TRUCKEE MEADOWS WATER AUTHORITY

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June 2020

Photo By: Angel Lacroix, TMWA Engineer

Photo Of: Pressure Reducing Station at Nectar Way

Five Year Capital Improvement Plan

Fiscal Year 2021 - 2025

Truckee Meadows Water Authority is a not-for-profit, community-owned water utility,overseen by elected officials and citizen appointees from Reno, Sparks, and Washoe County

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INTRODUCTION

The Truckee Meadows Water Authority's (TMWA's) Five-Year Capital Improvement Plan 2021-2025 (CIP), describes all infrastructure construction and major capital outlays that will take place between July 1, 2020 and June 30, 2025. Guidance for identifying and scheduling projects in the CIP is provided by TMWA's 2015-2035 Water Facility Plan (WFP) and the 2016-2035 Water Resource Plan (WRP). The 2020-2040 WRP Plan is currently being updated and expected to be adopted by the Board in calendar year 2020. The updated Plans will reflect the acquisition of West Reno Water Company, and other small connections in Verdi.

TMWA is a joint powers authority formed in November 2000, pursuant to a Cooperative Agreement (as amended and restated as of February 3, 2010, the "Cooperative Agreement") among the City of Reno, Nevada ("Reno"), the City of Sparks, Nevada ("Sparks") and Washoe County, Nevada (the "County"). The Authority owns and operates a water system (the "Water System") and develops, manages and maintains supplies of water for the benefit of the Truckee Meadows communities. On January 1, 2015, TMWA, the WCWU and STMGID consolidated to create a regional water system under TMWA. TMWA has a total of 162 square miles of service area, which includes the cities of Reno and Sparks and other surrounding populated areas of the County (except certain areas in the vicinity of Lake Tahoe and other small areas bordering California). TMWA has no authority to provide water service outside of its service area; however, may provide service in the future to developments that are annexed into its service area.

The CIP incorporates a comprehensive compilation of water system improvements for TMWA. A major feature of the CIP is the construction of several projects that will expand the conjunctive use of the region's water resources. The philosophy behind conjunctive use of local water resources is to maximize the use of surface water while preserving the integrity of groundwater resources which are drawn upon during periods of persistently dry weather. Another aspect of the CIP is to expand the Aquifer Storage and Recovery Program (ASR Program) which is the recharge of groundwater basins with treated surface water, and explore the possibilities related to Advanced Purified Water (APW). In addition, this CIP includes several major projects to extend limited water service to the Verdi area, made possible by cost effective oversizing of developer main extensions. Full capacity water service for the entire Verdi area will no be available until an additional $17.0 million of new backbone water facilities are constructed.

The CIP constitutes an essential component in TMWA's system of planning, monitoring and managing the activities of purveying water and generating hydroelectric power. The CIP is incorporated into a broader, constantly-updated Five-Year Funding Plan (FP) for a comparable period. This Funding Plan (FP) will determine adequate levels and sources of funding for projects contained in the CIP.

The 2020-2024 FP indicates that TMWA can fund the CIP in light of a significant funding gap. This situation is the result of substantial reductions in water demands resulting from the drought that ended in the spring of 2017. Otherwise there appears to be adequate treasury and revenues from

various sources to fund operations, pay principal and interest on existing debt, and capital improvements as presented in the CIP.

The CIP includes total spending of $229.1 million with approximately 67.1% or $153.8 million dedicated to upgrades or replacement of existing infrastructure, and approximately 21.4% or $49.0 million allocated to construction of new water system capacity projects, conjunctive use construction projects, retrofit of remaining unmetered services, and potential opportunistic acquisition of water rights. Construction and capital outlays associated with the former STMGID service area are estimated to be approximately 2.9% or $6.6 million of total spending over fiscal years 2021-2025. STMGID transferred reserves will not be enough to fund the next five years of capital improvements in this category. STMGID Projects totaling $0.06 million have been included in customer funded projects. Of the total projected spending over the next five years 6.8% or $15.5 million is considered contingency spending which is dependent on certain events occurring to trigger spending. The $229.1 million in projected spending is grouped into broad categories of improvements and spending outlays. These categories are described below with detailed project descriptions to be found in the Project Description Section.

