DECADE PLAN FY2016-2025

Albuquerque Bernalillo County
Water Utility Authority

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Albuquerque Bernalillo County Water Utility Authority
Decade Plan 2016 – 2025

INTRODUCTION

Background

The Decade Plan for the Water Authority is developed every two years and describes the proposed Capital Improvement Program (CIP) spending for the next ten years. The Decade Plan provides a direct link from the Water Authority's financial plan to the proposed capital needs. The Decade Plan outlines projects in the Basic Program, Special Projects and the Growth funding categories. The Basic Program provides renewal funding for water and wastewater plant and field assets throughout the service areas.

Under existing financial policy, fifty-percent of the Basic Program funding is provided by water and sewer revenues with the balance obtained through revenue bonds or loan financing or grant funding. Special Projects are projects that are funded outside of the Basic Program and therefore do not affect the total renewal spending. Growth related projects are funded through utility expansion charges (UECs), either by reimbursing capital investments made under the terms of a development agreement or by direct appropriations to a CIP project.

Asset Management

The Decade Plan does not obligate current or future funds for individual projects or categories of projects. The Decade Plan is a CIP planning document to identify projects and proposed spending over the next ten years. The Water Authority staff identified and ranked projects in the Decade Plan using asset management principles. For each project, where appropriate, a risk analysis was completed and a risk ranking developed. The risk ranking is a figure from 1 to 100, with 100 having the highest risk and includes such things as safety, interruption of service, permit compliance, and other factors which were developed to compare the relative risk of one project to another.

Using asset management principles, a project's risk ranking provides the relative priority of the project as compared to other projects. As the Water Authority's Asset Management Program further develops and more detailed condition assessments are performed on individual infrastructure assets, project risk rankings and business case analyses will also be further refined.

Decade Plan

The Decade Plan includes a set of spreadsheet tables with the project numbered and listed. Each project in the Decade Plan has a corresponding project summary sheet that describes the project, the proposed spending over the plan period, and the risk ranking. In general, the highest priority projects in terms of the risk factors have been targeted for funding first.

Decade Plan FY 2016 - 2025: Summary of Projects

Category No.	Category Descriptions	Projected Carryover from FY 2015	Projected Fiscal Year Revenue by Category ($1000 s) 2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total without Carryover
Level 1 Priority Renewal Projects[1]:													
100	Sanitary Sewer Pipelines	(1,725)	7,125	8,600	10,000	12,500	12,650	15,650	17,500	17,550	20,550	20,550	**142,675**
200	Drinking Water Pipelines	(5,000)	9,115	3,630	4,860	6,160	6,860	9,060	10,815	22,745	25,860	28,860	**127,965**
300	Southside Water Reclamation Plant	20,265	17,450	26,520	23,000	21,725	24,000	26,000	24,000	14,000	14,000	11,660	**202,354**
400	Soil Amendment Facility (SAF)	(150)	200	50	50	50	50	50	50	50	50	50	**650**
500	Lift Station and Vacuum Station	715	875	2,375	3,605	3,135	2,550	3,300	4,750	5,450	1,785	2,325	**30,150**
600	Odor Control Facilities	(100)	310	60	60	250	10	10	10	10	10	10	**740**
700	Drinking Water Plant: Groundwater	3,265	3,120	2,400	5,965	5,520	6,810	3,225	3,490	3,925	3,925	6,265	**44,645**
800	Drinking Water Plant: Treatment	(1,455)	3,285	1,800	980	2,630	1,845	740	400	300	800	300	**13,080**
900	Reuse Line and Plant	(720)	920	70	70	70	70	70	70	70	70	70	**1,550**
1000	Compliance	370	-	195	110	110	55	45	65	50	100	60	**790**
1100	Shared Renewal	(630)	700	400	400	400	650	400	400	400	400	400	**4,550**
1200	Franchise Agreement Compliance	-	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	**20,000**
1300	Vehicles and Heavy Equipment	-	900	900	900	450	450	450	450	450	450	450	**5,850**
	Total Level 1 Priority Renewal Projects	**14,835**	**46,000**	**49,000**	**52,000**	**55,000**	**58,000**	**61,000**	**64,000**	**67,000**	**70,000**	**73,000**	**595,000**
Special Projects:													
9400	All Special Projects	2,269	4,350	8,350	3,350	3,350	3,350	3,350	3,350	3,350	3,350	3,350	**39,500**
	Total Special Projects	**2,269**	**4,350**	**8,350**	**3,350**	**3,350**	**3,350**	**3,350**	**3,350**	**3,350**	**3,350**	**3,350**	**39,500**
Level 1 Priority Growth Projects[3]:													
2300	Water Lines Growth	1,000	-	-	500	500	500	500	500	500	500	500	**4,000**
2700	Development Agreements	-	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	**12,500**
2800	MIS/GIS	270	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	**20,000**
3100	Master Plans	(275)	500	500	-	-	-	-	-	-	-	-	**1,000**
3200	Miscellaneous	-	250	250	250	250	250	250	250	250	250	250	**2,500**
	Total Level 1 Priority Growth Projects	**995**	**4,000**	**4,000**	**4,000**	**4,000**	**4,000**	**4,000**	**4,000**	**4,000**	**4,000**	**4,000**	**40,000**

Decade Plan FY 2016 - 2025: Summary of Projects

Category No.	Category Descriptions	Projected Carryover from FY 2015	Projected Fiscal Year Revenue by Category ($1000 s) 2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total without Carryover
Level 2 Priority Growth Projects[4]:													
2000	Drinking Water Plant Growth	-	350	1,895	4,450	7,400	1,340	3,050	840	9,660	-	-	**28,985**
2100	Arsenic Treatment Growth	-	-	-	-	1,360	2,700	1,075	13,105	-	3,940	6,300	**28,480**
2200	Wastewater Facilities Growth	-	200	-	1,700	-	200	-	-	-	-	-	**2,100**
2300	Water Lines Growth	-	1,500	6,000	500	500	500	500	500	500	500	500	**11,500**
2400	Land Acquisition	-	200	200	200	200	200	200	200	200	200	200	**2,000**
2500	Other Agreements	-	-	-	750	750	-	-	-	-	-	-	**1,500**
2600	Water Rights and Storage	-	500	500	500	500	500	500	500	500	500	500	**5,000**
2700	Development Agreements	-	210	160	190	250	310	360	210	250	250	250	**2,440**
2800	MIS/GIS	-	1,000	-	-	-	1,000	-	-	-	-	-	**2,000**
2900	Vehicles and Heavy Equipment	-	4,240	4,000	1,500	2,740	2,000	1,500	1,500	1,500	1,500	1,500	**21,980**
3000	Utility Risk Reduction	-	340	340	340	340	345	340	340	345	340	340	**3,410**
3100	Master Plans	-	500	500	1,000	-	-	-	-	-	-	-	**2,000**
3200	Miscellaneous	-	250	250	815	2,115	2,490	5,580	250	250	250	250	**12,500**
	Total Level 2 Priority Growth Projects	**-**	**9,290**	**13,845**	**11,945**	**16,155**	**11,585**	**13,105**	**17,445**	**13,205**	**7,480**	**9,840**	**123,895**
Total of Level 1 Priority Renewal, Special, and Level 1 Priority Growth Projects:		**18,099**	**54,350**	**61,350**	**59,350**	**62,350**	**65,350**	**68,350**	**71,350**	**74,350**	**77,350**	**80,350**	**674,500**
Total of Level 1 Priority Renewal, Special, and Level 1 & 2 Priority Growth Projects:		**18,099**	**63,640**	**75,195**	**71,295**	**78,505**	**76,935**	**81,455**	**88,795**	**87,555**	**84,830**	**90,190**	**798,395**

Notes:

1. Level 1 Priority Renewal Projects are the highest risk projects identified for funding first.
2. Level 1 Priority Growth Projects are projects identified for funding first.
3. Level 2 Priority Growth Projects are projects identified for completion as funds become available.

Decade Plan FY 2016 - 2025: Level 1 Priority Renewal Projects[1]

Reference No.	Business Risk Score	Facility and Project Descriptions	Project Category	Projected Budget Carryover from FY 2015 (see Note 2)	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total without FY2015 Carryover	Total Including FY2015 Carryover
				(000 s)	(000 s)	(000 s)	(000 s)	(000 s)	(000 s)	(000 s)	(000 s)	(000 s)	(000 s)	(000 s)	(000 s)	(000 s)
BASIC PROGRAM (Level 1 Priority Projects[1]):																
100		**Sanitary Sewer Pipeline Renewal**														
101	61.6	Interceptor Sewer Rehab	Renewal	1,500	2,500	4,000	4,500	5,500	5,650	7,600	8,500	8,050	11,050	11,050	**68,400**	**69,900**
102	61.6	Interceptor Sewer On-Call Contingency	Renewal	(3,200)	2,500	2,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	**17,000**	**13,800**
103	62.5	Small Diameter Sewer Line Rehab	Renewal	(25)	1,000	1,000	3,000	4,500	4,500	5,550	6,500	7,000	7,000	7,000	**47,050**	**47,025**
104	62.5	Small Diameter Sewer Line On-Call Contingency	Renewal	(350)	500	500	500	500	500	500	500	500	500	500	**5,000**	**4,650**
105	60.4	Sewer Line CCTV Inspections	Deficiency	350	500	500	500	500	500	500	500	500	500	500	**5,000**	**5,350**
106	62.5	Correct Sewer Deficiency at San Diego Ave., NE	Deficiency	-	125	100									**225**	**225**
		Sanitary Sewer Pipeline Renewal Subtotal		**(1,725)**	**7,125**	**8,600**	**10,000**	**12,500**	**12,650**	**15,650**	**17,500**	**17,550**	**20,550**	**20,550**	**142,675**	**140,950**
200		**Drinking Water Pipeline Renewal**														
201	54.0	Small Diameter Water line Renewal	Renewal	600	1,040	1,460	2,960	4,060	4,960	6,960	8,715	8,745	11,860	14,860	**65,620**	**66,220**
202	61.2	Small Diameter Water Line On-Call Contingency	Renewal	300	700	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	**9,700**	**10,000**
203	54.0	Large Diameter Water Line Renewal	Renewal	-	-	-	-	-	-	-	-	11,900	11,900	11,900	**35,700**	**35,700**
204	54.0	Large Diameter Water Line On-Call Contingency	Renewal	(2,500)	3,000	500	500	500	500	500	500	500	500	500	**7,500**	**5,000**
205	25.1	Water Meters, Boxes & Services Rehab	Renewal	(3,600)	4,000	150	150	150	150	150	150	150	150	150	**5,350**	**1,750**
206	41.8	Large Water Valve Replacement	Renewal		250	250	250	250	250	250	250	250	250	250	**2,500**	**2,500**
207	18.8	Pressure Reducing Valve Replacements	Renewal	50		170		200		200	200	200	200	200	**1,370**	**1,420**
208	44.6	Asset Management Plan for Large Diameter Water Line	Deficiency	150	-										**-**	**150**
209	62.5	Extend Water Line in San Diego Ave., NE	Deficiency		125	100									**225**	**225**
		Drinking Water Pipeline Renewal Subtotal		**(5,000)**	**9,115**	**3,630**	**4,860**	**6,160**	**6,860**	**9,060**	**10,815**	**22,745**	**25,860**	**28,860**	**127,965**	**122,965**
300		**Southside Water Reclamation Plant Renewal**														
301	74.2	Preliminary Treatment Facility	Deficiency & Renewal	(4,000)	-	-	-	-	-	-	-	-	-	-	**-**	**(4,000)**
302	66.5	Dewatering Facility Replacement	Deficiency & Renewal	18,000	2,000	16,000	-	-	-	-	-	-	-	-	**18,000**	**36,000**
303	55.6	Blower Capacity Improvemnts	Deficiency & Renewal	(940)	-	-	-	-	-	-	-	-	-	-	**-**	**(940)**
304	68.8	Existing Digester Rehabilitation and Improvements (Phase 1)	Renewal	1,000	2,850	2,020	11,070	-				-	-	-	**15,940**	**16,940**
305	64.0	Primary Clarifier Improvements	Renewal	1,500	500	1,500	1,400	2,100	-	-	-	-	3,660	1,000	**10,160**	**11,660**
306	52.6	Aeration Basin Rehabilitation	Renewal	(2,000)	2,300	100	-	-	-	-	-	-	-	-	**2,400**	**400**
307	65.6	Secondary Sludge Thickening Improvements	Renewal	(140)	500	-	5,200	2,000	-		-	-	-	-	**7,700**	**7,560**
308	44.4	Cogeneration Improvements	Renewal	(115)	250	-	-	590	6,000	10,000	750	-	-	-	**17,590**	**17,475**
309	77.0	SWRP Renewal Contingency	Renewal	3,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	**10,000**	**13,000**
310	64.9	ABB Service Contract	Renewal	(150)	140	140	155	160	160	170	170	170	170	170	**1,604**	**1,454**
311	67.0	Plant-Wide Electrical, Instrumentation and Control Improvements	Renewal	(400)	500	1,500	2,200	1,975	2,475	9,750	15,000	500	-	-	**33,900**	**33,500**
312	36.8	RAS and Sludge Withdrawal Pumps Improvements	Renewal	(30)	500	-	750	-	-	-	-	-	-	-	**1,250**	**1,220**
313	29.5	Plant-Wide Non Potable Water Improvements	Renewal	-	-	-	-	-	-	-	-	90	1,500	-	**1,590**	**1,590**
314	28.4	Warehouse Facility Renewal	Renewal	(10)	-	-	-	-	-	-	150	1,720	430	-	**2,300**	**2,290**
315	41.2	Maintenance Facility Renewal	Deficiency & Renewal	-	750	-	-	-	-	-	150	1,720	430	-	**3,050**	**3,050**
316	31.4	Plant Landscaping	Deficiency	-	-	-	-	-	-	-	-	1,000	860	940	**2,800**	**2,800**
317	36.0	O&M Facility Renewal	Deficiency	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
318	36.8	Storm Water Drainage Improvements	Renewal	-	100	250	-	-	-	-	-	-	-	-	**350**	**350**
319	14.4	Sludge Drying Beds Demolition	Renewal	-	150	-	-	-	-	-	-	-	-	-	**150**	**150**
320	36.8	Storm Water and Spill Retention Basins	Deficiency	850	60	-	-	-							**60**	**910**
321	19.1	Primary Clarifier Capacity Improvementts	Deficiency & Renewal	-	-	-	-	-	-	630	4,000	3,800	5,950	8,550	**22,930**	**22,930**
322	37.2	RAMP Report Update	Deficiency	200	200	-	-	-	-	-	-	-	-	-	**200**	**400**
323	38.9	Program Management Assistance	Deficiency & Renewal	100	100	-	-	-	-	-	-	-	-	-	**100**	**200**
324	67.4	High Efficiency Blower Upgrades	Deficiency	400	150	-		1,500	4,400	2,425	-	-	-	-	**8,475**	**8,875**
325	67.9	Digester Capacity Improvements	Deficiency	1,500	4,000	-	1,000	5,450	5,740		2,755	4,000	-	-	**22,945**	**24,445**
326	62.6	Digester Cleaning Program	Renewal	600	-	200	200	200	-	-	-	-	-	-	**600**	**1,200**
327	58.9	Chemical Storage and Feed Systems Upgrade	Deficiency	400	800	2,110	-	-	-	-	-	-	-	-	**2,910**	**3,310**
328	30.2	Pre-Screens for UV Disinfection Facility	Deficiency	500	400	1,600	-	-	-	-	-	-	-	-	**2,000**	**2,500**
329	37.2	As-Built Drawings	Deficiency	-	100	100	25	25	25	25	25				**325**	**325**
330	37.2	FOG Receiving Station	Deficiency	-	100			-	-	-					**100**	**100**
331	52.6	Aeration Basin Improvements	Deficiency & Renewal	-			-	4,000	2,200						**6,200**	**6,200**
332	68.8	Existing Digester Rehabilitation and Improvements (Phase 2)	Deficiency & Renewal	-				2,725	2,000	2,000					**6,725**	**6,725**
		Southside Water Reclamation Plant Renewal Subtotal		**20,265**	**17,450**	**26,520**	**23,000**	**21,725**	**24,000**	**26,000**	**24,000**	**14,000**	**14,000**	**11,660**	**202,354**	**209,694**
		Basic Program Funding			*7,450*	*16,520*	*13,000*	*11,725*	*14,000*	*16,000*	*14,000*					
		Additional Funding			*10,000*	*10,000*	*10,000*	*10,000*	*10,000*	*10,000*	*10,000*					

Reference No.	Business Risk Score	Facility and Project Descriptions	Project Category	Projected Budget Carryover from FY 2015 (see Note 2)	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total without FY2015 Carryover	Total Including FY2015 Carryover
				(000 s)	(000 s)	(000 s)	(000 s)	(000 s)	(000 s)	(000 s)	(000 s)	(000 s)	(000 s)	(000 s)	(000 s)	(000 s)
400		**Soil Amendment Facility (SAF) Renewal**														
401	29.6	Upgrade of Soil Amendment Facility	Renewal	(150)	200	50	50	50	50	50	50	50	50	50	**650**	**500**
		SAF Renewal Subtotal		**(150)**	**200**	**50**	**50**	**50**	**50**	**50**	**50**	**50**	**50**	**50**	**650**	**500**
500		**Lift Station and Vacuum Station Renewal**														
501	71.2	Lift Station Rehab	Renewal	100	50	1,050	2,500	1,135	1,550		2,550	1,500	1,500	2,000	**13,835**	**13,935**
502	74.7	Lift Station 20 Rehab	Renewal	(10)							300	3,700			**4,000**	**3,990**
503	82.6	Lift Station 24 Rehab	Renewal	(10)	400	400									**800**	**790**
504	69.5	Vacuum Station Rehab	Renewal	900	200	720	950	2,000	1,000	3,300	1,900	250	285	325	**10,930**	**11,830**
505	57.0	Lift Station Telemetry System Renewal	Renewal	(35)	175	155	155								**485**	**450**
506	47.5	Asset Management Plan for Lift Station/Vacuum Station	Deficiency		-										**-**	**-**
507	69.5	Arc Flash Study and Transformer Testing	Deficiency	(230)	50	50									**100**	**(130)**
		Lift Station and Vacuum Station Renewal Subtotal		**715**	**875**	**2,375**	**3,605**	**3,135**	**2,550**	**3,300**	**4,750**	**5,450**	**1,785**	**2,325**	**30,150**	**30,865**
600		**Odor Control Facilities Renewal**														
601	75.6	Interceptor Odor Control Renewal	Renewal	(100)	160	60	60	250	10	10	10	10	10	10	**590**	**490**
602	47.5	Interceptor Odor Control Asset Management Plan	Deficiency		150										**150**	**150**
		Odor Control Facilities Renewal Subtotal		**(100)**	**310**	**60**	**60**	**250**	**10**	**10**	**10**	**10**	**10**	**10**	**740**	**640**
700		**Drinking Water Plant: Groundwater System Renewal**														
701	34.2	Annual Sodium Hypochlorite Generator System Rehab/Replace	Renewal	300	-	-	150	120	85	100	85	100	100	100	**840**	**1,140**
702	58.9	Booster Pumping Station Rehab	Renewal	200	100	100	210	200	200	200	200	200	200	200	**1,810**	**2,010**
703	58.9	Well Rehab and Replacement	Renewal	(750)	2,070	1,600	2,105	2,000	3,025	2,025	2,025	3,025	3,025	5,365	**26,265**	**25,515**
704	17.4	Volcano Cliffs Well No. 2 Wash Line Relocation	Deficiency		-	-	-	-	-	-	-	-	-	-	**-**	**-**
705	38.4	Thomas Well 5 - Elimination of Direct Injection	Deficiency		-	-	-	-	-	-	-	-	-	-	**-**	**-**
706	33.2	Ridgecrest Well 5 Improvements	Deficiency		-	-	-	-	-	-	-	-	-	-	**-**	**-**
707	33.2	Love Well 8 - Elimination of Direct Injection	Deficiency		-	-	-	-	-	-	-	-	-	-	**-**	**-**
708	31.6	Kiva Reservoir No. 1 Rehab	Renewal	80	-	-	-	-	-	-	-	-	-	-	**-**	**80**
709	33.9	Lomas Reservoir No. 2 Rehab	Renewal		-	-	-	-	-	-	-	-	-	-	**-**	**-**
710	51.8	Gas Engine Conversions	Renewal	-	-	-	-	-	1,400	-	-	-	-	-	**1,400**	**1,400**
711	47.2	College Reservoir Rehab	Renewal		-	-	1,600	-	-	-	-	-	-	-	**1,600**	**1,600**
712	25.1	Love Reservoir No.1 Rehab	Renewal	(30)	150	-	-	-	-	-	-	-	-	-	**150**	**120**
713	26.7	Leavitt Reservoir Rehab	Renewal		-	-	-	1,600	-	-	-	-	-	-	**1,600**	**1,600**
714	29.6	Franciscan Reservoir Rehab	Renewal		-	-	-	1,000	-	-	-	-	-	-	**1,000**	**1,000**
715	33.9	Charles Wells Reservoir Rehab	Renewal	(30)	150	-	-	-	-	-	-	-	-	-	**150**	**120**
716	20.7	Santa Barbara Reservoir No. 1 Rehab	Renewal	(5)	-	-	250	-	-	-	-	-	-	-	**250**	**245**
717	24.0	Annual Reservoir Cleaning and Inspection	Renewal	60	-	-	50	50	50	50	50	50	50	50	**400**	**460**
718	27.4	Webster Reservoir Rehab	Renewal		-	-	-	-	-	-	250	-	-	-	**250**	**250**
719	14.0	Other Reservoirs Rehab Built after 1980	Renewal	(50)	-	-	-	-	-	-	-	-	-	-	**-**	**(50)**
720	31.8	Griegos Pump Station Rehab/Replace	Renewal		-	-	-	-	1,500	-	-	-	-	-	**1,500**	**1,500**
721	14.0	Pump Station and/or Reservoir Abandonment/Decommissioning	Renewal	(205)	-	-	-	-	-	-	-	-	-	-	**-**	**(205)**
722	38.1	Corrales Well 2 Collector Pipeline	Deficiency	900	-	-	-	-	-	-	-	-	-	-	**-**	**900**
723	14.0	Corrales Well 8 Improvements	Deficiency		-	-	-	-	-	-	-	-	-	-	**-**	**-**
724	33.0	Corrales Well 9 Improvements	Deficiency		-	-	-	-	-	-	330	-	-	-	**330**	**330**
725	30.9	Corrales Trunk Gas Engine Overhauls	Renewal	350	50	50	50	50	50	350	50	50	50	50	**800**	**1,150**
726	53.5	Booster Pump Surge Tank Renewal	Renewal	125	15	15	50	50	50	50	50	50	50	50	**430**	**555**
727	65.6	Burton Reservoir No. 2 Renewal	Renewal	20	-	-	-	-	-	-	-	-	-	-	**-**	**20**
728	43.3	Leyendecker Well 4 Washline	Deficiency		-	-	-	-	-	-	-	-	-	-	**-**	**-**
729	45.1	Asset Management Plan for Water Pumping Stations	Deficiency	250	-	-	-	-	-	-	-	-	-	-	**-**	**250**
730	45.1	Asset Management Plan for Reservoirs	Deficiency	150	-	-	-	-	-	-	-	-	-	-	**-**	**150**
731	45.1	Asset Management Plan for Wells	Deficiency	250	-	-	-	-	-	-	-	-	-	-	**-**	**250**
732	63.5	Valve Exercising Equipment and Valve Replacement	Deficiency	195	-	-	100	100	100	100	100	100	100	100	**800**	**995**
733	40.2	Corrales Reservoir 1 Drop Valve Upgrade	Deficiency		-	-	-	-	-	-	-	-	-	-	**-**	**-**
734	46.8	Corrales Reservoir 7 Site Improvements	Deficiency		-	-	-	-	-	-	-	-	-	-	**-**	**-**
735	69.5	Arc Flash Study for Groundwater System	Deficiency	-	150	-	-	-	-	-	-	-	-	-	**150**	**150**
736	38.1	Corrales Well 2 Arsenic Treatment Project	Deficiency	-	50	600	950								**1,600**	**1,600**
737	30.2	Corrales Trunk Arsenic System Improvements	Deficiency	125	-	-	100	-							**100**	**225**
738	35.4	Corrales Well 4 Arsenic Treatment Project	Deficiency	660	-	-									**-**	**660**
739	28.2	Corrales Well 5 Arsenic Treatment Project	Deficiency	75	-	-									**-**	**75**
740	75.6	Corrales Trunk Arsenic Media Replacement	Renewal	595	350	-	350	350	350	350	350	350	350	350	**3,150**	**3,745**
741		Reservoir Mixing Improvements	Deficiency	-	35	35									**70**	**70**
742	58.9	Alameda Trunk Arsenic Pipeline	Deficiency	-											**-**	**-**
		Drinking Water Plant: Groundwater System Renewal Subtotal		**3,265**	**3,120**	**2,400**	**5,965**	**5,520**	**6,810**	**3,225**	**3,490**	**3,925**	**3,925**	**6,265**	**44,645**	**47,910**

Reference No.	Business Risk Score	Facility and Project Descriptions	Project Category	Projected Budget Carryover from FY 2015 (see Note 2)	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total without FY2015 Carryover	Total Including FY2015 Carryover
				(000 s)	(000 s)	(000 s)	(000 s)	(000 s)	(000 s)	(000 s)	(000 s)	(000 s)	(000 s)	(000 s)	(000 s)	(000 s)
800		**Drinking Water Plant: Treatment Systems Renewal**														
801	71.2	Water Treatment Plant Contingency Rehab	Renewal	(550)	885	150	150	200	200	200	200	200	200	200	**2,585**	**2,035**
802	62.6	Chemical Solids Systems Improvements	Deficiency	200	220	220	220	220	-	-	-	-	-	-	**880**	**1,080**
803	56.7	Pre-Sedimentation Solids Handling Improvements	Deficiency	450	-	240	240	1,240	1,215	-	-	-	-	-	**2,935**	**3,385**
804	47.2	Dissolved Ozone Monitoring Improvements	Deficiency	(1,500)	1,600	-	-	-	-	-	-	-	500	-	**2,100**	**600**
805	78.6	Diversion Bar Screen Improvements	Deficiency	(100)	245	1,040	-	-	-	-	-	-	-	-	**1,285**	**1,185**
806	60.9	Settling Basin Edge Protection	Deficiency	(30)	75	-	-	-	-	-	-	-	-	-	**75**	**45**
807	50.4	Water Systems SCADA Rehab	Renewal	(125)	110	20	20	330	330	440	100	-	-	-	**1,350**	**1,225**
808	51.8	Radio and Telemetry Replacement	Renewal		-	-	-	500	-	-	-	-	-	-	**500**	**500**
809	51.8	UPS Replacement	Renewal		-	-	-	40	-	-	-	-	-	-	**40**	**40**
810	53.2	College Arsenic Removal Demonstration Facility Rehab	Renewal	100	50	50	50	50	50	50	50	50	50	50	**500**	**600**
811	28.6	Raw Water Pumping Station Rehab	Renewal	(100)	100	80	50	50	50	50	50	50	50	50	**580**	**480**
812	33.0	SJWTP Site Security Improvements	Deficiency	50	-	-	-	-	-	-	-	-	-	-	**-**	**50**
813	42.6	Add Caustic Soda Storage and Feed System at SJCWTP	Deficiency	150	-	-	250	-	-	-	-	-	-	-	**250**	**400**
814	33.7	Install Two Additional Finished Water Pumps	Deficiency		-	-	-	-	-	-	-	-	-	-	**-**	**-**
815	33.9	Storage Facility at the SJCWTP	Deficiency		-	-	-	-	-	-	-	-	-	-	**-**	**-**
816	29.5	Construct Additional Finished Water Storage	Deficiency		-	-	-	-	-	-	-	-	-	-	**-**	**-**
817	37.5	Vehicle Parking Improvements	Deficiency		-	-									**-**	**-**
		Drinking Water Plant: Treatment Systems Renewal Subtotal		**(1,455)**	**3,285**	**1,800**	**980**	**2,630**	**1,845**	**740**	**400**	**300**	**800**	**300**	**13,080**	**11,625**
900		**Reuse Line and Plant Renewal**														
901	25.1	Reuse Line Rehab	Renewal	(220)	270	50	50	50	50	50	50	50	50	50	**720**	**500**
902	20.7	Reuse Plant Rehab	Renewal	(500)	650	20	20	20	20	20	20	20	20	20	**830**	**330**
		Reuse Line and Plant Renewal Subtotal		**(720)**	**920**	**70**	**70**	**70**	**70**	**70**	**70**	**70**	**70**	**70**	**1,550**	**830**
1000		**Compliance**														
1001	59.3	Water Quality Laboratory	Deficiency & Renewal	50	-	100	20	42	47	37	57	30	69	20	**422**	**472**
1002	48.6	NPDES Program	Deficiency	160	-	70	78	68	8	8	8	8	28	8	**284**	**444**
1003	45.1	Water Quality Program	Deficiency	160	-	25	12	-	-	-	-	12	3	32	**84**	**244**
		Compliance Subtotal		**370**	**-**	**195**	**110**	**110**	**55**	**45**	**65**	**50**	**100**	**60**	**790**	**1,160**
1100		**Shared Renewal**														
1101	71.4	Ferrous/Ferric Transfer Station 70 Rehab	Deficiency	(300)	300	-	-	-	-	-	-	-	-	-	**300**	**-**
1102	36.3	Valve Assessment Program Study	Renewal	100	-	-									**-**	**100**
1103	N/A	CIP Funded Position Transfer	N/A	(430)	400	400	400	400	400	400	400	400	400	400	**4,000**	**3,570**
1104	47.5	Utility Wide Asset Management Plan Update	Deficiency		-	-	-	-	250	-	-	-	-	-	**250**	**250**
		Shared Line & Plant Renewal Subtotal		**(630)**	**700**	**400**	**400**	**400**	**650**	**400**	**400**	**400**	**400**	**400**	**4,550**	**3,920**
1200		**Franchise Agreement Compliance**														
1201	N/A	Franchise Compliance Water & Sewer	Renewal		1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	**10,000**	**10,000**
1202	N/A	DMD Street Rehab Manhole and Valve Box Adjustments	Renewal		1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	**10,000**	**10,000**
		Franchise Agreement Compliance Subtotal		**-**	**2,000**	**2,000**	**2,000**	**2,000**	**2,000**	**2,000**	**2,000**	**2,000**	**2,000**	**2,000**	**20,000**	**20,000**
1300		**Vehicles and Heavy Equipment**														
1301	34.9	Vehicle Replacements	Renewal												**-**	**-**
1302	40.2	Plant Heavy Equipment	Renewal												**-**	**-**
1303	40.2	Field Heavy Equipment	Renewal		900	900	900	450	450	450	450	450	450	450	**5,850**	**5,850**
1304	52.1	Water Line Flushing Filtration Unit	Deficiency												**-**	**-**
		Vehicles and Heavy Equipment Subtotal		**-**	**900**	**900**	**900**	**450**	**450**	**450**	**450**	**450**	**450**	**450**	**5,850**	**5,850**
		Total Level 1 Priority Renewal Projects[1,2]		**14,835**	**46,000**	**49,000**	**52,000**	**55,000**	**58,000**	**61,000**	**64,000**	**67,000**	**70,000**	**73,000**	**595,000**	**609,835**

Notes:

1. Level 1 Priority Renewal Projects are the highest risk projects identified for funding first.
2. CIP funds not spend in FY2015 will be carried-over and spend in subsequent years.

