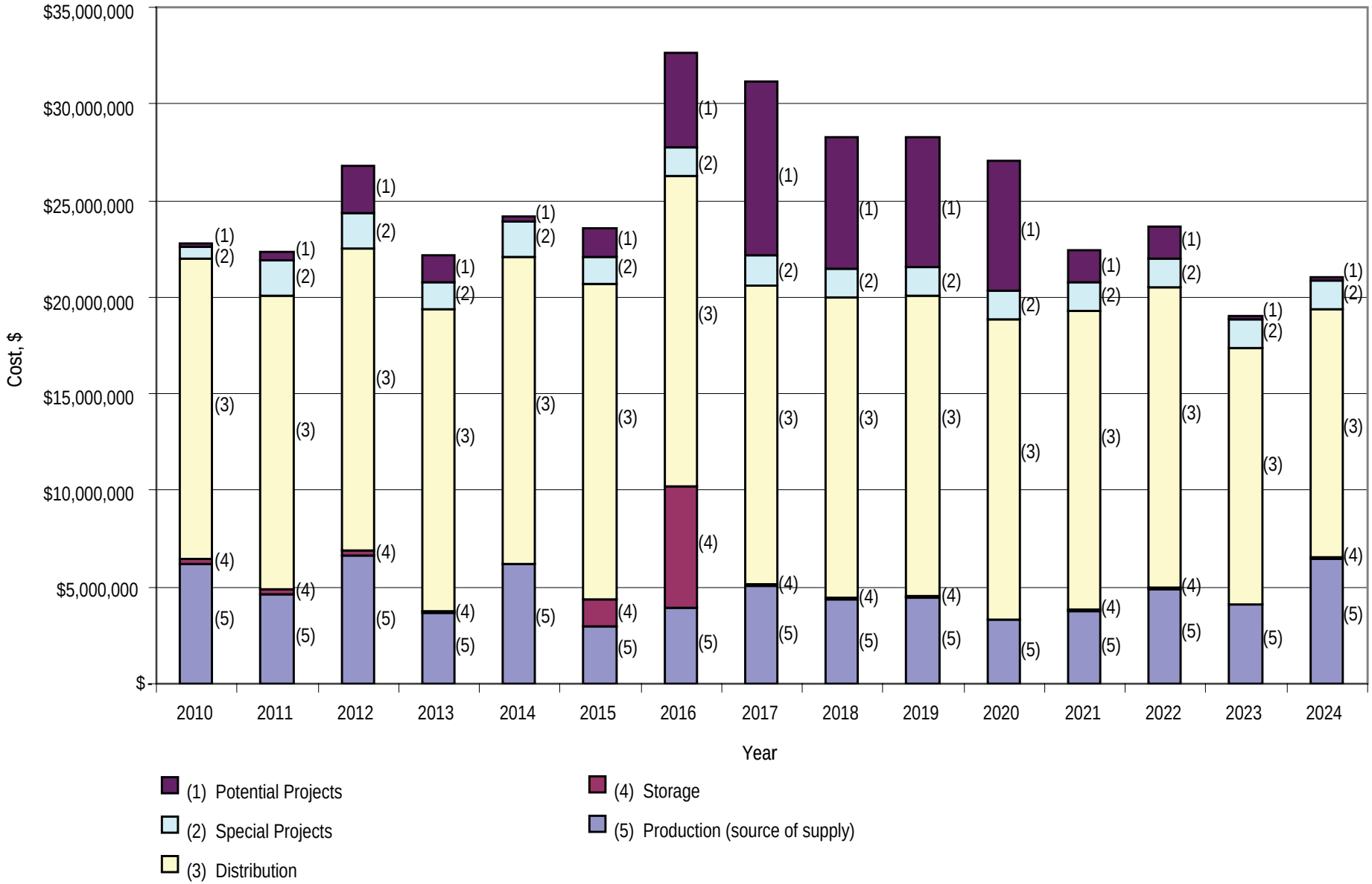
Potential projects are those projects with uncertainty related to the future occurrence of these projects. The implementation of potential projects is predominately dependant upon other parties, and these projects are not typically funded through District rates. A graph of the annual costs in 2009 dollars is shown on Figure 16-7. Table 16-7 provides a list of the special projects along with the key assumptions used to develop planning level costs for these projects.

P:\35000\135849 - SSWD Water Master Plan\graphics\Master Plan Report\draft final figs 6-09



BROWN AND CALDWELL	PROJECT 135849-100	SITE Water System Master Plan, Sacramento Suburban Water District	Figure 16-1
	DATE 7-8-09	TITLE Capital Needs Analysis Total Annual Cost - Source of Funding	

P:\35000\135849 - SSWD Water Master Plan\graphics\Master Plan Report\draft final figs 6-09



BROWN AND CALDWELL	PROJECT 135849-100	SITE Water System Master Plan, Sacramento Suburban Water District	Figure 16-2
	DATE 7-8-09	TITLE Capital Needs Analysis Total Annual Cost	

Table 16-1. Capital Needs Analysis
Cost in 2009 Dollars

Project no.	Project name	Funding source	Planning level cost, (2009 dollars)															
			2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Total
Production (source of supply)																		
WMP 001	Water Supply Backup Power	Rates						$ 200,000	$ 200,000									$ 400,000
WMP 009	Additional groundwater wells to meet future North area demands	Developer			$ 200,000	$ 400,000	$ 1,400,000	$ 200,000	$ 400,000	$ 1,400,000	$ 200,000	$ 400,000	$ 1,400,000					$ 6,000,000
009	Well Rehabilitation/Pump Station Improvements	Rates	$ 840,000	$ 840,000	$ 840,000	$ 840,000	$ 840,000	$ 840,000	$ 840,000	$ 840,000	$ 840,000	$ 840,000	$ 840,000	$ 840,000	$ 840,000	$ 840,000	$ 840,000	$ 12,600,000
010	SCADA Remote Terminal Units (RTU's) / Communication Improvements / MCC Panel Replacement/Upgrades	Rates	$ 400,000	$ 400,000	$ 400,000	$ 400,000	$ 400,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 400,000	$ 100,000	$ 100,000	$ 100,000	$ 3,300,000
011	Wellhead Treatment / Chemical Feed System Rehab./Improvements	Rates	$ 150,000	$ 150,000	$ 150,000	$ 150,000	$ 150,000	$ 150,000	$ 150,000	$ 150,000	$ 150,000	$ 150,000	$ 150,000	$ 150,000	$ 150,000	$ 150,000	$ 150,000	$ 2,250,000
012	Well Replacement	Rates	$ 5,100,000	$ 3,250,000	$ 5,100,000	$ 2,450,000	$ 3,450,000	$ 2,050,000	$ 2,300,000	$ 2,700,000	$ 3,100,000	$ 3,050,000	$ 900,000	$ 2,450,000	$ 3,950,000	$ 3,100,000	$ 5,500,000	$ 48,450,000
		Subtotal	$ 6,490,000	$ 4,640,000	$ 6,690,000	$ 4,240,000	$ 6,240,000	$ 3,540,000	$ 3,990,000	$ 5,190,000	$ 4,390,000	$ 4,540,000	$ 3,390,000	$ 3,840,000	$ 5,040,000	$ 4,190,000	$ 6,590,000	$ 73,000,000
Storage																		
WMP 008	McClellan Storage Facilities	Developer						$ 1,300,000	$ 6,300,000									$ 7,600,000
034	Corrosion Control and Reservoir/Tank/Hydrotank Painting/Coating, Upgrades and Improvements	Rates	$ 300,000	$ 300,000	$ 300,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 1,500,000
		Subtotal	$ 300,000	$ 300,000	$ 300,000	$ 50,000	$ 50,000	$ 1,350,000	$ 6,350,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 9,100,000
Distribution																		
WMP 002	NSA Pressure Zone Break along Manzanita Avenue	Rates						$ 200,000										$ 200,000
WMP 003	NSA Pressure Zone Break along Walerga, Keema, Oakhollow, and Hillsdale	Rates						$ 200,000										$ 200,000
WMP 006	34th Street McClellan Intertie	Rates					$ 150,000											$ 150,000
WMP 007	McClellan Pipeline Improvements	Developer/ rates				$ 500,000	$ 500,000	$ 500,000	$ 500,000									$ 2,000,000
020	McClellan Improvements	Rates	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 1,500,000
022	Water Related Street Improvements (Lowering/Raising Valve Boxes)	Rates	$ 230,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 3,030,000
024	Meter Retrofit Program	Rates	$ 2,092,000	$ 2,092,000	$ 2,092,000	$ 2,092,000	$ 2,092,000	$ 2,092,000	$ 2,092,000	$ 2,092,000	$ 2,092,000	$ 2,092,000	$ 2,092,000	$ 2,092,000	$ 2,092,000	$ -	$ -	$ 27,196,000
WMP 020	Meter Replacement and Repair	Rates	$ 456,475	$ 194,625	$ 662,200	$ 98,960	$ 199,320	$ 449,430	$ 570,345	$ 492,030	$ 528,745	$ 539,620	$ 502,750	$ 461,160	$ 593,090	$ 577,300	$ 174,850	$ 6,500,900
038	Large Water Meter (> 3") Replacement Program	Rates	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 750,000
027	Distribution System Major Repairs	Rates	$ 450,000	$ 450,000	$ 450,000	$ 450,000	$ 450,000	$ 450,000	$ 450,000	$ 450,000	$ 450,000	$ 450,000	$ 450,000	$ 450,000	$ 450,000	$ 450,000	$ 450,000	$ 6,750,000
019	Distribution Main Relocations/Extensions/Interties	Rates	$ 800,000	$ 750,000	$ 750,000	$ 750,000	$ 750,000	$ 750,000	$ 750,000	$ 750,000	$ 750,000	$ 750,000	$ 750,000	$ 750,000	$ 750,000	$ 750,000	$ 750,000	$ 11,300,000
018	Distribution Main Replacements	Rates	$ 10,950,000	$ 11,000,000	$ 11,000,000	$ 11,000,000	$ 11,000,000	$ 11,000,000	$ 11,000,000	$ 11,000,000	$ 11,000,000	$ 11,000,000	$ 11,000,000	$ 11,000,000	$ 11,000,000	$ 11,000,000	$ 11,000,000	$ 164,950,000
039	Fire Hydrant Replacement/Rehabilitation	Rates	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 1,500,000
		Subtotal	$ 15,228,475	$ 14,936,625	$ 15,404,200	$ 15,340,960	$ 15,591,320	$ 16,091,430	$ 15,812,345	$ 15,234,030	$ 15,270,745	$ 15,281,620	$ 15,244,750	$ 15,203,160	$ 15,335,090	$ 13,227,300	$ 12,824,850	$ 226,026,900