Raw Water Supply Improvements contains 3.9% or approximately $8.8 million of total spending in the CIP. Projects focus on improvements to the Highland Canal/Siphon raw water conveyance infrastructure, upstream storage improvements for Donner Lakes where TMWA stores Privately-Owned Stored Water (POSW) and expenses associated with the storage and implementation of the Truckee River Operating Agreement (TROA). Construction of an APW Demonstration Facility is also included in this category which will be built as a follow up to the OneWater NV advanced purified water feasibility study, and will be a joint effort with other agencies.

Ground Water Supply Improvements contains 6.4% or approximately $14.6 million of total spending in the CIP. These projects focus on preserving existing well capacities, drilling and equipping of new wells and at times complete replacement of existing wells.

Treatment Plant Improvements contains 13.1% or approximately $30.1 million of total spending in the CIP. Construction of the Mt. Rose Surface Water Treatment Plant will be completed in fiscal year 2021, and will provide additional critical conjunctive use water supplies on the Mt. Rose/ Galena Fan with water sourced from local creeks. The Orr Ditch pump station project will increase redundancy and reliability by enhancing the Truckee River source of supply to the Chalk Bluff Water Treatment Plant. Other spending in this category targets fix and finish projects with the primary focus on the Chalk Bluff and Glendale Surface Water Treatment Plants located on the Truckee River. Other improvements focus on satellite water system treatment upgrades and a complete upgrade of the Supervisory Control and Data Acquisition (SCADA) system which provides centralized automated system control and data storage for the distribution system and treatment plants.

Distribution System Pressure Improvements contains 16.4% or approximately $37.6 million of total spending and is the most significant spending category in the CIP. This spending is bifurcated into pressure improvements and water main and service line improvements. Pressure improvements

include pump station rebuilds and new construction, correction of pressure or fire flow deficiencies, pressure regulating station rebuilds and new construction, as well as reconstruction of pressure regulating valves.

Water Main Distribution & Service Line Improvements contains 28.2% or approximately $64.6 million of total spending in the CIP. These improvements include replacement of aged water mains reaching end of service life, installation of new mains for new and expanded service, water main oversizing and extensions, off-river supply improvements, and two of the three major conjunctive use projects to extend surface water supplies to the areas that rely heavily on year round groundwater pumping. This last set of projects furthers the conjunctive use philosophy of water resource management, and include Mount Rose 5 Distribution/Pressure Improvements, Boomtown water system improvements, and STMGID Conjunctive Use Facilities ($2.1 million to be funded by STMGID reserves).

Potable Water Storage Improvements contains 8.9% or approximately $20.3 million of total spending in the CIP. These projects are comprised mainly of new treated water storage tank construction to serve new and expanded service (STMGID Tank East Zone 11 Tank), some replacement of existing treated water tank capacity as well as systematic recoating of treated water tank interiors and exteriors to extend service life of these facilities.

Hydroelectric Improvements contains 4.9% or approximately $11.2 million of total spending in the CIP. Included in this category is the new Orr Ditch Hydro Facility, which will generate hydroelectric power for the Chalk Bluff Treatment Plant, and directly offset power costs at TMWA's largest treatment plant. Other spending centers on the three run-of-river hydroelectric facilities currently owned by TMWA. Efforts on these facilities focus primarily on flume, forebay, diversion and canal improvements as well as equipment upgrades.

Customer Service Outlays contains 10.3% or approximately $23.6 million of total spending in the CIP. Spending in this category focuses on meter reading device replacements and meter replacement if required. The principal spending in this category focuses on consolidating the meter system to one format which will provide more frequent and automatic meter reading, and meter data management. Also, in this category is a spending provision for new business meters which is funded by development.

Administrative Outlays contains 4.3% or approximately $9.9 million of total spending in the CIP. These outlays are primarily for Information Technology equipment, licenses, and hardware replacements as required. Included in this category of spending are fleet upgrades for heavy and light vehicles as well as excavation equipment. Included is the replacement of the Customer Information Services (CIS) system in FY21, including a customer portal for water usage information and bill payment.

Special Programs Funded by Development include outlays for water meter retrofit, and opportunistic water rights purchases. They are separated from a presentation standpoint because in the case of water right acquisitions, spending is currently driven by pricing opportunity. The

completion of the water meter retrofit project may occur during the current five-year planning horizon , with very little opportunity to meter any existing unmetered services. These projects comprise 0.7% or approximately $1.7 million of total spending in the CIP.