Decade Plan FY 2016 - 2025: Special Projects and Level 1 Priority Growth Projects

Reference No.	Business Risk Score	Facility and Project Descriptions	Project Category	Projected Carryover from 2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total without FY2015 Carryover	Total Including FY2015 Carryover
				(000 s)	(000 s)	(000 s)	(000 s)	(000 s)	(000 s)	(000 s)	(000 s)	(000 s)	(000 s)	(000 s)	(000 s)	(000 s)
SPECIAL PROJECTS																
9400		**Special Projects**														
9401	N/A	Steel Waterline Rehab	Renewal	1,370	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	**10,000**	**11,370**
9402	N/A	Leak Detection Program	Deficiency	(276)	-	-	-	-	-	-	-	-	-	-	**-**	**(276)**
9403	N/A	AMR Meter	Deficiency	585	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	**20,000**	**20,585**
9404	N/A	Renewable Energy Projects	Deficiency	590	350	350	350	350	350	350	350	350	350	350	**3,500**	**4,090**
9419	N/A	Yucca - Central Interceptor Realignment	Deficiency		1,000	5,000									**6,000**	**6,000**
		Special Projects Subtotal		**2,269**	**4,350**	**8,350**	**3,350**	**3,350**	**3,350**	**3,350**	**3,350**	**3,350**	**3,350**	**3,350**	**39,500**	**41,769**
		Combined Level 1 Priority Renewal and Special Projects		**17,104**	**50,350**	**57,350**	**55,350**	**58,350**	**61,350**	**64,350**	**67,350**	**70,350**	**73,350**	**76,350**	**634,500**	**651,604**
LEVEL 1 PRIORITY GROWTH PROJECTS[1]																
2300		**Water Lines Growth**														
2301	24.6	Warehouse Meters	Growth & Renewal	1,000	-	-	500	500	500	500	500	500	500	500	4,000	5,000
2302	51.1	Increased Transmission Capacity to Corrales Trunk	Growth & Deficiency	-	-	-	-	-	-	-	-	-	-	-	-	-
		Water Lines Growth Subtotal		**1,000**	**-**	**-**	**500**	**500**	**500**	**500**	**500**	**500**	**500**	**500**	**4,000**	**5,000**
2700		**Development Agreements**														
2701	N/A	Development Agreements	Growth	-	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	12,500	12,500
		Development Agreements Subtotal		**-**	**1,250**	**1,250**	**1,250**	**1,250**	**1,250**	**1,250**	**1,250**	**1,250**	**1,250**	**1,250**	**12,500**	**12,500**
2800		**MIS GIS**														
2801	36.0	MIS / GIS	Renewal & Deficiency	270	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	20,000	20,270
		MIS GIS Subtotal		**270**	**2,000**	**2,000**	**2,000**	**2,000**	**2,000**	**2,000**	**2,000**	**2,000**	**2,000**	**2,000**	**20,000**	**20,270**
3100		**Master Plans**														
3101	57.9	Integrated Master Plan	Growth	(275)	500	500	-	-	-	-	-	-	-	-	1,000	725
		Master Plans Subtotal		**(275)**	**500**	**500**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1,000**	**725**
3200		**Miscellaneous**														
3202	43.7	Low Income W/S Connections	Deficiency	-	250	250	250	250	250	250	250	250	250	250	2,500	2,500
		Miscellaneous Subtotal		**-**	**250**	**250**	**250**	**250**	**250**	**250**	**250**	**250**	**250**	**250**	**2,500**	**2,500**
		Total Level 1 Priority Growth Projects		**995**	**4,000**	**4,000**	**4,000**	**4,000**	**4,000**	**4,000**	**4,000**	**4,000**	**4,000**	**4,000**	**40,000**	**40,995**
		Total Level 1 Priority Renewal, Special, and Priority 1 Growth Projects		**18,099**	**54,350**	**61,350**	**59,350**	**62,350**	**65,350**	**68,350**	**71,350**	**74,350**	**77,350**	**80,350**	**516,800**	

Decade Plan FY 2016 - 2025: Level 2 Priority Growth Projects														
Reference No.	Business Risk Score	Facility and Project Descriptions	Project Category	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
				(000 s)	(000 s)	(000 s)	(000 s)	(000 s)	(000 s)	(000 s)	(000 s)	(000 s)	(000 s)	(000 s)
LEVEL 2 PRIORITY GROWTH PROJECTS[1]														
2000		**Drinking Water Plant Growth**												
2001	36.5	Aquifer Storage & Recovery	Deficiency & Growth	-	-	2,000	2,000	-	190	-	1,200	-	-	**5,390**
2002	23.7	Second College Reservoir	Deficiency & Growth	250	1,795	1,000	-	-	-	-	-	-	-	**3,045**
2003	33.3	Second Corrales Reservoir No. 6	Deficiency & Growth	-	-	-	-	-	-	240	2,760	-	-	**3,000**
2004	30.4	Second Coronado Reservoir	Deficiency & Growth	-	-	-	-	-	-	250	2,800	-	-	**3,050**
2005	31.9	Second Leyendecker Reservoir	Deficiency & Growth	-	-	-	-	-	-	250	2,800	-	-	**3,050**
2006	31.9	Second Charles Wells Reservoir	Deficiency & Growth	-	-	-	-	240	2,760	-	-	-	-	**3,000**
2007	36.1	Second Charles Wells Reservoir Site Procurement	Deficiency & Growth	-	-	500	-	-	-	-	-	-	-	**500**
2008	37.4	New Corrales Trunk 5W Reservoir and Transmission Line	Deficiency & Growth	-	-	600	3,500	-	-	-	-	-	-	**4,100**
2009	16.3	Water Facilities Landscaping Program	Deficiency	100	100	100	100	100	100	100	100	-	-	**800**
2010	43.9	Second Don Reservoir	Deficiency & Growth	-	-	250	1,800	1,000	-	-	-	-	-	**3,050**
		Drinking Water Plant Growth Subtotal		**350**	**1,895**	**4,450**	**7,400**	**1,340**	**3,050**	**840**	**9,660**	**-**	**-**	**28,985**
2100		**Arsenic Treatment Growth**												
2101	58.1	Arsenic Treatment at Alameda Trunk	Deficiency & Growth	-	-	-	-	-	-	-	-	3,940	6,300	**10,240**
2102	64.2	Arsenic Treatment at Volcano Cliffs Reservoir	Deficiency & Growth	-	-	-	1,360	2,700	1,075	5,505	-	-	-	**10,640**
2103	27.2	Arsenic Treatment at Leavitt	Deficiency & Growth	-	-	-	-	-	-	7,600	-	-	-	**7,600**
		Arsenic Treatment Growth Subtotal		**-**	**-**	**-**	**1,360**	**2,700**	**1,075**	**13,105**	**-**	**3,940**	**6,300**	**28,480**
2200		**Wastewater Facilities Growth**												
2201	33.5	MDC Wastewater Lift Station and Interceptor	Deficiency	-	-	1,700	-	-	-	-	-	-	-	**1,700**
2202	33.5	Tijeras (Mesa del Sol) WWTP	Growth	-	-	-	-	200	-	-	-	-	-	**200**
2203	33.5	Bosque Reuse WWTP	Growth	200	-	-	-	-	-	-	-	-	-	**200**
		Wastewater Facilities Growth Subtotal		**200**	**-**	**1,700**	**-**	**200**	**-**	**-**	**-**	**-**	**-**	**2,100**
2300		**Water Lines Growth**												
2301	24.6	Warehouse Meters	Growth & Renewal	1,000	1,000	500	500	500	500	500	500	500	500	**6,000**
2302	51.1	Increased Transmission Capacity to Corrales Trunk	Growth & Deficiency	500	5,000	-	-	-	-	-	-	-	-	**5,500**
		Water Lines Growth Subtotal		**1,500**	**6,000**	**500**	**500**	**500**	**500**	**500**	**500**	**500**	**500**	**11,500**
2400		**Land Acquisition**												
2401	21.1	Plant Land Acquisition	Growth	200	200	200	200	200	200	200	200	200	200	**2,000**
		Land Acquisition Subtotal		**200**	**200**	**200**	**200**	**200**	**200**	**200**	**200**	**200**	**200**	**2,000**
2500		**Other Agreements**												
2501	28.2	NMDOT 45 South Coors Water Line	Growth	-	-	750	750	-	-	-	-	-	-	**1,500**
		Other Agreements Subtotal		**-**	**-**	**750**	**750**	**-**	**-**	**-**	**-**	**-**	**-**	**1,500**
2600		**Water Rights and Storage**												
2601	50.0	Water Rights and Storage	Growth	500	500	500	500	500	500	500	500	500	500	**5,000**
		Water Rights and Storage Subtotal		**500**	**500**	**500**	**500**	**500**	**500**	**500**	**500**	**500**	**500**	**5,000**
2700		**Development Agreements**												
2701	N/A	Development Agreements	Growth	210	160	190	250	310	360	210	250	250	250	**2,440**
		Development Agreements Subtotal		**210**	**160**	**190**	**250**	**310**	**360**	**210**	**250**	**250**	**250**	**2,440**
2800		**MIS GIS**												
2801	36.0	MIS / GIS	Renewal & Deficiency	1,000	-	-	-	1,000	-	-	-	-	-	**2,000**
		MIS GIS Subtotal		**1,000**	**-**	**-**	**-**	**1,000**	**-**	**-**	**-**	**-**	**-**	**2,000**

Reference No.	Business Risk Score	Facility and Project Descriptions	Project Category	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
				(000 s)	(000 s)	(000 s)	(000 s)	(000 s)	(000 s)	(000 s)	(000 s)	(000 s)	(000 s)	(000 s)
2900		**Vehicles and Heavy Equipment**												
2901	34.9	Vehicle Replacements	Renewal	-	-	-	-	-	-	-	-	-	-	**-**
2902	40.2	Plant Heavy Equipment	Renewal	3,500	3,500	1,000	2,000	1,000	1,000	1,000	1,000	1,000	1,000	**16,000**
2903	40.2	Field Heavy Equipment	Renewal	250	250	250	250	500	250	250	250	250	250	**2,750**
2904	50.9	SAF Tractor Trailer Replacement	Renewal	250	250	250	250	500	250	250	250	250	250	**2,750**
2905	52.1	Water Line Flushing Filtration Unit	Deficiency	240	-	-	240	-	-	-	-	-	-	**480**
		Vehicles and Heavy Equipment Subtotal		**4,240**	**4,000**	**1,500**	**2,740**	**2,000**	**1,500**	**1,500**	**1,500**	**1,500**	**1,500**	**21,980**
3000		**Utility Risk Reduction**												
3001	35.3	Utility Risk Reduction/Security	Deficiency	335	335	335	335	335	335	335	335	335	335	**3,350**
3002	N/A	GPS	Deficiency	5	5	5	5	10	5	5	10	5	5	**60**
		Utility Risk Reduction Subtotal		**340**	**340**	**340**	**340**	**345**	**340**	**340**	**345**	**340**	**340**	**3,410**
3100		**Master Plans**												
3101	57.9	Integrated Master Plan	Growth	-	-	1,000	-	-	-	-	-	-	-	**1,000**
3102	50.5	Energy Master Plan	Deficiency	500	500	-	-	-	-	-	-	-	-	**1,000**
		Master Plans Subtotal		**500**	**500**	**1,000**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2,000**
3200		**Miscellaneous**												
3201	41.8	Pino Yards Replacement	Deficiency	-	-	565	1,865	2,240	5,330	-	-	-	-	**10,000**
3202	43.7	Low Income W/S Connections	Deficiency	250	250	250	250	250	250	250	250	250	250	**2,500**
		Miscellaneous Subtotal		**250**	**250**	**815**	**2,115**	**2,490**	**5,580**	**250**	**250**	**250**	**250**	**12,500**
		Total Level 2 Priority Growth Projects		**9,290**	**13,845**	**11,945**	**16,155**	**11,585**	**13,105**	**17,445**	**13,205**	**7,480**	**9,840**	**123,895**

Notes:

1. Level 2 Priority Growth Projects are projects identified for completion as funds become available.

PROJECT SUMMARY SHEETS

Project Title - Sanitary Sewer Interceptor Rehab and Contingency

Decade Plan Line and Work Category: **101 & 102 - Sewer Pipeline Renewal**

Description: **Risk Ranking:** 61.6

This program provides funding for evaluation, planning, design, construction, and related activity necessary for sanitary sewer interceptor rehabilitation or complete removal and replacement of severely deteriorated sewer interceptor lines that are beyond feasible rehabilitation. Contingency funding, 102, is also included in the estimated cash flows.

	Project Revenue ($1000s)
FY16	5,000
FY17	6,500
FY18	6,000
FY19	7,000
FY20	7,150
FY21	9,100
FY22	10,000
FY23	9,550
FY24	12,550
FY25	12,550
Total	**85,400**

The sanitary sewer interceptor system is the backbone to the Utility's current sewer collection system. It is designed to carry large flows from the collection line system for delivery to the plant for treatment. There are over 242 miles throughout the service area of interceptor lines which range in size from 12-inch up to 72-inch.

46-percent (approximately 111 miles) of the current interceptors within the system are made of concrete and have suffered substantial hydrogen sulfide corrosion damage along the upper portions of the pipe. This ultimately results in complete pipe failure which could cause a sinkhole to form at any time within the public right-of-way.

The cost of repair under emergency conditions after a collapse is two to three times more than the cost of rehabilitation on a planned basis and the liability associated far exceeds these costs.

Other Alternatives Considered?

None

New 48" Sewer Line to be Slip-lined into an existing 54" Concrete Pipe in Broadway NE

New 27-inch Sewer Line Sliplined in the old 30" Concrete Pipe in Prospect NE west of Carlisle

Project Title - Small Diameter Sanitary Sewer Pipeline Rehab

Decade Plan Line and Work Category: **103 & 104 - Sewer Pipeline Renewal**

Description: **Risk Ranking:** 62.5

This program provides funding for planning, design, construction, and related activity necessary for rehabilitation and replacement of deteriorating small diameter sewer collection lines. The cash flow includes both 103 and104 funding.

Project Cash Flow Est.

	($1000s)
FY16	1,500
FY17	1,500
FY18	3,500
FY19	5,000
FY20	5,000
FY21	6,050
FY22	7,000
FY23	7,500
FY24	7,500
FY25	7,500
Total	**52,050**

There are over 1,835 miles of 8-inch and 10-inch sanitary sewer collection lines through the Authority's service area. Lines that were constructed using concrete material or other obsolete material have a life expectancy of 50 years or less. These types of lines must now be lined or replaced with suitable material to avoid collapses in the collection line and possibly the roadways that they occupy. Lining or replacement options will increase the life of the pipe up to 100 years if not longer. When the deterioration has compromised the integrity of the wall strength, the replacement option is the only option left for rehabilitation of the line. This option is about twice the cost of lining the pipe if it had been caught in time.

Other Alternatives Considered?

None

8-inch Sewer Lining Installation Project
Downtown at 7th Street and Kent

8-inch Sewer Lining Project on Los Arboles NE

Project Title - Sanitary Sewer Pipeline CCTV Inspections

Decade Plan Line and Work Category: **105 - Sewer Pipeline Renewal**

Description: **Risk Ranking:** 60.4

Sanitary sewers routinely become blocked with tree roots and other materials. Also, corrosion of concrete and breakage of other types of pipes occur, that result in backups. Closed caption television (CCTV) is used to assess the condition of these lines. Some of this work is done by Water Authority employees using equipment owned by the Water Authority. The remainder is done by contractors.

Project Cash Flow Est.

	($1000s)
FY16	500
FY17	500
FY18	500
FY19	500
FY20	500
FY21	500
FY22	500
FY23	500
FY24	500
FY25	500
Total =	**5,000**

This project provides funding for renewing Water Authority CCTV equipment as well as for hiring contractors to perform CCTV work.

This project provides for regular inspection of 8" to 78" sewer lines. Unlined concrete interceptors will be re-CCTV'd on a five-year cycle to identify further deterioration and help provide deterioration-rate data. In each of the other FYs, the focus will be on the small diameter lines which experience nearly all SSOs and the majority of the system collapses. These lines have generally not had any previous CCTV inspections. Through our in-house SSO reduction studies, we have identified that the likelihood of an SSO increases with pipe age. The inspections will focus on the highest risk lines each year. CCTV inspections will provide precise information on pipe defects, including grease and root issues that cause most of the Authority's SSOs. Work orders will then be generated specifying the correct cleaning tool for a specific condition, improving the cleaning effectiveness and further driving down the Authority's already low SSO rate. Seriously damaged lines will be addressed in the Small Diameter Sewer Rehab program.

Other Alternatives Considered?

None: Failing to do these inspections can result in missing an opportunity to reduce sewer line collapses and SSOs.

Robotic CCTV Unit

Project Title - Extension of Sewer in San Diego Ave., NE

Decade Plan Line and Work Category: **106 - Sewer Pipeline Renewal**

Description:

This project is to correct a deficiency in the sanitary sewer system. It will connect an isolated section of sewer pipeline to the existing gravity sewer system. Currently, Water Authority crews routinely use a Vactor truck to pump out the unconnected sewer line. This project will eliminate this requirement allowing these crews to peform more important system maintenance.

Risk Ranking:

Project Cash Flow Est.

	($1000s)
FY16	125
FY17	100
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total	**225**

The planned spending will be used to design and construct approximately 1,900 linear feet fo 8-inch diameter sewer line plus approximately five manholes . A parallel project under Category 200 will extend a similar length of 8-inch potable water line with fire hydrants and other appurtenances. Once constructed, these lines swill be able to serve aproximately 20 residences.

Pro-rata will be assigned to the engineering and constructions costs to reimburse the Water Authority at the time of connection. Additionally, system connection will generate revenues through utility expansion charges (UECs) and ongoing monthly charges.

Other Alternatives Considered?

Continued use of Vactors to periodically pump-out the sewer line. This alternative was estimated to have a higher life-cycle cost than constructing pemanent lines.

Proposed general alignments of new sewer and potable water lines

Project Title - Small Diameter Water Line Renewal with Contingency

Decade Plan Line and Work Category: **201 & 202 - Water Lines Renewal**

Description: **Risk Ranking:** 61.2

This program provides funding for evaluation, planning, design, construction, and related activity necessary for the rehabilitation or replacement of water lines that have deteriorated and are past their useful life. The activity includes both plannned rehab, (201) and emergency (contingency), (202) funding.

Project Cash Flow Est.

	($1000s)
FY16	1,740
FY17	2,460
FY18	3,960
FY19	5,060
FY20	5,960
FY21	7,960
FY22	9,715
FY23	9,745
FY24	12,860
FY25	15,860
Total =	**75,320**

There are over 2,000 miles of small diameter (4-inch to 10-inch) water lines that serve as the distribution network for the Authority's water system. These lines are used to provide domestic metered water service, fire protection, and irrigation uses for our customers. Currently there is over 500-miles of pipe that is deficient either in wall integrity or size that poses potential threats to the Utility. As our older steel or cast iron lines become deficient, the Utility will often respond to numerous leaks. These leaks if gone unnoticed do have the potential, under certain circumstances, to become sinkholes which destroy entire roadways and create incredible liability for the utility.

Other Alternatives Considered?

None. There are no other alternatives for this critical activity.

New 6-inch Water Line Installation

Old Steel Line at the Break Point

Project Title - Large Diameter Water Line Renewal Contingency

Decade Plan Line and Work Category: **203 and 204 - Water Line Renewal & Contingency**

Description: **Risk Ranking:** 54

This program will provide funding for the rehabilitation or replacement of large diameter (14-inch and larger) water transmission pipelines that begin to leak or show signs of failure. During the first seven years of the decade, the funding will be used as a contingency fund to address emergencies. In FY23, planned renewal projects will begin.

Project Cash Flow Est.

	($1000s)
FY16	3,000
FY17	500
FY18	500
FY19	500
FY20	500
FY21	500
FY22	500
FY23	12,400
FY24	12,400
FY25	12,400
Total =	**43,200**

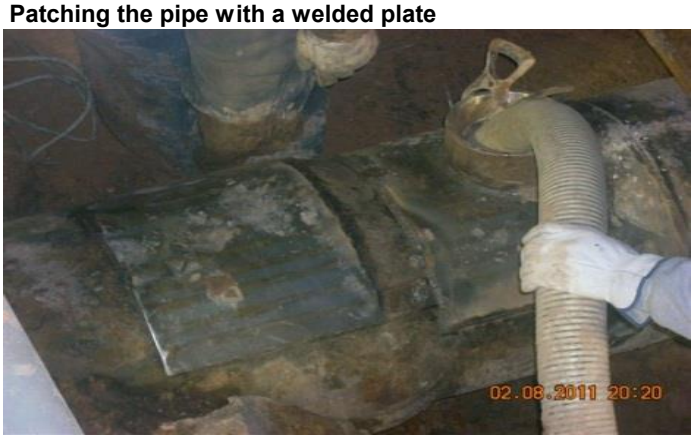
There are over 410 miles of large diameter (14-inch and larger) water transmission pipelines that serve as the transmission network for the Authority's water system. These lines are used to convey large quantities of drinking water from production facilities (e.g., wells) to storage reservoirs and between distribution system zones. When leaks occur on these lines, they can lead to a major loss of water, property damage, and street traffic disruption.

Other Alternatives Considered?

None. There are no other alternatives for this critical activity.

Hole in 20" Diameter Steel Water Line

Patching the pipe with a welded plate



Project Title - Meters, Boxes & Service Line Replacements

Decade Plan Line and Work Category: **205 - Water Lines Rehab**

Description: **Risk Ranking:** 25.1

The Water Authority meters potable water usage for residences and businesses for calculating monthly bills. The Water Authority is replacing manually read meters with smart meters that use automated meter reading. Also, meters, meter boxes, and service lines between the street main and the meter that fail require replacement.

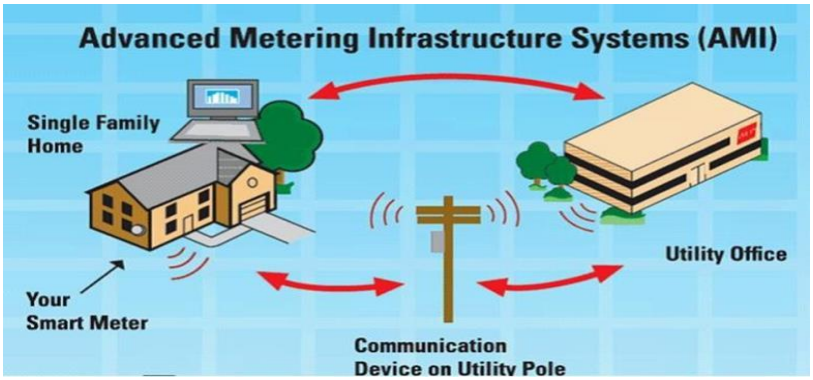
Project Cash Flow Est.

	($1000s)
FY16	4,000
FY17	150
FY18	150
FY19	150
FY20	150
FY21	150
FY22	150
FY23	150
FY24	150
FY25	150
Total =	**5,350**

A portion of the funds is directed to large revenue meter testing, repairs, and maintenance. Service line replacements reduce lost water and infrastructure damages in public right-of-way. Replacement of non- or under-registering water meters will enhance revenues adn redues unaccounted for water. Meter box replacement will reduce liability in sidewalk and other areas due to tripping and other public traffic hazards.

Other Alternatives Considered?

None



Project Title - Large Valve Replacement

Decade Plan Line and Work Category: **206 - Water Line Renewal**

Description: **Risk Ranking:** 41.8

Continuous replacement of large diameter valves (16ò and larger) that have become inoperable or unreliable. Renewal of these assets are required to allow isolation of sections of the water distribution system during emergencies such as pipe breaks and for routine maintenance.

Project Cash Flow Est.

	($1000s)
FY16	250
FY17	250
FY18	250
FY19	250
FY20	250
FY21	250
FY22	250
FY23	250
FY24	250
FY25	250
Total =	**2,500**

The larger and older valves are critical for controlling transmission and distribution flows. If valve operating problems occur, the large valves can be especially problematic for controlling leaks and performing construction shutoffs. When they donôt work properly, the shutoffs have to be extended geographically and also have larger potential for lengthier and more extensive water service disruptions and reduced fire protection.

Other Alternatives Considered?

None

Large Valve, east of I-25

Valve to be replaced

Project Title - Pressure Reducing Valve Facilities Replacements

Decade Plan Line and Work Category: **207 - Water Line Renewal**

Description: **Risk Ranking:** 18.8

Periodic replacement of pressure reducing valves and re-construction of vaults (for safety and traffic control reasons) is required as the older installations deteriorate.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	170
FY18	-
FY19	200
FY20	-
FY21	200
FY22	200
FY23	200
FY24	200
FY25	200
Total =	**1,370**

Pressure reducing valves serve a fundamental water distribution purpose and essentially replace the need for more expensive water storage facilities. Failures result in either lowered pressure (reduced fire protection and service interruptions) or excessive pressures which can damage plumbing and distribution system components. These facilities are below grade and some are in traffic areas and need to be relocated and upgraded to enhance the preventive maintenance activities and safety of the maintenance technicians.

Other Alternatives Considered?

None

New Pressure Reducing Valve installation

Project Title - Large Diameter Water Pipeline Asset Management Plan

Decade Plan Line and Work Category: **208 - Drinking Water Pipeline Renewal**

Description: **Risk Ranking:** 44..6

Asset Management (AM) is an extensive, well thought out "Business Model" that helps utility managers make better acquisition, operations and maintenance, renewal, and replacement decisions. The principles of AM were developed to address the critical problem of aging public infrastructure and changing utility business environment.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

To allow the Water Authority to better establish its asset management program, it needs to develop detailed, 10-year asset management plans (AMPs) for its different asset categories. This information will be used to schedule capital improvement/renewal projects in the most cost effective manner so as to minimize life cycle costs.

The requested funding is to support hiring a qualified consultant to perform a detailed asset condition assessment of large diameter (greater than 14 inch) water transmission lines. These lines are critical for transferring water from wells to reservoirs and from one reservoir to an upper reservoir as well as transferring water across pressure zones. When one of these lines fails, service to wide areas of the drinking water distribution system can be disrupted.

Other Alternatives Considered?

Not performing a detailed, 10-year AMP makes scheduling of renewal work difficult, because there will be limited condition information available for the basis.

Holes in a 20-inch Water Line

Project Title - Extension of Potable Water in San Diego Ave., NE

Decade Plan Line and Work Category: **209 - Potable Water Pipeline Renewal**

Description:

This project is to extend the 8-inch potable water line in San Diego Ave, NE. This project is in conjunction with Project 106 to correct a sanitary sewer line deficiency in this area. The potable water line will be extended at the same time that the parallel sewer line is extended.

Risk Ranking:

Project Cash Flow Est.

	($1000s)
FY16	125
FY17	100
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total	**225**

The planned spending will be used to design and construct approximately 1,800 linear feet fo 8-inch diameter potable water line plus approximately with fire hydrants and other appurtenances. A parallel project under Category 100 will extend a similar length of 8-inch sanitary sewer line with manholes and other appurtenances. Once constructed, these line swill be able to serve aproximately 20 residences.

Pro-rata will be assigned to the engineering and constructions costs to reimburse the Water Authority at the time of connection. Additionally, system onnection will generate revenues through utility expansion charges (UECs) and ongoing monthly charges.

Other Alternatives Considered?

Refer to Project 106, which is the primary driver of this project. Continued use of Vactors to periodically pump-out the sewer line. This alternative was estimated to have a higher life-cycle cost than constructing pemanent lines.

Proposed general alignments of new sewer and potable water lines

Project Title - Preliminary Treatment Facility Replacement

Decade Plan Line and Work Category: **301 - Southside Water Reclamation Plant Renewal**

Description: **Risk Ranking:** 74.2

Wastewater Grit Removal; This equipment is used to remove grit from the sewage and dewater it prior to off-site disposal. The proposed project involves replacement of the existing grit removal systems within the Preliminary Treatment Facility (PTF) with a more efficient and updated system to be implemented in a new facility.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

This project is anticipated to be completed by the end of June 2015, so not additional funding is anticipated to be required for FY16.

Other Alternatives Considered?

Several methods of grit removal besides the two existing equipment types were evaluated as part of the design process.

PTF Pista Grit System Grit Lift Pump

PTF Pista Grit Pump and Grit Recovery System

Project Title - Sludge Dewatering Facilities

Decade Plan Line and Work Category: **302 - Wastewater Facilities Rehab**

Description: **Risk Ranking:** 66.5

The Solids Dewatering Facility (SDF) removes water from all of the plant's sludge prior to transport to the Soils Amendment Facility (SAF) for disposal. The existing SDF has been in use for over 25 years and requires renewal. It was poorly designed, un reliable, is difficult to maintain, and is in need os safety upgrades to protect workers from potential exposures.

Project Cash Flow Est.

	($1000s)
FY16	2,000
FY17	16,000
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**18,000**

During FY2015, an evaluation was completed to determine if it would be more cost effective in terms of life-cycle costs to rehab the existing SDF or construct a brand new facility. The evaluation indicated that the Rehab Alternative has a life cycle cost ranging from $24.9- to $33.4-million, depending on the option versus a life cycle cost of $36.5-million for the Replacement Alternative. Therefore, the Rehab Alternative was selected for moving forward with this project.

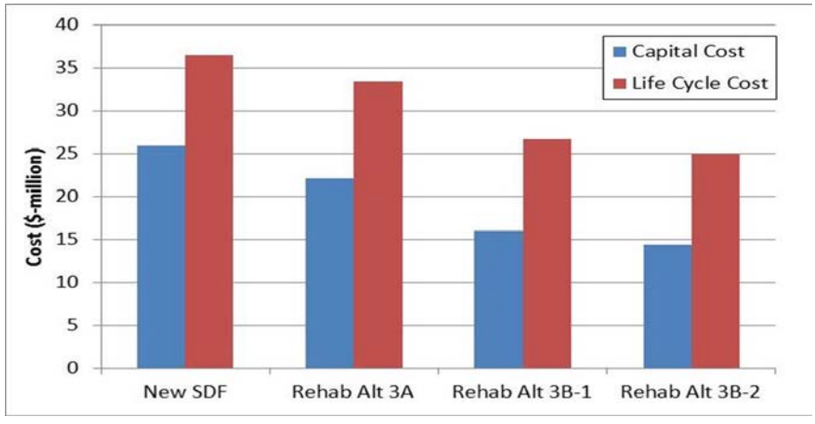
The funding shown together with approximately $15-million in carryover from FY 2015 will be used to design and construct improvements to the SDF. The improvements will provide a safer work place, better and more reliable solids dewatering performance, and have reduced maintenance.

Other Alternatives Considered?

The alternative of rehabing the existing SDF was reassessed and compared to constructing a brand new facility. It was determined that the construction cost and the life cycle costs supported rehabing the existing facilty. A new SDF will be constructed in the future, when additional procesessing capacity is required.

Existing Solids Dewatering Facility

Cost Analysis



Project Title - Blower Capacity Improvements

Decade Plan Line and Work Category: **303 - Southside Water Reclamation Plant Renewal**

Description: **Risk Ranking:** 55.6

The treatment process at the Southside Water Reclamation Plant (SWRP) uses air to provide oxygen to support bacterial stabilization of the sewage. Most of the existing blowers at the SWRP have been in service for more than two decades. The aeration blowers operate continuously and are critical for treating the sewage to a level that is acceptable for discharging to the Rio Grande.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

Capacity improvements to the existing blowers at the SWRP are anticipated to be completed by the end of June 2015. Therefore, additional funding is not anticipated to be required.

Other Alternatives Considered?

Constructing a brand new blower facility with high efficiency blowers was considered, but was determined to not be needed due to cost and overall air requirements at this time. Replacing the multi-stage centrifigal blowers in the North Blower Buidling with high efficiency units is to be evaluated as a future improvements project.

Multi-Stage Centrifugal Blower

Project Title - Digester Renewal

Decade Plan Line and Work Category: **304 - Southside Water Reclamation Plant Renewal**

Description: **Risk Ranking:** 68.8

The digesters remove volatile solids in the sludge produced by the plant's liquid treatment operations prior to sludge dewatering and land disposal. The digestion process converts volatile solids into a methane gas by-product that is burned by the plant's Co-generation system to produce electric power for plant operations and produce hot water for digester heating and space heating of SWRP buildings

Project Cash Flow Est.