Table 16-1. Capital Needs Analysis
Cost in 2009 Dollars

Project no.	Project name	Funding source	Planning level cost, (2009 dollars)															
			2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Total
Special Projects																		
WMP 030	Unidentified Future County Projects	Developer								$ 625,000	$ 490,000	$ 325,000	$ 550,000	$ 1,125,000	$ 1,140,000	$ 1,125,000	$ 860,000	$ 6,240,000
WMP 010	Groundwater Monitoring Wells	Rates	$ 120,000		$ 120,000		$ 120,000											$ 360,000
WMP 012	Master Plan Update	Rates					$ 300,000					$ 300,000					$ 300,000	$ 900,000
WMP 013	Hydraulic Model Update and Calibration	Rates				$ 75,000					$ 75,000					$ 75,000		$ 225,000
WMP 015	Conjunctive Use Program Analysis	Rates	$ 100,000		$ 40,000		$ 60,000		$ 40,000		$ 60,000		$ 40,000		$ 60,000		$ 40,000	$ 440,000
WMP 016	Urban Water Management Plan	Rates	$ 75,000					$ 75,000					$ 75,000					$ 225,000
WMP 017	SCADA Master Plan	Rates		$ 200,000					$ 75,000					$ 75,000				$ 350,000
WMP 018	Well Rehabilitation/Replacement Plan	Rates	$ 100,000															$ 100,000
WMP 019	NSA Pressure Zone Break Pre-Design Study	Rates					$ 100,000											$ 100,000
WMP 004	North Watt Corridor Pipeline Improvements	Developer		$ 450,000	$ 450,000	$ 575,000	$ 575,000	$ 575,000	$ 575,000	$ 575,000	$ 575,000	$ 575,000	$ 575,000					$ 5,500,000
WMP 005	Fair Oaks Corridor Pipeline Improvements	Developer		$ 460,000	$ 460,000	$ 460,000	$ 460,000	$ 460,000	$ 460,000									$ 2,760,000
036	Water System Security - DPH Prop. 50 and Other	Prop. 50 Grant/Rates		$ 450,000	$ 450,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 900,000
035	Professional / Special Services	Rates	$ 220,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 260,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 4,380,000
		Subtotal	$ 615,000	$ 1,860,000	$ 1,820,000	$ 1,410,000	$ 1,915,000	$ 1,410,000	$ 1,450,000	$ 1,500,000	$ 1,500,000	$ 1,500,000	$ 1,500,000	$ 1,500,000	$ 1,500,000	$ 1,500,000	$ 1,500,000	$ 22,480,000
Potential Projects																		
WMP 019	ACP/CTP pump back improvements	Others			$ 1,000,000	$ 1,000,000												$ 2,000,000
WMP 020	ASR wells	Others								$ 1,000,000	$ 1,000,000							$ 2,000,000
	Island Area Pipeline Improvements	Developer		$ 200,000	$ 200,000	$ 200,000												$ 600,000
	Island Area I-80 Crossing	Developer			$ 1,000,000													$ 1,000,000
	Sierra Oaks Subdivision Distribution System	Others								$ 4,000,000	$ 4,000,000	$ 4,000,000	$ 4,000,000					$ 16,000,000
	NSA Flouridation	Others							$ 3,409,000	$ 3,409,000								$ 6,818,000
015	Arvin Area Conjunctive Use Program (formerly known as Indian River/Flaming Arrow Pipeline Project)	Rates/possible grant						$ 1,250,000	$ 1,250,000					$ 1,400,000	$ 1,400,000	$ -	$ -	$ 5,300,000
	Crestview transmission pipeline	Others								$ 400,000	$ 1,600,000							$ 2,000,000
	3 MG Verner Storage and BPS	Others										$ 2,500,000	$ 2,500,000					$ 5,000,000
016	Developer Related Distribution System Upgrades	Connection Fees	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 1,500,000
037	New Service Connections/Meters	Connection Fees	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 1,500,000
		Subtotal	$200,000	$400,000	$2,400,000	$1,400,000	$200,000	$1,450,000	$4,859,000	$9,009,000	$6,800,000	$6,700,000	$6,700,000	$1,600,000	$1,600,000	$200,000	$200,000	$43,718,000
Annual Budget Totals																		
Projects funded through *Rates* SUBTOTAL			$22,513,475	$20,601,625	$22,759,200	$19,105,960	$20,741,320	$20,606,430	$20,617,345	$19,374,030	$19,945,745	$20,071,620	$17,659,750	$20,868,160	$22,185,090	$17,842,300	$20,104,850	$304,996,900
Projects funded through others			$320,000	$1,535,000	$3,855,000	$3,335,000	$3,255,000	$3,235,000	$11,844,000	$11,609,000	$8,065,000	$8,000,000	$9,225,000	$1,325,000	$1,340,000	$1,325,000	$1,060,000	$69,328,000
Grand Total			$22,833,475	$22,136,625	$26,614,200	$22,440,960	$23,996,320	$23,841,430	$32,461,345	$30,983,030	$28,010,745	$28,071,620	$26,884,750	$22,193,160	$23,525,090	$19,167,300	$21,164,850	$374,324,900

WMP = Projects recommended in this Water Master Plan
Shaded cells represent those projects in the existing SSWD Capital Improvement Program