Former STMGID System Improvements are separated from a presentation standpoint because projects in this category are funded by the STMGID reserve, which TMWA acquired through the acquisition of former STMGID. It contains 2.9% or approximately $6.6 million of total spending in the CIP. Improvements in this category focus on conjunctive use, well replacement and improvements, and tank recoats. Also as meter pit failures occur in the former STMGID water system service areas those meter pits are converted to TMWA material standards. This reserve fund is expected to be depleted by the end of the five year plan.

DEFINITIONS

Capital Improvement Program Definitions

The Five-Year CIP is a planning and budgeting tool, which provides information about TMWA's infrastructure needs for a five-year time frame. Each year, the list of projects is reviewed for cost and priority. New projects may be added and other projects delayed or deleted entirely. Since most projects are mandatory or necessary, deletion of a project would be rare with the exception of contingency spending. However, capital spending plans must remain flexible, and it is often necessary to take revisions to the approved fiscal year's CIP back to the TMWA Board for approval. If construction or outlays can be deferred, TMWA will defer spending in order to preserve cash reserves, regardless whether or not there are difficult economic times. These decisions are made on a case by case basis.

Generally, capital improvements/outlays are defined as physical assets, constructed or purchased, that have a useful life of one year or longer and a cost of $5,000 or more.

Definition of Capital Outlays

"Capital Outlays," which are in TMWA's capital budget, include construction projects that improve the life of current TMWA infrastructure, or are new additions to TMWA infrastructure, as well as computer equipment and software, vehicles, and heavy equipment needed to support TMWA's operations. These items are generally found in the Administrative category of projects. For Customer Service category, these outlays involve meter installations and related infrastructure, and acquiring meter reading equipment.

PRIORITIZATION OF PROJECTS/OUTLAYS

TMWA may not have sufficient funding to meet all its capital needs each year or may divert funding to meet unexpected capital improvements. If such conditions arise, projects are prioritized based on the effect each project has on TMWA's ability to meet customer demand and maintain water system reliability. TMWA's Five-Year Funding Plan is used to analyze total spending, identify various funding alternatives, and determine whether or not water rate adjustments will be required.

The priority categories represent a relative degree of need for any particular project and are described below.

* **PRIORITY 1 MANDATORY:** These are considered absolutely required, and are the highest priority of all capital projects. Mandatory projects include those in final design or already under construction, or those required by legislation or regulation for protection of public health and safety. These projects are generally found in the first fiscal year of the 2021-2025 CIP. Water demands or infrastructure conditions are such that if the project is not completed TMWA runs the risk of eventually being unable to reliably provide water service to its existing customers and/or new and expanded service, or incur extended outages.

* **PRIORITY 2 NECESSARY:** A project that is important for providing water service to customers, yet timing of construction or spending outlay is not as critical as a mandatory project. These projects are required and are generally found in the last four years of the 2021-2025 CIP. External factors such as the pace of new development or the condition of existing infrastructure may delay or accelerate the timing of project construction. A rate of return may not be applicable to projects whose economic/financial benefits cannot be easily quantified.

* **PRIORITY 3 CONTINGENCY:** These projects or capital outlays are not immediately critical to the operation of the water system. Expenditures in this category generally require a business case study or specific criteria to be met before spending can occur. If such criteria are not met, then spending may or may not be justified. Also, some projects are deferrable if spending is required in an area of higher priority. Even though these projects and outlays are in the 2021-2025 CIP the likelihood that spending will occur may be remote and is based upon future conditions that are difficult to predict.

FUNDING OF CAPITAL SPENDING

Funding Sources

The CIP will rely on various funding sources to pay for capital projects/capital outlays. TMWA relies heavily on revenues generated from water sales, hydroelectric, and other operating sales to fund the majority of projects. Developer contributions have historically been an important funding source for certain construction projects for new and expanded water system capacity. Investment income is also available to augment other revenue sources but is minor in relation to other funding sources. Collection of developer fees have rebounded since reaching historical lows during the great recession . TMWA continues a non-reliance policy on these fees to fund operations or fund annual principal and interest payments on TMWA's outstanding debt. Residential and commercial development activity has accelerated in a meaningful manner providing financial resources to fund projects listed in the CIP for new and expanded service. TMWA may rely on the issuance of new money debt to fund large levels of capital spending in a particular period. The CIP does not anticipate reliance on funding from new money at this time. TMWA has relied on a number of new money debt issuances in the past to fund capital spending.