	($1000s)
FY16	2,850
FY17	2,020
FY18	11,070
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**15,940**

The funding for this project will be used to do rehabilitation of the existing 14 anaerobic digesters at the SWRP. This will include structural repairs to cracked and spalled concrete, as well as upgrading of the electrical, instrumentation, and mechanical systems.

The structural rehabilitation work requires digesters to be taken out of service for extended periods of time. To allow these shut-downs, while continuing to meet treatment requirements, additional digester capacity will be required to be constructed. This work is described as Project 325 - Digester Capacity Improvements.

Other Alternatives Considered?

Alterantive types of digester mixing were considered with the goal of using a standard configuration for mixers in all digesters. A relatively new, lower energy mixing technology, linear mixing, has been selected for further evaluation. A pilot/demonstration project is under design during FY15 and will be constructed during FY16. If this mixing technology is found to be reliable and perform well, it will likely be implemented on all primary digesters.

Digester

Digester Heat Exchanger for heating the sludge

Project Title - Primary Clarifier Renewal

Decade Plan Line and Work Category: **305 - Southside Water Reclamation Plant Renewal**

Description: **Risk Ranking:** 64.0

The Primary Clarifiers are used to remove suspended solids ahead of the Aeration Basins. Maintaining these units in good working order is important for the downstream processes to work properly and for the plant to meet its NPDES permit requirements.

Project Cash Flow Est.

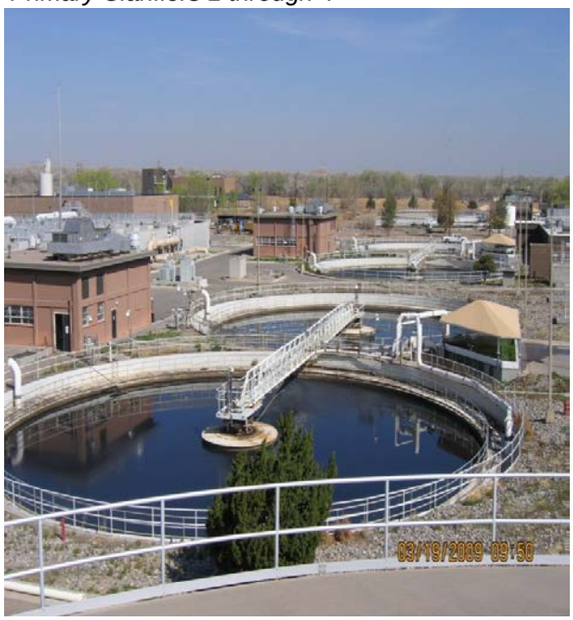
	($1000s)
FY16	500
FY17	1,500
FY18	1,400
FY19	2,100
FY20	-
FY21	-
FY22	-
FY23	-
FY24	3,660
FY25	1,000
Total =	**10,160**

The existing sludge draw off lines for Primary Clarifiers 5, 6, and 8 are too small and result in excessive wear on primary sludge pumps. Structural corrosion also needs to be repaired on several of the existing clarifiers. The mechanical scraping mechanisms also require periodic renewal.

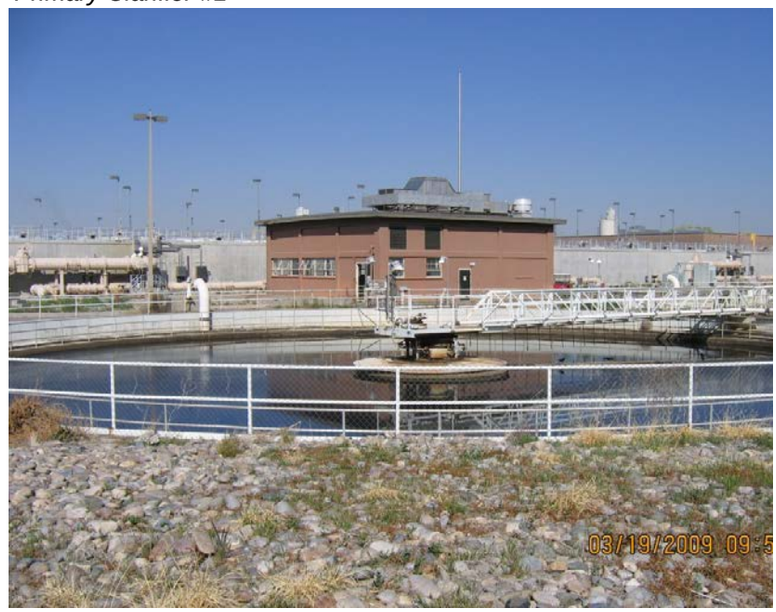
Other Alternatives Considered?

Replacding several of the existing clarifiers was evaluated and determined not to cost effective in the short term. When additional clarifiers are needed due to capacity constraints, the replacement option will be reevaluated.

Primary Clarifiers 1 through 4



Primary Clarifier #1



Project Title - Aeration Basin Renewal Program

Decade Plan Line and Work Category: **306 - Southside Water Reclamation Plant Renewal**

Description: **Risk Ranking:** 52.6

The Aeration Basins are used to stabilize the sewage by growing bacteria that consume organic waste and ammonia. The proper function of these basins is dependent on transferring oxygen into the sewage to support the growth of the bacteria. Each of the 14 basins has thousands of air diffusers that line the bottom of the basin to distribute air into the sewage to allow oxygen transfer. These diffusers have a limited life span before they need to be replaced.

Project Cash Flow Est.

	($1000s)
FY16	2,300
FY17	100
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**2,400**

The funding shown is to continue replacement of the air diffusers in Aeration Basins that have not yet been renewed.

Other Alternatives Considered?

None: Not renewing the diffusers increases the risk of not being able to properly stabilze the sewage prior to discharge into the Rio Grande. This could result in a violation of the EPA NPDES permit.

Aeration Basin with Air Diffusers on the Bottom

Project Title - Secondary Sludge Thickening Facility Renewal

Decade Plan Line and Work Category: **307 - Southside Water Reclamation Plant Renewal**

Description: **Risk Ranking:** 65.6

The existing Dissolved Air Floatation (DAF) Facility is used to concentrated activated sludge that is periodically wasted from the secondary treatment process. Sludge concentration using DAF also conserves volume needed in the anaerobic digesters to stabilize the sludge and allows for a more efficient sludge digestion process

Project Cash Flow Est

	($1000s)
FY16	500
FY17	-
FY18	5,200
FY19	2,000
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**7,700**

The existing equipment within the DAF Facility is old and wearing out. Parts are becoming difficult to find. As the DAF equipment in the facility fails, it becomes more difficult to keep up with sludge wasting requirements for the activated sludge process.

More efficient, better performing DAF technology is available. Also, other sludge thickening technologies other than DAF are now available and will be evaluated.

Funding shown is for evaluation, design, and installation of upgrades.

Other Alternatives Considered?

Modern DAF technology will be evaluated along with other sludge thickening technologies.

DAF Unit, top scrapers

Looking North at the DAF tanks

Project Title - Cogeneration Facility Renewal

Decade Plan Line and Work Category: **308 - Southside Water Reclamation Plant Renewal**

Description: **Risk Ranking:** 44.4

The Co-Generation Facility uses large internal combustion engines to burn biogas produced by the Anaerobic Digesters at the SWRP. The engines turn generator sets that produce electricity that is used to power the SWRP. Normally, about 50 percent of the electrical power needs are met by the Co-Gen Facility. At times, power is sold to PNM. The Co-Gen facility also provides hot water for heating the digesters and other buildings at the plant.

Project Cash Flow Est.

	($1000s)
FY16	250
FY17	-
FY18	-
FY19	590
FY20	6,000
FY21	10,000
FY22	750
FY23	-
FY24	-
FY25	-
Total =	**17,590**

The existing pneumatic engine controls are obsolete and difficult to maintain and use. Replacement solid state controls will bring the engine controls up to date, be more efficient, reliable, and maintainable. Load shed system does not work reliably and impacts reliability of power from South Cogen facility. Eventually, after these engines have reached the end of their useful life, they should be replaced with easier-to-maintain turbine engines or possibly with fuel cell technology.

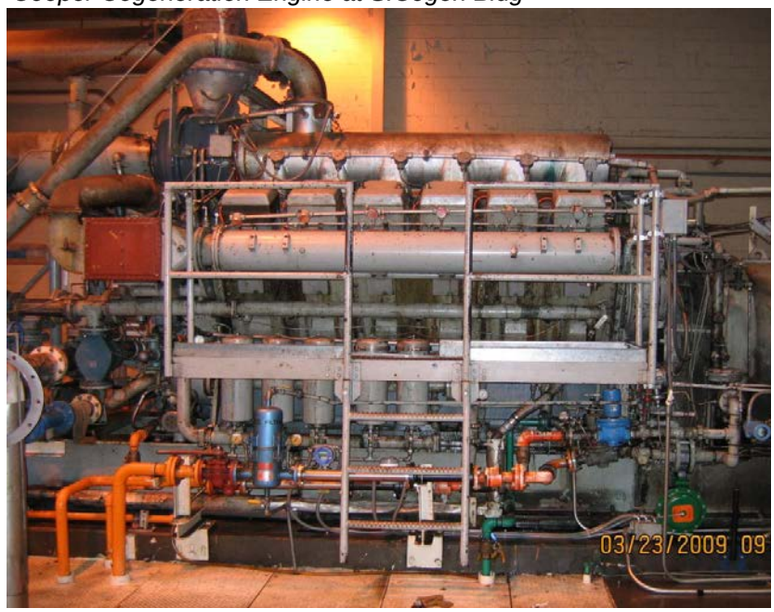
The funding shown is to evaluate, design, and install replacement co-gen units.

Other Alternatives Considered?

Alternative replacement technology will be evaluated prior to the design and installation of new co-gen units. Alternative technologies include turbines and fuel cells.

South Cogeneration Building

Cooper Cogeneration Engine at S.Cogen Bldg



Project Title - Miscellaneous Improvements Contingency

Decade Plan Line and Work Category: **309 - Southside Water Reclamation Plant Renewal**

Description: **Risk Ranking:** 77.0

Much of the SWRP is over 30 years old and some elements are 50 years old. This is a complex treatment plent with many indiviual pieces of equipment operating in corrosive environments. Miscellaneous small renewal projects are required to address failing assets and to keep the plant in service and treating the sewage to meet the NPDES permit requirements.

Project Cash Flow Est.

	($1000s)
FY16	1,000
FY17	1,000
FY18	1,000
FY19	1,000
FY20	1,000
FY21	1,000
FY22	1,000
FY23	1,000
FY24	1,000
FY25	1,000
Total =	**10,000**

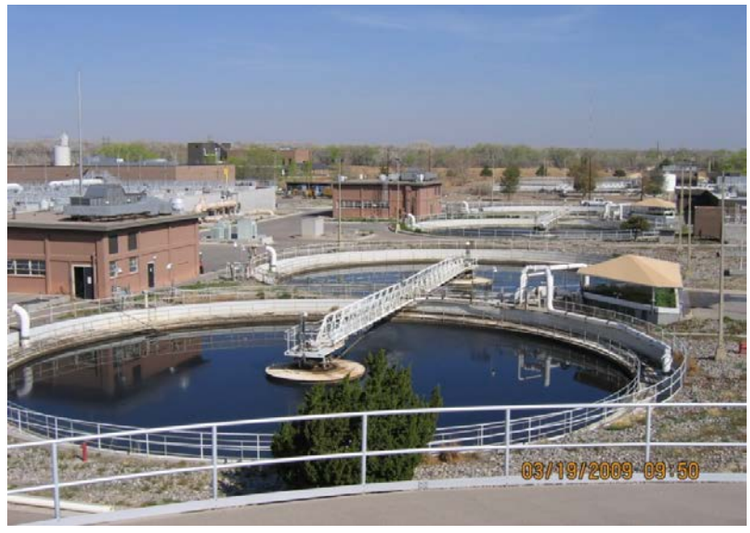
The funding shown is to allow for small rehab projects as they are needed. Typically, these projects are designed by one of the WUA's on-call engineering consultants and the competitively bid among the WUA's four on-call contractors. This allows problems to be resolved in a quick and cost effective manner.

Other Alternatives Considered?

Not providing this funding would result in important equipment and systems not being restored to service when they failed, which could result in employee safety issues or water quality violations.

Areation Basins

Primary Clarifiers



Project Title - SWRP ABB Distributed Control System Service Contract

Decade Plan Line and Work Category: **Line Item 310 - Southside Water Reclamation Plant Renewal**

Description: **Risk Ranking:** 64.9

This project funds the SWRP ABB Distributed Control System (DCS) service contract. The DCS process computers provide continuous critical operations 24 hours a day 365 days a year providing automatic control of the wastewater plant's process treatment equipment. It is imperative that the DCS parts and service contract remain in place without which would impair the plant's ability to treat wastewater.

Project Cash Flow Est.

	($1000s)
FY16	140
FY17	140
FY18	155
FY19	160
FY20	160
FY21	170
FY22	170
FY23	170
FY24	170
FY25	170
Total =	**1,604**

The ABB Distributed Control System (DCS) service contract is essential for providing immediate hardware and software support 24/7, 365 day a year, whenever problems occur with the DCS.

The ABB service contract includes access to SolutionsBank, a web based knowledge bank, which house online DCS hardware manuals, updated downloads, and SupportLine Silver Plus for Control systems which provide 20 hours of 24/7 immediate telephone technical support,

Included in the contract is the Sentinel Software Maintenance Subscription, which provides access to Sentinel SolutionsBank for latest software updates, patches, flash firmware, and release notes.

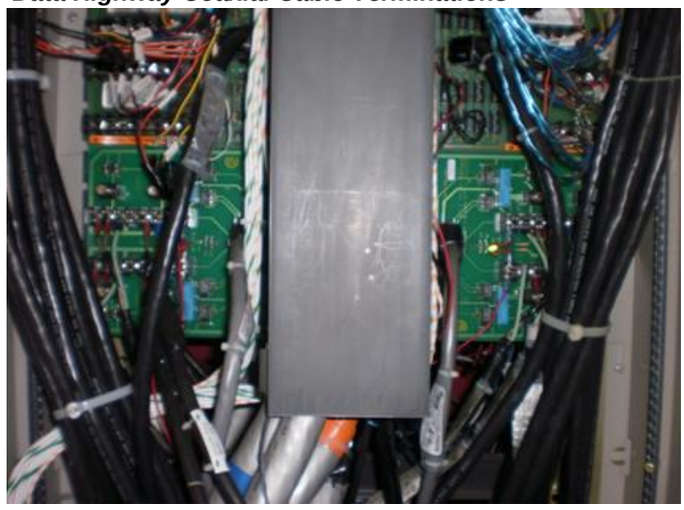
The program includes 5 days per year of on-site service support to be used for DCS hardware corrective maintenance, system tuning, logic development, and configuration changes,

Other Alternatives Considered?

N/A - Only ABB can provide this DCS service.

ABB Process Control Unit

Data Highway Coaxial Cable Terminations



Project Title - Plant Wide Electrical and Instrumentation System Improvements

Decade Plan Line and Work Category: **311 - Southside Water Reclamation Plant Renewal**

Description: **Risk Ranking:** 67.0

Wastewater Electrical Systems, electrical gear for many facilities within the Water Reclamation Plant such as Cogen, DAF, Compression and Pump Stations 1 and 2 have reached or exceeded their 20 year life and need to be replaced. The electrical gear is essential for successful operation of these facilities.

Project Cash Flow Est.

	($1000s)
FY16	500
FY17	1,500
FY18	2,200
FY19	1,975
FY20	2,475
FY21	9,750
FY22	15,000
FY23	500
FY24	-
FY25	-
Total =	**33,900**

The electrical gear for these facilities has reached or has passed its design life which makes it old and obsolete. The lack of parts availability limits maintaining the equipment which makes it difficult for the plant to keep them in a good safe working condition. There are problems with the cogeneration system interconnection to PNM which causes the cogeneration system not to remain in service during a utility outage. Load shed software does not work reliably as well. Several treatment processes are impacted during plant-wide facility outages and NPDES Discharge Permit violations result.

Other Alternatives Considered?

erway. An overall plant-wide power reliability study is underway to define alternatives for improving the reliability of the SWRP power supply

Typical MCC Switchgear

South Cogen Switchgear

Project Title - RAS Pump Improvements

Decade Plan Line and Work Category: **312 - Wastewater Facilities Rehab**

Description: **Risk Ranking:** 36.8

These pumps convey Return Activated Sludge (RAS) from the Final Clarifiers to the Aeration Basins. There are three RAS pumps installed inside the Activated Sludge Pump Station and a 4th RAS pump installed outdoors adjacent to this pump station. The Activated Sludge treatment system in use at the SWRP requires a reliable pumping system that can convey an RAS flow equal to 100% of the future 76 MGD average daily wastewater flow

Project Cash Flow Est.

	($1000s)
FY16	500
FY17	-
FY18	750
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**1,250**

SWRP staff often need to use all four pumps to meet their desired recycle rates which leaves no stand-by capacity in case one of the pumps or its associated VFD fails. There may be a problem with either the pumping system or wet well design that causes these pumps to perform at less flow than their theoretical capacity which needs further investigation and resolution. For the present time, a 5th pump that would be used as an on-the-shelf stand-by unit would provide the additional redundancy and flexibility to the RAS system is strongly recommended.

Other Alternatives Considered?

Before any expansion of the RAS wet well is considered, perform a hydraulic evaluation of the entire RAS conveyance system between the Final Clarifiers and the Aeration Basins

4th RAS pump which is installed outdoors

View of RAS pumps inside Activated Sludge Pump Sta

Project Title - Plant Wide Non-Potable Water System

Decade Plan Line and Work Category: **313 - Wastewater Facilities Rehab**

Description: **Risk Ranking:** 29.5

The washwater system provides filtered, disinfected effluent for many essential purposes at the SWRP including cooling water for Cogeneration and Gas Compression Bldgs, polymer solution make-up water for the DAF and Sludge Dewatering facilities, pump seal lubrication water throughout the plant, washwater for activated sludge basin / clarifier foam & scum control and for general housekeeping, landscape irrigation, and similar uses that do not require non-potable water.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	90
FY24	1,500
FY25	-
Total =	**1,590**

The spending shown is to rehabilitate the sytem in the future.

Other Alternatives Considered?

The overall non-potable distribution system requires a hydraulic modeling study to confirm which lines in the non-potable distribution grid should be upgraded.

Project Title - Warehouse Facility

Decade Plan Line and Work Category: **314 - Southside Water Reclamation Plant Renewal**

Description: **Risk Ranking:** 28.4

Wastewater Warehouse Facilities, build a new larger and more modern warehouse to house and protect expensive large equipment such as pumps, generators, piping, and other equipments and materials used at the Plant.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	150
FY23	1,720
FY24	430
FY25	-
Total =	**2,300**

Currently, all of the large equipment spares e.g., blower motors for the Water Reclamation Plant are stored outside or inside other facility buildings which exposes it to damage and theft and or reduces working spaces needed for operationand routine maintenance inside the facility buildings. A new warehouse would enclose all of the large equipment spare parts and provide security.

Other Alternatives Considered?

None

Current Storage Area

Proposed Type of Covered Storage Building

Project Title - Maintenance Facility

Decade Plan Line and Work Category: **315 - Southside Water Reclamation Plant Renewal**

Description: **Risk Ranking:** 41.2

The SWRP has a large maintenance staff to keep the aging plant in-service and operating properly. Improved maintenance facilities are required to facilitate the work and to improve the safety of handling heavy pieces of equipment.

Project Cash Flow Es

	($1000s)
FY16	750
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	150
FY23	1,720
FY24	430
FY25	-
Total =	**3,050**

The funding shown is to design and construct a maintenance storage facility. In the future, it is anticipated that a new, higher capacity Solids Dewatering Facility (SDF) will be constructed. Upon completion, the existing SDF building could be modified to provide additional maintenance shop area. It contains a 10 ton overhead bridge crane, which would have capacity for most equipment at the plant.

Other Alternatives Considered?

The construction of a new building will be considered as an alternative to modifying the existing Solids Dewatering Building.

Proposed new maintenance storage building.

Centrifuge Room at existing SDF

Project Title - Site Landscaping

Decade Plan Line and Work Category: **316 - Southside Water Reclamation Plant Renewal**

Description: **Risk Ranking:** 31.4

Wastewater Plant Site Landscaping, provide landscaping for areas around the Water Reclamation Plant. Landscaping improvements should focus on less watering intensive landscape and removal of the river rock landscaping media.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	1,000
FY24	860
FY25	940
Total =	**2,800**

Landscaping would present a better image to the visiting public and others as well as improve the grounds around the Plant for weed control. Removal of the river rock will allow foot traffic in many of the areas where the river rock has presented a safety hazard to personnel working on equipment where the river rock was placed.

Other Alternatives Considered?

None

Failed Landscaping by Dewatering

Barren lot next to Training

Project Title - New Operations & Maintenance Building

Decade Plan Line and Work Category: **317 - Southside Water Reclamation Plant Renewal**

Description: **Risk Ranking:** 36.0

The current O&M facilities provide spaces for several purposes including space for equipment maintenance, tool storage, central control room for monitoring plant operations, SWRP staff offices, training classrooms, break rooms, showers and locker room areas. The expected level of service is to provide sufficient space to accomplish these different and conflisting purposes efficiently. The existing O&M facilities include the Main O&M Building, the Training Bldg, the Server Bldg, an open air equipment warehouse and bulk lubricant storage / waste oil storage area, and a building formerly used to house a small water quality lab (Ghost Building).

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

The expected level of service is not realized because the existing spaces and functions are scattered between five different buildings / structures. These facilities are between 25 and 48 years old. Common problems for these buildings include poor HVAC and leaking roofs. The Main O&M Building has an extremely inefficient space layout.

Other Alternatives Considered?

Consider opportunites to renovate the exisitng PTF and Dewatering Buildings that will be abandoned into space required for plant operations & maintenance.

Main Operations Bldg from original 1960 plant project

Metal Bldg from 1970's used for Staff Training

Project Title - Storm Water Drainage Improvements

Decade Plan Line and Work Category: **318 - Southside Water Reclamation Plant Renewal**

Description: **Risk Ranking:** 36.8

Storm water control facilities at the SWRP include the system of inlets and culverts that drain facility roads, together with various ditches and open channels. The drainage facilities have 3 points of discharge into the Riverside Drain located on the site's westerly boundary. The Water Authority is working at the present time to make the SWRP site a zero-discharge of storm water site in the future.

Project Cash Flow Est.

	($1000s)
FY16	100
FY17	250
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**350**

The budget shown is to assist in making improvements such as constructing storm water retention basins and berms to help retain storm water on the site. This work will be done in conjuction with Projects 319 and 320.

Other Alternatives Considered?

None

One of 3 storm water discharge points from SWRP

Storm water discharge @ far SW corner of SWRP site

Main SWRP storm water outfall; Discharge is from construction ground water control

Project Title - Demolition of the Abandoned Drying Beds

Decade Plan Line and Work Category: **319 - Southside Water Reclamation Plant Renewal**

Description: **Risk Ranking:** 14.4

The abandoned sludge drying beds are no longer used at the SWRP. These facilities including the ones converted into pilot wetlands no longer serve a useful purpose at the SWRP. They occupy space that could othwerwise be used for needed SWRP facilities such as new liquid digested sludge storage tanks and storm water retention basins.

Project Cash Flow Est.

	($1000s)
FY16	150
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**150**

The budget shown will be used in conjunction with that of Projects 318 and 320.

Other Alternatives Considered?

None

View of original sludge drying beds looking south

Sludge Drying Beds that were added in 1980's

Project Title - Storm Water Spill Retention Basins

Decade Plan Line and Work Category: **320 - Southside Water Reclamation Plant Renewal**

Description:

The SWRP has experienced periodic sewage overflows due to electical power service disruptions and other interruptions. The purpose of this project is to construct on-site retention basins that will be able to capture and temporarilty store any spilled sewage. The spilt sewage woud then be pumped back to the head of the plant for treatment. Once spilt, the sewage enters the plant's storm water conveyance system, so the new retention basins will incidentally collect storm water. If uncontaminated, the storm water can be conveyed to the Riverside Drain. If contaminated, the storm water will delivered to the head of the plant for treatment.

Risk Ranking:

Project Cash Flow Est.

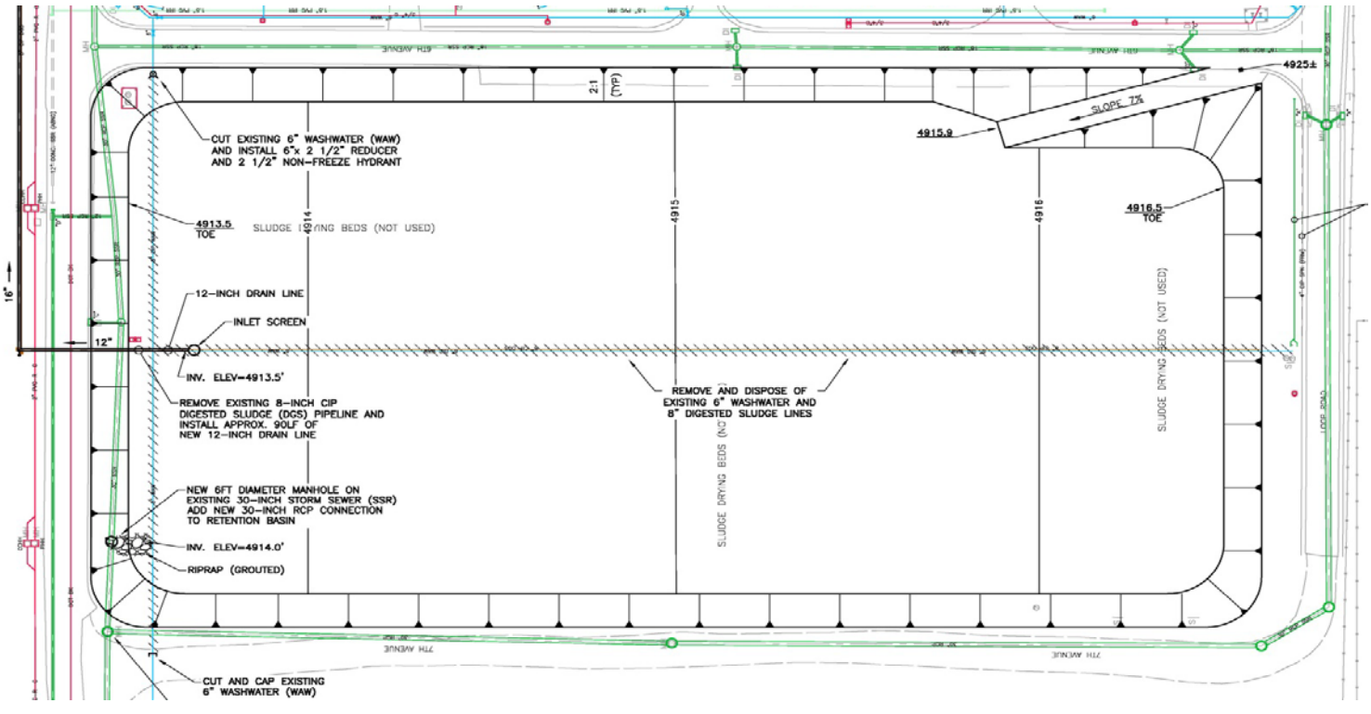
	($1000s)
FY16	60
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**60**

The funding shown will be used together with approximately $850,000 in carry-over budget from FY15 for construction of two retention basins: one on the south side of the palnt and a second on the north side of the plant.

Other Alternatives Considered?

Not constructing retention basins will allow for the potential for future spills reaching the river.

Proposed South Retention Basin



Project Title - Primary Clarifier Capacity

Decade Plan Line and Work Category: **321 - Southside Water Reclamation Plant Renewal**

Description: **Risk Ranking:** 19.1

The 2010 SWRP Rehabilitation and Asset Management Report (RAMP) Report that the plant has adequate primary clarifier capacity at current maximum month flow rates. Additional capacity may be necessary in the later part of the decade if flow rates to the plant increase.

Project Cash Flow Est.

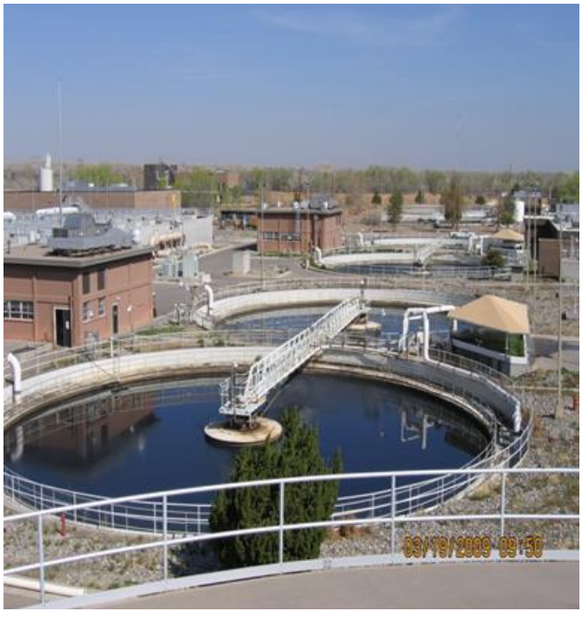
	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	630
FY22	4,000
FY23	3,800
FY24	5,950
FY25	8,550
Total =	**22,930**

The funding for this project will provide for a consultant to assist in the evaluation and design of new primary clarifiers. Also, the projected costs also provide for construction of these units. It also includes a contingency for adding odor control domes to the clarifiers if it becomes warranted.

Other Alternatives Considered?

None

Primary clarifiers at the SWRP



Project Title - RAMP Report Update

Decade Plan Line and Work Category: **322 - Southside Water Reclamation Plant Renewal**

Description: **Risk Ranking:** 37.2

The original Southside Water Reclamation Plant Renewal adn Asset Management Plan (RAMP) Report was developed in 2009 and published in 2010. Since this time, certain renewal projects have been completed and additinoal asset condition assessments have been performed. The RAMP Report needs to be updated to incorporate this information and provide the Water Authority with a more refined assessment of renewal requirements on which to set renewal revenue

Project Cash Flow Est.

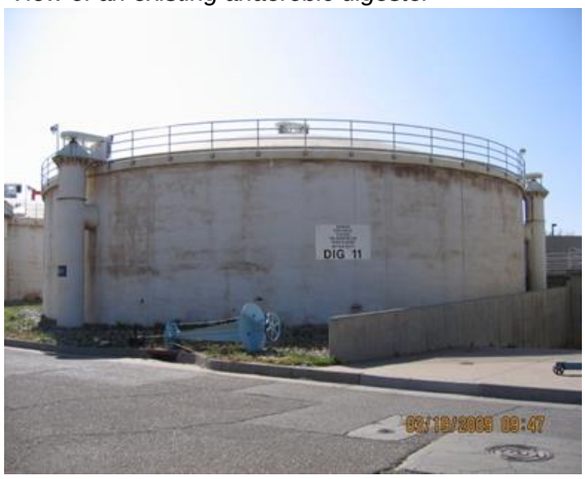
	($1000s)
FY16	200
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**200**

The funding for this project will provide for a consultant to update and refine the asset management plan and RAMP Report for the SWRP.

Other Alternatives Considered?

None

View of an existing anaerobic digester



Aeration Basins Blowers

Project Title - Program Management Assistance

Decade Plan Line and Work Category: **323 - Southside Water Reclamation Plant Renewal**

Description: **Risk Ranking:** 38.6

There will be many large and small renewal projects associated with upgrading the Southside Water Reclamation Plant. This work will be performed by numerous design consultants and contractors. The different individual projects require coordination both to end up with a fully integrated renewal of the plant but also to expend Rate Payer dollars efficiently. A program management approach will be used.

Project Cash Flow Est.

	($1000s)
FY16	100
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**100**

The funding for this project will provide for a consultant or consultants to assist the in-house program management and project management team with setting up an effecitve set of procedures. For instance, document management using the Water Authority's SharePoint system will be developed to assist in storing documents and data and to facilitate access to this information. Custome reports will be developed to provide different program stakeholders easy access to relevent information.