Table 16-2. Capital Needs Analysis
Cost Escalated at 3%

Project no.	Project name	Funding source	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Total
Production (source of supply)																		
WMP 001	Water Supply Backup Power	Rates	$ -	$ -	$ -	$ -	$ -	$ 238,810	$ 245,975	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 484,785
WMP 009	Additional groundwater wells to meet future North area demands	Developer	$ -	$ -	$ 218,545	$ 450,204	$ 1,622,984	$ 238,810	$ 491,950	$ 1,773,478	$ 260,955	$ 537,567	$ 1,937,927	$ -	$ -	$ -	$ -	$ 7,532,419
009	Well Rehabilitation/Pump Station Improvements[a]	Rates	$ 840,000	$ 840,000	$ 840,000	$ 840,000	$ 840,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,200,000	$ 1,200,000	$ 1,200,000	$ 1,200,000	$ 1,200,000	$ 15,200,000
010	SCADA Remote Terminal Units (RTU's) / Communication Improvements / MCC Panel Replacement/Upgrades[a]	Rates	$ 400,000	$ 400,000	$ 400,000	$ 400,000	$ 400,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 140,000	$ 500,000	$ 150,000	$ 150,000	$ 150,000	$ 3,690,000
011	Wellhead Treatment / Chemical Feed System Rehab./Improvements	Rates	$ 154,500	$ 159,135	$ 163,909	$ 168,826	$ 173,891	$ 179,108	$ 184,481	$ 190,016	$ 195,716	$ 201,587	$ 207,635	$ 213,864	$ 220,280	$ 226,888	$ 233,695	$ 2,873,532
012	Well Replacement	Rates	$ 5,253,000	$ 3,447,925	$ 5,572,908	$ 2,757,497	$ 3,999,496	$ 2,447,807	$ 2,828,710	$ 3,420,279	$ 4,044,797	$ 4,098,945	$ 1,245,810	$ 3,493,114	$ 5,800,708	$ 4,689,028	$ 8,568,821	$ 61,668,845
		Subtotal	$ 6,647,500	$ 4,847,060	$ 7,195,362	$ 4,616,526	$ 7,036,370	$ 4,224,536	$ 4,871,115	$ 6,503,773	$ 5,621,467	$ 5,958,099	$ 4,731,373	$ 5,406,978	$ 7,370,988	$ 6,265,917	$ 10,152,516	$ 91,449,582
Storage																		
WMP 008	McClellan Storage Facilities	Developer	$ -	$ -	$ -	$ -	$ -	$ 1,552,268	$ 7,748,205	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 9,300,473
034	Corrosion Control and Reservoir/Tank/Hydrotank Painting/Coating, Upgrades and Improvements[a]	Rates	$ 300,000	$ 300,000	$ 300,000	$ 60,000	$ 60,000	$ 60,000	$ 60,000	$ 60,000	$ 70,000	$ 70,000	$ 70,000	$ 70,000	$ 70,000	$ 80,000	$ 80,000	$ 1,710,000
		Subtotal	$ 300,000	$ 300,000	$ 300,000	$ 60,000	$ 60,000	$ 1,612,268	$ 7,808,205	$ 60,000	$ 70,000	$ 70,000	$ 70,000	$ 70,000	$ 70,000	$ 80,000	$ 80,000	$ 11,010,473
Distribution																		
WMP 002	NSA Pressure Zone Break along Manzanita Avenue	Rates	$ -	$ -	$ -	$ -	$ -	$ 238,810	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 238,810
WMP 003	NSA Pressure Zone Break along Walerga, Keema, Oakhollow, and Hillsdale	Rates	$ -	$ -	$ -	$ -	$ -	$ 238,810	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 238,810
WMP 006	34th Street McClellan Intertie	Rates	$ -	$ -	$ -	$ -	$ 173,891	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 173,891
WMP 007	McClellan Pipeline Improvements	Developer/ rates	$ -	$ -	$ -	$ 562,754	$ 579,637	$ 597,026	$ 614,937	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,354,355
020	McClellan Improvements[a]	Rates	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 140,000	$ 140,000	$ 140,000	$ 140,000	$ 140,000	$ 1,800,000
022	Water Related Street Improvements (Lowering/Raising Valve Boxes)[a]	Rates	$ 230,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 240,000	$ 240,000	$ 240,000	$ 240,000	$ 240,000	$ 260,000	$ 260,000	$ 260,000	$ 260,000	$ 260,000	$ 3,530,000
024	Meter Retrofit Program	Rates	$ 2,154,760	$ 2,219,403	$ 2,285,985	$ 2,354,564	$ 2,425,201	$ 2,497,957	$ 2,572,896	$ 2,650,083	$ 2,729,586	$ 2,811,473	$ 2,895,817	$ 2,982,692	$ 3,072,173	$ -	$ -	$ 33,652,590
WMP 020	Meter Replacement and Repair	Rates	$ 470,169	$ 206,478	$ 723,604	$ 111,380	$ 231,067	$ 536,643	$ 701,452	$ 623,289	$ 689,892	$ 725,204	$ 695,924	$ 657,504	$ 870,973	$ 873,218	$ 272,411	$ 8,389,207
038	Large Water Meter (> 3") Replacement Program	Rates	$ 51,500	$ 53,045	$ 54,636	$ 56,275	$ 57,964	$ 59,703	$ 61,494	$ 63,339	$ 65,239	$ 67,196	$ 69,212	$ 71,288	$ 73,427	$ 75,629	$ 77,898	$ 957,844
027	Distribution System Major Repairs[a]	Rates	$ 450,000	$ 450,000	$ 450,000	$ 450,000	$ 450,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 550,000	$ 550,000	$ 550,000	$ 550,000	$ 550,000	$ 7,500,000
019	Distribution Main Relocations/Extensions/Interties[a]	Rates	$ 800,000	$ 750,000	$ 750,000	$ 750,000	$ 750,000	$ 900,000	$ 900,000	$ 900,000	$ 900,000	$ 900,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 13,300,000
018	Distribution Main Replacements	Rates	$ 11,278,500	$ 11,669,900	$ 12,019,997	$ 12,380,597	$ 12,752,015	$ 13,134,575	$ 13,528,613	$ 13,934,471	$ 14,352,505	$ 14,783,080	$ 15,226,573	$ 15,683,370	$ 16,153,871	$ 16,638,487	$ 17,137,642	$ 210,674,194
039	Fire Hydrant Replacement/Rehabilitation[a]	Rates	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 140,000	$ 140,000	$ 140,000	$ 140,000	$ 140,000	$ 1,800,000
		Subtotal	$ 15,634,929	$ 15,748,825	$ 16,684,222	$ 17,065,572	$ 17,819,775	$ 19,183,525	$ 19,359,392	$ 19,151,181	$ 19,717,221	$ 20,266,953	$ 20,977,525	$ 21,484,853	$ 22,260,443	$ 19,677,335	$ 19,577,951	$ 284,609,702