Developer Contributions

TMWA looks to the development community for developer contributions in the form of system development charges or direct reimbursements to fund capital expenditures related to new or expanded water service, including pump station construction or expansions and feeder main extension projects. In June 2003, the TMWA Board adopted facility charges to pay for new treatment/supply capacity projects and new storage capacity projects. TMWA began collecting these facility charges in January 2004. Under TMWA's Rule 5 these proceeds are used to support new capacity construction. Rule 7 governs the purchase of water rights and reimbursement by developers for issuance of will-serve commitments for water service. However, because of the timing of certain growth driven capital projects, additional financial resources may be called upon as needed. The most recent update to the water system facility charges, which updated area fees, supply and treatment fees, as well as storage unit costs was approved by the TMWA Board in August, 2019 with an effective date of October, 2019. These fees are subject to periodic review for funding adequacy.

Financing Background

New money revenue bond issuance has been historically an integral part of funding construction spending. TMWA has also taken advantage of lower rate, subordinated debt financing obtained through the Drinking Water State Revolving Loan Fund (DWSRF) and a tax-exempt commercial paper program (TECP) due to lower cost of capital and repayment subordination features of these funding vehicles. Federal and State Grants and loan forgiveness programs have also been identified in the past to fund projects. Customer water

sales and various developer fees may not be immediately sufficient to pay for construction spending and capital outlays so there may be some reliance on new money debt and reliance on future tax-exempt commercial paper note sales. TMWA plans to avoid relying on additional debt whenever possible and reasonable. TMWA has been able to reduce debt by over $100 million, and 20% during the last 4 years, and currently has no plan to increase debt to fund projects in this plan.

Rule 5 and Rule 7 Fees

These fees are collected from the development community. Rule 5 fees are paid by developers to TMWA for the construction of new water feeder mains, new treatment/supply capacity, new storage capacity, and for new or rebuilt pump stations to meet demand resulting from new and expanded service. Rule 7 Fees are derived from will-serve sales to development. TMWA historically purchased water rights on the open market and reserves these rights for will-serve letters to be sold to development. TMWA also recovers a modest amount of administrative and financing costs with the sale of each will-serve. The title to water rights are retained by and dedicated to TMWA. TMWA has sufficient inventory of water rights to meet the demands for new and expanded service for the foreseeable future.

Water Meter Retrofit Fees

TMWA has been retrofitting flat rate water services with meter boxes, setters and meters. The intent is to meter the entire water system which is now in the final stages. To accomplish this task TMWA has collected $1,830 for each acre-foot of demand when will-serve commitments based on surface water right dedications are issued for new or expanded service. Proceeds from the fee are used to fund water meter retrofits. Pursuant to Resolution 272 passed by the Board of Directors on January 16, 2019, the fee was broadened to include other uses. The pre-January 16, 2019 balance of these fees will be used to complete any remaining water meter retrofits and other water meter replacement projects.

Water Resource Sustainability Fund Fees

Resolution 272, passed by the Board of Directors on January 16, 2019, broadened the purpose of the Water Meter Retrofit Fee to support projects such as expanded conjunctive use, aquifer storage and recovery, demonstration and validation of exceptional quality reclaimed water uses, future water resource identification and acquisition, and other projects that enhance water resource sustainability and drought resiliency. The fee has been reduced from $1,830 to $1,600 for each acre-foot of demand when will-serve commitments based on surface water right dedications are issued for new or expanded service.

Capital Contributions from Other Governments

TMWA is a water wholesaler to the Sun Valley General Improvement District (SVGID). From time to time, new infrastructure must be constructed to service this retail water-service provider. There are no expectations of any need for reimbursement from this source in the CIP although historically SVGID has made contributions to TMWA.

Reserves from the Water Utility Consolidation

TMWA, the WCWU and STMGID consolidated on January 1, 2015. As a result of the consolidation, the respective treasuries of the WCWU and STMGID were transferred to TMWA. The WCWU treasury that was transferred to TMWA amounted to approximately $43.4 million after the final transfer of funds (which was absorbed into TMWA's account) while the STMGID treasury transferred to TMWA was approximately $15.7 million of which $6.6 million remains. These cash and investment reserves will continue to be used to make necessary improvements in the former water utility service areas including conjunctive use enhancements.