Other Alternatives Considered?

None

Project Title - High Efficiency Blowers

Decade Plan Line and Work Category: **324 - Southside Water Reclamation Plant Renewal**

Description: **Risk Ranking:** 67.4

The operation of the aeration basin blowers represtns approximately 50% of the electrical energy demand at the SWRP. Most of the current Hoffman-brand multi-stage centrifugal blowers have been in service for several decades and are of an outdated design. New blower technology using higher speeds results in significant operational cost savings.

Project Cash Flow Est.

	($1000s)
FY16	150
FY17	-
FY18	-
FY19	1,500
FY20	4,400
FY21	2,425
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**8,475**

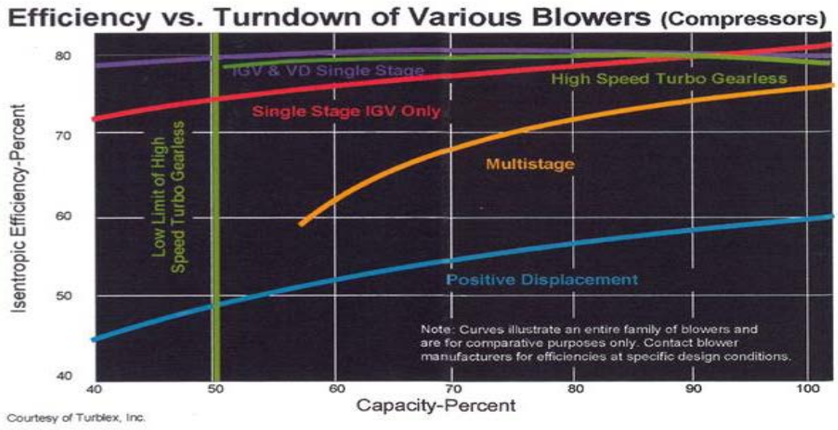
The funding for this project will provide for a consultant to assist in the evaluation and design of the replacement blower installation. This will include an evaluation of the available blower technologies and the assistanc in developing a request for proposals to select the new blowers. Funding is also shown for the purchase of the equipment and their installation. The cost and benefits associated with this project will be refined as part of the update to the RAMP Report.

Other Alternatives Considered?

None

A Hoffman multi-stage centrifugal blower

Blower efficiency by type of blower



Project Title - Digester Capacity Improvements

Decade Plan Line and Work Category: **325 - Southside Water Reclamation Plant Renewal**

Description: **Risk Ranking:** 67.9

The existing anaerobic digesters at the SWRP are operating at near capacity. Additiional digester capacity is needed to increase the reliability of the SWRP in case one or more of the digesters is out of service for repair or maintenance. Also, as flows to the plant increase, additional capacity will have to be added.

Project Cash Flow Est.

	($1000s)
FY16	4,000
FY17	-
FY18	1,000
FY19	5,450
FY20	5,740
FY21	-
FY22	2,755
FY23	4,000
FY24	-
FY25	-
Total =	**22,945**

The funding for this project will provide for a consultant to assist in the evaluation and design of additional digesters for the plant. New digesters will be constructed in phases. During the first phase, additional liquid digested sludge storage will be designed and constructed. The existing 0.6 -mil gal ReUse Tank will be modified to provide storage capacity. In addition, a new 2-mil gal concrete tank will be designed and constructed. This will allow two of the existing secondary digesters that are used for liquid storage to be converted to primary digesters. Once this is completed, the other digesters will undergo major rehabilitations. This will be done in pairs untill all the digesters are rehabilitated. The second phase will be to convert the remaining two secondary digesters to primary digesters. This should bring the capacity of this process up to the plant's nominal capacity of 76 mgd based on maximum month flows.

Other Alternatives Considered?
Major structural modifications to allow the use of heavy roof-mounted mixers was evaluated but was determined to not be cost effective. In the future, as anaerobic digestion technology advances, the construction of new digesters may be warranted.

Existign digester at the SWRP

Digester Heat Exchanger for heating the sludge

Project Title - Digester Cleaning Program

Decade Plan Line and Work Category: **326 - Southside Water Reclamation Plant Renewal**

Description: **Risk Ranking:** 62.6

Due to numerous pipeline collapses in the sanitary sewer collection system and a failed preliminary treatment facility, the SWRP receives high levels of grit and the grit passes through the treatment plant process trains. Large amounts of grit (e.g., sand) settle out in the anaerobic digesters, where it takes up volume as well as causing undue wear on the mixing systems and heat exchangers.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	200
FY18	200
FY19	200
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**600**

The funding for this project will provide for a specialty contractor to clean the grit from the different digesters. Once the new Preliminary Treatment Facility (PTF) is constructed, it is anticipated that much less grit will pass to the digesters resulting reduced need to spend Rate Payer money to clean out the digesters.

Other Alternatives Considered?

None

Existign digester at the SWRP

Digester Heat Exchanger for heating the sludge

Project Title - Chemical Systems

Decade Plan Line and Work Category: **327 - Southside Water Reclamation Plant Renewal**

Description: **Risk Ranking:** 58.9

Many of the chemical storage and feed systems are dated at the SWRP and were not designed to current standards. The results in poor performance, high maintenance, and a need for safety improvements to protect WUA staff.

Project Cash Flow Est.

	($1000s)
FY16	800
FY17	2,110
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**2,910**

The funding for this project will provide for a consultant to assist in the evaluation and design of upgraded chemical storage and feed systems. The new systems will be designed to meet current code and safety standards. The different systems will be designed to be consistant so that the operations and maintenance staff do not have to learn, operate, and maintain unique equipment and systems. The projected funding is also for construction of the upgraded systems.

Other Alternatives Considered?

None

Project Title - Pre-Screens for UV Disinfection

Decade Plan Line and Work Category: **328 - Southside Water Reclamation Plant Renewal**

Description: **Risk Ranking:** 30.2

The WUA constructed a new ultraviolet (UV) light disinfection system to replace the bulk chlorine system at the plant. The current system includes a very course wire mesh screen that does not prevent algae and other debris from passing on to the UV light elements. However, the screen does capture larger debris, which creates headloss across the screen that can result in an overflow.

Project Cash Flow Est.

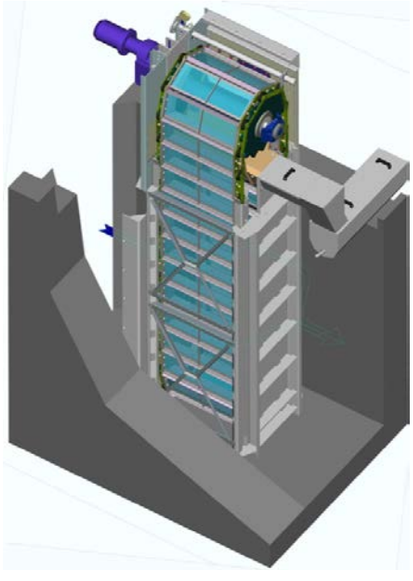
	($1000s)
FY16	400
FY17	1,600
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**2,000**

The funding for this project will provide for a consultant to assist in the evaluation and design of an automatic, mechanically cleaned screen as welll as its construction. The screen will be designed to prevent algae and other debris from passing through to the UV facility. Automatic, mechanical cleaning will be required due to the anticipated rapid headloss buildup from the more effecitve screening.

Other Alternatives Considered?

None

Band screen schematic



Band screen installation with screenings conveyance

Project Title - As-Built Drawings of the SWRP

Decade Plan Line and Work Category: **329 - Southside Water Reclamation Plant Renewal**

Description: **Risk Ranking:** tbd

The original Southside Water Reclamation Plant (SWRP) was constructed in the early 1960's. Since that time, numerous proects have been completed to make improvements and increase the treatment capacity of the plant. This has resulted in numerous different construction drawings being produced that makes it difficult to understand the current conditions at the plant. This project is intended to compile the different sets of drawings into a single, up-to-date "as-built" set of drawings that can be used by the O&M Division and the Engineering Division.

Project Cash Flow Est.

	($1000s)
FY16	100
FY17	100
FY18	25
FY19	25
FY20	25
FY21	25
FY22	25
FY23	-
FY24	-
FY25	-
Total =	**325**

The funding for this project will provide for consultants to develop a set of "as-built" drawings for each of the process areas at the SWRP.

Other Alternatives Considered?

The alternative is to continue using multiple sets of drawings that do not accurately reflect the actual conditions at the plant.

Project Title - Fats, Oils, & Grease (FOG) Receiving Station

Decade Plan Line and Work Category: **330 - Southside Water Reclamation Plant Renewal**

Description: **Risk Ranking:** tbd

Fats, oils, and grease (FOG) materials that are generated by restaraunts and other food industry establishments can be disruptive to the wastewater system if not disposed of properly. If discharged directly to the sanitary sewer, FOG can result in clogging of the pipelines resulting in backups and overflows. If discharged at the Septage Receiving Station, FOG can upset the treatment processes at the SWRP. However, if FOG were injeccted directly into the Anearobic Digesters at the SWRP, it would likely result in an increase in the production of methane, which can be used to generate electrical power at the CoGeneration Facility at the plant.

Project Cash Flow Est.

	($1000s)
FY16	100
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**100**

The funding for this project will provide for a consultant to assist in the feasibility and practicality of constructing a FOG Receiving Station at the SWRP. Othe wastewter plants have installed such facilities and have seen an increase in methane/power production. However, FOG is difficult to handle and has resulted in higher than expected operation and maintenance (O&M) requirements. Prior to implementing a FOG Receiving Station at the SWRP, a thorough evalution of the pros an cons needs to be completed.

Other Alternatives Considered?

The decision to implement a FOG Receiving Station at the SWRP will be based on the feasibility study and an evaluation of the benefits and risks.

Project Title - Aeration Basin Improvements

Decade Plan Line and Work Category: **331 - Southside Water Reclamation Plant Renewal**

Description: **Risk Ranking:** 52.6

Wastewater Liquid Stream Treatment System, replace all air distribution valves and motorized operators for the aeration basins at the Water Reclamation Plant. These valves are used to properly distribute air to the different zones of fine bubble diffusers for each basin. The proper dosage of air is essential for proper operations of the basins and for efficient utilization of energy consumed in blower operation.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	4,000
FY20	2,200
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**6,200**

The valves and electric operators are wearing out and/or have frozen up or failed and are in need of replacement. If these valves fail in the future, it will be difficult to properly distribute air to the different zones of fine bubble diffusers. This adversely affects the quality of the aeration process which can cause the Water Reclamation Plant to violate the NPDES Discharge permit. It also hinders efficient use of electric power at the SWRP

Other Alternatives Considered?

The only alternative is to rebuild the valves and operators which would cost as much or more assuming that parts are even available for these old valves.

Aeration Tank Air Control Valve

Aeration Tanks catwalk

Project Title - Digester Renewal - Phase 2

Decade Plan Line and Work Category: **332 - Southside Water Reclamation Plant Renewal**

Description: **Risk Ranking:** 68.8

The anaerobic digesters remove volatile solids in the sludge produced by the plant's liquid treatment operations prior to sludge dewatering and land disposal. The digestion process converts volatile solids into a methane gas by-product that is burned by the plant's Co-generation system to produce electric power for plant operations and produce hot water for digester heating and space heating of SWRP buildings.

The anaerobic environment inside the digesters is corrosive to concrete. Coatings are applied to the concrete surfaces to protect them. However, these coatings have a finite life time and need to be renewed periodically. The digesters at ths SWRP are long overdue for coating renewal.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	2,725
FY20	2,000
FY21	2,000
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**6,725**

The funding for this project will be used to re-coat the interior surfaces of the digesters. This work will likely require repair of the areas of the concrete walls and ceilings prior to applying the new protective coatings.

Other Alternatives Considered?

None.

Digester

Digester Heat Exchanger for heating the sludge

Project Title - Soil Amendment Facility Rehab

Decade Plan Line and Work Category: **401 - Soil Amendment Facility**

Description: **Risk Ranking:** 28.6

The soil amendment facilty (SAF) is an important element in the Water Authority's wastewater treatment systems. The Southside Water Reclamation Plant (SWRP) generates approximately 60 tons of solids per day. These solids are land applied and composed at the SAF. The composed solids are sold and generate income for the utility. Without the SAF, the utility would have to pay to dispose of the solids in a landfill.

Project Cash Flow Est.

	($1000s)
FY16	200
FY17	50
FY18	50
FY19	50
FY20	50
FY21	50
FY22	50
FY23	50
FY24	50
FY25	50
Total =	**650**

The revenue shown for this item is to allow periodic rehabilitation of the existing fixed equipmement and facilities at the SAF. This includes buildings, pumping systems, and grounds.

Other Alternatives Considered?

The no action alternative would not allow this important faciltiy to be sustainable.

SAF Composting Facility

SAF Water Pumping System

Project Title - General Lift Station Renewal

Decade Plan Line and Work Category: **501 - Lift and Vacuum Station Renewal**

Description: **Risk Ranking:** 71.2

This project provides funding for the planning, design, engineering services, contract and/ or in-house services related to general lift stations. This work is important in maintaining the WUA's stated Level of Service. There are 28 sanitary lift stations (does not include NWSA) that all operate continuously. Sewage is a corrosive and abrasive material to handle which causes advanced deterioration of the stations; all these factors contribute to a constant requirement to

Project Cash Flow Est.

	($1000s)
FY16	50
FY17	1,050
FY18	2,500
FY19	1,135
FY20	1,550
FY21	-
FY22	2,550
FY23	1,500
FY24	1,500
FY25	2,000
Total =	**13,835**

This project provides for regular inspection, repair and replacement of the complex mechanical / electrical components of a lift station. The following examples are focused on recent experience at the larger stations. An example is the management of the 63 pumps at the 28 stations. Pumps wear out, losing efficiency and eventually risking catastrophic failure. Pumps are monitored for pumping rate, which is an indicator of the pump wear, and when appropriate, pulled for inspection. Pump rebuilds on the larger stations typically cost $30,000 to $40,000 each. Variable frequency drives (VFDs) are utilized on approximately 22 of the Authority's pumps to match flow rates and mitigate shock waves in the station piping. VFDs are subject to failure, 2 were replaced in the last year alone at a cost of approximately $20,000 per VFD. Check valves are installed at each pump to prevent back spinning which can damage pumps and / or trip the electrical system. These valves can be damaged by rocks picked up by the pumps and will then no longer provide required back flow protection.

Other Alternatives Considered?

Asset Management dictates that facilities be operated at the least cost while providing the appropriate level of service. In nearly all cases, regular and complete Operation & Maintenance (O&M) is the least cost approach.

Lift Station Pumps

Lift Station 17

Project Title - Lift Station No. 20 Improvements

Decade Plan Line and Work Category: **502 - Lift and Vacuum Station Renewal**

Description: **Risk Ranking:** 74.7

This project provides funding for the planning, design, engineering services, contract and/ or in-house services related to Lift Station 20. This work is important in maintaining the WA's stated Level of Service. Lift Station 20 moves all sewage from west of the Rio Grande directly under the Rio Grande to the SWRP.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	300
FY23	3,700
FY24	-
FY25	-
Total =	**4,000**

Lift Station 20 was originally constructed in 1962 and has since been modified and upgraded. This station has the lowest downtime before backup of any of the Authority sanitary stations. On June 28, 2010, a power failure and compounding equipment failures resulted in property damages in approximately 74 minutes. A similar failure in 2008 resulted in damages to properties at a cost in excess of $250,000. A 10-year asset management plan (AMP) will be developed for all the Authority's lift stations, including Lift Station 20, which will identify the appropriate upgrades to be implemented. Reliability of the station will be a primary focus of the AMP, including electrical, control and structural issues. The station reliability has been greatly enhanced by the recent addition of the by-pass station pumps installed at the bar screen building at the head of the station. However, a single failure may take down the entire facility as seen on June 28. Of particular concern are the twin 30-inch force mains that carry all flow discharged from the station.

Other Alternatives Considered?

None

Lift Station #20 Force Main Header

Lift Station #20 Pump & Piping

Project Title - Lift Station No. 24 Improvements

Decade Plan Line and Work Category: **503 - Lift and Vacuum Station Renewal**

Description: **Risk Ranking:** 82.6

Lift Station 24 is located along the Bosque near the intersection of Montano and Coors Blvds. It pumps sanitary sewage collected in much of northwest Albuquerque to the south, where it is eventually conveyed across the Rio Grande to the Southside Water Reclamation Plant (SWRP). Lift Station 24 is the Water Authority's second largest lift station and has a capacity of approximatley 9 million gallons per day (mgd). the station includes a chemical feed facility to add odor

Project Cash Flow Est

	($1000s)
FY16	400
FY17	400
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**800**

Reliability is a primary concern at all lift stations and especially with large capacity stations. A failure at Lift Station 24 could result in sewage overflows causing property damage and potentially reaching the Rio Grande. During high flow periods of the day, there is less than 1 hour of storage in the system before overflows would occur if the pumps were to fail completely. The scheduled funding for rehabilitation improvements at Lift Station 24 include the following:

- Renewing the station roof
- Renewing the HVAC systems
- Renewing the influent debris screens
- Renewing the odor control chemical feed station
- Planning studies for the construction a new wet well with pumps to allow bypassing of the existing wetwell. (Currently, there is no way to currently bypass to allow structural inspection of the existing wetwell.)

In the future, the Bosque Water Reclamation Plant (BWRP) will be constructed just upstream of Lift Station 24. The new wetwell listed above will be used as part of the new BWRP.

Other Alternatives Considered?
An alterantive approach to by-passing the flows around Lift Station 24 would be to construct a pipeline across the Rio Grande and make a connection to the Edith Interceptor. This alternative will be further evaluated.

Lift Station #24

Lift Station #24 with development next to station

Project Title - Vacuum Station Rehab

Decade Plan Line and Work Category: **504 - Lift and Vacuum Station Renewal**

Description: **Risk Ranking:** 69.5

The Water Authority owns , operates, and maintains vacuum networks of vacuum sewers, which provide service to residences, businesses, and other facilities in the North and South Valleys. The sanitary sewage is drawn to ten vacuum stations. From here it is pumped through forcemains to connections to the Water Authority's gravity flow sewer system and then conveyed from treatment at the Southside Water Reclamation Plant (SWRP). The oldest vacuum stations are approaching 20 years in age. This project provides funding for the planning, design, engineering services, contract and/or in-house services related to general vacuum stations.

Project Cash Flow Est.

	($1000s)
FY16	200
FY17	720
FY18	950
FY19	2,000
FY20	1,000
FY21	3,300
FY22	1,900
FY23	250
FY24	285
FY25	325
Total =	**10,930**

The vacuum stations have house pumps, tanks, and other equipment that are used to collect and convey the sanitary sewage. The sewage is corrosive and abrasive in nature, which increase the rate of wear of the equipment. Maintaining this equipment is good workign order is important for maintaing the level of service by our customers. Equipment failure can result in sewage backup into homes and businesses.

Vacuum Station 63 was constructed in 1995 and was the Water Authority's first vacuum station. A design analysis completed in FY 2015 identified approximately $460,000 in needed rehabilitation improvements at this single vacuum station. This work is scheduled to be completed in FY16 and 17. The other nine vacuum stations will also require rehab during the next decade.

Other Alternatives Considered?

Asset Management dictates that facilities be operated at the least cost while providing the appropriate level of service. In nearly all cases, regular and complete Operation & Maintenance (O&M) is the least cost approach.

Station 66

Force Main Repair - Station 68

Project Title - Lift Station Telemetry System Upgrades

Decade Plan Line and Work Category: **Line Item 505 - Lift and Vacuum Station Renewal**

Description: **Risk Ranking:** 57.0

The Water Authority owns and operates approximately 45 lift and vacuum stations. These facilities are used to convey sanitary sewage to the Southside Water Reclamation Plant (SWRP) for treatment. This equipment provides continuous critical operations, 24 hours a day 365 days a year. Each station includes telemetry systems that send alamrs and other data to the SWRP for monitoring.

Project Cash Flow Est.

	($1000s)
FY16	175
FY17	155
FY18	155
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY253	-
Total =	**485**

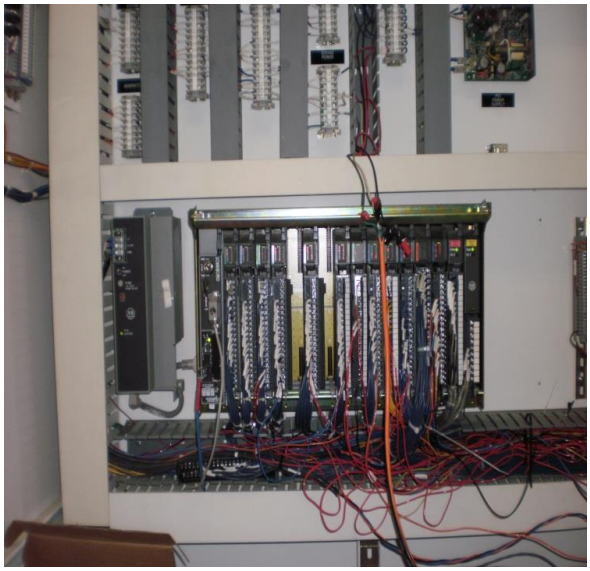
This project funds replacement of obsolete PLC-5 Programmable Logic Controllers (PLCs) used to control sanitary lift and vacuum pump stations with modern ControlLogix PLCs. The existing Allen Bradley PLC-5 equipment in service at the sanitary lift and vacuum stations are over fifteen years old, facing absolesence, and will no longer be supported by the maufacturer past 2017. To migrate from the existing PLC-5s to ControlLogix PLCs requires new control cabinets rack, processors, analog and digital I/O modules, power supplies, PanelView interface and wiring. PLC Cabinets will have to assembled and installed. Programming can be completed in-house by Utility instrumentation personnel.

Funding is also provided to upgrade of the iFix software used for communicating alarms and other information between the remote stations and the SWRP.

Other Alternatives Considered?

N/A – In order to keep the existing programming, ControlLogix PLCs must be used.

Sanitary Lift Station PLC-5



Typical ControlLogix PLC

Project Title - Sanitary Lift and Vacuum Station Asset Management Plan

Decade Plan Line and Work Category: **506 - Lift and Vacuum Station Renewal**

Description: **Risk Ranking:** 47.5

Asset Management (AM) is an extensive, well thought out 'Business Model' that helps utility managers make better acquisition, operations and maintenance, renewal, and replacement decisions. The principles of AM were developed to address the critical problem of aging public infrastructure and changing utility business environment.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

To allow the Water Authority to better establish its asset management program, it needs to develop detailed, 10-year asset management plans (AMPs) for its different asset categories. This information will be used to schedule capital improvement/renewal projects in the most cost effective manner so as to minimize life cycle costs.

The requested funding is to support hiring a qualified consultant to perform a detailed asset condition assessment of the sanitary sewer lift stations and vacuum stations. These are facilities that must be able operate 24/7 to avoid sewage backups. Therefore, it is critical that the Water Authority maintain these in good operating condition.

Other Alternatives Considered?

None.

Lift Station 17

Vacuum Station 66

Project Title - Sanitary Lift and Vacuum Station Arc Flash Study

Decade Plan Line and Work Category: **507 - Lift and Vacuum Station Renewal**

Description: **Risk Ranking:** 69.5

Arc flash is a serious hazard for WUA employees that need to access and/or work around electrical panels. Arc flash can seriously injure or kill employees. Many of the WUA's electrical systems are old and pre-date modern arc flash safety provisions and labelling.

Project Cash Flow Est

	($1000s)
FY16	50
FY17	50
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY253	-
Total =	**100**

This funding will be used to hire a consultant to perform arc flash assessments at the sanitary sewer lift stations and vacuum stations. The arc flash assessments will include site visits to each lift and vacuum station, data collection and analysis, a NFPA 70E Arc Flash Hazard Assessment, and preparation of a report with recommendations.

Other Alternatives Considered?

None.

Arc flash at an electrical panel

Arc flash engulfing a worker

Project Title - Interceptor Odor Control Renewal

Decade Plan Line and Work Category: **601 - Odor Control Facilities Renewal**

Description: **Risk Ranking:** 75.6

This program provides funding for evaluation, planning, design, construction, and related activity necessary for odor control in the collection system. This work is important in maintaining the WAGs stated Level of Service.

Project Cash Flow Est.

	($1000s)
FY16	160
FY17	60
FY18	60
FY19	250
FY20	10
FY21	10
FY22	10
FY23	10
FY24	10
FY25	10
Total =	**590**

Hydrogen sulfide is the primary gas that causes offensive odors from the sewer system. These gases are naturally generated through biological activity in the sewer. Larger sewers known as interceptors are the primary odor generators in the collection pipe system and the primary focus of CIP 601 is controlling interceptor odors. However, CIP 601 will address collection system odors from all sources including small diameter pipes, pump stations and manholes.

Collection system odor complaints are increasing nationally due to changing conditions in sewage composition and changing public perceptions of what should be tolerated. We regularly receive complaints at a new location and learn that there has been an odor issue at that location for years.

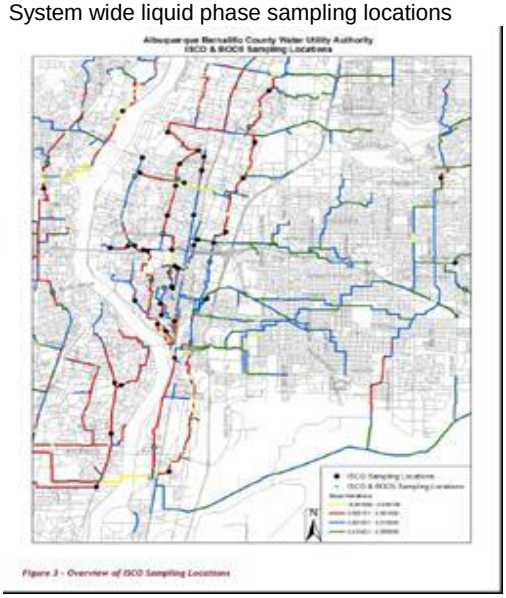
The estimated cash flow provides for:

- Modified chemical treatment upstream of Lift Station 24 to provide odor control to a larger area at less O&M cost. Alternative chemicals and dosing locations are under study.
- Upgrades and rehabilitation of existing chemical odor stations.
- Manhole and pipe replacement and modifications to improve air flow and prevent escape of odors.
- Monitoring equipment to: 1) Identify and quantify system odors, or 2) Monitor treatment facility effectiveness.
- Relocate Chemical Station 26 to provide greater operational flexibility and treatment effectiveness.

Other Alternatives Considered?

Odor control solutions must be effective and are extremely variable, dependent on the specific issues applicable to the particular odor source. Solutions range from low tech and inexpensive to very expensive in both capital and future O&M. Solutions include improved sewer cleaning, chemical treatment, air phase treatment and correction of air flow choke points.

System wide liquid phase sampling locations



Odor Control Station 51. 2nd St. & Griegos

Project Title - Odor Control Station Asset Management Plan

Decade Plan Line and Work Category: **602 - Odor Control Facilities Renewal**

Description: **Risk Ranking:** 47.5

Asset Management (AM) is an extensive, well thought out 'Business Model' that helps utility managers make better acquisition, operations and maintenance, renewal, and replacement decisions. The principles of AM were developed to address the critical problem of aging public infrastructure and changing utility business environment.

Project Cash Flow Est.

	($1000s)
FY16	150
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**150**

To allow the Water Authority to better establish its asset management program, it needs to develop detailed, 10-year asset management plans (AMPs) for its different asset categories. This information will be used to schedule capital improvement/renewal projects in the most cost effective manner so as to minimize life cycle costs.

The requested funding is to support hiring a qualified consultant to perform a detailed asset condition assessment of the sanitary sewer lift stations and vacuum stations. These are facilities that must be able operate 24/7 to avoid sewage backups. Therefore, it is critical that the Water Authority maintain these in good operating condition.

Other Alternatives Considered?

None.

Lift Station 17

Vacuum Station 66

Project Title - Annual Sodium Hypochlorite Generator System Renewal

Decade Plan Line and Work Category: **701 - Drinking Water Plant: Groundwater System Renewal**

Description: **Risk Ranking:** 34.2

The groundwater system uses on-site sodium hypochlorite generation systems for disinfection of the well water. It is important that these units be rehabed or replaced when they become unreliable.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	150
FY19	120
FY20	85
FY21	100
FY22	85
FY23	100
FY24	100
FY25	100
Total =	**840**

The existing sodium hypochlorite generator systems are nearing the end of their useful lives. Some systems are approaching 20 years. Various components of these systems are becoming obsolete and thereby more difficult to replace. Increasing levels of operating and capital budget are being expended to replace and/or repair the equipment. The program is needed to gradually replace all of the systems with new ones. Failure to do so will eventually put the Water Authority at risk for not meeting water quality requirements for disinfection and not providing safe drinking water to the public. Service may be disrupted while new equipment is purchased and installed on an emergency basis. A replacement program extended over a ten-year period is a proactive, cost effective means of dealing with the aging assets.

Other Alternatives Considered?

Not doing anything puts the Water Authority at risk for violating permit requirements, impacting health and safety, loosing public image, and disrupting service. Replacement with new disinfection systems before failure of the existing systems will have no impact on service disruption.

Sodium Hypochlorite Generator System

Project Title - Booster Pump Renewal

Decade Plan Line and Work Category: **702 - Drinking Water Plant: Groundwater System Renewal**

Description: **Risk Ranking:** 58.9

Booster pumping stations are used to lift water into the potable water reservoirs for subsequent delivery to homes and businesses. This item is to provide funding for the renewal of booster pumping stations that supply potable water to customers with minimal or no disruption of service.

Project Cash Flow Es

	($1000s)
FY16	100
FY17	100
FY18	210
FY19	200
FY20	200
FY21	200
FY22	200
FY23	200
FY24	200
FY25	200
Total =	**1,810**

There are 35 booster stations that pump water from ground and elevated storage reservoirs to the upper zones of the water service area. A large percentage of these stations are the only means of getting water to the reservoirs in the upper zones. If the booster pumps and auxiliary equipment are not maintained and repaired as needed, there is a significant risk of failure to get water to customers and/or maintain the expected levels of service.

Other Alternatives Considered?

One alternative is to do nothing, allowing the asset(s) to fail. This is not viable with respect to booster stations because water would not get to customers in certain locations of the service area if failed booster pumps were left inoperable.

West Mesa Booster Station

Project Title - Well Rehab and Renewal

Decade Plan Line and Work Category: **703 - Drinking Water Plant: Groundwater System Renewal**

Description: **Risk Ranking:** 58.9

The Water Authority must maintain a full capacity groundwater supply system even with the San Juan - Chama Drinking Water Project. At times, river water may not be availble for diversion, so the Water Authority will have to rely fully on its wells to provide groundwater for delivery to customers. Also, the wells are needed to provide peak capacity during the high demand periods of the year (i.e., warm weather months).

Project Cash Flow Es

	($1000s)
FY16	2,070
FY17	1,600
FY18	2,105
FY19	2,000
FY20	3,025
FY21	2,025
FY22	2,025
FY23	3,025
FY24	3,025
FY25	5,365
Total =	**26,265**

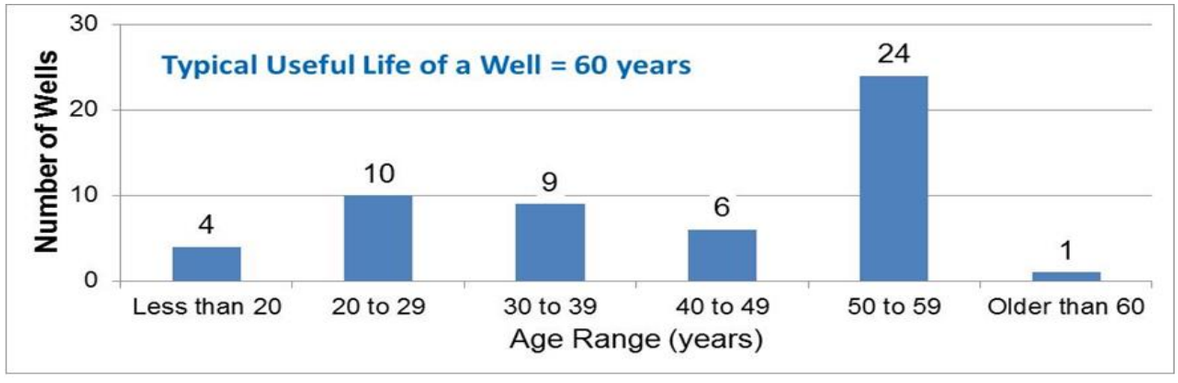
As illustrated below, over 40 percent of the Water Authority's wells are older than 50 years. These wells should be replaced in the next decade. Sixty years is the typical maximum life of a well before it needs to be replaced. Some wells fail sooner than this and some last longer.