Table 16-2. Capital Needs Analysis
Cost Escalated at 3%

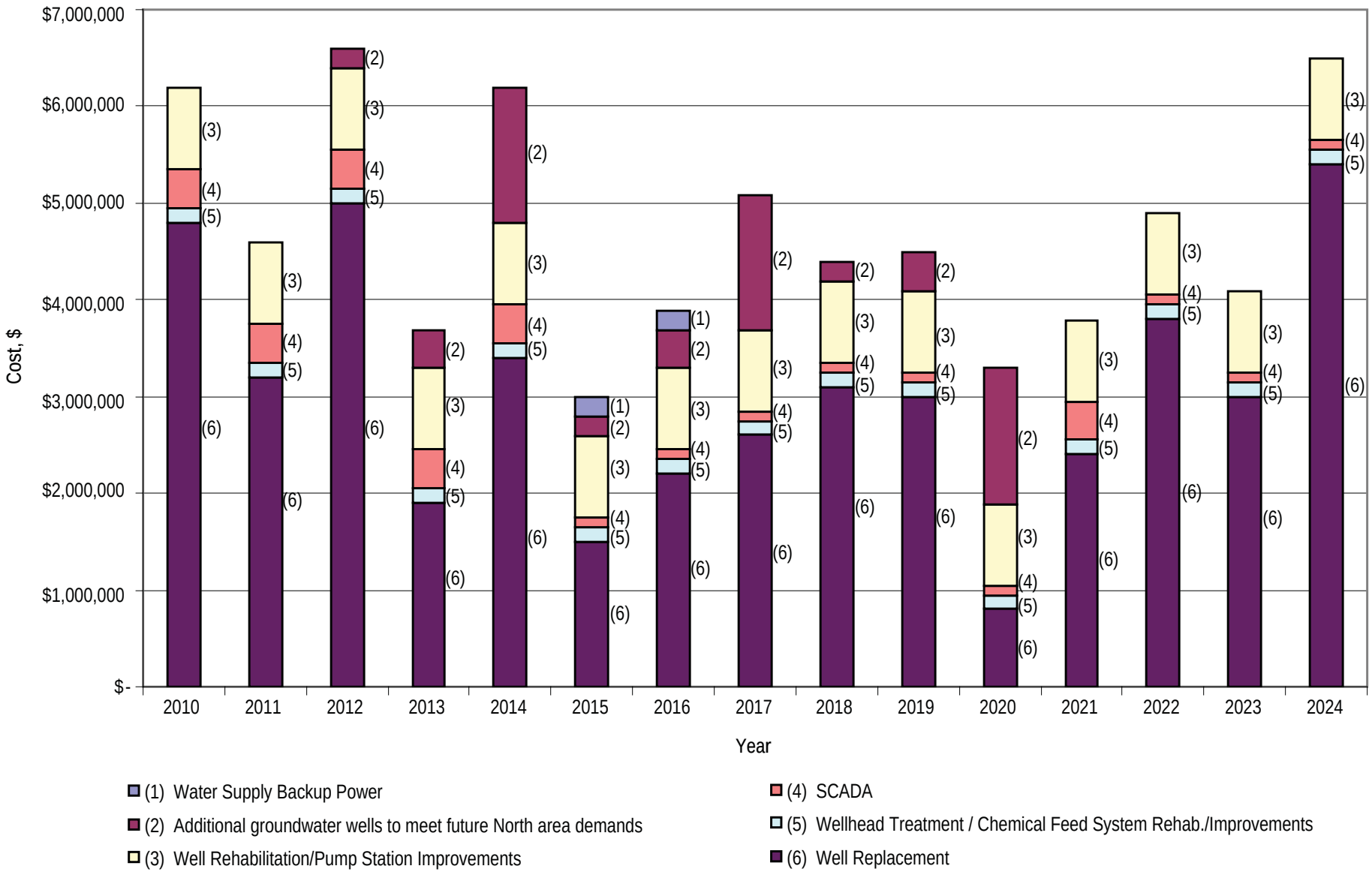
Project no.	Project name	Funding source	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Total
Special Projects																		
WMP 030	Unidentified Future County Projects	Developer	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 791,731	$ 639,339	$ 436,773	$ 761,329	$ 1,603,981	$ 1,674,128	$ 1,701,663	$ 1,339,852	$ -
WMP 010	Groundwater Monitoring Wells	Rates	$ 123,600	$ -	$ 131,127	$ -	$ 139,113	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 393,840
WMP 012	Master Plan Update	Rates	$ -	$ -	$ -	$ -	$ 347,782	$ -	$ -	$ -	$ -	$ 403,175	$ -	$ -	$ -	$ -	$ 467,390	$ 1,218,347
WMP 013	Hydraulic Model Update and Calibration	Rates	$ -	$ -	$ -	$ 84,413	$ -	$ -	$ -	$ -	$ 97,858	$ -	$ -	$ -	$ -	$ 113,444	$ -	$ 295,715
WMP 015	Conjunctive Use Program Analysis	Rates	$ 103,000	$ -	$ 43,709	$ -	$ 69,556	$ -	$ 49,195	$ -	$ 78,286	$ -	$ 55,369	$ -	$ 88,112	$ -	$ 62,319	$ 549,547
WMP 016	Urban Water Management Plan[a]	Rates	$ 75,000	$ -	$ -	$ -	$ -	$ 80,000	$ -	$ -	$ -	$ -	$ 85,000	$ -	$ -	$ -	$ -	$ 240,000
WMP 017	SCADA Master Plan	Rates	$ -	$ 212,180	$ -	$ -	$ -	$ -	$ 92,241	$ -	$ -	$ -	$ -	$ 106,932	$ -	$ -	$ -	$ 411,353
WMP 018	Well Rehabilitation/Replacement Plan	Rates	$ 103,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 103,000
WMP 019	NSA Pressure Zone Break Pre-Design Study	Rates	$ -	$ -	$ -	$ -	$ 115,927	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 115,927
WMP 004	North Watt Corridor Pipeline Improvements	Developer	$ -	$ 477,405	$ 491,727	$ 647,168	$ 666,583	$ 686,580	$ 707,177	$ 728,393	$ 750,245	$ 772,752	$ 795,934	$ -	$ -	$ -	$ -	$ 6,723,964
WMP 005	Fair Oaks Corridor Pipeline Improvements	Developer	$ -	$ 488,014	$ 502,654	$ 517,734	$ 533,266	$ 549,264	$ 565,742	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,156,675
036	Water System Security - DPH Prop. 50 and Other	Prop. 50 Grant/Rates	$ -	$ 477,405	$ 491,727	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 969,132
035	Professional / Special Services	Rates	$ 226,600	$ 318,270	$ 327,818	$ 337,653	$ 347,782	$ 358,216	$ 368,962	$ 380,031	$ 391,432	$ 403,175	$ 359,901	$ 427,728	$ 440,560	$ 453,777	$ 467,390	$ -
		Subtotal	$ 631,200	$ 1,973,274	$ 1,988,763	$ 1,586,967	$ 2,220,010	$ 1,674,060	$ 1,783,317	$ 1,900,155	$ 1,957,160	$ 2,015,875	$ 2,057,533	$ 2,138,641	$ 2,202,801	$ 2,268,885	$ 2,336,951	$ 14,177,500
Potential Projects																		
WMP 019	ACP/CTP pump back improvements	Others	$ -	$ -	$ 1,092,727	$ 1,125,509	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,218,236
WMP 020	ASR wells	Others	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,266,770	$ 1,304,773	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,571,543
	Island Area Pipeline Improvements	Developer	$ -	$ 212,180	$ 218,545	$ 225,102	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 655,827
	Island Area I-80 Crossing	Developer	$ -	$ -	$ 1,092,727	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,092,727
	Sierra Oaks Subdivision Distribution System	Others	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,067,080	$ 5,219,093	$ 5,375,666	$ 5,536,935	$ -	$ -	$ -	$ -	$ 21,198,774
	NSA Flouridation	Others	$ -	$ -	$ -	$ -	$ -	$ -	$ 4,192,640	$ 4,318,419	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 8,511,059
015	Arvin Area Conjunctive Use Program (formerly known as Indian River/Flaming Arrow Pipeline Project)	Rates/possible grant	$ -	$ -	$ -	$ -	$ -	$ 1,492,565	$ 1,537,342	$ -	$ -	$ -	$ -	$ 1,996,065	$ 2,055,947	$ -	$ -	$ 7,081,920
	Crestview transmission pipeline	Others	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 506,708	$ 2,087,637	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,594,345
	3 MG Verner Storage and BPS	Others	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,359,791	$ 3,460,585	$ -	$ -	$ -	$ -	$ 6,820,376
016	Developer Related Distribution System Upgrades[a]	Connection Fees	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 140,000	$ 140,000	$ 140,000	$ 140,000	$ 140,000	$ 1,800,000
037	New Service Connections/Meters	Connection Fees	$ 103,000	$ 106,090	$ 109,273	$ 112,551	$ 115,927	$ 119,405	$ 122,987	$ 126,677	$ 130,477	$ 134,392	$ 138,423	$ 142,576	$ 146,853	$ 151,259	$ 155,797	$ 1,915,688
		Subtotal	$203,000	$418,270	$2,613,272	$1,563,161	$215,927	$1,731,971	$5,972,970	$11,405,655	$8,861,980	$8,989,848	$9,275,944	$2,278,641	$2,342,801	$291,259	$295,797	$56,460,496
Annual Budget Totals																		
Projects funded through *Rates* SUBTOTAL			$23,090,029	$21,665,038	$24,578,430	$21,151,206	$23,594,572	$24,563,006	$25,231,360	$24,321,507	$25,715,311	$26,563,835	$24,341,241	$29,492,557	$32,286,050	$26,590,472	$30,807,566	$378,382,886
Projects funded through others			$326,600	$1,622,392	$4,203,190	$3,741,021	$3,757,510	$3,863,354	$14,563,639	$14,699,257	$10,512,518	$10,736,939	$12,771,134	$1,886,557	$1,960,982	$1,992,922	$1,635,649	$79,324,867
Grand Total			$23,416,629	$23,287,429	$28,781,619	$24,892,227	$27,352,082	$28,426,360	$39,794,999	$39,020,764	$36,227,829	$37,300,775	$37,112,375	$31,379,114	$34,247,032	$28,583,395	$32,443,214	$457,707,753

WMP = Projects recommended in this Water Master Plan

Shaded cells represent those projects in the existing SSWD Capital Improvement Program

[a]Costs escaled by a five year step increase rather than by applied annual escalation factor.