Other Resources

One method of generating additional funds for capital improvements is to increase existing fees/charges or to add new fees/charges. However, future increases will be provisional if TMWA is able to meet revenue requirements and maintain bond coverage ratios that will suffice to maintain strong investment-grade credit ratings. TMWA has obtained many benefits of Aa2 and AA+ credit ratings from Moody's and S&P, respectively. The Board approved a five-year customer water rate plan in early 2017 which included a water rate increase of 3.0% in May of 2017 and 2018. TMWA Board deferred the 2.5% rate increases scheduled for 2019 through 2021 to 2020 through 2022, effectively delaying the rate increase plan by one year. Recently, the Board decided to defer the 2.5% rate increase in May, 2020 to September, 2020 and will revisit the remaining 2.5% increases scheduled for 2021 and 2022 before they are implemented. Water rate increases are essential for TMWA to maintain sound credit ratings and to preserve access to opportunities in the capital markets. TMWA also funds rehabilitative capital projects in a meaningful manner due to water delivery being an essential municipal service.

FISCAL YEAR 2021 CAPITAL SPENDING-THE CAPITAL BUDGET

TMWA expects to spend $54.7 million for fiscal year 2021, the first year of the FY 2021-2025 CIP. Of this total $32.5 million will be paid for by customer rates for water system rehabilitation, hydroelectric improvements, pressure system improvements, water main distribution service line improvements, and administrative and customer service outlays. While $15.8 million will be paid for by developer fees and will be dedicated to water system expansion, limited opportunistic acquisition of water rights and some water meter retrofit activities. Finally, STMGID reserves account for $2.7 million of improvements in the STMGID area.

SUMMARY OF PROJECTS FOR THE FISCAL YEAR 2021 BUDGET

Total construction spending, acquisition spending, and capital outlays are expected to be $54.7 million for the fiscal year 2021. TMWA has established the following projects for the capital budget in fiscal year 2021 (Amounts presented in thousands of dollars):

Summary of Projects for FY 2021	Amount
Raw Water Supply Improvements	
Highland Canal-Upgrades-Downstream	225
Highland Canal-Upgrades-Diversion to Chalk Bluff	1,500
TROA Drought Storage / Implementation	50
Advanced Purified Water Demonstration Facility	300
Total Raw Water Supply	**2,075**
Ground Water Supply Improvements	
Well Rehabilitation Improvements	200
Double Diamond #5 and Equipping	50
Sunrise Well #3 Replacement	100
Well Fix & Finish	200
Well Plugging/Conversion	120
NDEP Monitoring Wells	200
Thomas Creek Well and Spring Creek 5 Equipping	750
Truckee Canyon Well 3 Site Modifications	50
Well Head TTHM Mitigation	500
Spring Creek Well #7 Recharge	75
Kietzke, High, Morrill PCE Treatment	50
Fish Springs Ranch TDS Monitoring Wells	300
Fish Springs Ranch Weather Station	10
Geothermal Fluid Monitoring Well	100
Total Ground Water Supply	**2,705**

Summary of Projects for FY 2021 (continued)	Amount
Treatment Plant Improvements	
Chalk Bluff Treatment Plant Improvements	650
Glendale Treatment Plant Improvements	400
Chalk Bluff Filter Underdrains	800
Orr Ditch Pump Station Rehab	200
Truckee Canyon Water Treatment Improvements	100
Lightning W Treatment Improvements	60
SCADA Rehab / Plant Operating Software	800
Mount Rose Surface Water Treatment Plant	4,000
Longley Plant HV 3 and HV 4 Treatment Improvements	200
Spanish Springs Nitrate Treatment Facility	300
Chalk Bluff Electrical System Upgrades	150
Total Treatment Plant	**7,660**
Pressure Improvements	
Pressure Reducing Valve (Roll Seal) Removal	400
Land Acquisitions	250
Disc Drive Low Head Pump Station and Mains	1,900
Pump Station Oversizing	100
Pump Station Rebuilds, Rehabilitations	1,200
Mount Rose Well #3 Pump Station Improvements	250
Standby Generator Improvements	150
Idlewild Booster Pump Station Improvements	100
Spanish Springs #1 Pump Zone Intertie	600
Twin Lakes Booster Pump Station	400
Kings Row 1 Booster Pump Station	50
Laxy 5 Low Head Pump Station and Mains	150
Common (Stonegate) Booster Pump Station	2,500
Caughlin 5C Pump and Motor Replacement	150
Kinglet Pump Station	1,400
Total Pressure Improvements	**9,600**
Water Main-Distribution-Service Line Improvements	
Street & Highway Main Replacements	4,500
Spring Creek South Zone Conversion	1,500
South Virginia 24" Main - Kumle to Peckham	1,000
Spanish Springs Main Replacement	2,300
General Waterline Extensions	100
Mount Rose 5 Distribution/Pressure Improvements	750
Boomtown Water System Improvements	2,500