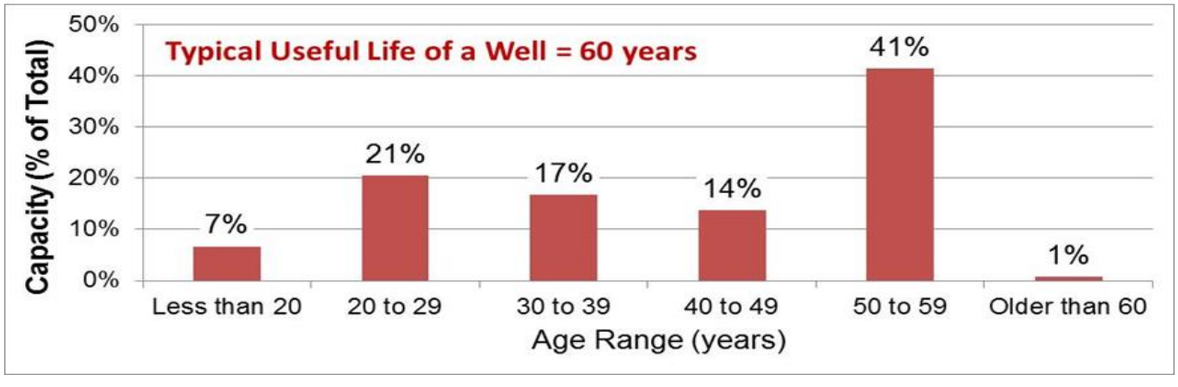
The funding shown will be used to higher a consultant to advise the Water Authority on where to locate replacement wells and to start the well replacements. An approximate cost for a replacement well is $2-million. The level of funding shown is anticipated to allow for approximately 12 well replacements. As more funding becomes availble, the rate of well replacement will be increased.

Funding is also provided to continue the evaluation of the Alameda Trunk Arsenic Project for delivering water from wells in the Alameda Trunk and adjacent Montgomery trunk to the San Juan Chama Water Treatment Plant for arsenic removal.

Other Alternatives Considered?

An alternative to replacing wells is to restore the use of wells with arsenic levels above the drinking water standard. For insance, the wells in the Alameda Trunk and some in the adjacent Montomery Trunk are currently not used to supply drinking water. If a well collector/transmission line could deliver this well water to the San Juan Chama WTP, it coudl be treated to remove arsenic and then used for drinking water. Such a project woudl provide approximatley 30 mgd of potable water supply capacity.





Project Title - Volcano Cliffs Well No. 2 Washline Relocation

Decade Plan Line and Work Category: **704 - Drinking Water Plant: Groundwater System Renewal**

Description: **Risk Ranking:** 17.4

This item is to provide funding for the design and construction of the relocation of Volcano Cliffs Well No. 2 washline so that it no longer discharges into Open Space land.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

The washline is necessary when first starting up a well to discharge sandy/silty well water to some other location for an established period of time (usually minutes) before running it into the well collector line. Upon initial start-up of the Volcano Cliffs Well No. 2, the well currently discharges onto a concrete stilling basin adjacent an unlined pond that drains into an arroyo of Open Space land. Livestock and wildlife drink from the pond. At times, the well needs to be super-chlorinated or acid treated to clean the well screens. Although the well water is de-chlorinated or neutralized before discharge, there is a chance that a slug of super-chlorinated or low pH (acidic) washwater could be discharged into the washline. There may also be a problem with flooding during times of large discharges from the well, combined with intense storms or large precipitation events. This places the Water Authority at risk for damaging the ecosystem, impacting human health and safety, incurring clean-up costs and impacting our public image. Rerouting the washine so that it discharges into a sanitary sewer line or storm drain is the best possible solution for mitigating the Water Authority's risk.

Other Alternatives Considered?

Abandoning the well is not an option since it can supply one third of the production capability in the Volcano Trunk during the summer months and drought periods. The well is temporarily out of service since SJC surface water is currently supplying most of the consumptive demand in the Volcano Trunk.

Volcano Cliffs Well No.2 Discharging into Open Space

Volcano Cliffs Well No.2

Project Title - Thomas Well 5 Direct Inject Elimination Project

Decade Plan Line and Work Category: **705 - Drinking Water Plant: Groundwater System Renewal**

Description: **Risk Ranking:** 38.4

This item is to provide funding for the design and construction of a new collector line for conveyance of the Thomas Well No. 5 well water to the Thomas Reservoir instead of direct injection of this water into the distribution system.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

The Water Authority standard for well design requires that wells pump directly into well collector lines that are separate from the distribution system. The well collector lines deliver water to reservoirs for chlorination and storage. Thomas Well No. 5 does not operate using this preferred standard. Chlorinated well water is injected directly into the distribution line near the well station.

In principal, two major drawbacks of the use of direct injection are that the Water Authority loses the opportunity to blend water in the reservoirs to achieve acceptable arsenic levels and that chlorine contact time may not be long enough to achieve complete disinfection. Although arsenic concentrations in Thomas Well No. 5 are below the 10 ppb maximum concentration limit, the opportunity for more chlorine contact time is an important consideration in this case.

The other issue of concern is that the direct inject well sites are designated as points of entry (POE) into distribution by EPA and NMED. Because of this, the direct injection well sites have to be monitored continuously for chlorine residual. This is required to ensure that sufficient chlorine contact time has been achieved and residual levels meet the Water Authority's standard of 0.8 to 1 ppm. If chlorine contact time is insufficient, the water may not be completely disinfected. This could pose some minor health risks to customers situated close to the point of entry. The Water Authority could also be subject to permit violations from the State.

Other Alternatives Considered?

Continue as we have and make sure that the chlorine monitoring stations and disinfection systems are maintained, operating properly and accept some level of risk as discussed above.

Thomas Well 5

Project Title - Ridgecrest Well 5 Improvements

Decade Plan Line and Work Category: **706 - Drinking Water Plant: Groundwater System Renewal**

Description: **Risk Ranking:** 33.2

The Ridgecrest No. 5 Well has a production rate of approxiamtely 4.2 million gallons per day (mgd) of relatively low arsenic concentration (≈5 µg/L). It is important that this well be maintained so that it is available for service.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

The funding shown is to repair a failing wall that has been attacked by salt. The masonry wall has absorbed salt brine from the on-site hypochlorite generation system , which has weekened the wall structurally. Failure of this wall would put this well out of service until it coudl be repaired.

As funding becomes available, it would also be useful to direct the discharge of this well to the a well collector line so that the well woudl pump to the Ridgecrest Reservoirs. This is the Water Authority's standard well field configuration. Currently, Ridgecrest Well 5 pumps directly into the distribution system.

Other Alternatives Considered?

None:

Ridgecrest Well 5

Project Title - Love Well 8 Direct Inject Elimination Project

Decade Plan Line and Work Category: **707 - Drinking Water Plant: Groundwater System Renewal**

Description: **Risk Ranking:** 33.2

The Water Authority standard for well design requires that wells pump into distribution system reservoirs where it is chlorinated and stored temporarily with water from other wells. The Love Well No. 8 pumps directly into the distribution system rather than to a reservoir.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

This item is to provide funding for the design and construction of a new collector line for conveyance of the Love Well No. 8 well water to the Charles Wells Reservoir instead of direct injection into the distribution system.

Other Alternatives Considered?

Continue as we have and make sure that the chlorine monitoring stations and disinfection systems are maintained, operating properly and accept some level of risk as discussed above.

Love Well 8

Project Title - Kiva Reservoir No. 1 Rehabilitation Project

Decade Plan Line and Work Category: **708 - Drinking Water Plant: Groundwater System Renewal**

Description: **Risk Ranking:** 31.6

This item is to provide funding for the planning, design and construction of the rehabilitation of Kiva Reservoir No. 1 which stores 2.82 million gallons of treated surface water and well water.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

This is an above-ground, pre-stressed concrete tank that is 47 years old of vintage technology. It has never been fully rehabbed, with the exception of several quick, unplanned leak repairs. It is currently out of service due to a large leak on the southeast corner of the tank, adjacent a resident located about 200 feet from the base of the reservoir. Because of the second, 5.5 million gallon tank (Kiva Reservoir No. 2) located on site, there is sufficient storage capacity to keep Kiva No. 1 out of service for the next few years.

Rehabilitation of this facility will include a thorough tank inspection, pressure washing the tank interior, sandblasting and re-coating the steel fabricated parts as needed, addressing the leaks (possibly replacing the joint material in the floor and installing an epoxy liner) and re-coating the tank exterior. The vertical ladder will need to be replaced with a staircase, hand rails, bulkhead door, new hatch and landings for ease of access and to improve security. Failure to implement this project will essentially render this asset unusable, which diminishes the reliability and redundancy of the storage system in the Montgomery Trunk. This project should be programmed into the capital improvements program within the next ten years to reduce the Water Authority's risk of service disruption in the event that the second, larger reservoir needs to be taken out of service for repair or maintenance.

Other Alternatives Considered?

Inaction is a viable option with some risk as stated above.

Kiva Reservoir No. 1

Project Title - Lomas Reservoir No. 2 Rehabilitation Project

Decade Plan Line and Work Category: **709 - Drinking Water Plant: Groundwater System Renewal**

Description: **Risk Ranking:** 33.9

This item is tp provide funding for the planning, design and construction of the rehabilitation of Lomas Reservoir No. 2 which stores 6 million gallons of treated surface water and well water.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

This is a partially buried Pritzer concrete tank that is 47 years old of vintage technology. It has never been fully rehabbed, with the exception of unplanned leak repairs. Currently, it has several low-flow leaks along the west and south sides of the reservoir. This reservoir is still in service because the storage capacity is needed, the leak is very slow and it is not threatening any adjacent properties.

Rehabilitation of this facility will include a thorough tank inspection, pressure washing the tank interior, sandblasting and re-coating the steel fabricated parts as needed, addressing the leaks (possibly replacing the joint material in the floor and installing an epoxy liner) and re-coating the tank exterior. Failure to implement this project may eventually result in a more costly rehabilitation due to enlargement of the leaks and saturation of the soils subject to freeze/thaw cycles that may cause more cracking of the concrete walls and floor. This project should be programmed into the capital improvements program within the next three years to reduce the Water Authority's risk of service disruption in the event that the second, smaller reservoir needs to be taken out of service.

Other Alternatives Considered?

For now, in-action may be a viable option with some risk discussed above; however, the longer the leaks continue, the costlier the rehab becomes. As a standard, industry practice, leaking reservoirs need to be fixed as soon as possible.

Lomas Reservoir No. 2

Project Title - Natural Gas Engine Conversions

Decade Plan Line and Work Category: **710 - Drinking Water Plant: Groundwater System Renewal**

Description: **Risk Ranking:** 51.8

This item is to provide funding for the replacement of the last remaining natural gas engines at Ponderosa Well No. 3 (also known as Walker Well No. 3), Volcano Cliffs Well No. 1, Gonzales Well No. 3, Duranes Booster No. 1, and Burton Booster No. 1.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	1,400
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**1,400**

The Caterpillar gas engine air quality permit fees are $1,800 per year. The four engines are in need of replacement with electric motor drivers to eliminate emissions and improve operational efficiencies. The older engines at the Ponderosa and Volcano Cliffs wells are inefficient and replacement parts are becoming obsolete. The newer engines at Burton and Duranes pump stations are problematic from a mechanical and controls standpoint. The Duranes gas engine controls system has never worked properly eventhough it has been serviced many times by the manufacturer's representative. The Burton gas engine has had numerous mechanical problems also.

Other Alternatives Considered?

No action puts the Water Authority at risk for not having system redundancy in the event that the older gas engines cannot be serviced due to unavailability of replacement parts or the mechanical systems of the newer gas engines continue to be a problem.

Volcano Cliffs Well No. 1 - Natural Gas Engine

Corrales Well 1 - Electric driver replaced gas engine

Project Title - College Reservoir No. 1 Rehabilitation Project

Decade Plan Line and Work Category: **711 - Drinking Water Plant: Groundwater System Renewal**

Description: **Risk Ranking:** 47.2

This item is to provide funding for the planning, design and construction of the rehabilitation of College Reservoir which stores 5 million gallons of treated well and surface water.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	1,600
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**1,600**

This reservoir is 32 years old and has never been rehabbed. Pictures and videos of the reservoir interior reveal corrosion of the walls and metal structures and an advanced stage of corrosion of the floor. Only a detailed inspection involving removal of small sections (coupons) from the floor will verify this. The exterior of the reservoir is also in need of cleaning and re-coating to address corrosion. Failure to address the corrosion issues inside the tank could result in significant leaks in the future. This project should be programmed into the capital improvements program within the next ten years to reduce the Water Authority's risk to disruption of service.

Other Alternatives Considered?

None.

College Reservoir No. 1

Project Title - Love Reservoir No. 1 Rehab

Decade Plan Line and Work Category: **712 - Drinking Water Plant: Groundwater System Renewal**

Description: **Risk Ranking:** 25.1

This item is to provide funding for the planning, design and construction of the rehabilitation of Love Reservoir No. 1 which stores 6 million gallons of treated well and surface water.

Project Cash Flow Est.

	($1000s)
FY16	150
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**150**

This reservoir is a partially-buried, prestressed concrete tank that is 52 years old and has never been rehabbed. Pictures and videos of the reservoir interior reveal corrosion of the metal structures, severe spalling and cracking of the concrete walls, piers, seams and roof. The exterior of the reservoir is also in need of repair. Failure to address the metal corrosion and concrete cracking issues inside the tank could result in significant leaks in the future. This project should be programmed into the capital improvements program within the next few years to reduce the Water Authority's risk to disruption of service.

Other Alternatives Considered?

None

Love Reservoir No. 1

Project Title - Leavitt Reservoir Renewal

Decade Plan Line and Work Category: **713 - Drinking Water Plant: Groundwater System Renewal**

Description: **Risk Ranking:** 26.7

This item is to provide funding for the planning, design and construction of the rehabilitation of Leavitt Reservoir which stores 5 million gallons of treated well and surface water.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	1,600
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**1,600**

This is a 40-year old steel reservoir that has never been rehabbed. Pictures and videos of the reservoir interior reveal failure of the coating. There is corrosion of the walls, roof rafters, and other metal fabrications and an advanced stage of corrosion of the floor. Only a detailed inspection involving removal of small sections (coupons) from the floor will verify this. Failure to address the corrosion issues inside the tank could result in significant leaks in the future. This project should be programmed into the capital improvements program within the next ten years to reduce the Water Authority's risk to disruption of service.

Other Alternatives Considered?

None.

Leavitt Reservoir

Project Title - Franciscan Reservoir Rehabilitation Project

Decade Plan Line and Work Category: **714 - Drinking Water Plant: Groundwater System Renewal**

Description: **Risk Ranking:** 29.6

This item is to provide funding for the planning, design and construction of the rehabilitation of Franciscan Reservoir which stores 1.529 million gallons of treated surface water and well water.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	1,000
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**1,000**

This reservoir is a 51-year old, welded steel tank surrounded by Open Space land, private property and a large capacity AMAFCA drainage channel. Because of its remote location, it is a target for shooters, vandals and taggers. The photograph below shows the condition of the exterior coating. This reservoir has never been rehabbed and is due for one. Rehabilitation will include a thorough tank inspection, a test of the coatings for presence of lead, sandblasting the tank interior and exterior, measuring the floor thickness for corrosion and replacing the floor if needed, installation of new steel fabricated parts, appurtenances and a tank mixing system, and recoating the tank interior, exterior and metal fabrications. Failure to implement this project may eventually result in leaks. This project should be programmed into the capital improvements program within the next ten years to reduce the Water Authority's risk of service disruption.

Other Alternatives Considered?

The No Action alternative is a viable option with some risk to the Water Authority.

Franciscan Reservoir

Project Title - Charles Wells Reservoir No. 1 Rehabilitation Project

Decade Plan Line and Work Category: **715 - Drinking Water Plant: Groundwater System Renewal**

Description: **Risk Ranking:** 33.9

Charles Wells Reservoir No. 1 stores up to 6.9 million gallons of treated surface water and well water. There is no backup reservoir, so a second reservoir is need to allow Charles Reservoir No. 1 to be taken out of service without undue distruption to customer water service and fire protection.

Project Cash Flow Est.

	($1000s)
FY16	150
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**150**

This is a partially buried, rectangular concrete reservoir that is 43 years old. The roof of the reservoir is a totally fenced-in, gated tennis court that is open to the public. A fenced in air quality monitoring station, owned and operated by the City of Albuquerque Air Quality Division, is also situated on top of the reservoir. Sometime within the next ten years, this facility will need to be rehabbed. Rehabilitation of this facility will include a thorough tank inspection, pressure washing the tank interior, sandblasting and re-coating the steel fabricated parts as needed, addressing any leaks (possibly replacing the joint material in the floor and installing an epoxy liner) and resurfacing the roof. This project should be programmed into the capital improvements program to reduce the Water Authority's risk of service disruption in the event that leaks occur.

Other Alternatives Considered?

None. This is a critical reservoir and needs to be rehabilitated.

Charles Wells Reservoir - Tennis Courts on Reservoir Roof

Charles Wells Reservoir from Street

Project Title - Santa Barbara Reservoir No. 1 Rehabilitation Project

Decade Plan Line and Work Category: **716 - Drinking Water Plant: Groundwater System Renewal**

Description: **Risk Ranking:** 20.7

This item is to provide funding for the planning, design, and construction of rehabilitation of the Santa Barbara Reservoir No. 1 which stores 3.75 million gallons of treated surface water and well water. It also provides additional storage to the recently constructed Santa Barbara Reservoir No. 2.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	250
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**250**

This reservoir is 47 years old and has never been rehabbed. The vertical ladder will need to be replaced with a staircase, hand rails, bulkhead door, new hatch and landings for ease of access and to improve security. Videos and pictures of the tank interior show that the coating has failed and is in need of reconditioning. The roof rafter bolts and one rafter have fallen onto the reservoir floor. Rehabilitation of this facility will include a test of the coatings for presence of lead, sandblasting the tank interior and exterior, measuring the floor thickness for corrosion and replacing the floor if needed, installation of new steel fabricated parts, appurtenances and a tank mixing system, and recoating the tank interior, exterior and metal fabrications. Failure to implement this project may eventually result in leaks. This project should be programmed into the capital improvements program within the next ten years to reduce the Water Authority's risk of service disruption.

Other Alternatives Considered?

Inaction is a viable option with some risk to the Water Authority.

Santa Barbara Reservoir No. 1

Project Title - Reservoir Inspection & Cleaning Program

Decade Plan Line and Work Category: **717 - Drinking Water Plant: Groundwater System Renewal**

Description: **Risk Ranking:** 24.0

This item is to provide funding for the continued utilization of the selected on-call contractor for the inspection and cleaning of each reservoir every 5 years.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	50
FY19	50
FY20	50
FY21	50
FY22	50
FY23	50
FY24	50
FY25	50
Total =	**400**

Inspection and cleaning of each reservoir every 5 years is a proactive means of extending the life of the asset. Inspection would allow the Water Authority to ascertain the reservoir's condition (e.g., interior coating, corrosion areas, leak points, etc.) enabling us to properly plan for the asset's rehabilitation. Experience has proven that putting off facility rehab makes it more costly in the long run. In addition, many of the reservoirs store well waters high in sand and silt which settle out on the reservoir floors. Some of the reservoirs have several feet of sand/silt deposits on the bottom. This material has the potential for being re-entrained into the discharges that enter the transmission and distribution systems. Regular inspection and cleaning of the reservoirs would preclude this and reduce the Water Authority's risk of receiving customer complaints and funding costly rehabs.

Other Alternatives Considered?

Inaction is a viable alternative with some minimal risk to the Water Authority.

Existing Franciscan Reservoir

Interior of Volcano Cliffs Reservoir No. 1 Before Rehab

Project Title - W.A. Webster Reservoir Rehabilitation Project

Decade Plan Line and Work Category: **718 - Drinking Water Plant: Groundwater System Renewal**

Description: **Risk Ranking:** 27.4

This item is to provide funding for the planning, design and construction of the rehabilitation of the W.A. Webster Reservoir which stores 4 million gallons of treated surface water and well water.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	250
FY23	-
FY24	-
FY25	-
Total =	**250**

This reservoir is 33 years old and has never been rehabbed. Rehabilitation of this facility will include sandblasting the tank interior and exterior, measuring the floor thickness for corrosion and replacing the floor if needed, installation of new steel fabricated parts and appurtenances, replacement of rafter bolts, installation of a tank mixing system, and recoating the tank interior, exterior and metal fabrications. Failure to implement this project may eventually result in leaks. This project should be programmed into the capital improvements program within the next ten years to reduce the Water Authority's risk of service disruption.

Other Alternatives Considered?

In-action is a viable option with some risk to the Water Authority.

Webster Reservoir

Project Title - Miscellaneous Reservoir Rehab

Decade Plan Line and Work Category: **719 - Drinking Water Plant: Groundwater System Renewal**

Description: **Risk Ranking:** 14.0

This item is to provide funding for the rehabilitation of each steel and concrete reservoir 20 years and 30 years, respectively.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

Along with regular inspections and cleanings, programmed rehabs will prolong the life of the steel and concrete reservoirs which is the best asset management practice. Failure to program funds on a continuing basis for this activity will shorten the life of these assets. The more advanced the deterioration of the asset, the higher the cost for re-conditioning it. This program will reduce the potential for reservoir leaks, NMED violations and loss of service.

Other Alternatives Considered?

None

Charles Wells Reservoir - Concrete Tank

Coronado Reservoir - Steel Tank

Project Title - Griegos Pump Station Rehabilitation Project

Decade Plan Line and Work Category: **720 - Drinking Water Plant: Groundwater System Renewal**

Description: **Risk Ranking:** 31.8

This items is to provide funding for the planning, design and construction of rehabilitation of the Griegos Pump Station that currently pumps water from the Griegos Well Field to the Santa Barbara Reservoir in Zone 2E.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	1,500
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**1,500**

Griegos Pump Station is almost 57 years old and has never been rehabbed. The pumps, motors, electrical equipment, and controls are out of date and difficult to maintain because certain parts are no longer manufactured. The valves and piping are badly corroded. There is no in-line flow meter to measure flows out of the station which presents a problem when assessing pump performance or setting up temporary operational modifications in the upper zones. If the asset is allowed to fail, the Water Authority will not have use of 8 low arsenic, high production wells that supply 50% of the well water needs in the Freeway Trunk. Rehabilitation of this pump station will reduce the Water Authority's risk in disruption of service, provide system redundancy and reliability especially during the summer months and drought periods.

Other Alternatives Considered?

The no-action alternative is not without risks to the Water Authority. Another alternative that will be considered is replacement of the above-grade pump station with an underground pump station which has some cost savings in terms of capital investment and operation and maintenance.

Griegos Pump Station - Interior

Griegos Pump Station - Exterior

Project Title - Facility Abandonment Decommissioning

Decade Plan Line and Work Category: **721 - Drinking Water Plant: Groundwater System Renewal**

Description: **Risk Ranking:** 14.0

This item is to provide funding for the ongoing decommissioning of obsolete or retired pump stations, reservoirs, well buildings and disinfection facilities.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

There are several pump stations including Santa Barbara, San Jose, Yale, South Unser and North Unser that are identified for decommissioning. They have been replaced by a new station (Santa Barbara) or are no longer needed (San Jose, South Unser and North Unser). Abandoning them in place poses a risk to the Water Authority since these facilities tend to be forgotten and unchecked for long periods of time and therefore, prone to vandalism, theft, intrusion and leaks. Decommissioning the pump stations and associated facilities helps to secure the water system and prevent future leaks. Additional benefits of decommissioing the pump stations at San Jose and Santa Barbara will allow the Water Authority to sell the land to gain monies for use on other capital projects. Decommissioning the South Unser Pump Station will allow the property to be returned back to Owner (Cocoa Cola Company) for their use.

Other Alternatives Considered?

None

Yale Reservoir - Out of Service

Santa Barbara Pump Station - Abandoned

Project Title - Corrales Well 2 Collector Pipeline

Decade Plan Line and Work Category: **722 - Drinking Water Plant: Groundwater System Renewal**

Description: **Risk Ranking:** 38.1

Corrales Well 2 is currently out of service due to elevated arsenic levels. The water needs to be treated to remove arsenic prior to serving at as drinking water. Corrales Well 3 has an arssenic removal treatment system; however, this well is currently out of service due to failure of the natural gas engine. Constructing a collector line between Corrales Well 2 and the Well 3 Site would allow this water to be treated and provide an additioanl source of water for this trunk.

Project Cash Flow Est

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

The shown funding will allow for an engineering consultant to be hired to design the well collector pipeline and for its construction.

Other Alternatives Considered?

No action puts the Water Authority at risk for water shortages.

Project Title - Corrales Well 8 Improvements

Decade Plan Line and Work Category: **723 - Drinking Water Plant: Groundwater System Renewal**

Description: **Risk Ranking:** 14.0

This item is to provide funding for improvements to Corrales Well 8 to elevate it to current Water Authority standards. This is a low arsenic, 3,000 gpm (4.32 MGD) well that makes up 40% of the Corrales Trunk production capacity (of the currently operating wells).

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

Improvements include the motorization of the discharge line and washline valves for ease in operation and control. All of our wells are equipped with motorized valves to automate the process of putting them into and out of service. With the large number of wells (90 plus), the Water Authority would never have enough manpower to operate the wells on hand (manually).

Other Alternatives Considered?

No action is not without some risks to the Water Authority. Having motorized valves improves the operation and maintenance of the facilities and frees up operators and technicians to work on other assets.

Corrales Well 2 Motorized Wash Line Valve

Needs to be done at Corrales Well 8

Project Title - Corrales Well 9 Improvements

Decade Plan Line and Work Category: **724 - Drinking Water Plant: Groundwater System Renewal**

Description: **Risk Ranking:** 33.0

This item is to provide funding for improvements at Corrales Well 9 to elevate it to current Water Authority standards. It is a high arsenic, 1,500 gpm (2.2 MGD) well that makes up 20% of the production capacity of the Corrales Trunk.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	330
FY23	-
FY24	-
FY25	-
Total =	**330**

Improvements include motorization of the washline and discharge valves, installation of a storm drain to convey washline discharges into the storm sewer and installation of a new carbon dioxide feed system for pH control of the arsenic treated well water. The existing carbon dioxide feed system is unreliable, out of date and in need of replacement. Motorization of the line valves is needed to automate the process of putting the well into and out of service. With the large number of wells (90 plus), the Water Authority would never have enough manpower to operate any of the wells manually. Currently, the well does not run to wash on start-up because there is no storm drain on site to convey the discharges away from the facility. If the Water Authority ever needed to run the well to wash for an extended period of time for sand removal or well treatment (i.e., chemical cleaning, super-chlorination, etc.) the discharges would have to be retained in the undersized, on-site detention pond which would not be feasible. A new storm drain tied into the existing storm sewer would allow these functions to occur. Failure to implement these improvements would put the Water Authority at risk for water shortages in the Corrales Trunk if this well had to be taken out of service due to failure of the existing carbon dioxide feed system or an inability to clean the well if the need arises.

Other Alternatives Considered?

No action is not without some risk to the Water Authority. Not having use of this well due to the inability to treat it and propery dispose of the discharges will result in water shortages in the Corrales Trunk. Having automated, up-to-date systems and infrastructure affords the Water Authority optimal use of this asset.

Corrales Well 2 Motorized Wash Line Valve Needs to be done at Corrales Well 9

Corrales Well 9 - Holding Pond for Washline Discharges

Project Title - Corrales Trunk Natural Gas Engine Overhauls

Decade Plan Line and Work Category: **725 - Drinking Water Plant: Groundwater System Renewal**

Description: **Risk Ranking:** 30.9

This item is to provide funding for the ongoing maintenance, repair and periodic top-end and bottom-end overhauls which are required for the proper care of gas engines to prolong their useful lives and keep them in good operating condition.

Project Cash Flow Est.

	($1000s)
FY16	50
FY17	50
FY18	50
FY19	50
FY20	50
FY21	350
FY22	50
FY23	50
FY24	50
FY25	50
Total =	**800**

Until all of the gas engine wells are converted to electric motors, this activity is required to keep the equipment in good operating condition. Failure of this equipment due to lack of routine preventive maintenance and overhauls will result in the loss of production capability and the risk of water shortages in the Corrales Trunk during peak summer months.

Other Alternatives Considered?

No action will result in equipment failures, loss of production capacity and risk of water shortages in the Corrales Trunk.

Corrales Well 2 Gas Engine - Requires Routine Preventive Maintenance & Overhaul

Project Title - Booster Station Surge Suppression System Rehab Program

Decade Plan Line and Work Category: **726 - Drinking Water Plant: Groundwater System Renewal**

Description: **Risk Ranking:** 53.5

This is to provide funding for the inspection and rehabilitation of the aging surge suppression systems at all 50 plus booster stations of the Water Authority service area.

Project Cash Flow Est.

	($1000s)
FY16	15
FY17	15
FY18	50
FY19	50
FY20	50
FY21	50
FY22	50
FY23	50
FY24	50
FY25	50
Total =	**430**

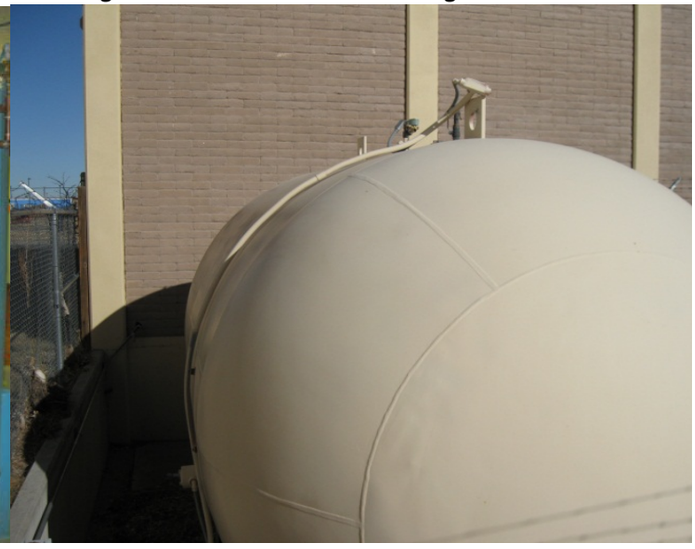
There are surge suppression systems in the Water Authority service area that are 50 plus years old that have never been inspected or rehabbed. These systems are critical to the proper functioning and life of the booster stations. Without them, booster stations are at risk of total failure and destruction in the event of sudden, unplanned valve closures in the station and downstream pipelines, sudden pump shut-offs or loss of station power. Loss of booster stations to move water up the trunk zones translates to water shortages and loss of service for long periods of time. In the event a booster station is removed from service due to a surge tank failure, cross trunk transfer is an option for most service areas with the exception of Four Hills. Without the Ridgecrest Pump Station, there is no other way to get water up to Four Hills. In addition, failed surge suppression systems would be costly and difficult to replace in short order due to long lead times for tanks and related appurtenances. Inspections and planned rehabilitation of the aging systems will prevent potential failures and loss of service.