P:\35000\135849 - SSWD Water Master Plan\graphics\Master Plan Report\draft final figs 6-09



BROWN AND CALDWELL	PROJECT 135849-100	SITE Water System Master Plan, Sacramento Suburban Water District	Figure 16-3
	DATE 7-8-09	TITLE Capital Needs Analysis Production (source of supply) Projects Annual Cost	

Table 16-3. Assumptions for Production (source of supply) Projects

Project no.	Project name	Assumptions
WMP 001	Water Supply Backup Power	▪ $200,000 per generator includes design, construction, and equipment.
WMP 009	Additional groundwater wells to meet future North area demands	▪ Three additional 1,500 gpm wells. ▪ Three year process per well. ▪ Year 1 – Property selection/acquisition ($100,000), environmental review (CEQA) ($50,000), test hole engineering/drilling ($100,000) (Total $250,000). ▪ Year 2 – Well design and drill production well ($400,000). ▪ Year 3 – Build pump station and equip well ($1,400,000).
009	Well Rehabilitation/Pump Station Improvements	▪ Consists of well abandonments, well rehabilitation, and pump station improvements including electrical. Well abandonments would include those facilities with low capacity, infrequent usage, located on small sites and low production that are no longer needed. Well improvements would include pump and motor repair/replacements, upgrade motor control centers (MCC), new discharge line, upgrade treatment facilities and waste water drain systems. ▪ Wells are rehabilitated in a two-phase 14-yr cycle. Phase 1 - First 7-year Cycle Activities: 1. Remove and inspect well pump 2. Downhole TV survey 3. Pump off fluids such as oil and fill at bottom of well if applicable. 4. Inject appropriate well rehabilitation chemicals 5. Perform mechanical well development – line swabbing, scratching, etc. 6. Neutralize chemicals and pump off fluids – air lifting 7. Rebuild pump bowls, straighten pump shafts, replace lineshaft bearings, etc. 8. Second downhole TV survey 9. Reinstall refurbished well pump 10. Testing and startup (includes water quality sampling and tests) Phase 2 - Second 7-year Cycle Activities: 1. Remove and inspect well pump 2. Downhole TV survey 3. Pump off fluids such as oil and fill at bottom of well if applicable. 4. Inject appropriate well rehabilitation chemicals 5. Perform mechanical well development – line swabbing, scratching, etc. 6. Neutralize chemicals and pump off fluids – air lifting swabbing 7. Test pump for development – surging, over pumping, etc.

Table 16-3. Assumptions for Production (source of supply) Projects

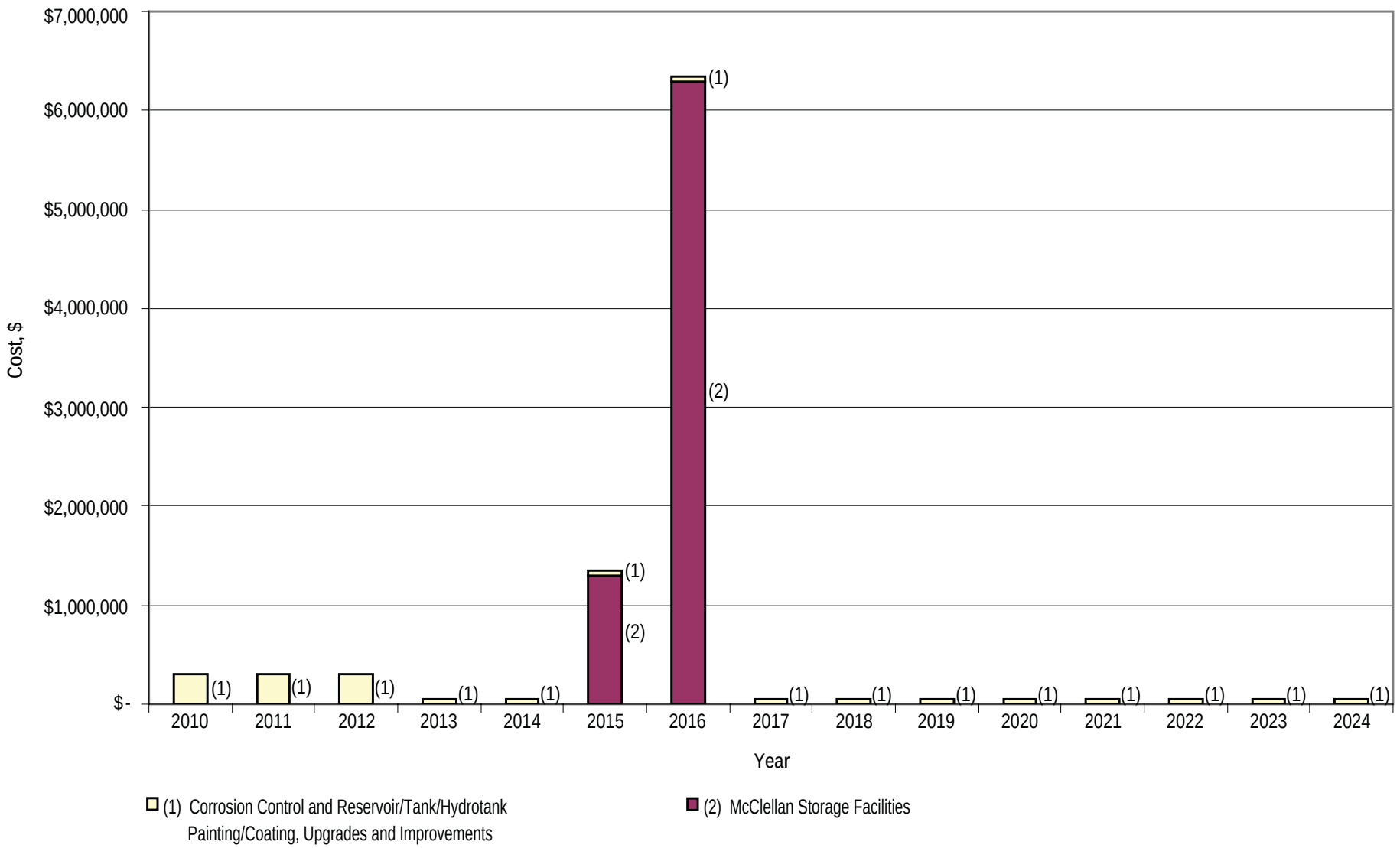
Project no.	Project name	Assumptions
		8. Replace pump bowls, pump shafts, line shaft bearings, some column pipe, etc. 9. Second downhole TV survey 10. Reinstall new well pump 11. Testing and startup (includes water quality sampling and tests) ▪ Phase 1 – 7 year cycle, $50,000 per well ▪ Phase 2 - 7 year cycle, $90,000 per well ▪ 6 wells in Phase 1 and 6 wells in Phase 2 for each year
010	SCADA Remote Terminal Units (RTU's) / Communication Improvements / MCC Panel Replacement/Upgrades	▪ Installing/replacing/upgrading remote terminal units (RTU's), telemetry and communication improvements, and upgrading existing motor control center (MCC) panels at well sites. ▪ $2,000,000 over five years ($400,000 per year) based on estimated cost to purchase, install, and set up RTU panels at all 41 remote site facilities that are currently without SCADA. ▪ $100,000 annual thereafter for SCADA component replacement. ▪ $400,000 every 7 years for SCADA system refresher/general upgrade.
011	Wellhead Treatment / Chemical Feed System Rehab./Improvements	▪ $150,000 per year to address treatment of groundwater from District wells to meet current and future Federal and State drinking water standards. ▪ Future water quality issues requiring further study/treatment are not included.

Table 16-3. Assumptions for Production (source of supply) Projects

Project no.	Project name	Assumptions
012	Well Replacement	▪ Replacement of existing groundwater wells that have outlived their useful life. ▪ It is assumed that no well head treatment is required and the raw water quality will meet the water quality standards and regulations. ▪ Costs do not include standby generator power. It is assumed any new replacement wells will be wired for standby to be added in the future, when necessary. ▪ Well useful life assumptions: -Key facilities with Groundwater Well Asset Management Plan (GWAMP) score greater than or equal to 48 points (out of total 95 points possible) – 50 years -Key facilities with GWAMP score less than 48 points – 55 years -Non-key facilities with GWAMP score greater than or equal to 48 points – 60 years -Non-key facilities with GWAMP score less than 48 points – 65 years ▪ Any new replacement wells have a minimum capacity of 1,500 gpm. If well being replaced has a capacity greater than 1,500 gpm, the replacement well is equal to the capacity of the well being replaced. ▪ Wells are replaced based on maintaining the total 2009 well capacity for the system. ▪ Wells are replaced based on providing well supply to meet subarea demands. ▪ Costs are based on a three year process per well replacement. Year 1 - $250,000 - Property selection/acquisition ($100,000), environmental review (CEQA) ($50,000), test hole engineering/drilling ($100,000) Year 2 - $400,000 - Well design, drill production well Year 3 - $1,400,000 - Build pump station, equip well

Note: Cost assumptions noted in this table are in 2009 dollars.