Project Summary for FY 2021 (continued)	Amount
Boomtown to TWMA Connection	1,900
Stonebrook West Main Oversizing	450
South Truckee Meadows Capacity Improvements	430
Stewart-Taylor Main Replacements	2,000
Roberts-Wilson-Moran Main Replacements	2,340
Total	**19,770**
Potable Water Storage Improvements	
Storage Tank Recoats; Access; Drainage Improvements	900
Highland Reservoir Tank	100
STMGID Tank East Zone 11 Tank	100
Lightning W Tank #2	400
Total Potable Water Storage	**1,500**
Hydroelectric Improvements	
Forebay, Diversion, and Canal Improvements	100
Flume Rehabilitation	150
Washoe Flume Reconstruction	50
Orr Ditch Hydro Facility	1,100
Washoe Flume Reconstruction Boxes 1-68	1,350
Total Hydroelectric	**2,750**
Customer Service Outlays	
New Business Meters	100
Mueller Pit Replacements former Washoe County	125
Galvanized / Poly Service Line Replacements	250
AMI Automated Meter Infrastructure	2,100
Total Customer Service Outlays	**2,575**
Administrative Outlays	
IT Server Hardware	180
IT Network Security Upgrades	45
IT Physical Access Security Upgrades	60
Printer / Scanner Replacement	40
Crew Trucks / Vehicles	650
Emergency Response Projects	150
CIS System Replacement	1,000
System Wide Asphalt Rehabilitation	250
Physical Access Control System Upgrade	200
CSR Work Area Security Upgrade	360
Physical Site Security Improvements	200
Total Administrative Outlays	**3,135**

Project Summary for FY 2021 (continued)	Amount
Special Projects Funded by Development	
Water Meter Retrofits	100
Water Right Purchases	150
Total Special Projects	**250**
Former STMGID System Improvements	
STMGID Well Fix & Finish	150
STMGID Conjunctive Use Facilities	1,600
STMGID Mueller Pit Replacements	50
STMGID NAC Deficiencies - Saddlehorn, Upper Toll, STMGID East	100
STMGID NAC Deficiencies - Phase 2 - Sioux Trail, Geiger Grade, Westwind Circle	800
Total STMGID System Improvements	**2,700**
Total Capital Spend for FY 2021	**54,720**