Other Alternatives Considered?

For some service areas, no action puts the Water Authority at risk for long-term water shortages, loss of service, loss of fire protection, thus a risk to public health and safety, and public dissatisfaction.

Canada Booster Station - Surge Tank

Ridgecrest Booster Station - Surge Tank



Project Title - Burton Reservoir No. 2 Renewal

Decade Plan Line and Work Category: **727 - Drinking Water Plant: Groundwater System Renewal**

Description: **Risk Ranking:** 65.6

This item is to provide funding for partial rehabilitation of Burton Reservoir No. 2.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

Burton Reservoir 2 is a 1950's vintage concrete reservoir with a storage capacity of 6 MG. The 56-year old reservoir was has never been rehabbed. Recent inspection of the tank interior and exterior reveals that the interior ladder and roof hatch are corroded and in need of replacement. The concrete on the interior walls and roof is spalling, exposing corroded rebar. There are small openings for insect entry at the joint between the tank walls and roof. Failure to rehabilitate the reservoir could lead to leaks in the future and injury of operators entering the reservoir interior via the damaged ladder.

Other Alternatives Considered?

No action is not without some risk to the Water Authority with respect to the heath and safety of operators and possible NMED citations and fines for unmitigated cracks and openings in the reservoir roof.

Burton Reservoir No. 2 - Roof Hatch

Project Title - Leyendecker Well No. 4 Washline

Decade Plan Line and Work Category: **728 - Drinking Water Plant: Groundwater System Renewal**

Description: **Risk Ranking:** 43.3

This item is to provide funding for the planning, design and construction of a 10-inch well washline for Leyendecker Well 4. This well is a low arsenic, high production capacity well that supplements the SJC surface water supply for the Montgomery and Alameda Trunks. It is 30 plus years old and has never been removed for servicing until just recently.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

Narrative: knowledge of asset, why project, how, failure, how does this reduce WA risk?

Leyendecker Well 4 was originally constructed without a washline because there were no storm drains in close proximity to the well site, which is still the case today. Washlines are essential for the conveyance and removal of well start-up discharges before putting wells back into service after conducting well screen cleanings, pump repairs, maintenance work and water quality acceptance testings. Washlines typically discharge into storm drains, channels and arroyos.The closest storm drain to the Leyendecker well site is approximately 2,300 feet away in Montgomery Boulevard. A new washline will have to be aligned along Louisiana and Montgomery to convey discharges to the Grantline Channel. The Water Authority has been fortunate up until now that this well never required servicing. However based on experience, as wells age they require more frequent maintenance and rehabilation. The Water Authority will need to be prepared to deal with the disposition of washline discharges from the Leyendecker well when it is removed from operation for servicing.

Other Alternatives Considered?

Operational modifications which include: temporarily isolating Leyendecker Wells 2 and 4 from the main collector line that is also supplied by Leyendecker Wells 1 and 3, removing Leyendecker Well 2 from service to allow start-up discharges to flow into one leg of the well collector line and back through Leyendecker Well 2 washline. This is not an option if chemicals are used for cleaning or disinfection or Well 2 is needed for production capacity. Therefore, this is not a long-term solution because it could impact

Leyendecker Well 4

Project Title - Water Pumping Station Asset Management Plan

Decade Plan Line and Work Category: **729 - Drinking Water Plant: Groundwater System Renewal**

Description: **Risk Ranking:** 45.1

Asset Management (AM) is an extensive, well thought out 'Business Model' that helps utility managers make better acquisition, operations and maintenance, renewal, and replacement decisions. The principles of AM were developed to address the critical problem of aging public infrastructure and changing utility business environment.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

To allow the Water Authority to better establish its asset management program, it needs to develop detailed, 10-year asset management plans (AMPs) for its different asset categories. This information will be used to schedule capital improvement/renewal projects in the most cost effective manner so as to minimize life cycle costs.

The requested funding is to support hiring a qualified consultant to perform a detailed asset condition assessment of the Water Authorities drinking water booster pumping stations. These pumping stations are vital to the operation of the drinking water system because they are needed to move water up into pressure zones that may not have wells or other water sources. Therefore, it is critical that these stations be maintained and renewed to provide reliable service at all times.

Other Alternatives Considered?

Not performing a detailed, 10-year AMP makes scheduling of renewal work difficult, because there will be limited condition information available for the basis.

West Mesa Booster Pumping Station

Project Title - Water Pumping Station Asset Management Plan

Decade Plan Line and Work Category: **730 - Drinking Water Plant: Groundwater System Renewal**

Description: **Risk Ranking:** 45.1

Asset Management (AM) is an extensive, well thought out 'Business Model' that helps utility managers make better acquisition, operations and maintenance, renewal, and replacement decisions. The principles of AM were developed to address the critical problem of aging public infrastructure and changing utility business environment.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

To allow the Water Authority to better establish its asset management program, it needs to develop detailed, 10-year asset management plans (AMPs) for its different asset categories. This information will be used to schedule capital improvement/renewal projects in the most cost effective manner so as to minimize life cycle costs.

The requested funding is to support hiring a qualified consultant to perform a detailed asset condition assessment of the Water Authorities drinking water reservoirs. The reservoirs not only provide storage of drinking water but also fire fighting water. An unscheduled shutdown of a reservoir for mainteanance and repair can be very disruptive to water service. Failure of a reservoir could also result in loss of millions of gallons of water as well as property damange.

Other Alternatives Considered?

Not performing a detailed, 10-year AMP makes scheduling of renewal work difficult, because there will be limited condition information available for the basis.

Franciscan Reservoir

Griegos Pumping Station

Project Title - Well Asset Management Plan

Decade Plan Line and Work Category: **731 - Drinking Water Plant: Groundwater System Renewal**

Description: **Risk Ranking:** 45.1

Asset Management (AM) is an extensive, well thought out 'Business Model' that helps utility managers make better acquisition, operations and maintenance, renewal, and replacement decisions. The principles of AM were developed to address the critical problem of aging public infrastructure and changing utility business environment.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

To allow the Water Authority to better establish its asset management program, it needs to develop detailed, 10-year asset management plans (AMPs) for its different asset categories. This information will be used to schedule capital improvement/renewal projects in the most cost effective manner so as to minimize life cycle costs.

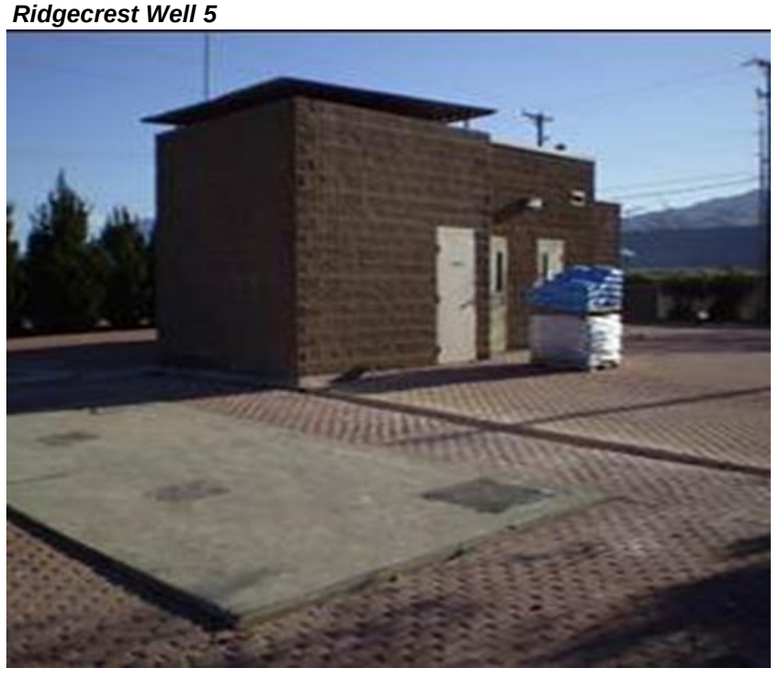
The requested funding is to support hiring a qualified consultant to perform a detailed asset condition assessment of the Water Authorities wells. It is critically important that the groundwater production system be maintained in proper operational condition. Even though the Water Authority has surface water as its primary source of drinking water, there are times of the year when this source needs to be supplemented by groundwater. Also, during severe drought years, the surface supply may be curtailed, so it is important tha the wells be maintained so as to be able to fully meet peak water demands.

Other Alternatives Considered?

Not performing a detailed, 10-year AMP makes scheduling of renewal work difficult, because there will be limited condition information available for the basis.

Love Well 8

Ridgecrest Well 5



Project Title - Valve Exercising Equipment and Valve Replacements

Decade Plan Line and Work Category: **732 - Drinking Water Plant: Groundwater System Renewal**

Description: **Risk Ranking:** 36.3

At each of the Water Authority's Potable and Non-Potable Reservoirs, wells, booster pumping stations, and treatment plants, there are numerous large diameter valves. To remain operable, these valves should be opened and closed (exercized) at least once per year.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	100
FY19	100
FY20	100
FY21	100
FY22	100
FY23	100
FY24	100
FY25	100
Total =	**800**

This funding identified in this project will be used to purchase a trailer-mounted valve excercising system that also includes a vaccum for cleaning debris from buried valve cans. The valve excercising equipment is especially designed to restore frozen valves to working order. continued funding each year is to allow for replacement of valves that cannot be restored to working order.

Other Alternatives Considered?

None: Valves like most any other type of equipment requires routine preventative maintenance to extend the asset's life and maintain the system level of service.

Trailer-Mounted Valve Exercising and Vacuum Unit

Project Title - Corrales Reservoir 1 Drop Valve Improvements

Decade Plan Line and Work Category: **733 - Drinking Water Plant: Groundwater System Renewal**

Description: **Risk Ranking:** 40.2

The existing drop valve does not provide adequate capacity or control of flow.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

The funding for this project will provide for purchase of a new valve and related components and installation.

Other Alternatives Considered?

None

Project Title - Corrales Reservoir 7 Site Improvements

Decade Plan Line and Work Category: **734 - Drinking Water Plant: Groundwater System Renewal**

Description: **Risk Ranking:** 46.8

The booster pumping station at the Corrales Reservoir 7 site lacks a hydro-pneumatic surge tank. This deficiency greatly increases the risk of damage to the piping due to water hammer events. Also, the back up generator needs improvements to ensure customer service during a PNM power outage.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

The funding for this project will provide for a consultant to assist in the evaluation and design of a surge tank and associated equipment as well as improvements to the standby generator system. Funding is also show cover the associated construction costs.

Other Alternatives Considered?

None

Project Title - Booster Pumping Station Arc Flash Study

Decade Plan Line and Work Category: **735 - Drinking Water Plant: Groundwater System Renewal**

Description: *(when, where, expected level of service)* **Risk Ranking:** 69.5

Arc flash is a serious hazard for WUA employees that need to access and/or work around electrical panels. Arc flash can seriously injure or kill employees. Many of the WUA's electrical systems are old and pre-date modern arc flash safety provisions and labelling. This project will be done together with Project 508 - Lift and Vacuum Station Arc Flash Study.

Project Cash Flow Es

	($1000s)
FY16	150
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**150**

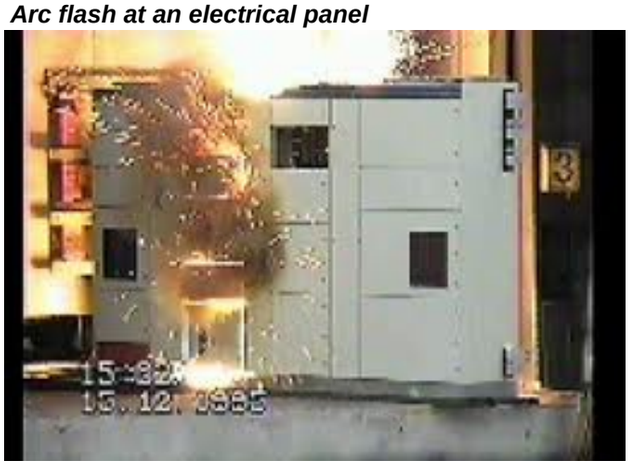
Narrative: (knowledge of asset, why project, how, failure, how does this reduce WA risk)

This funding will be used to hire a consultant to perform arc flash assessments at the sanitary sewer lift stations and vacuum stations. The arc flash assessments will include site visits to each lift and vacuum station, data collection and analysis, a NFPA 70E Arc Flash Hazard Assessment, and preparation of a report with recommendations.

Other Alternatives Considered?

None.

Arc flash at an electrical panel



Arc flash engulfing a worker

Project Title - Corrales Well 2 Improvements

Decade Plan Line and Work Category: **736 - Drinking Water Plant: Groundwater System Renewal**

Description: **Risk Ranking:** 38.1

Corrales Well 2 was removed from service several years ago when the MCL's for arsenic were reduced from 50 ppb to 10 ppb. It is a high production well capable of producing 3,000 gpm (4.32 MGD). This well is important to the Corrales Trunk for improving production capacity during the peak summer months.

Project Cash Flow Es

	($1000s)
FY16	50
FY17	600
FY18	950
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**1,600**

This project woudl be done in together with Project 722 - Corrales Well 2 Collector Pipeline, which constructs a transmission pipeline between the Corrales Well 2 and Well 3 sites. This will allow the Corrales Well 2 water to be treated at the existing arsenic removal treatment plant at the Well 3 site.

Improvements needed at Corrales Well 2 include motorizing the washline and discharge lines valves.

Improvements at the Corrales Well 3 Arsenic Removal Treatment Plant include improvements to the carbon dioxide and sodium hypochlorite systems and the installation of a ortho/poly-phosphate storage and feed system. Other improvements include a waste washwater equalization tank, yard piping, electrical and instrumenation systems.

The funding shown is for hiring a consultant to complete the design of the improvements and for construction of these improvements.

Other Alternatives Considered?

Other alternatives considered during the study phase included relocating the arsenic removal treatment system from CRL Well 3 to the CRL Well 2 site and replacing the out of service CRL Well 3.

Corrales Well 3 - Arsenic Treatment System

Project Title - Corrales Trunk Arsenic Treatment Improvements

Decade Plan Line and Work Category: **737 - Drinking Water Plant: Groundwater System Renewal**

Description: **Risk Ranking:** 30.2

The operational cost of arsenic removal can be reduced by optimizing the pH of the water ahead of the arsenic removal contactors. The ideal pH is approximately 7.3. Lowering the pH of the raw well water from about 8.2 to 7.3 will provide prolonged life of the arsenic media; thereby, reducing the frequency of replacement. The existing pH control systems are unreliable.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	100
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**100**

The funding shown is to evaluate the current systems and develop schematic designs for improvements at Corrales Wells 7 and 9. Funding is also shown for implementation of the modifications. The actual required funding will be dependent on the consultant's findings.

Other Alternatives Considered?

The no-action alternative is not without risks to the Water Authority with respect to life expectancy of the Water Authority assets, controlling water quality and maintaining customer satisfaction.

Project Title - Corrales Well 4 Improvements

Decade Plan Line and Work Category: **738 - Drinking Water Plant: Groundwater System Renewal**

Description: **Risk Ranking:** 35.4

Corrales Well 4 has a capacit of approximately 2,500 gpm (3.6 MGD). It was removed from continuous service several years ago when the MCL's for arsenic were reduced from 50 ppb to 10 ppb. This well could be an important source of water to the Corrales Trunk especially during the peak summer months, if an arsenic removal system coudl be deployed.

Project Cash Flow Es

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

The funding shown is to hire an engineering consultant to prepare a design analysis report and intitiate the design of an arsenic removal system. A limited budge is shown for arsenic treatment. The actual funding requirements will depend on the outcome of the consultant's evaluation.

Other Alternatives Considered?

None

Corrales Well 3 - Arsenic Treatment System

Need a similar system at Corrales Well 4

Project Title - Corrales Well 5 Improvements

Decade Plan Line and Work Category: **739 - Drinking Water Plant: Groundwater System Renewal**

Description: **Risk Ranking:** 28.2

This item is to provide funding for various improvements at the well to enable it to be put back into service. It was recently removed from service when the arsenic levels jumped above 10 ppb. It is a high production well capable of producing 2,200 gpm (3.2 MGD). This well is important to the Corrales Trunk for improving production capacity during the peak summer months.

Project Cash Flow Es

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

The funding shown is to evaluate and document the improvements needed to allow this well to be brought back into service. Potential major impovements include the following: (1) installation of an arsenic removal system and buildilng, (2) conversion of the gas engine driver to an electric motor, and (3) construction of a well collector line to deliver the treated water to Corrales Reservoir 1 where it would be blended with other well water. Since electric lines are close to the site, electrification of the well will help reduce O&M costs.

Other Alternatives Considered?

No action puts the Water Authority at risk for water shortages in the Corrales Trunk.

Corrales Well 5 Gas Engine

Arsenic Treatment Vessles

Project Title - Corrales Trunk Arsenic Media Replacement

Decade Plan Line and Work Category: **740 - Drinking Water Plant: Groundwater System Renewal**

Description: **Risk Ranking:** 75.6

There are three arsenic removal treatment systems in the Corrales Trunk. These system use granular ferric hydroxide media, which requires periodic replacement.

Project Cash Flow Est.

	($1000s)
FY16	350
FY17	-
FY18	350
FY19	350
FY20	350
FY21	350
FY22	350
FY23	350
FY24	350
FY25	350
Total =	**3,150**

This funding will be used to replace the arsenic removal media from the different pressure vessels. This is necessary to restore the ability of these systems to remove arsenic from the well water prior to distributing the water to Water Authority customers. Without periodic replacement, the treated water arsenic level woudl exceed the federal and state drinking water maximum contaminant level of 10 parts per billion (ppb).

Other Alternatives Considered?

None.

Corrales Well 3 - Arsenic Treatment System

Granular ferric hydroxide arsenic removal media

Project Title - Reservoir Mixing Systems

Decade Plan Line and Work Category: **741 - Drinking Water Plant: Groundwater System Renewal**

Description: **Risk Ranking:**

The water in potable water reservoirs can become stratefied due to temperature. Warm water tends to remain near the top of the water column with cooler water at the bottom. The inlet and outlet of the reservoirs are at the bottom. Therefore, the bottom layer is turned over each day; whereas, the top layer of the water column tends to remain (stagnate). This results in the loss of chlorine residual as the water ages. Providing an active mixing system helps to eliminate the stagnant water, improving water quality.

Project Cash Flow Est.

	($1000s)
FY16	35
FY17	35
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**70**

This funding will be used to add active mixer to some of the reservoirs to determine there effectiveness in improving water quality.

Other Alternatives Considered?

None.

Typical Potable Water Reservoir

Project Title - San Juan-Chama Water Project Contingency

Decade Plan Line and Work Category: **801 - Drinking Water Plant: Treatment Systems Renewal**

Description: **Risk Ranking:** 71.2

This item is to provide funding for emergency capital improvements to address unanticipated equipment or other asset failures at the facilities associated with the San Juan-Chama Drinking Water Plant and related facilities. This is a critical facility in the Water Authority's drinking water system and any asset failures need to be addressed quickly to maintain the expected level of service.

Project Cash Flow Est.

	($1000s)
FY16	885
FY17	150
FY18	150
FY19	200
FY20	200
FY21	200
FY22	200
FY23	200
FY24	200
FY25	200
Total =	**2,585**

Sometimes equipment fails earlier than its expected life and needs to be rehabilitated or replaced to maintain operation of a facility. For example, a $30,000 sludge pump at the San Juan-Chama Water Treatment Plant failed after only 2 years of operation. This pump needed to be replaced to maintain the capacity of the sludge processing system at the plant. Not renewing failed equipment increases risk due to lower facility capacity.

Other Alternatives Considered?

None

Progressive Cavity Sludge Pump at the WTP

Project Title - Chemical Solids Treatment Improvements at the SJCWTP

Decade Plan Line and Work Category: **802 - Drinking Water Plant: Treatment Systems Renewal**

Description: **Risk Ranking:** 62.6

The four solids drying beds at the SJCWTP do not drain as designed and are in need of work to operate more effectively. Solids management at the SJCWTP has been and will continue to be an issue as the amount in the river varies widely between winter months and summer monsoons. Additional treatment options may be need to be evaluated and constructed in the future to optimize and improve solids management.

Project Cash Flow Es

	($1000s)
FY16	220
FY17	220
FY18	220
FY19	220
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**880**

The SJCWTP has four drying beds that are used to dewater and dry the waste solids generated by the Actiflo high rate clarification process. The requested funding includes funding for a consultant to evaluate the current design and make recommendations for design modifications. The cost of construction will ultimately depend on the required modifications and will not be known until the design consultant completes its evaluation.

Other Alternatives Considered?

Sludge Drying Bed at SJCWTP

Ramp of Sludge Drying Bed at SJCWTP

Project Title - Pre-Sedimentation Solids Handling Improvements

Decade Plan Line and Work Category: **803 - Drinking Water Plant: Treatment Systems Renewal**

Description: **Risk Ranking:** 56.7

The purpose of the two, parallel Grit Removal Basins is to remove sand and silt in the raw water pumped from the Rio Grande. Once full, one basin is to be taken off-line to allow the sand and silt to dewater and then be removed using front-end loaders. However, the original design of the basins does not allow the material to dewater in a resonable amount of time; therefore, modifications to the basins are needed to facilitate material removal. The two parallel Settled Water Basins that follow the Grit Removal Basins also need a system for removing sediment.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	240
FY18	240
FY19	1,240
FY20	1,215
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**2,935**

The initial years of the proposed funding is hire a contractor to assist Water Authority forces in cleaning out the basins. Funding in the later years is shown for construction; however, the actual cost of constructing the improvements will be dependent on the recommended modifications. Solids management will continue to be an issue that we will evaluate and examine alternatives to reducing costs over the long term.

Other Alternatives Considered?

Currently, the wet sand and silt is pumped to an on-site depression at the SJCWTP site and allowed to dewater. This involves the use of temporary pumps and piping provided by a contractor. It is labor intensive and costly to the operation of the plant where other options may reduce this.

Grit Removal Basin at the SJCWTP

Settled Water Basins

Project Title - Dissolved O one Monitoring System Improvements

Decade Plan Line and Work Category: **804 - Drinking Water Plant: Treatment Systems Renewal**

Description: **Risk Ranking:** 47.2

This item is to provide funding for relocating the ozone residual monitoring stations at the Ozone Contact Basins of the San Juan Chama Water Treatment Plant. The current design is unreliable and requires extensive maintenance. The new design must incorporate improved safety measures and reduced long-term maintenance costs.

Project Cash Flow Est.

	($1000s)
FY16	1,600
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	500
FY25	-
Total =	**2,100**

Each of the three ozone contact basins at the SJCWTP has a aqueous ozone residual sampling/monitoring station. This equipment and instrumentation is used to continuously measure the ozone residual in the water being treated. This is a requirement by the USEPA for compliance with the disinfection requirements of the Surface Water Treatment Rule.

The current sampling/monitoring systems are located on top of the ozone contact basins. This results in unreliable sample withdrawal and high maintenance due to the sample pumps losing suction. There are potential safety hazards that could be avoided by relocating the equipment to ground level. Also, the current design does not allow sampling of the ozone residual at multiple locations in the basins so that full credit for the ozone residual cannot be determined. This may result in having to feed more ozone than should be required leading to higher operating costs.

The work is anticipated being done in two phases. First with the use of large panels and ultimately locating the sampling/monitoring equipment in enclosures on each side of the basins will correct the above issues.

Other Alternatives Considered?

Industry experts recommend gravity flow of samples to ozone monitoring equipment rather than using pumps. This will require that the sampling/monitoring equipment be relocated to the sides of the basin.

Ozone Monitoring Station Over Ozone Contactor Basins

Relocate Monitoring Stations to Side of Contactor Basins

Project Title - Rio Grande Diverion Bar Screen Improvements

Decade Plan Line and Work Category: **805 - Drinking Water Plant: Treatment Systems Renewal**

Description: **Risk Ranking:** 67.7

This item is to provide funding for improvements to the bar screens at the San Juan Chama Water Project Diversion Structure. The initial design of the bar screens requires manual cleaning, which takes the maintenance staff away from more important duties. Clogging of the bar screens sometimes limit the ability to get the full diversion in a particular day. We are working hard to reduce those days where diversions are impacted due to these types of issues.

Project Cash Flow Est

	($1000s)
FY16	245
FY17	1,040
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**1,285**

The manual bar screens are designed to remove sticks and other debris from the water being withdrawn from the Rio Grande prior to pumping it to the San Juan Chama Water Treatment Plant. Currently, the bar screens have to be manually cleaned up to three times per day by the plant maintenance staff, although the screens were not actually designed to accomodate this type of cleaning. Therefore, the manual cleaning operation takes important operator time and effort to perform these duties when other more important duties may be needed. As the SJCWTP is used at higher flow rates, the clogging problems will be increased due to higher flow rates and more flow volume per day.

The requested funds are intended to hire a design consultant to evaluate the problems and make recommendations for design changes. It is anticipated that it will be necessary to retrofit the facility with mechanical bar screen cleaning equipment. The estimated cost of constructing the improvements will be developed as part of the consultant's work.

Other Alternatives Considered?

Alternative improvements will be evaluated by the design consultant.

Diversion Dam Intake Structure - Bar Screens

Project Title - Settled Water Basin Edge Protection

Decade Plan Line and Work Category: **806 - Drinking Water Plant: Treatment Systems Renewal**

Description: **Risk Ranking:** 60.9

This item is to provide funding for improvements to protect the edges of the settled water basin.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

The top of the settled water basin embankment is comprised of a heavy mil geomembrane covered by a layer of gravel that thins out to less than an inch near the edge of the slope. This creates a safety hazard for operators, contractors and other personnel walking along the topslope. As shown in the photograph below, it appears that gravel has been sloughing off into the basin, exposing more of the underlying geomembrane. Construction of edge protection such as fencing and toe protection could prevent personnel and contractors from slipping and falling into the basin while performing normal work duties.

Other Alternatives Considered?

No action is not an option when worker safety is at risk.

Edge of Settling Basin Embankment

Project Title - Water Systems SCADA Control Renewal

Decade Plan Line and Work Category: **807 - Drinking Water Plant: Treatment Systems Renewal**

Description: **Risk Ranking:** 50.4

This project funds the Telvent Supervisory Control and Data Aquisition (SCADA) system hardware replacement and software upgrade. The SCADA process computers provide continuous operations 24 hours a day 365 days a year. Due to the age of the process control computers, Dell will not warranty them any longer. Were the SCADA equipment to fail, it would be extremely difficult to produce, treat or distribute water manually.

Project Cash Flow Est.

	($1000s)
FY16	110
FY17	20
FY18	20
FY19	330
FY20	330
FY21	440
FY22	100
FY23	-
FY24	-
FY25	-
Total =	**1,350**

The Telvent SCADA system computer servers and workstations that control the surface and groundwater pumping and treatment systems are facing obsolescence. Dell will not warranty the equipment nor can Dell resellers provide replacement parts. The existing MSSQL 2000 engine and MS2003 Server software are outdated and require modernization to keep pace with the Telvent hardware upgrade. The existing SCADA software is a decade behind national standards for SCADA security and need to be upgraded to provide better protection against computer related threats which could jeopardize water service. A Telvent SCADA software maintenance contract is needed to guarantee that the SCADA system can be restored immediately following any possible equipment failure.

Other Alternatives Considered?

N/A SCADA must operate 24/7/365.

SCADA Servers

SCADA Workstation

Project Title - Radio and Telemetry Replacement

Decade Plan Line and Work Category: **808 - Drinking Water Plant: Treatment Systems Renewal**

Description: **Risk Ranking:** 51.8

This project funds the MDS master and remote radio/telemetry hardware replacement and system upgrade. The radio/telemetry equipment provides continuous operations 24 hours a day 365 days a year. Due to the age of this equipment, MDS will no longer provide support beyond FY13. Were the telemetry equipment to fail, it would be extremely difficult to produce, treat or distribute water manually.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	500
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**500**

The MDS/GE SCADA master and remote radio equipment, point-to-point LEDRs, multiplexers, and repeaters located throughout the city provide communications between the various water system facilities and the SCADA computers. These radios provide the communications link to control groundwater pumping, treatment, and distribution. Complete replacement of the radio/telemetry network is needed due to equipment obsolescence as maintenance support for existing radio/telemetry equipment will no longer be available. Failure of this equipment could jeopardize the reliability to supply water to the public.

Other Alternatives Considered?

N/A Radio/Telemetry is essential for remote control and monitoring of water pumping, treatment and storage equipment located throughout Albuquerque and Bernalillo County.

Radio/Telemetry Equipment

Radio/Telemetry Tower

Project Title - Surface Water Plant Uniterruptable Power Supplies (UPS) Renewal

Decade Plan Line and Work Category: **809 - Drinking Water Plant: Treatment Systems Renewal**

Description: **Risk Ranking:** 51.8

This project funds the replacement of the Water Treatment Plant's Uninterruptable Power Supply (UPS) equipment which filters and supplies backup power for the SCADA system. The UPS equipment maintains continuous operations 24 hours a day 365 days a year. Due to the age of this equipment, the manufactures no longer provide replacement parts for this equipment. Were the UPS equipment to fail, the SCADA process computer equipment would be unable to operate and it would be extremely difficult to produce, treat or distribute water.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	40
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**40**

In order to maintain clean and uninterrupted power to critical process computer equipment, there are seven Uninterruptable Power Supplies (UPS) which provide backup power for critical SCADA Prgrammable Logic Controllers (PLC) and SCADA servers and workstations at the water treatment plant. The seven UPSs are facing obsolesence and need complete replacement. The UPSs provide backup power and protection to the SCADA computers and remote PLCs whenever building power is lost. Failure of this equipment could jeopardize the reliability to supply water to the public.

Other Alternatives Considered?

N/A the UPSs must operate 24/7/365 in support of the SCADA server and workstations and remote PLCs.

SCADA UPS

PLC UPS

Project Title - College Arsenic Removal Demonstration Facility Rehab

Decade Plan Line and Work Category: **810 - Drinking Water Plant: Treatment Systems Renewal**

Description: **Risk Ranking:** 53.2

This item is to provide funding for rehabilitation of the aging College Arsenic Removal Demonstration Facility at the College Reservoir site. The rehabilitation work will occur every year over the next decade.

Project Cash Flow Est.

	($1000s)
FY16	50
FY17	50
FY18	50
FY19	50
FY20	50
FY21	50
FY22	50
FY23	50
FY24	50
FY25	50
Total =	**500**

The arsenic removal facility is essentail for treating the high arsenic water from the College and Gonzales well fields. Without it, the College Trunk would be totally dependent on treated surface water to meet water demands. Experience has shown that the Water Authority cannot rely totally on one source of water to meet all service area demands. Failure to rehab the arsenic removal facility will put the Water Authority at risk for potential water shortages when the water treatment plant is out of service for repairs or during drought seasons. The funding will ensure that there will be some budget available to pay for equipment replacements and repairs over the next ten years.

Other Alternatives Considered?

No action is not an option since this asset is important for providing system redundancy.

College Arsenic Removal Filters

Chemical Feed Systems

Project Title - Raw Water Pumping Station Renewal

Decade Plan Line and Work Category: **811 - Drinking Water Plant: Treatment Systems Renewal**

Description: **Risk Ranking:** 28.6

The Raw Water Pumping Station is used to lift water from the Rio Grande Diversion Facility to the San Juan Chama Water Treatment Plant. This is a vital link in the Water Authority's surface water drinking water supply. The high levels of sand (i.e., grit) in the raw Rio Grande water make this pumping station more vulnerable to wear.

Project Cash Flow Es

	($1000s)
FY16	100
FY17	80
FY18	50
FY19	50
FY20	50
FY21	50
FY22	50
FY23	50
FY24	50
FY25	50
Total =	**580**

This funding will be used to perform necessary rehab of the pumping station to maintain its ability to reliably pump water for treatment at the San Juan Chama Water Treatment Plant. For instance, the pump impellors are subject to wear due to the high sand levels in the raw water.

Other Alternatives Considered?

None.