P:\35000\135849 - SSWD Water Master Plan\graphics\Master Plan Report\draft final figs 6-09



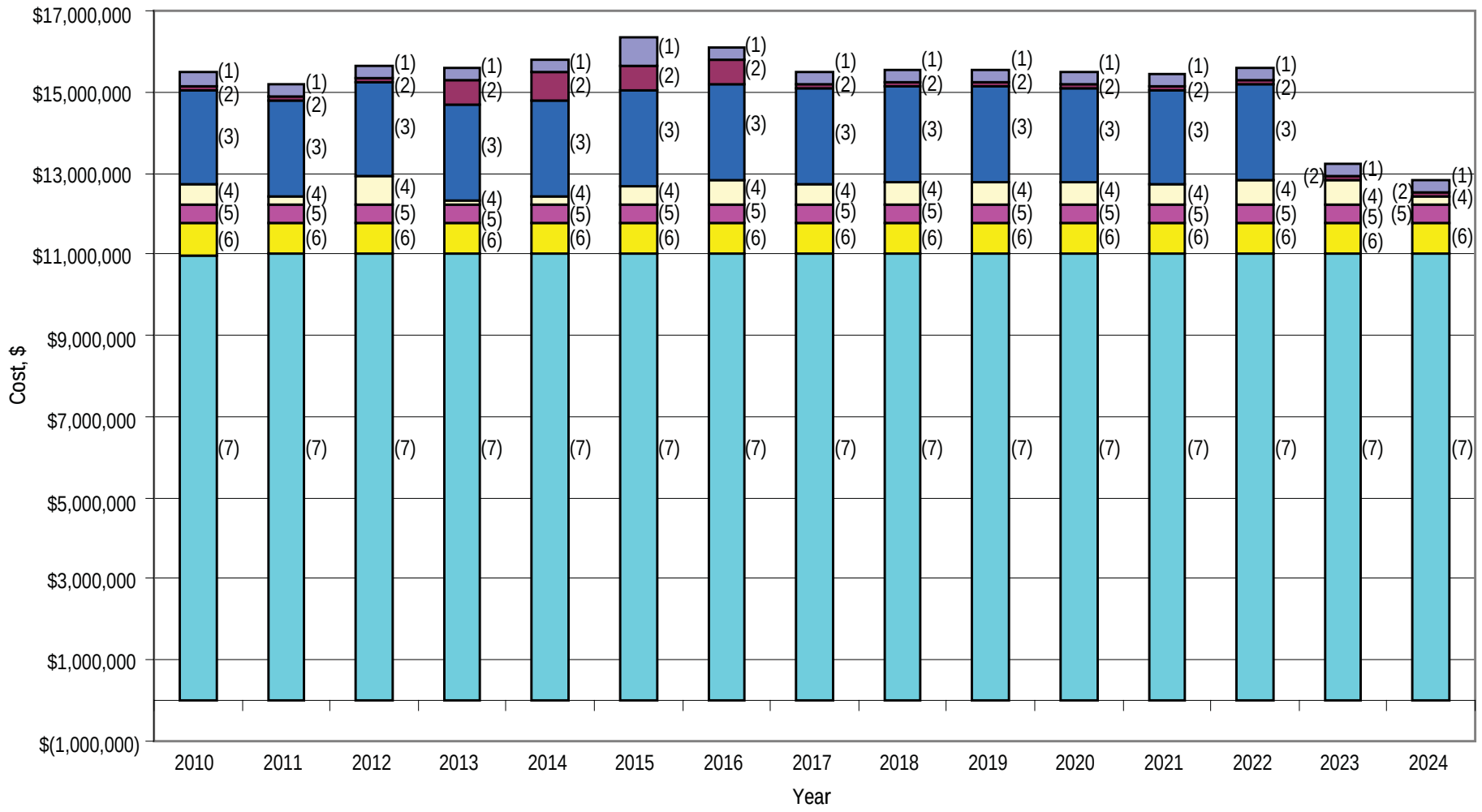
BROWN AND CALDWELL	PROJECT 135849-100	SITE Water System Master Plan, Sacramento Suburban Water District	Figure 16-4
	DATE 7-8-09	TITLE Capital Needs Analysis Storage Projects Annual Cost	

Table 16-4. Assumptions for Storage Projects

Project no.	Project name	Assumptions
WMP 008	McClellan Storage Facilities	▪ Concrete ground storage tank with booster pump station (3MG, 6,000 gpm (4,000 gpm reliable capacity plus 2,000 gpm redundant capacity). ▪ Two-year project. ▪ $1,300,000 – Year 1 cost for engineering design, environmental documentation, permitting, construction management, contingency (approx 20% of construction costs). ▪ $6,300,000 – Year 2 cost based on $1.5/gal of storage plus $300/gpm for booster pumps.
034	Corrosion Control and Reservoir/Tank/Hydrotank Painting/Coating, Upgrades and Improvements	▪ Provides for corrosion control monitoring and system installation, interior and exterior surface recoating maintenance of the existing storage facilities including ground level and elevated water tanks, hydropneumatic tanks at well sites, and repair as necessary to improve operation. Project may also include cathodic protection, repairs, upgrades and monitoring of District facilities for corrosion control. ▪ Pneumatic Tanks - inspections are conducted every 5 years, on a rotational basis. 8-10 inspections per year are conducted. Cost for inspection and cleaning is $1,000 per tank. ▪ Elevated Tanks - Inspections are conducted every 5 years, on a rotational basis. Cost for inspection and cleaning is $8,000 per tank. ▪ Ground level reservoirs - Inspections are conducted every 3 years, on a rotational basis. Cost for inspection and cleaning is $4,500 per tank. ▪ Paint interior and exterior of tanks – A typical life span for paint on a tank is 10-15 years. By 2012, the District will have gone through the paining phase of the tanks. The rotation is expected to begin again in 2027. Typical cost to paint the interior and exterior of an elevated tank is approximately $250,000. ▪ $50,000 per year cost estimated after 2010. This cost includes ongoing tank inspection and clean as well as miscellaneous and potential unexpected issues.

Note: Cost assumptions noted in this table are in 2009 dollars.

P:\35000\135849 - SSWD Water Master Plan\graphics\Master Plan Report\draft final figs 6-09



BROWN AND CALDWELL	PROJECT 135849-100	SITE Water System Master Plan, Sacramento Suburban Water District	Figure 16-5
	DATE 7-10-09	TITLE Capital Needs Analysis Distribution Projects Annual Cost	

Table 16-5. Assumptions for Distribution Projects

Project no.	Project name	Assumptions
WMP 002	NSA Pressure Zone Break along Manzanita Avenue	▪ Two pressure sustaining valves (PSVs). ▪ $100,000 per PSV. ▪ Cost does not include property acquisition.
WMP 003	NSA Pressure Zone Break along Walerga, Keema, Oakhollow, and Hillsdale	▪ Two PSVs. ▪ $100,000 per PSV. ▪ Cost does not include property acquisition.
WMP 006	34th Street McClellan Intertie	▪ 3rd McClellan Intertie at 34th street from the North Highlands sub zone. ▪ $150,000 for intertie, meter, and backflow preventor.
WMP 007	McClellan Pipeline Improvements	▪ Upgrade McClellan distribution system pipeline to meet fire flow requirements. ▪ $2,000,000 estimated over 4 years ($500,000 per year).
020	McClellan Improvements	▪ Upgrade of existing water services with water meters and backflow devices, private fire sprinkler services with backflow devices, upgrade of existing fire hydrants, certain main extension to improve pressures and circulation and upgrade of the existing water storage and pumping stations. ▪ $100,000 per year.
022	Water Related Street Improvements (Lowering/Raising Valve Boxes)	▪ Lowering and raising of valve boxes in the existing paved right-of-ways that are scheduled for pavement. overlays by the County of Sacramento, City of Citrus Heights, or City of Sacramento. Water line relocations may be included. ▪ $200,000 per year.
024	Meter Retrofit Program	▪ Retrofit of all unmetered connections with meters by 2022 (13 years). ▪ 400 unmetered connections per year are being retrofitted with meters as part of the Distribution Main Replacement Program (Project 018). ▪ Annual cost based on average annual cost to retrofit all unmetered connections with meters by 2022. ▪ Meter retrofit costs are assumed to be the same for front yard meter retrofits and backyard meter retrofits. ▪ Meter retrofit unit cost assumptions – include increased copper costs starting in 2010 (approximately additional $200/meter retrofit) Meter size: Unit cost ¾”: $1,600 1”: $1,700 1.5”: $1,800

Table 16-5. Assumptions for Distribution Projects

<table>
<tr><th>Project no.</th><th>Project name</th><th>Assumptions</th></tr>
<tr><td>WMP 020</td><td>Meter Replacement and Repair</td><td>

Replacement/repair of existing meters
15 year meter life
Meter replacement unit cost assumptions:

<table>
<tr><th>Meter replacement cost by meter size</th><th>Total unit cost</th></tr>
<tr><td>5/8” - L = $65 M = $45 T = $ 100</td><td>$210</td></tr>
<tr><td>¾” - L = $65 M = $60 T = $ 100</td><td>$225</td></tr>
<tr><td>1” - L = $65 M = $120 T = $ 100</td><td>$285</td></tr>
<tr><td>1 ½” - L = $100 M = $280 T = $ 100</td><td>$480</td></tr>
<tr><td>2” - L = $100 M = $410 T = $ 100</td><td>$610</td></tr>
<tr><td>3” - L = $475 M = $950 T = $ 100</td><td>$1,525</td></tr>
<tr><td>4” - L = $475 M = $1,600 T = $ 100</td><td>$2,175</td></tr>
<tr><td>6” - L = $475 M $2700 Transponders are included</td><td>$3,175</td></tr>
<tr><td>8” - L = $600 MF $7000 Transponders are included</td><td>$7,600</td></tr>
<tr><td>10” - L = $750 MF $11,000 Transponders are included</td><td>$11,750</td></tr>
</table>
L = Labor, M = Meter, T = Transponder, MF = Meter Fire service
</td></tr>
<tr><td>038</td><td>Large Water Meter (> 3") Replacement Program</td><td>

Replacement of old large (> 3”) water meters that have outlived their useful life.
5 large water meters replaced per year.
New large meter installations will also be upgraded to allow for testing and ease of maintenance.
$50,000 per year.