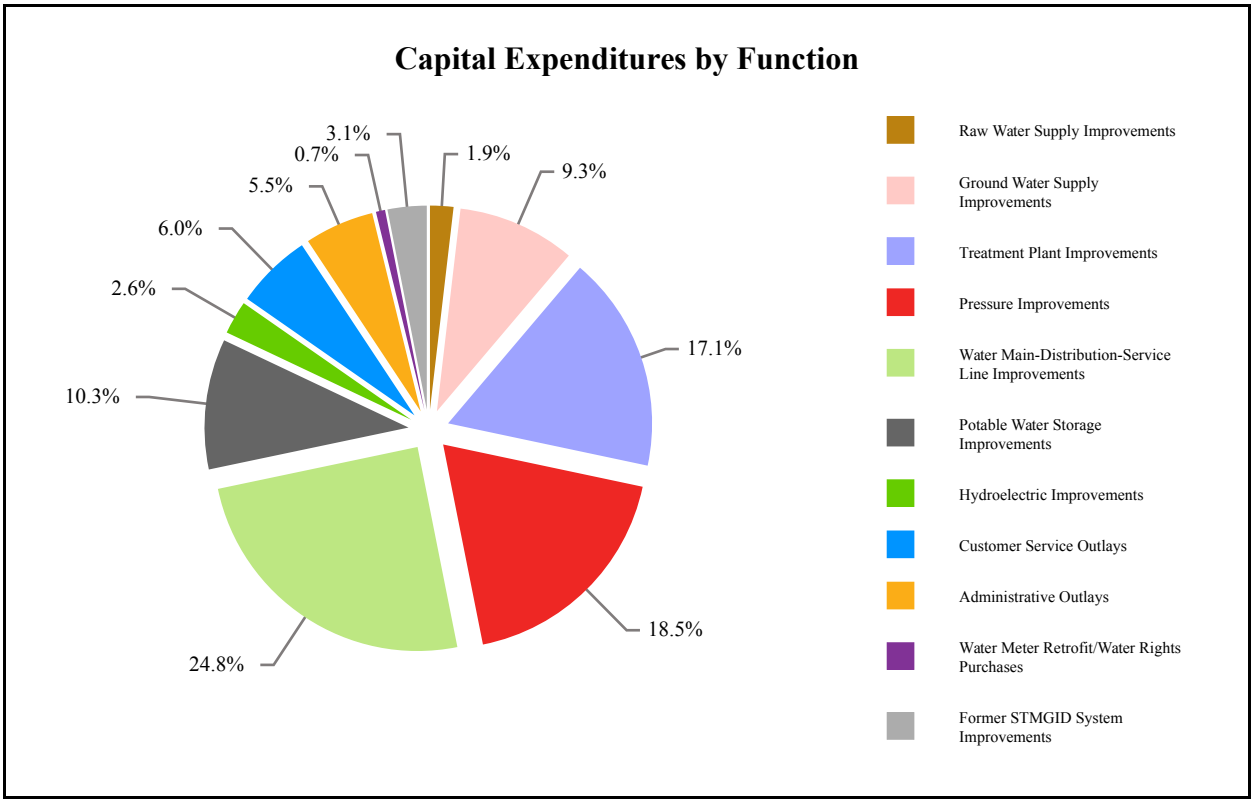
Detailed project descriptions are provided for all projects in the CIP. These descriptions cover the fiscal year 2021 capital budget as well as the four additional years from 2022-2025.

Photo By:
Jared Harkema,
TMWA Inspector

Photo of:
Pyramid Hwy &
Blackstone Bore
Project

CAPITAL EXPENDITURES BY FUNCTION
(Amounts in thousands of dollars)

Summary of Capital Expenditures by Function	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	Five Year CIP
Raw Water Supply Improvements	2,075	4,225	1,775	375	375	8,825
Ground Water Supply Improvements	2,705	2,365	3,010	4,260	2,290	14,630
Treatment Plant Improvements	7,660	9,195	8,340	2,705	2,205	30,105
Distribution System Pressure Improvements	9,600	7,080	10,830	7,550	2,580	37,640
Water Main Distribution Service Line Improvements	19,770	9,575	9,690	11,040	14,550	64,625
Potable Water Storage Improvements	1,500	9,595	4,200	3,630	1,360	20,285
Hydroelectric Improvements	2,750	6,350	1,250	750	100	11,200
Customer Service Outlays	2,575	6,535	6,475	6,550	1,475	23,610
Administrative Outlays	3,135	1,720	1,475	1,870	1,650	9,850
Water Meter Retrofit / Water Rights Purchases	250	250	400	400	400	1,700
Sub-Total TMWA Construction Spending & Outlays	**52,020**	**56,890**	**47,445**	**39,130**	**26,985**	**222,470**
Former STMGID System Improvements	2,700	1,650	1,950	150	150	6,600
Total Projected Capital Spending, Including STMGID	**54,720**	**58,540**	**49,395**	**39,280**	**27,135**	**229,070**