Project Title - San Juan Chama WTP Site Security

Decade Plan Line and Work Category: **812 - Drinking Water Plant: Treatment Systems Renewal**

Description: **Risk Ranking:** 33.0

The security camera system including the computer servers at the SJCWTP is obsolete and needs updating. The current system is using outdated system software that is not easily supportable. Also, the servers are more than six years old. Larger security monitors are require to allow continuous images from each camera location.

Project Cash Flow Es

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

Currently , there are two different security camera systems for the San Juan Chama Water Project: one for the treatment palnt and another fo rthe Raw Water Pumping Station/Diversion. Both systems are about 6 years old and still running on client stations using the old Microsoft XP operating system. In addition these DVR systems have no fault tolerance, so a failure of the hardware will result in document loss. Furthermore, the securing monitors in the Control Center are too small to monitor all the cameras, especially the ones around the intakes ponds at SWTP.

The following changes are required: (1) Replace the current DVR systems in use with one DVR system in a RAID configuration which will be fault tolerance, i.e. hard drive failure will not affect the whole recording system. (2) Use one manufacturer system for both the Raw Water Pumping Station/Diversion and the SJCWTP. (3) Upgradethe client stations in Central Control with 42” wall monitors .

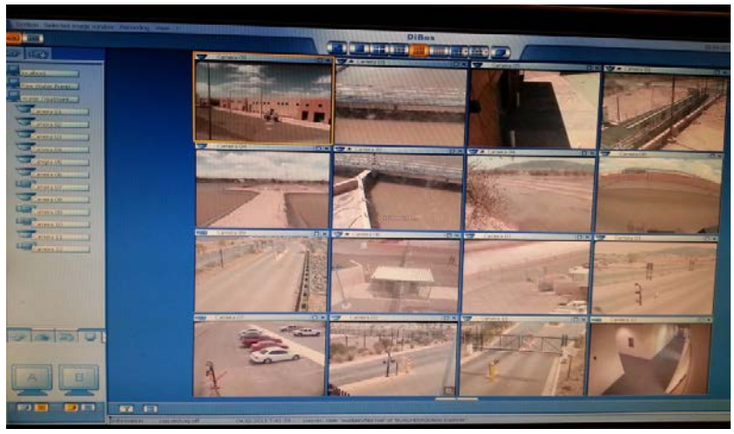
The initial funding shown is to make the critical upgrades to the system. When additiional funding becomes available, other componets of the security system will be upgraded and additional cameras added.

Other Alternatives Considered?

None. Security at the San Juan Chama Water Treatment Plant and other associated facilites is important for safe guarding the metropolitan area drinking water system, as well as for improving employee safety.

Computer components are obsolete

Large monitors needed to view all cameras



Project Title - SJCWTP Caustic Soda System

Decade Plan Line and Work Category: **813 - Drinking Water Plant: Treatment Systems Renewal**

Description: **Risk Ranking:** 42.6

The San Juan Chama Water Treatment Plant currently uses hydrated lime to adjust the pH of the water so that it is less corrosive prior to delivery to the drinking water distribution system. The SJCWTP needs additional lime storage capacity when operated near its finished water design capacity of 92 mgd. A supplemental or replacement caustic soda system would provide additional capacity for adjusting pH.

Project Cash Flow Es

	($1000s)
FY16	-
FY17	-
FY18	250
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**250**

This funding will be used to have a consultant evaluate and design a caustic soda storage and feed system. Funding is also shown for the construction of these improvements. Currently, an interuption in the delivery of lime to the plant, would force the plant to reduce or halt finished water production. The adjustment of pH was identified as necessary to match where possible the water quality in distribution. Increased pH also has benefits for odor control in the collection system and assists in meeting the effluent limitation for pH in the Water Authority's NPDES permit.

Other Alternatives Considered?

The evaluation will examine the use of other pH adjustment chemicals such as soda ash.

Project Title - SJCWTP Finished Water Pumps

Decade Plan Line and Work Category: **814 - Drinking Water Plant: Treatment Systems Renewal**

Description: **Risk Ranking:** 33.7

To reduce the initial construction costs of the San Juan Chama Water Treatment Plant, the full compliment of finished water pumps were not installed. Several loctions for pumps were left vacant for the future installation of pumps.

Project Cash Flow Es

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

This funding would be used to install two more finsihed water pumps. This would increase the available pumps and provide additional redundancy.

Other Alternatives Considered?

None.

Project Title - Spare Parts and Equipment Storage Shed

Decade Plan Line and Work Category: **815 - Drinking Water Plant: Treatment Systems Renewal**

Description: **Risk Ranking:** 33.9

This item is to provide funding for a new building to store spare parts, equipment, and materials at the San Juan Chama Water Treatment Plant.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

This building will be a 5,000 square-foot heated, cooled and lighted facility constructed of concrete masonry block on a concrete slab for storage of replacement and standby equipment, materials, tools, etc. for the surface water plant. Items such as spare pumps, motors, electronic equipment, instruments, chemical feed equipment and large tools that cannot be exposed to the elements will be housed in this facility. There is currently no more covered storage space available at the treatment plant site. Without the additional storage space, plant operators cannot order more replacement parts, equipment and materials that may be needed in the event of total or partial plant shut-down due to equipment failure and/or depletion of materials.

Other Alternatives Considered?

Add the new storage facility to the scope of the Pino Yards Replacement project that includes expansion of the existing Adminitration Building at the Water Treatment Plant.

Project Title - SJCWTP Finished Water Storage

Decade Plan Line and Work Category: **816 - Drinking Water Plant: Treatment Systems Renewal**

Description: **Risk Ranking:** 29.5

Currently, the San Juan Chama Water Treatment Plant has two 10-million gallon finished water storage reservoirs. These reservoirs serve as clearwells for the Finished Water Pumping Station. Having additional finished water storage would allow for more *off-peak* pumping to reduce electrical energy costs.

Project Cash Flow Es

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

When available, this funding would be used to evaluate the cost benefits of constructing additional finished water storage at the SJCWTP. The funding identified would allow for the construction of a third finished water reservoir.

Other Alternatives Considered?

The evaluation for installing additional storage capacity would evaluate life cycle costs and identify the estimated capital cost payback period. Being able to pump the finished water at night when electrical power costs are lower would reduce system operating costs.

Project Title - Vehicle Parking Improvements at the San Juan-Chama Water Treatment Plant

Decade Plan Line and Work Category: **817 - Drinking Water Plant: Treatment Systems Renewal**

Description: **Risk Ranking:** 37.5

This item is to provide funding for expansion of asphalted parking areas for personal and Water Authority vehicles and heavy equipment at the SJCWTP.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

There is limited parking available at the WTP for personal and Water Authority vehicles and heavy equipment. Most parking areas are dusty gravel surfaces. Parking improvements would include expansion of asphalted parking areas to help control dust emissions and on-site drainages, provide more parking spaces for operators and visitors, enhance the aesthetics surrounding the Administration Building, and minimize the potential for vehicle parking on or near the paved access roads to other buildings and facilities of the WTP.

Other Alternatives Considered?

No action until Pino Yards is relocated to the WTP, then address the parking needs for expansion of the Administration Building.

Existing parking areas adjacent to the Administration Building

Project Title - Reclaimed Water Field Asset Renewal

Decade Plan Line and Work Category: **901 - Reclaimed Water System Renewal**

Description: **Risk Ranking:** 25.1

This item is to provide funding for general renewal of reclaimed (recycled) water field assets, including pipelines and buried valves. This includes those field assets associated with both the Northside and Southside Recaimed water systems. Many parks, schools, commercial properties depend on reclaimed water for use in irrigating turf and other landscaping. Using reclaimed water reduces demand on the Water Authority's potable water system.

Project Cash Flow Est.

	($1000s)
FY16	270
FY17	50
FY18	50
FY19	50
FY20	50
FY21	50
FY22	50
FY23	50
FY24	50
FY25	50
Total =	**720**

Pipelines and buried valves require periodic renewal to maintain the systems ability to serve Water Authority customers. Periodic renewal of these assets is required to minimize unexpected outages that result in emergency responses and repairs that increase the cost of system renewal.

Other Alternatives Considered?

Running these assets to failure will result in higher life cycle costs for the Water Authority and its rate payers.

Yale and Gibson

University near Isotopes Park

Project Title - Reclaimed Water Plant Asset Renewal

Decade Plan Line and Work Category: **902 - Reclaimed Water System Renewal**

Description: **Risk Ranking:** 20.7

This item is to provide funding for general renewal of reclaimed (recycled) water plant assets, including treatment facilities, pumping stations, and storage reservoirs. This includes those plant assets associated with both the Northside and Southside Recaimed water systems. Many parks, schools, commercial properties depend on reclaimed water for use in irrigating turf and other landscaping. Using reclaimed water reduces demand on the Water Authority's potable water system.

Project Cash Flow Es

	($1000s)
FY16	650
FY17	20
FY18	20
FY19	20
FY20	20
FY21	20
FY22	20
FY23	20
FY24	20
FY25	20
Total =	**830**

Treatment plants, pumping stations, and storage reservoirs require periodic renewal to maintain the systems ability to serve Water Authority customers. Periodic renewal of these assets is required to minimize unexpected outages that result in emergency responses and repairs that increase the cost of system renewal.

Other Alternatives Considered?

Running these assets to failure will result in higher life cycle costs for the Water Authority and its rate payers.

Coronado Nonpotable Reservoir

Project Title - Water uality Laboratory Equipment

Decade Plan Line and Work Category: **1001 - Compliance Division**

Description: **Risk Ranking:** 59.3

This item is to provide funding for renewal of laboratory equipment at the Water Authority's Water Quality Laboratory. The laboratory is located adjacent to the Southside Water Reclamation Plant. It is critical to the operation of the lab that analytical equipment and supplies be rehabilitated or replaced routinely. This is important to allow the lab to comply with the regulatory agency requirements for turnaround times and analysis accuracy.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	100
FY18	20
FY19	42
FY20	47
FY21	37
FY22	57
FY23	30
FY24	69
FY25	20
Total =	**422**

The Water Quality Lab supports the operation of the Southside Water Reclamation Plant and the drinking water system. In order to maintain the capability for scientifically valid and reliable monitoring and analysis, deteriorating analytical instruments must be replaced when performance degrades to a level that compromises data quality. Among the types of lab needs are such things as the following:

- Inductively coupled plasma (ICP) Spectrometers
- High Temperature Ovens
- Digital Microscopes
- Flow Spectrometers
- Incubators
- Autoclaves
- Ion Chromatographs
- Centrifuge s
- Other Equipment, Sofware, and Supplies

The lab builidng also requires periodic rehab of its HVAC systems, laboratory hoods, and

Other Alternatives Considered?

None. These items are essential to the operation of the Water Quality Laboratory.

Project Title - National Pollutant Discharge Elimination System (NPDES) Program

Decade Plan Line and Work Category: **1002 - Compliance Division**

Description: **Risk Ranking:** 48.6

This item is to provide funding for rehabilitation of equipment, facilities, and computer software used by the staff for compliance with National Pollutant Discharge Elimination System (NPDES) Program. This NPDES program is required by the United States Environmental Agency (USEPA).

Project Cash Flow Es

	($1000s)
FY16	-
FY17	70
FY18	78
FY19	68
FY20	8
FY21	8
FY22	8
FY23	8
FY24	28
FY25	8
Total =	**284**

The requested funding is to rehabilitate or replace the following equipment, facilities, and computer software:

- Automated Samplers
- LINKO Software Upgrades
- Pre-Treatment Staging Area Improvements
- Field Tablets/Laptops

Other Alternatives Considered?

None. Maintaining this equipment is necessary to allow continued compliance with USEPA regulations. The proposed pre-treatment area improvements will provide more sanitary and safer conditions for staff.

NPDES/Pretreatment Monitoring Staging Area at SWRP

Project Title - Water uality Program

Decade Plan Line and Work Category: **1003 - Compliance Division**

Description: **Risk Ranking:** 45.1

This item is to provide funding for renewal of equipment used by staff in the Drinking Water Quality Program.

Project Cash Flow Es

	($1000s)
FY16	-
FY17	25
FY18	12
FY19	-
FY20	-
FY21	-
FY22	-
FY23	12
FY24	3
FY25	32
Total =	**84**

The Drinking Water Quality Program performs monitoring of the drinking water system and is vital to compliance with state and federal drinking water quality regulations. It is important that the analytical and monitoring equipment used by the staff is maintained in proper operating condition. This requires periodic replacement of this equipment. Among the equipment replacements for which this request is being is made as are as follows:

- YSI Multiparameter Meters
- Radiometers
- Glassware Washers
- Turbidimeters
- Field Tablets/Laptops

Other Alternatives Considered?

None. The Water Quality Program cannot operate effectively without routine equipment renewal.

Product Water that Meets All Regulatory Water Quality Standards

Project Title - El Pueblo Ferrous Ferric Transfer Station (Station 70)

Decade Plan Line and Work Category: **1101 - Shared Facility Renewal**

Description: **Risk Ranking:** 71.4

The El Pueblo Ferrous/Ferric Transfer Station (Station 70) is shared by the Field and Plant Divisions. Train rail cars of ferric chloride are unloaded at this facility. From here the chemical is transferred to the San Juan Chama Water Treatment Plant, College Arsenic Removal Treatment Plant, and used for odor control. Numerous deficiencies at this facility have posed safety risks to Water Authority employees and potentially the public.

Project Cash Flow Est.

	($1000s)
FY16	300
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**300**

Most of the improvements to this facilty have been implemented during FY15 and the shown budget for FY16 is to address a negative budget carryover.

Other Alternatives Considered?

The deficiencies at the facility need to be addressed to reduce risk to the Water Authority's employees and the public due to the hazardous chemicals handled and stored at this facilty. Alternativel, the facility should be decommissioned and direct tractor trailer chemical deliveries made to the different points of use. However, this alterantive would add to operational costs and poses other hazards.

Ferric Chloride Railcar Unloading Station

Ferric Chloride Transfer Pump

Project Title - Valve Restoration Pilot Program

Decade Plan Line and Work Category: **1102 - Shared Facility Renewal**

Description:

The Water Authority has approximately 39,000 buried valves in its potable and non-potable water transmission/distribution systems and at plant facilities (e.g., reservoir sites). Many of these valves have not been turned since their installation several decades ago. Valves need to be exercised routinely to ensure their functionality when needed, for instance, to isolate a leaking pipeline.

Risk Ranking:

This project will be part of the Water Authority's Asset Management Program. The funding will be used to hire a specialized firm to perform a pilot program of valve restoration. Based on results at other water agencies, many of the valves that are found to be frozen can be restored to useable service if proper techniques are applied. This involves using specialized valve actuating equipment that applies impact force to the valve stem to free the valve without breaking it. If the pilot program is successful, a program for addressing valve throughout the system will be developed. This is an asset management approach that can reduce the number of valves that need to be replaced and thereby reduce the cost.

Project Cash Flow Es

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

Other Alternatives Considered?

None.

Specialized equipment and techniques can restore frozen valves to working order

Project Title - CIP Funded Staff Positions

Decade Plan Line and Work Category: **1103 - Shared Facility Renewal**

Description: **Risk Ranking:** N/A

Eight staff positions are funded through CIP.

Project Cash Flow Est.

	($1000s)
FY16	400
FY17	400
FY18	400
FY19	400
FY20	400
FY21	400
FY22	400
FY23	400
FY24	400
FY25	400
Total =	**4,000**

N/A

Other Alternatives Considered?

N/A

Project Title - Utility Wide Asset Management Plan Update

Decade Plan Line and Work Category: **1104 - Shared Facility Renewal**

Description: **Risk Ranking:** 47.5

In 2011, an Asset Management Plan(AMP) was completed for the Water Authority . This plan looked at all of the utility's at a high level and estimated the annual asset renewal requirements for the following 100 years. Since then, additional 10-year AMPS have been completed that have focused on specific categories of assets such as Lift Stations. The 10-year AMPs have attempted to complete more in depth condition assessments of the different assets. This provides for a better assessment of when the asset should be renewed.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	250
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**250**

The proposed funding is to update the 2011 Asset Management Plan. Information collected through the preparation of the different 10-year AMPs will be incorporated into the updated utility-wide AMP. Updating the Utility Wide AMP will provide the basis for estimating annual renewal requirements in the future and provide the basis for funding requirements.

Other Alternatives Considered?

None.

Lift Station 17

Vacuum Station 66

Project Title - Franchise Agreement Compliance: Pipeliine Relocations

Decade Plan Line and Work Category: **1201 - Franchise Agreement Compliance**

Description: **Risk Ranking:** N/A

This program will provide funding for compliance with the ABCWUA Franchise Ordinance between the City of Albuquerque and the Water Authority within the municipal limits of the service area. This decade plan item is for relocating water and sanitary sewer pipelines.

Project Cash Flow Est.

	($1000s)
FY16	1,000
FY17	1,000
FY18	1,000
FY19	1,000
FY20	1,000
FY21	1,000
FY22	1,000
FY23	1,000
FY24	1,000
FY25	1,000
Total =	**10,000**

The Franchise Ordinance primarily allows the Authority the use of the City's public rights-of-way as corridors to operate its water delivery and wastewater collection systems. In exchange, the Authority is responsible to pay a franchise fee associated with the use and rental as well as other detailed requirements stated in the Ordinance.

One of the conditions of use requires the Authority to fund relocation(s) of water and sewer infrastructure as needed within the rights-of-way for completion of the City's projects. These projects include installation of storm drainage, landscaping, or traffic signal facilities, and road reconstruction. The Ordinance also requires the Authority to make all reasonable efforts to relocate its utilities so as not to delay City projects. The Authority is also required to remove any and all abandoned facilities and infrastructure located in the rights-of-way within a period of 90 days following a request from the City.

Other Alternatives Considered?

N/A This is mandatory for compliance.

16" Ductile Iron Water Line Relocation for a City Storm Drain Project in Atrisco SW

24" Concrete Cylinder Water Line Lowering and Relocation for a City Storm Drain Project in San Mateo NE

Project Title - Franchise Compliance: Manhole and Valve Box Adjustments

Decade Plan Line and Work Category: **1202 - Franchise Compliance**

Description: **Risk Ranking:** N/A

This program will provide funding for compliance with the ABCWUA Franchise Ordinance between the City of Albuquerque and the Water Authority within the municipal limits of the service area. This Decade Plan line item provides reimbursement funding associated with adjusting the height of manholes and valve boxes as part of City street resurfacing projects.

Project Cash Flow Est.

	($1000s)
FY16	1,000
FY17	1,000
FY18	1,000
FY19	1,000
FY20	1,000
FY21	1,000
FY22	1,000
FY23	1,000
FY24	1,000
FY25	1,000
Total =	**10,000**

The Franchise Ordinance primarily allows the Authority the use of the City's public rights-of-way as corridors to operate its water delivery and wastewater collection systems. In exchange, the Authority is responsible to pay a franchise fee associated with the use and rental as well as other detailed requirements stated in the Ordinance.

One of the conditions of use requires the Authority to fund relocation(s) of water and sewer infrastructure as needed within the rights-of-way for completion of the City's projects. These projects include installation of storm drainage, landscaping, or traffic signal facilities, and road reconstruction. The Ordinance also requires the Authority to make all reasonable efforts to relocate its utilities so as not to delay City projects. The Authority is also required to remove any and all abandoned facilities and infrastructure located in the rights-of-way within a period of 90 days following a request from the City.

Other Alternatives Considered?

N/A This is mandatory for compliance.

16" Ductile Iron Water Line Relocation for a City Storm Drain Project in Atrisco SW

24" Concrete Cylinder Water Line Lowering and Relocation for a City Storm Drain Project in San Mateo NE

Project Title - Light Utility Vehicle Replacement

Decade Plan Line and Work Category: **1301 - Vehicles and Heavy Equipment**

Description: **Risk Ranking:** 34.9

This project funds the replacement of utility vehicles for the Water Authority. Utility vehicles have to be replaced on a programmed basis.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

Utility vehicles are used by plant staff every day to be able to complete their various jobs. Vehicles have to be replaced on a programmed basis.

Other Alternatives Considered?

None

Service Truck

Utility SUV

Project Title - Plant Heavy Equipment

Decade Plan Line and Work Category: **1302 - Vehicles and Heavy Equipment**

Description: **Risk Ranking:** 40.2

This item is to provide funding for the replacement of Plant heavy equipment.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

Plant heavy equipment are used daily and have to always be in good working condition. A timely and programmed replacement of these equipment is critical to the operation of the water and reclamation plants.

Other Alternatives Considered?

None

Project Title - Field Heavy Equipment

Decade Plan Line and Work Category: **1303 - Vehicles and Heavy equipment**

Description: **Risk Ranking:** 40.2

This item is to provide funding for the replacement of Field heavy equipment. The Water Authority has over 2,400 miles of sewer pipes that are used to convey sanitary sewage to the Southside Water Reclamation Plant (SWRP). These pipelies periodically become blocked with debris, grease, and plant roots. To prevent sewage backups, Water Authority crews continuously clean different sections of the collection system. Most of this work is done with the use of vacuum cleaning trucks. The Water Authority has a fleet of 12 trucks.

Project Cash Flow Est.

	($1000s)
FY16	900
FY17	900
FY18	900
FY19	450
FY20	450
FY21	450
FY22	450
FY23	450
FY24	450
FY25	450
Total =	**5,850**

Field heavy equipment are used daily and have to always be in good working condition. A timely and programmed replacement of these equipment is critical to the operation of the Water Authority.

The funding shown is to allow renewal of the fleet of sewer cleaning trucks and their associated accessories. These vehicles log many miles each year. The debris removed from the sanitary sewers contains sand and rocks that wear out the equipment. With time, more and more time is spent reparing the equipment and the equipment becomes obsolete and replacement is warranted.

Other Alternatives Considered?

Equipment repair becomes less cost effective over time with the vehicles having to be in the shop for longer periods of time and unavailable for use in cleaning the sewers.

Sewer Cleaning Truck

Project Title - Water Line Flushing Filtration Unit

Decade Plan Line and Work Category: **1304 - Vehicles and Heavy Equipment**

Description: **Risk Ranking:** 52.1

This filtering process unit will enable localized flushing/filtering to combat the issues of color (Turbidity/ appearance) and boosting chlorine levels at the same time.

Project Cash Flow Es

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

The primary use for the filter- flushing unit is to filter water in small diameter (14" and smaller) potable water distribution mains. Water flushed from a fire hydrant will be filtered and placing back in the main via a second hydrant. At the same time precisely adding the appropriate amounts of sodium hypochlorite during the filtering cycle to keep acceptable chlorine levels. Filtering alleviates wasting large amounts of water associated with conventional flushing methods. The savings is in the energy and money required to pump, pressurize, and treat water that would be wasted. The benefit is in saving potable water from being dumped to the drain and in having a demonstrated conservation image. Will be used daily in a filtering program, as funded and manned.

The Unit shall be mounted on a common gooseneck trailer, 20 ft metal deck with two axles (double tandems) that can be towed with a standard truck that has a GCVW tow rating of approximately 20,000 to 30,000 lbs (example; Ford F350, F450 and F550 or Dodge 3500, 4500 and 5500).

Other Alternatives Considered?

Without this unit, water flushed from mains has to be wasted to a storm or sanitary sewer.

Water Line Flushing Filtration Unit

Project Title - Steel Waterline Rehab

Decade Plan Line and Work Category: **9401 - Special Projects**

Description: *(when, where, expected level of service)* **Risk Ranking:** N/A

This program provides funding for evaluation, planning, design, construction, and related activity necessary for the rehabilitation or replacement of steel water lines which tend to be the oldest water lines in the system and typically past their useful life.

Project Cash Flow Est.

	($1000s)
FY16	1,000
FY17	1,000
FY18	1,000
FY19	1,000
FY20	1,000
FY21	1,000
FY22	1,000
FY23	1,000
FY24	1,000
FY25	1,000
Total =	**10,000**

Narrative: (knowledge of asset, why project, how, failure, how does this reduce WA risk)

There are over 60 miles of small diameter steel water lines (12" and less) that serve the Water Authority distribution system. These lines are among the small diameter water lines that provide metered water service, fire protection, and irrigation for customers. Steel lines in general are the oldest water lines (greater than 50 years) and most prone to numerous leaks due to deterioration and corrosion of the thin steel wall.

Steel line leakage is highly problematic, with water waste and repeated repairs causing disruption of service and traffic. Undetected leakage can be catastrophic: a sinkhole can destroy an entire roadway segment. Or a leak can surface as a geyser, with resulting projectiles causing extensive damage and/or threat to life. Finding the lines that have the highest leak potential and replacing them prior to catastrophic failure is essential to reducing the Authority's exposure to life- and property-threatening risk.

Other Alternatives Considered?

None

Corroded Steel Pipe

Steel line break, Hannett NE west of San Pedro

Project Title - Leak Detection Program - Phase 2

Decade Plan Line and Work Category: **9402 - Special Projects**

Description: *(when, where, expected level of service)* **Risk Ranking:** N/A

Phase 2 will continue with the leak detection program and data analysis. Several methods of leak detection deployment and methodologies will be used in Phase 2. This approach is intended to be a strategic deployment of the technologies to maximize the benefits the Water Authority can receive for its investment.

Project Cash Flow Es

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

Narrative: (knowledge of asset, why project, how, failure, how does this reduce WA risk)

Part of asset management is to determine the condition of buried assets. It is often difficult to determine the condition of an asset when it is not possible to visually inspect it. Leak detection is one method of gathering some condition assessment data on buried water pipelines. It is not a complete condition assessment, but in the absence of other data, it can provide some indication of condition. The Water Authority is currently utilizing leak detection techniques on priority assets within the distribution system to reduce the chance of a catastrophic failure. Locating small leaks is easier to repair before they become large leaks or catastrophic main breaks that result in large water losses and expensive operation and maintenance costs, including overtime. Leak detection saves water and reduces production and therefore uses less energy. It also reduces outage time by repairing smaller leaks earlier, and it reduces property damage and reducing risk for lawsuits.

Other Alternatives Considered?

Based upon the Phase One report by NM Tech/Environmental Finance Center, it became apparent that the Water Authority could benefit from multiple approaches to leak detection. No one technology proved to be the overall solution to reducing the losses within the system, but a combination, with appropriate support, would benefit the Water Authority.

Leaking Fire Hydrant

Leak Detection Survey

Project Title - Advanced Meter Infrastructure

Decade Plan Line and Work Category: **Line 9403 - Special Projects**

Description: *(when, where, expected level of service)* **Risk Ranking:** N/A

This project provides funding for the planning, design, engineering services, construction, contract services, equipment and related activities necessary to provide Advanced Metering Infrastructure (AMI) throughout the water service area, including meter replacements, as appropriate.

Project Cash Flow Es

	($1000s)
FY16	2,000
FY17	2,000
FY18	2,000
FY19	2,000
FY20	2,000
FY21	2,000
FY22	2,000
FY23	2,000
FY24	2,000
FY25	2,000
Total =	**20,000**

Narrative: (knowledge of asset, why project, how, failure, how does this reduce WA risk)

This project funds replacement of existing revenue meters with AMI equipped "smart" meters and the infrastructure needed to capture meter reading information. AMI utilizes a fixed communication infrastructure of licensed or unlicensed radio frequency (RF) technology to transmit daily or more frequent meter reads from the meter to the utility. No personnel are required to leave the utility offices to acquire meter reads. AMI offers enhanced functionality and customer benefits including of off-cycle reads along with all associated field visits. Benefits from the access to increased customer usage information (interval usage at a minimum of four reads per day) includes tamper/theft detection, flow profiling, meter right sizing and leak detections on a meter by meter basis or system-wide level.

Other Alternatives Considered?

Continue to use analog, manually read meters that are very labor intensive.

Pole-Mounted Transmitter

Meter Box

Meter with Transmitter

Project Title - Renewable Energy Projects

Decade Plan Line and Work Category: **9404 - Special Projects**

Description: **Risk Ranking:** N/A

The Water Authority needs to become less reliant upon non-renewable energy supplies such as fossil fuel generated electricity and natural gas. Recently, the Water Authority started up a solar array project at the Southside Water Reclamation Plant to generate electricity. The SWRP continues to use biogas for generating electricity to power the plant. Excess power is sold to PNM. More projects such as these are needed to allow the utility to become more sustainable and more energy efficient so as to reduce its reliance on generated electrical energy. This effort will reduce operational costs and make the utility more sustainable.

Project Cash Flow Es **Narrative:**

	($1000s)
FY16	350
FY17	350
FY18	350
FY19	350
FY20	350
FY21	350
FY22	350
FY23	350
FY24	350
FY25	350
Total =	**3,500**

This funding will allow for the evaluation and implementation of additional renewable power projects such as enhancing biogas production at the SWRP to allow more electrical energy generation. Also, energy efficiency projects such as the use of light emitting diode (LED) lighting at Water Authority facilities can be pursued to lower the utilities total power needs to be provided by non-renewable supplies.

Other Alternatives Considered?

The no action alternative results in a continued large reliance upon non-renewable energy supplies and operation at current energy efficiency levels. This would not allow for new power saving technologies to be implemented that would reudce the utility's operational costs.

Project Title - Yucca Central Interceptor Realignment

Decade Plan Line and Work Category: **9419 - Special Projects**

Description: *(when, where, expected level of service)* **Risk Ranking:** N/A

This program provides funding for evaluation, planning, design, construction, and related activity necessary for the re-alignment of a segment of the Westside Interceptor in the loction of the intersection of Yucca Drive and Central Avenue.

Project Cash Flow Est.

	($1000s)
FY16	1,000
FY17	5,000
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**6,000**

Narrative: (knowledge of asset, why project, how, failure, how does this reduce WA risk)

The neighborhood in the vicinity of Yucca Drive and Central Avenue has been plagued with offensive sewer odors for many years. This problem is caused by the current geometry of the segment of Westside Interceptor in this location. A interceptor flows down a steep hill, makes changes in direction, and then flattens out. This results in pressurization of the odorous sewer gases that then escape into the atmosphere.

This project will re-align the interceptor and incorporate features to maintain a steady gradient. This will minimize gas pressurization and the resulting off-gassing.

Other Alternatives Considered?

Continued treatment of the off-gas and chemical treatment to the sewage has reduced the amount of offensive odors, but has not eliminated the problem.

Project Title - Aquifer Storage and Recovery

Decade Plan Line and Work Category: **2001 - Drinking Water Plant Growth**

Description: **Risk Ranking:** 36.5

This proposal provides funding for planning, design, engineering services, construction, contract services, equipment and related activities necessary to construct the large scale Aquifer Storage and Recovery Project to store San Juan/ Chama water in the aquifer.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

The adopted Water Resources Management Strategy called for the implementation of a large full-scale Aquifer Storage and Recovery project to store San Juan-Chama water in the aquifer for future use. This project provides the funding for implementation although the San Juan-Chama water could be directly injected or surface applied similar to the project in El Paso. The details including the methodology for storing the water would be developed in the initial plan.

Other Alternatives Considered?

The no action alternative would simply allow water to naturally replenish the aquifer. Natural processes are slow and dependent upon precipitation and would not capitalize on the ability to capture the diverted water. The Authority is currently piloting the process and locality to best inject water into recharge zones.

San Juan - Chama Water Treatment Plant

Project Title - College Reservoir No. 2

Decade Plan Line and Work Category: **2002 - Drinking Water Plant Growth**

Description: **Risk Ranking:** 23.7

This item is to provide funding for the planning, design, engineering services, construction, contract services, equipment and related activities necessary to increase water storage by 6 million gallons for the College Trunk water system.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

This additional reservoir will provide more system reliability and redundancy for the College Trunk when College Reservoir No. 1 is taken out of service for rehabilitation. Reservoirs provide reaction time for disinfection, storage to meet peak hour demands and for control of well and booster station pumps. Both reservoirs will also increase reliability when one needs to be taken out of service for maintenance. Lack of adequate storage can result in loss of service and fire-fighting capability, and higher energy costs for pumping off-peak. This project will reduce the Water Authority's risk for disruption of service, impacts to external safety by maintaining fire protection capability, and higher energy costs.