</td></tr>
<tr><td>027</td><td>Distribution System Major Repairs</td><td>

Major water facility repairs, which may include facility repair/replacement and/or collateral damage to the surrounding area.
$450,000 average cost per year.

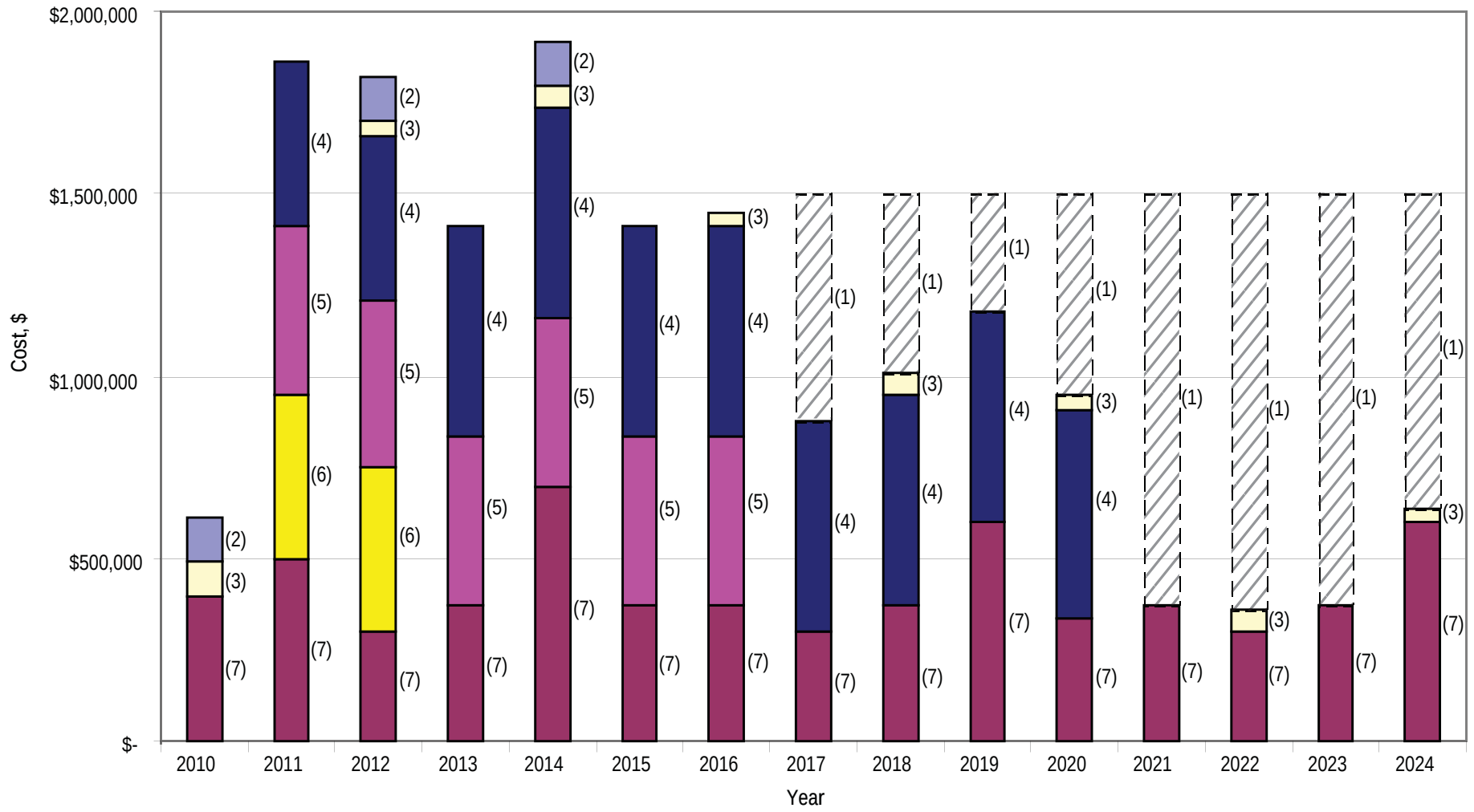
</td></tr>
</table>

Table 16-5. Assumptions for Distribution Projects

Project no.	Project name	Assumptions
019	Distribution Main Relocations/Extensions/Interties	▪ Replace existing small sections of water mains with maintenance problems and looping existing dead end water mains to provide better circulation and pressures. ▪ $750,000 per year.
018	Distribution Main Replacements	▪ Continued replacement of aging backyard and side yard water distribution mains that have outlived their useful life. The replacement mains (8-inch minimum size) will be constructed in the streets and public right-of-ways, fronting customer's homes. ▪ $11,000,000 per year.
039	Fire Hydrant Replacement/Rehabilitation	▪ Replacement/rehabilitation of fire hydrants in areas whereby hydrant spacing is not within fire department standards or replacement of wharf style hydrants to improve the fire flow capabilities in certain areas. ▪ $100,000 per year.

Note: Cost assumptions noted in this table are in 2009 dollars.

P:\35000\135849 - SSWD Water Master Plan\graphics\Master Plan Report\draft final figs 6-09



(1) Unidentified Future County Projects
(2) Groundwater Monitoring Wells
(3) Conjunctive Use Program Analysis
(4) North Watt Corridor Pipeline Improvements
(5) Fair Oaks Corridor Pipeline Improvements
(6) Water System Security - DPH Prop. 50 and Other
(7) Studies/Plans/Professional Services
(Master Plan Update, Hydraulic Model Update and Calibration, Urban Water Management Plan, SCADA Master Plan, Well Rehabilitation/Replacement Plan, NSA Pressure Zone Break Pre-Design Study, Professional/Special Services)

BROWN AND CALDWELL	PROJECT 135849-100	SITE Water System Master Plan, Sacramento Suburban Water District	Figure 16-6
	DATE 7-10-09	TITLE Capital Needs Analysis Special Projects Annual Cost	