Other Alternatives Considered?

The No Action alternative will not address the inadequate storage issue.

Existing College Reservoir No. 1

Volcano Cliffs Reservoirs 1 & 2

Project Title - Construct Second Reservoir at Corrales 6 Site

Decade Plan Line and Work Category: **2003 - Drinking Water Plant Growth**

Description: **Risk Ranking:** 33.3

This item is to provide funding for the planning,design and construction of a second reservoir at the Corrales 6 site.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

This includes construction of a second 2.3 MG reservoir at the Corrales 6 site to double the storage capacity of Corrales Trunk Zone 4W that supplies Ventana Ranch and the northern half of Paradise Hills. This will provide more system reliability and redundancy for the Corrales Trunk in the event that one of the reservoirs needs to be taken out of service for cleaning or rehabilitation. Without a second reservoir at the Corrales 6 site, Reservoir 7 will not be able to meet the total storage requirements in the upper zones if Corrales 6 is removed from service for maintenance and rehabilitation. Without adequate storage, the Corrales Trunk is at risk for meeting fire protection demands. Reservoirs also provide reaction time for disinfection, storage to meet peak hour demands and for control of well and booster stations pumps. Lack of storage can cause loss of service and fire fighting capability, and higher energy costs for pumping off-peak. This project will reduce the Water Authority's risk for disruption of service, impacts to external safety by maintaining fire protection capability, and higher energy costs.

Other Alternatives Considered?

None

Corrales Reservoir No. 6

Volcano Cliffs Reservoirs 1 & 2

Project Title - 2nd Coronado Reservoir

Decade Plan Line and Work Category: **2004 - Drinking Water Plant Growth**

Description: **Risk Ranking:** 30.4

To be added...This item is to provide funding for the planning, design and construction of a second reservoir at Coronado Reservoir site to double the capacity of the storage system of the Alameda Trunk.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

Reservoirs provide reaction time for disinfection, storage to meet peak hour demands and for control of well and booster stations pumps. They also provide reliability of storage when a reservoir is taken out of service for maintenance and rehabilitation. Lack of storage can cause loss of service and fire fighting capability, and higher energy costs for pumping off-peak. This project will reduce the Water Authority's risk for disruption of service, impacts to external safety by maintaining fire protection capability, and higher energy costs.

Other Alternatives Considered?

Inaction with some moderate risks discussed above.

Existing Coronado Reservoir

Volcano Cliffs Reservoirs 1 & 2

Project Title -2nd Leyendecker Reservoir Project

Decade Plan Line and Work Category: **2005 - Drinking Water Plant Growth**

Description: **Risk Ranking:** 31.9

This item is to provide funding for the planning, design and construction of a second reservoir at Leyendecker Reservoir site to double the capacity of the storage system.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

Reservoirs provide reaction time for disinfection, storage to meet peak hour demands and for control of well and booster stations pumps. They also provide reliability of storage when a reservoir is taken out of service for maintenance and rehabilitation. Lack of storage can cause loss of service and fire fighting capability, and higher energy costs for pumping off-peak. This project will reduce the Water Authority's risk for disruption of service, impacts to external safety by maintaining fire protection capability, and higher energy costs.

Other Alternatives Considered?

In-action with some moderate risks discussed above.

Existing Leyendecker Reservoir

Volcano Cliffs Reservoirs 1 & 2

Project Title - Second Charles Wells Reservoir including Site Procurement

Decade Plan Line and Work Category: **2006 & 2007 - Drinking Water Plant Growth**

Description: **Risk Ranking:** 31.9

The Water Authority needs to identify potential sites for a second Charles Wells Reservoir, begin the process of procurement of the property, and then design and construct this reservoir.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

The existing Charles Wells Reservoir will eventually need to be rehabilitated. This will be difficult, but not impossible to accomplish without a second reservoir. A second reservoir would provide storage, maintain service and fire fighting capability while the existing reservoir is rehabbed. If the Water Authority does not procure the property to construct the second reservoir, the existing reservoir will continue to deteriorate to a point that it needs to be removed from service. Then operational modifications (keeping the system pressurized by pumping against the reservoir isolation valve) would have to be implemented to maintain service while the reservoir is isolated from the system. This operation is normally done under short-term conditions (days to weeks) because it requires constant monitoring to avoid over-pressurizing the system and is dependent on the isolation valve working properly to hold the constant pressure exerted on the upstream side of the valve. If this is done for longer periods (several months to a year), the risk increases due to potential failure of the isolation valve or the pipelines over-pressurizing due to mechanical or electrical equipment failure/malfunction in the lower pump station, or PNM station power failure causing loss of pressure if operational modifications ("deadheading") are used. If any of these failures were to occur, the Water Authority is at risk for disruption of service, potential impacts to internal and external safety, clean-up costs due to water damage from broken lines, and negative public image.

Other Alternatives Considered?

Inaction and operational modifications were discussed above.

Existing Charles Wells Reservoir

Vacant Property on Menaul Blvd. East of Reservoir Site

Project Title - Construct a Corrales 5W Reservoir and Transmission Pipeline

Decade Plan Line and Work Category: **2008 - Drinking Water Plant**

Description: **Risk Ranking:** 37.4

This item is to provide funding for the planning, design and construction of a Corrales 5W reservoir and transmission line that will serve the growth areas west of Ventana Ranch.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

This new infrastructure consists of a 6 MG reservoir and 36-inch transmission line physically located in Zone 6W that will supply a future gravity distribution system to be constructed in Zone 5W. This infrastructure will also have the added benefit of converting the closed loop pumping system at Corrales 7 reservoir and pump station site into an open system. Closed loop systems are problematic and atypical compared to the Water Authority's standard of gravity feed systems open to atmospheric pressures. Closed loop systems require more maintenance and tighter controls to prevent pipelines from being overpressurized. Equipment failures are common in these systems which are costly and time-consuming to operate and maintain. Removal of the closed loop system reduces the Water Authority's risk of potential disruption of service.

Other Alternatives Considered?

None

Potential Location of Corrales Trunk 5W Reservoir

Corrales Well 7 Closed Loop Pump Station

Project Title - Water Facilities Landscaping Program

Decade Plan Line and Work Category: **2009 - Drinking Water Plant Growth**

Description: **Risk Ranking:** 16.3

This item is to provide funding for the planning, design and construction of landscape improvements to existing well, pump station, reservoir and water treatment facility sites throughout the Water Authority service area.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

Several water facility sites are in need of landscaping improvements to fit in with the surrounding neighborhoods, improve their appearance, reduce maintenance requirements, and meet the provisions of the water conservation ordinance by making them more water efficient. An internal survey needs to be conducted to inventory the sites that need improvements so that a scope of work can be developed for soliciting proposals from consultants for planning and design services. Upon selection of a consultant, planning and design of xeriscape-type landscaping and low water irrigation systems for the selected water facility sites will begin. Depending on the outcome of the consultant work, the construction work will be completed by our on-call landscaping contractor or new contract documents prepared for selection of a contractor through the normal bidding process.

If this program is not implemented and some of our more unattractive sites continue to deteriorate, the Water Authority is at risk of getting complaints from the neighborhood associations and the public and getting a negative image from the news media.

Other Alternatives Considered?

The Water Authority has implemented the no-action alternative for several years now; however we do respond to complaints from the public on a case by case basis. The remedy may be anything from removing dead trees and shrubs to repairing broken irrigation lines and valves. However, these remedies do not necessarily meet the provisions of the water conservation ordinance nor address the issues of aesthetics.

Webster Reservoir Site Landscaping

Zamora Well No. 2 Site Landscaping

Project Title - Don Reservoir No. 2

Decade Plan Line and Work Category: **2010 - Drinking Water Plant Growth**

Description: **Risk Ranking:** 23.7

This item is to provide funding for the planning, design, engineering services, construction, contract services, equipment and related activities necessary to increase water storage by 6 million gallons for the College Trunk water system.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

This additional reservoir will provide more system reliability and redundancy for the Atrisco Trunk when Don Reservoir No. 1 is taken out of service for rehabilitation. Reservoirs provide reaction time for disinfection, storage to meet peak hour demands and for control of well and booster station pumps. Both reservoirs will also increase reliability when one needs to be taken out of service for maintenance. Lack of adequate storage can result in loss of service and fire-fighting capability, and higher energy costs for pumping off-peak. This project will reduce the Water Authority's risk for disruption of service, impacts to external safety by maintaining fire protection capability, and higher energy costs.

Other Alternatives Considered?

The No Action alternative will not address the inadequate storage issue.

Existing College Reservoir No. 1

Volcano Cliffs Reservoirs 1 & 2

Project Title - Alameda Trunk Arsenic Treatment

Decade Plan Line and Work Category: **2101 - Arsenic Treatment Growth**

Description: **Risk Ranking:** 58.1

This item is to provide funding for the planning, design and construction of an arsenic treatment facility at the Walker Reservoir site to remove arsenic from the high arsenic well water of the Coronado, Walker, Webster and Ponderosa well fields.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

Currently all of the Walker, Webster and Ponderosa well fields are out of service due to high arsenic levels. Only one of the Coronado Wells is operated for limited periods. Most of the Alameda Trunk wells have high production capacity. Water demands in the Alameda Trunk are only being met by blending treated surface water with low arsenic well water from the Vol Andia well field and possibly blended water from the Leyendecker Reservoir through cross trunk transfer.

With arsenic treatment at the Walker Reservoir site, all of the Alameda Trunk wells could meet 100% of the supply demands in this trunk. This would provide production capacity redundancy for this service area, particularly during summer months and drought periods when treated surface water production is reduced or unavailable.

An alternative approach to treating this well water woudl be to convey it to the San Juan Chama Water Treatment Plant. This would require a pipeline conveyance system to deliver the water to the Raw Water Pipeline that goes to the SJCWTP.

Other Alternatives Considered?

Separate arsenic treatment facilities at Webster and Walker sites; however this may be more expensive than a combined treatment facility at the Walker site. It could be offset by the cost for pipeline work associated with the combined treatment facility at the Walker site.

College Arsenic Removal Facility

Available Land at the Walker Reservoir Site

Project Title - Volcano Cliffs Trunk Arsenic Treatment

Decade Plan Line and Work Category: **2102 - Arsenic Treatment Growth**

Description: **Risk Ranking:** 64.2

This item is to provide funding for the planning, design and construction of an arsenic treatment facility at the Volcano Cliffs Reservoir site to remove arsenic from the high arsenic well water of the Volcano Cliffs and Zamora well fields..

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

Currently two of the three Volcano Cliffs wells are out of service due to high arsenic levels. Water demands in the Volcano Trunk and the Corrales Trunk are being met by blending treated surface water with moderately high arsenic water from one of the Volcano Cliffs wells and three of the seven Corrales wells. With arsenic treatment at the Volcano Cliffs Reservoir site, all three of the Volcano Cliffs wells and two Zamora wells could meet 50% of the supply demands of the Corrales Trunk because of their high production capacity. This would provide some redundancy and reliability to the Corrales Trunk, particularly during the summer months and drought periods when treated surface water is reduced or unavailable.

Other Alternatives Considered?

There are no alternatives except to use more treated surface plant water and low arsenic east side water transferred to the west side; however this may be constrained by capacity issues.

College Arsenic Removal Facility

Project Title - Leavitt Well Field Arsenic Treatment

Decade Plan Line and Work Category: **2103 - Arsenic Treatment Growth**

Description: **Risk Ranking:** 27.2

This item is to provide funding for the planning, design and construction of an arsenic treatment facility at the Leavitt Reservoir site to remove arsenic from the Leavitt wells.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

Currently, Leavitt Well No. 3 is out of service due to high arsenic levels. Water demands in Zones 1W and 0W of the Atrisco Trunk are being met by blending treated surface water with the lower arsenic Leavitt wells (1 and 2). With arsenic treatment at the Leavitt Reservoir, the treated well water could be blended with the other Leavitt well waters to help meet demands during the summer months and drought periods. This would provide system redundancy and reliability and benefit sustainability of our water sources by using well water and surface water.

Other Alternatives Considered?

Supply water from the surface water treatment plant and transferred eastside low arsenic water is currently being done, but at some point be constrained by capacity issues.

College Arsenic Removal Facility

Project Title - MDC Facility Improvements

Decade Plan Line and Work Category: **2201 - Wastewater Facilities Growth**

Description: **Risk Ranking:** 33.5

Wastewater Operations at the Metropolitan Detention Center (MDC), the existing lagoon treatment system is undersized for the expanded MDC facilities and has difficulties meeting the Discharge Permit requirements. A better method to treat the MDC wastewater stream to meet permit is to send the wastewater to the Water Reclamation Plant for treatment by means of a lift station and forcemain to the nearest gravity collection line.

Project Cash Flow Est.

($1000s)

FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

The twin lagoon treatment system is currently incapable of fully meeting the Discharge Permit and providing proper treatment of the MDC wastewater. The facility could be expanded but several issues have been found that impact the treatment process one being the landfill just to the west over the hill that has proven to be a problem with airborne debris from the landfill clogging up the aerators and mixers and building up in the lagoons, the second being handling the solids that accumulate from the process which has to be removed on a regular basis. If the wastewater is transported to the Water Reclamation Treatment Plant the solids can be handled, the lagoons can be shut down and only utilize the fine screen barscreen to remove the debris found in the MDC wastewater stream. A lift station would pump the screened wastewater to a gravity sewer system located to the east of the MDC.

Other Alternatives Considered?

None

MDC Lagoon with Mixers and Aerators

MDC Lagoon

Project Title - Tijeras (Mesa del Sol) WWTP

Decade Plan Line and Work Category: **2202 - Wastewater Facilities Growth**

Description: **Risk Ranking:** 33.5

Wastewater Treatment Facilities, the development of the Mesa del Sol development and in conjunction with the Kirtland Air force Base a pretreatment and reuse facility would be constructed to handle the wastewater flows from the two entities.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

The Mesa del Sol development has expressed interest in the development of a pretreatment facility that can reclaim treated effluent for use as reuse water for non-potable uses including golf courses, parks, and other non-potable uses. Kirtland Air Force has also shown interest in the new facility to act as a training facility for testing new treatment processes. The flow stream out of the facility would send the concentrated solids to the Water Reclamation Plant with a reduced liquid flow stream.

Other Alternatives Considered?

If the project didn't develop the pretreatment facility, then all the wastewater stream would end up at the Water Reclamation Plant. If any reclaimed reuse water is still needed it would have to come from the Water Reclamation Plant and be pumped up to the development. There would not be a training facility developed.

Potential WWTP Sites near the Tijeras Line

Another site in the same area

Project Title - Bosque Reuse WWTP

Decade Plan Line and Work Category: **2203 - Wastewater Facilities Growth**

Description: **Risk Ranking:** 33.5

Wastewater Treatment Facilities, the west side flows that end up at Lift Station #24 would be intercepted prior to the lift station and a Pretreatment Facility would treat and reclaim reuse water for use on the west side parks and golf courses.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

The wastewater flows that are received at Lift Station #24 would be intercepted prior to the lift station and a pretreatment facility would reclaim the water for use as reuse water to be used on the local parks and golf courses. The remaining concentrated solids would be sent to the Water Reclamation Treatment Plant for processing. The treated reclaimed water from the Pretreatment facility would be used for the area parks and golf courses. This project will avoid the need for interceptor capacity increases on the West Side which will otherwise be required in future years.

Other Alternatives Considered?

None

Lift Station #24 Road with Development adjacent

Lift Station #24 adjacent to new development

Project Title - Water Meters

Decade Plan Line and Work Category: **2301 - Water Lines Growth**

Description: **Risk Ranking:** 24.6

Spare water meters of different size are required to be stored in the warehouse so that they are readily availble to be installed at new services.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	500
FY19	500
FY20	500
FY21	500
FY22	500
FY23	500
FY24	500
FY25	500
Total =	**4,000**

Assets only added due to system growth and new connections (as opposed to replacement and rehabilitation of existing service connections). Purchases of these assets strictly based on new construction (housing subdivision, new offices and retail space, etc.) No risk since lowered economic and construction activity merely reduce the quantity that would have to be purchased. Estimated cash flow based on historical levels.

Other Alternatives Considered?

None. Meters must be installed to establish new services.

Example of a small water meter

Project Title - Pipeline Conveyance Capacity to Corrales Trunk

Decade Plan Line and Work Category: **2302 - Water Lines Growth**

Description: **Risk Ranking:** 51.1

There is limited potable water conveyance capacity currently availble for providing service to the old New Mexico Utilities Inc. service area (i.e., Corrales Trunk) from the Albuquerque Water System.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

This project would evaluate, design, and construct new pipeline conveyance capacity for moving water from the Volcano Cliffs Reservoirs Site into the Corrales Trunk. This would provide more reliable service in case one or more of the Corrales Wells is out of service. It would also facilitate conveyance of treated surface water from the San Juan Chama Water Treatment Plant reducing the need to pump groundwater for potable water service.

Other Alternatives Considered?

None. Meters must be installed to establish new services.

Project Title - Land and Easement Acquisition

Decade Plan Line and Work Category: **2401 - Land Acquisition**

Description: **Risk Ranking:** 21.1

The Water Authority often has to pay for the use of private property to locate its pipelines. Also, land must sometimes be purchased to site new facilities such as wells, reservoirs, and pumping stations

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

Land acquisitions are necessary for future Water and Wastewater facilities. New reservoirs and satellite treatment facilities such as Bosque Reuse and Mesa Del Sol treatment plants may require land purchases to site the facility. Additional buffer property around the Southside Reclamation Plant has also been considered to further reduce odor complaints by the Mountain View neighborhood.

Other Alternatives Considered?

None

Aerial View, Southside Reclamation Plant

Project Title - NM 45 Coors Blvd Water Lines

Decade Plan Line and Work Category: **2501 - Other Agreements**

Description: **Risk Ranking:** N/A

NMDOT has tasked URS to install a storm drainage system in Coors Blvd. (NM45) from Central Ave. to the Isleta Pueblo. The new system will have curb & gutter, new paving and curb drainage inlets. The drainage system will require the relocation of the existing water line due to conflicts with numerous storm drainage inlets. Additionally, the existing line south of Rio Bravo Blvd to Lamonica is in direct conflict with the proposed drainage ditch.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

There are two types of work within the project. One is the relocation of the existing waterline. Water lines are relocated at Authority's expense since the project is not federally-funded. Several proposed drainage inlets are in direct conflict with the existing16-inch water line. Some segments of the existing line near Arenal and near Blake Road are not in conflict and will remain in place. The new line will be upsized to 24-inch diameter. The new line will be under the new Coors Road alignment and not in as much risk as the existing sections not under pavement.

Two is the replacement of the concrete sanitary sewer interceptor line. A recent failure of the sewer line (at Blake Road) required on-call construction services and serious traffic delays.

Other Alternatives Considered?

Construction delays by NMDOT are due to funding restraints. Future development determined the line size increase from 16-inch to 24-inch

Project Title - Water Rights and Storage Acquisition

Decade Plan Line and Work Category: **2601 - Water Rights and Storage**

Description: **Risk Ranking:** 50.0

The voluntary water rights acquisition program is an ongoing program to purchase and transfer senior-priority water rights into the Water Authority's permit to pump water from its system wells. The water storage space acquisition program is an ongoing program to purchase permanent storage easements in Abiquiu Reservoir for storage of its San Juan-Chama Project Water and native water in the future.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

To assure adequate water supplies for the Water Authority's current and future water demands, the Water Authority continues to acquire water rights. The current range of market prices for the most senior-priority water rights available is $10,000 to $15,000 per acre-foot of water. An acre-foot of water is 325,851 gallons. Although the new Drinking Water Project will help the Water Authority meet a significant portion of its water demand, continued voluntary acquisition of water rights is needed to meet the growing demand for water in the Water Authority service area.

To assure adequate storage space for the Water Authority's San Juan-Chama and native water, the Water Authority must acquire permanent storage easements from land owners around Abiquiu Reservoir.

Other Alternatives Considered?

None

San Juan-Chama Drinking Water Diversion

Abiquiu Reservoir

Project Title - Development Agreement Reimbursement

Decade Plan Line and Work Category: **2701 - Development Agreements**

Description: **Risk Ranking:** N/A

This category provides for reimbursement of developer expenditures to construct major facilities as the capacity of those facilities is utilized by development. This reflects funding from new customer utility expansion charges for reimbursement under development agreements for extending master plan infrastructure beyond existing serviceable areas and are subject to Authority approval.

Project Cash Flow Est.

	($1000s)
FY16	1,250
FY17	1,250
FY18	1,250
FY19	1,250
FY20	1,250
FY21	1,250
FY22	1,250
FY23	1,250
FY24	1,250
FY25	1,250
Total =	**12,500**

In accordance with sound utility practice, the Authority requires developers of new service into undeveloped areas to construct the necessary major facilities. We then agree to reimburse the developer using funds from utility expansion charges as connections are made to those facilities. This causes the developer (not the current ratepayers) to assume the market risk for constructing major new facilities. One example of facilities built by a developer include the new Otto Reservoir within the Westland/ Suncal development area. Similar agreements are in force and planned in other surrounding areas. Includes Mesa Del Sol, Suncal, Don Reservoir, Volcano Cliffs, Alameda Trunk and NM Utilities, Inc.

Other Alternatives Considered?

N/A

Project Title - Management Information Systems and Geographical Information Systems

Decade Plan Line and Work Category: **2801 - MIS GIS**

Description: **Risk Ranking:** 36.0

This project encompasses primarily new technology initiatives and the upgrade of hardware/software which is either approaching end-of-life or is unsupported by the vendor. Hardware life span is estimated between 3-5 years; with software life span of a current release level can range from 6 months to 2 years. As technology continues to increase in its support of business operations, it is critical to maintain its currency.

Project Cash Flow Est.

	($1000s)
FY16	2,000
FY17	2,000
FY18	2,000
FY19	2,000
FY20	2,000
FY21	2,000
FY22	2,000
FY23	2,000
FY24	2,000
FY25	2,000
Total =	**20,000**

Servers and Databases (New and Upgrades): *This category covers servers that house all software applications and the databases that support those applications. Applications include CC&B, Maximo, Kronos, LIMS and GIS, among others. Databases include Oracle and SQL Server and some that are no longer supported. It also includes networking equipment.*

Applications (New and Upgrades): *This category covers the purchase and upgrades of new software, both enterprise-wide and division specific. Examples include: CC&B, Maximo, Sharepoint, LIMS, H2O Water Waste, and Kronos. On average, 2-4 service packs (including several patches) are released each year, with major releases occurring every 1-3 years.*

Client Services (New and Upgrades): *This category covers hardware and software at the clients desktop. It includes the ongoing upgrade of desktop computers, monitors, keyboards, etc. and the upgrades of Windows operating systems and Microsoft software. It also includes the purchase of new desktop equipment and software.*

Geographic Information Systems (GIS – New and Upgrades): *This category represents all purchases done within the GIS environment to include new software and software. It includes the purchase of GIS-related software for Maximo and mobile devices, including vehicle tracking.*

Mobile, Security and Telecommunications (New and Upgrades): *This new category addresses the mobile, security and telecommunications environment to include portable devices, phones, vehicle location devices, radios, security cameras, etc. It is expected that category will expand over the coming years due to the advancement of mobile, security and telecommunications technology.*

Risks*: The majority of items requested either provides for continual efficient running and backups of mission critical systems (CC&B, Maximo, Kronos, LIMS, GIS, Security) or provide ongoing improvements to officer operations to improve efficiencies and lower costs.*

Project Title - Vehicle Replacement

Decade Plan Line and Work Category: **2901 - Vehicles and Heavy Equipment**

Description: **Risk Ranking:** 34.9

This project funds the replacement of Plant and Field utility vehicles for the Water Authority. Utility vehicles have to be replaced on a programmed basis.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

Utility vehicles are used by plant staff every day to be able to complete their various jobs. Vehicles have to be replaced on a programmed basis.

Other Alternatives Considered?

None

Service Truck

Utility SUV

Project Title - Plant Heavy Equipment

Decade Plan Line and Work Category: **2902 - Vehicles and Heavy Equipment**

Description: **Risk Ranking:** 40.2

This item is to provide funding for the replacement of Plant heavy equipment.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

Plant heavy equipment are used daily and have to always be in good working condition. A timely and programmed replacement of these equipment is critical to the operation of the water and reclamation plants.

Other Alternatives Considered?

None

Project Title - Field Heavy Equipment

Decade Plan Line and Work Category: **2903 - Vehicles and Heavy equipment**

Description: **Risk Ranking:** 40.2

This item is to provide funding for the replacement of Field heavy equipment.

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

Field heavy equipment are used daily and have to always be in good working condition. A timely and programmed replacement of these equipment is critical to the operation of the Water Authority.

Other Alternatives Considered?

None

Project Title - Utility Risk Reduction Program

Decade Plan Line and Work Category: **3001 - Utility Risk Reduction**

Description: *(when, where, expected level of service)* **Risk Ranking:** 35.3

Starting in FY10 and continuing through FY19, this program includes the planning, design, bidding, construction, testing and start-up of new equipment and systems necessary for making various identified security improvements for water facilities.

Project Cash Flow Est.

($1000s)	
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

Narrative: (knowledge of asset, why project, how, failure, how does this reduce WA risk)

Security improvements described in the December 2006, Draft Report of the Vulnerability Assessment Master Plan, prepared by CH2MHill for the Water Authority include installation of facility intrusion systems at all critical facilities, offsite storage facility for backups, equipment inventory, maps, etc., replacement of critical locks with shank protected types, installation of CCTV at remote sites, reservoir stair illumination, continuous pressure monitoring on all pressure reduced zones, installation of barriers around radio towers at Pino Yards and remote sites, installation of cameras, motion sensors, identification systems, security doors at pump stations, water treatment facilities, wells and reservoirs and a separate security SCADA system. To date, the Water Authority has installed several of these security upgrades and improvements listed above. However, we are far from completion. CCTV, CCTV, cameras and motion sensors at remote sites, barriers around radio towers, security doors and intrusion alarms at pump stations and wells still need to be installed.

Security measures are necessary for preventing and/or minimizing vandalism, theft and destruction of Water Authority property and critical assets. Repairs, replacements, and cleanups are costly and time-consuming. For example, reservoirs that are taken out of service for inspection and testing because a security breach has occurred increases the Water Authority's risk with respect to public image, disruption of service, internal and external safety, permit violations (contaminated water), environmental impacts (if contaminated water has to be drained into the environment), reliability, and cleanup costs.

Other Alternatives Considered?

The no-action alternative is not a viable option for the reasons stated above.

Reservoir Bulkhead On Staircase

Secured Reservoir Hatch

Project Title - GPS Units for Vehicles

Decade Plan Line and Work Category: **3002 - Utility Risk Reduction**

Description: *(when, where, expected level of service)* **Risk Ranking:** N/A

The Water Authority has established a policy such that all assigned vehicles (e.g., cars) are to be equipped with GPS tracking units. This is for safety and business efficiency purposes. As new vehicles added to the fleet , they will be equipped with units from retired vehicles. However, growth in the vehicles fleet and replacement of malfunctioning units will require a certain amount of new GPS units each year.

Project Cash Flow Es

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

Narrative: knowledge of asset, why project, how, failure, how does this reduce WA risk?

The Water Authority owns and operates a fleet of cars, pickup trucks, and utility trucks. These vehicles are used by Water Authority staff to conduct their job duties. The GPS units that are to be installed allow the location of each vehicle to be tracked on a real-time basis. The system also records the vehicles movements and status (i.e., ignition on or off).

Other Alternatives Considered?

None

Service Truck

Project Title - Integrated Master Plan

Decade Plan Line and Work Category: **3101 - Master Plans**

Description: *(when, where, expected level of service)* **Risk Ranking:** 57.9

The Authority is conducting a comprehensive and ongoing integrated resource master planning for all water, wastewater and non-potable water reuse supply, distribution, and treatment facilities .This planning effort will examine levels of service, service areas and resource commitments, as well as, identify future facilities, master plan line and service requirements across the Authority's service area

Project Cash Flow Est.

	($1000s)
FY16	500
FY17	500
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**1,000**

Narrative: (knowledge of asset, why project, how, failure, how does this reduce WA risk)

Sound utility management requires having a well-developed and adopted plan for delivering service. The latest adopted Master Plans for water and sewer were developed in the late 1970's. Since then many assumptions upon which they were developed have changed drastically. Widespread effects of conservation have reduced flows in water and sewer lines. That is beneficial by making more capacity available, but this results in longer fluid residence times causing quality concerns in water lines and additional odor potentials in sewers. The Authority is being pressed to provide service into new areas that will be assessed in this planning work. Good facility master planning is needed to wisely meet the needs of present and future ratepayers.

Other Alternatives Considered?

The no action alternative leaves the Authority with piecemeal development of our infrastructure and may mean higher costs to operate, maintain and replace our assets/facilities. Proper planning reduces the cost to provide service to our customers.

Project Title - Energy Master Plan

Decade Plan Line and Work Category: **3102 - Master Plans**

Description: *(when, where, expected level of service)* **Risk Ranking:** 50.5

The Authority will conduct a comprehensive energy master plan for all water, wastewater and non-potable water reuse supply, distribution and treatment facilities.

Project Cash Flow Es

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

Narrative: (knowledge of asset, why project, how, failure, how does this reduce WA risk)

Sound utility management requires having well-developed and adopted energy plan for delivering services. A consultant will be selected to perform a system, facility and fleet energy audit and complete an evaluation of the current energy consumption of the Authority which includes electricity, natural gas, gasoline, and digester bio-methane gas. The audit will include vehicles use and fleet management with respect to fuel and energy consumption. The consultant will also conduct a facility review of power and energy consumption (kWh's &btu"s), analyze the cost of power and energy patterns, develop a base line, review future power and energy requirements and identify conservation measures. The plan will include long-term objectives but shall provide interim implementation of measures consistent with its objectives. Good energy master planning is needed to wisely meet the needs of present and future tax payers.

Other Alternatives Considered?

The no action alternative leaves the Authority without an energy plan and may mean higher costs to operate, maintain and replace assets/facilities. Proper energy planning reduces the cost to provide service to our customers.

Project Title - Pino Yards Replacement

Decade Plan Line and Work Category: **3201 - Miscellaneous CIP**

Description: *(when, where, expected level of service)* **Risk Ranking:** 41.8

This project provides funding for the planning, design, engineering services and construction of a new Water Systems Division facility to replace the City of Albuquerque's Pino Yards facility. The new facility will be located at the San Juan-Chama Drinking Water Treatment Plant at 6000 Alexander Blvd, NE

Project Cash Flow Est.

	($1000s)
FY16	-
FY17	-
FY18	-
FY19	-
FY20	-
FY21	-
FY22	-
FY23	-
FY24	-
FY25	-
Total =	**-**

Narrative: (knowledge of asset, why project, how, failure, how does this reduce WA risk)

The new facility will replace the one at Pino Yards and will serve to centralize more of the WA's staff. It will have office space for over 200 personnel. The new facility will offer greater security and control for our operations.

Other Alternatives Considered?

None. Meters must be installed to establish new services.

San Juan-Chama Drinking Water Plant

Project Title - Low Income Water Sewer Connections

Decade Plan Line and Work Category: **3202 - Miscellaneous CIP**

Description: *(when, where, expected level of service)* **Risk Ranking:** 43.7

This project provides funding for the cost of Utility expansion for low income customers who meet established criteria.

Project Cash Flow Es

	($1000s)
FY16	250
FY17	250
FY18	250
FY19	250
FY20	250
FY21	250
FY22	250
FY23	250
FY24	250
FY25	250
Total =	**2,500**

Narrative: (knowledge of asset, why project, how, failure, how does this reduce WA risk)

The WA has set aside funds to assist low income residents in obtaining basic sanitation and clean water services. This program is targeted for low income residents who are currently using septic tanks for wastewater and wells for drinking water, but who have not connect to available ABCWUA service due to cost. The Authority will supplement up to 2/3rds of the cost for connection to the system.

Other Alternatives Considered?

None.