Table 16-6. Assumptions for Special Projects

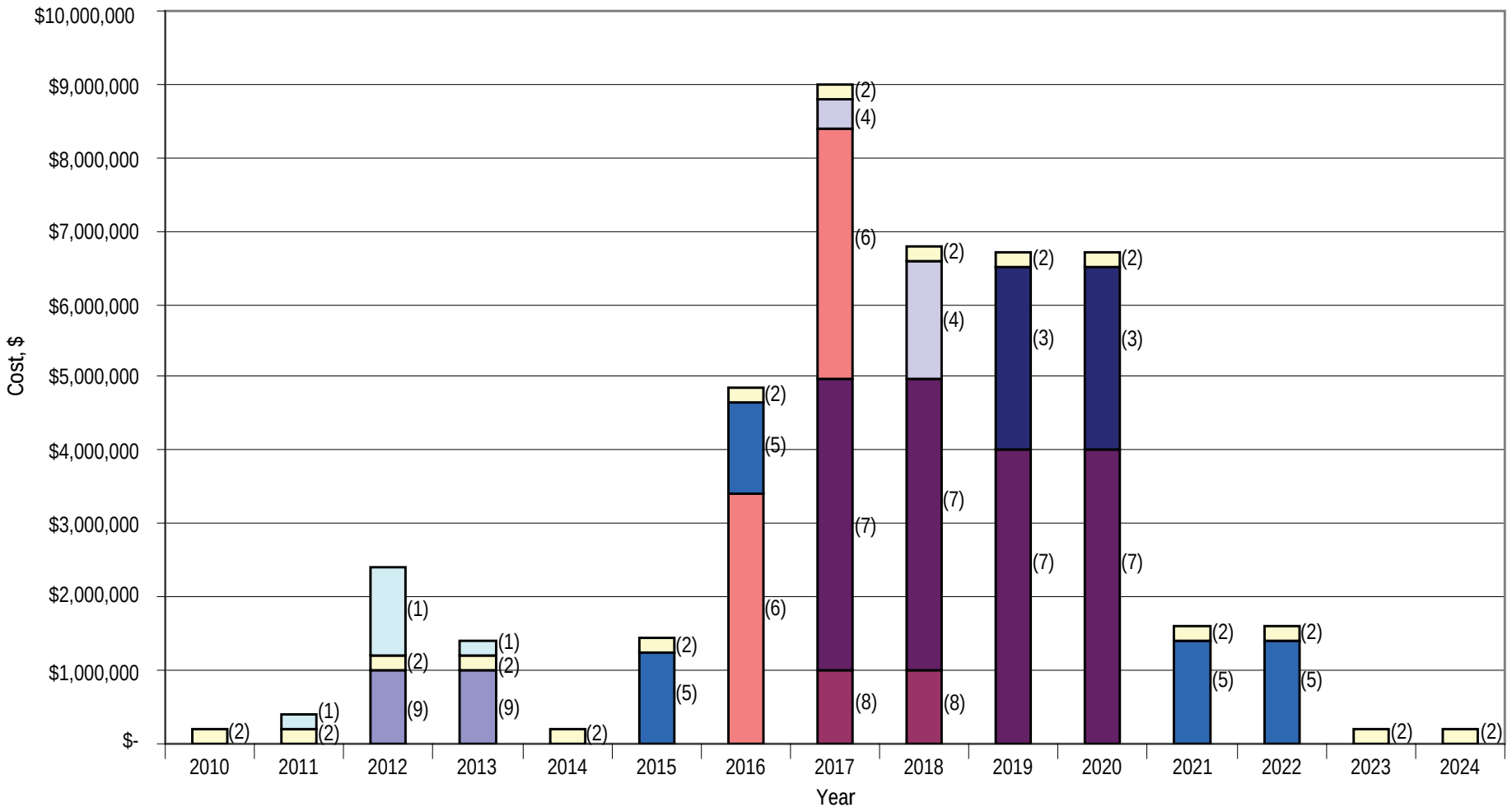
Project no.	Project name	Assumptions
WMP 030	Unidentified Future County Projects	▪ Because there is uncertainty in planning level costs for developer funded County improvement projects past 2016, this project is included with costs for 2017 through 2024 based on maintaining the average Special Projects cost estimated to occur from 2010 through 2016.
WMP 010	Groundwater Monitoring Wells	▪ $120,000 per well. ▪ Cost based on cost to construct William Pond Monitoring Well.
WMP 012	Master Plan Update	▪ Update Master Plan every 5 years.
WMP 013	Hydraulic Model Update and Calibration	▪ To occur year before the Master Plan Update.
WMP 015	Conjunctive Use Program Analysis	▪ $100,000 for initial analysis/database, GIS/groundwater model development. ▪ $60,000 every fourth year for conjunctive use program analysis. ▪ $40,000 to years prior to conjunctive use program analysis to calibrate groundwater model.
WMP 016	Urban Water Management Plan	▪ UWMP required every 5 years in years ending in 00 and 05 required by state law (Urban Water Management Planning Act). ▪ Expecting a modest increase in the level of effort for 2010 UWMP due to new law changes anticipated in pending legislation.
WMP 017	SCADA Master Plan	▪ Standards and Guidelines, SCADA Master Station Programming Guidelines, SCADA System Completion Plan. ▪ $200,000 for initial SCADA Master Plan. ▪ $75,000 every five years thereafter to update SCADA Master Plan.
WMP 018	Well Rehabilitation/Replacement Plan	▪ Prioritize and coordinate well rehabilitation and replacement with SSWD priorities and other operational and maintenance projects.
WMP 019	NSA Pressure Zone Break Pre-Design Study	▪ Evaluate cost effectiveness and pre-design of NSA pressure zone break projects.
WMP 004	North Watt Corridor Pipeline Improvements	▪ 12,000-ft of 12-in pipeline Along Watt Ave from Mountain Oak to Freedom Park Dr and along Freedom Park Drive between Watt Ave and 32nd Street. ▪ $900,000 engineering design, environmental documentation, permitting, construction management, contingency (approx 20% of construction costs) - half of this cost in first year, half of this cost in 2nd year. ▪ $4,600,000 construction cost based on $32/in-dia/lf*12,000 feet *12-in dia pipe – cost spread over 8 years.
WMP 005	Fair Oaks Corridor Pipeline Improvements	▪ 6,000-ft of 12-in pipeline Along Gibbons from Horton to Manzanita Ave and Along Manzanita from Gibbons to Windmill. ▪ $460,000 engineering design, environmental documentation, permitting, construction management, contingency (approx 20% of construction costs). ▪ $2,300,000 construction cost based $32/in-dia/lf*6,000 feet *12-in dia pipe -cost spread over 5 years.

Table 16-6. Assumptions for Special Projects

Project no.	Project name	Assumptions
036	Water System Security - DPH Prop. 50 and Other	▪ Upgrade interties with neighboring water districts; add metal building over PRV station at Antelope Reservoir site; intrusion and perimeter alarms at Watt/Elkhorn Reservoir site; and intrusion alarms at major well sites.
035	Professional / Special Services	▪ Contracting for outside professional services to perform engineering studies such as water resources planning, CEQA environmental reports/studies, surveying for pipeline projects, and surveys to verify property corners for well sites. ▪ Annual cost estimate for this line item is reduced by estimated cost of UWMP in years ending in 00 and 05.

Note: Cost assumptions noted in this table are in 2009 dollars.

P:\35000\135849 - SSWD Water Master Plan\graphics\Master Plan Report\draft final figs 6-09



BROWN AND CALDWELL	PROJECT 135849-100	SITE Water System Master Plan, Sacramento Suburban Water District	Figure 16-7
	DATE 7-10-09	TITLE Capital Needs Analysis Potential Projects Annual Cost	

Table 16-7. Assumptions for Potential Projects

Project no.	Project name	Assumptions
WMP 019	ACP/CTP pump back improvements	▪ Preliminary budget item for miscellaneous improvements near Antelope Reservoir facility. More analysis needed.
WMP 020	ASR wells	▪ Preliminary budget item for aquifer storage and recovery (ASR) wells within the District. More analysis needed.
	Island Area Pipeline Improvements	▪ Minor improvements for meeting fire flow demands.
	Island Area I-80 Crossing	▪ Construct 2nd 12-inch water pipeline to cross freeway to alleviate hydraulic circulation problems and provide redundancy/reliability.
	Sierra Oaks Subdivision Distribution System	▪ Design and construction of approx. 6.6 miles of 8-inch and 12-inch water mains and related appurtenances in the Sierra Oaks Subdivision.
	NSA Fluoridation	▪ Install fluoridation equipment on 35 groundwater wells in the North Service Area. ▪ Total cost of $6,593,000 based on Page ES-3, Table ES-2 of MWH draft Fluoridation Feasibility and Project cost Report, April 2009. ▪ Cost spread over two years.
015	Arvin Area Conjunctive Use Program (formerly known as Indian River/Flaming Arrow Pipeline Project)	▪ This project is designed to improve the transmission of surface water into the east half of the North Service Area to increase the District's ability to utilize surface water from PCWA when available. A pre-design report has been prepared and preferred alignment has been selected. ▪ $2,500,000 final design and construction of Phase I of Flaming Arrow/Indian River pipeline. Approx. 1.1 miles of 16"/24" transmission main. Cost spread over two years. ▪ $2,800,000 final design and construction of Phase II of Flaming Arrow/Indian River pipeline. Approx. 1 mile of 24" transmission main. Cost spread over two years.
	Crestview transmission pipeline	▪ Design and construction of approximately 1 mile of16-inch Crestview transmission pipeline. ▪ $400,000 engineering design, environmental documentation, permitting, construction management, contingency (approx 20% of construction costs). ▪ $1,600,000 construction cost.
	3 MG Verner Storage and BPS	▪ Final design and construction of 3 MG water storage reservoir and related facilities. ▪ $5,000,000 spread over two years.
016	Developer Related Distribution System Upgrades	▪ District system improvements related to developer projects to provide service to new development. Upgrades can include abandonment of redundant lines, upsizing of developer required pipelines and reconfiguration of service opportunities. ▪ $100,000 per year.
037	New Service Connections/Meters	▪ Service connections and meters for developer projects. ▪ $100,000 per year.

Note: Cost assumptions noted in this table are in 2009 dollars.