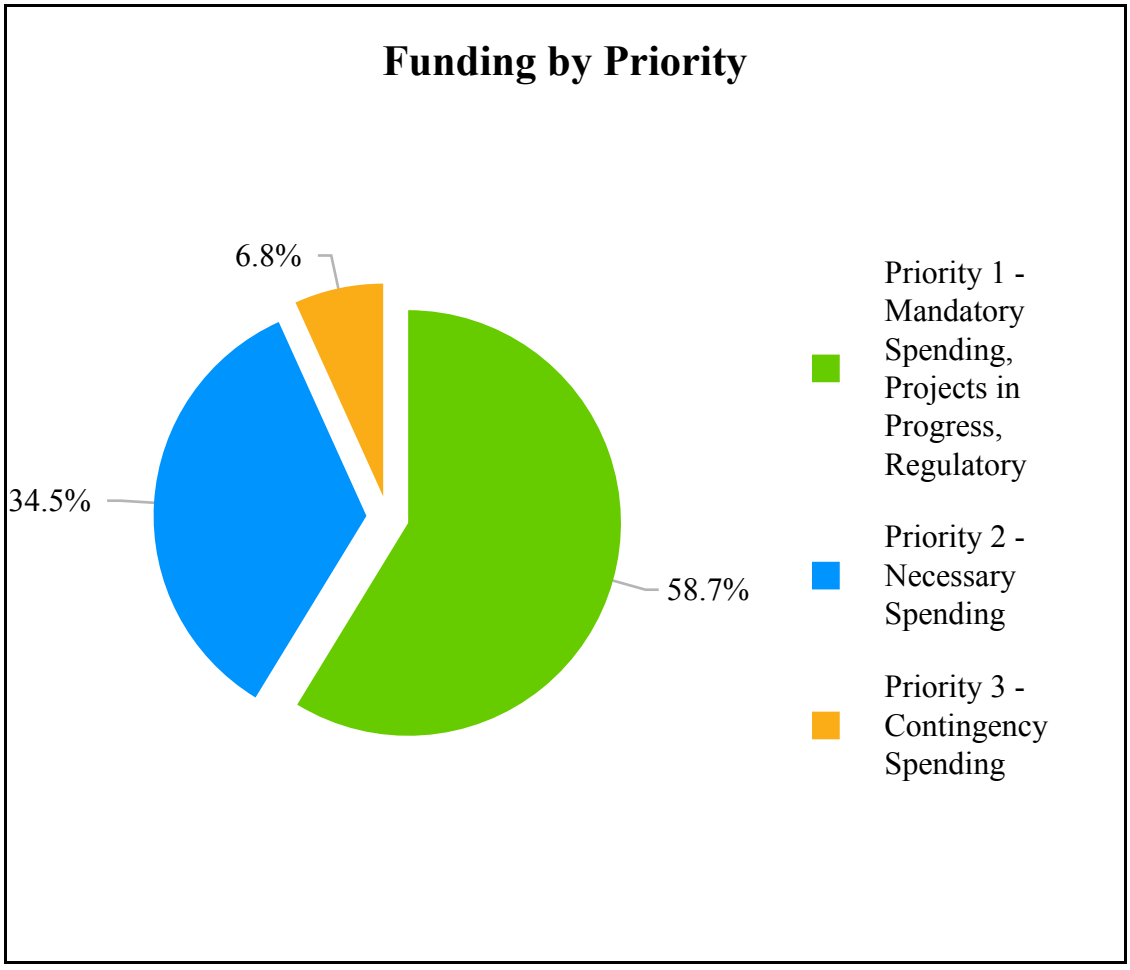


PRELIMINARY FUNDING PLAN
FUNDING SOURCES
(Amounts in thousands of dollars)

Summary of Funding Sources	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	Five Year CIP Total
Capital Improvements Funded by Customer Rates	32,472	34,983	34,266	32,875	19,210	153,806
Capital Improvements Funded by Developer Fees	11,910	11,983	11,729	5,905	7,425	48,952
Capital Improvements Funded by Developer Reimbursements	3,900	—	—	—	—	3,900
Capital Improvements Funded with former STMGID Reserve Funds	2,700	1,650	1,950	150	150	6,600
Water Meter Retrofit / Water Rights Purchases	2,200	3,711	100	100	100	6,211
Capital Improvements Funded by Sustainability Fees	438	2,213	850	250	250	4,001
Farad Insurance Settlement - Applied to Orr Ditch Hydro	1,100	4,000	500	—	—	5,600
Total Projected Capital Spending	**54,720**	**58,540**	**49,395**	**39,280**	**27,135**	**229,070**

FUNDING BY PRIORITY
(Amounts in thousands of dollars)

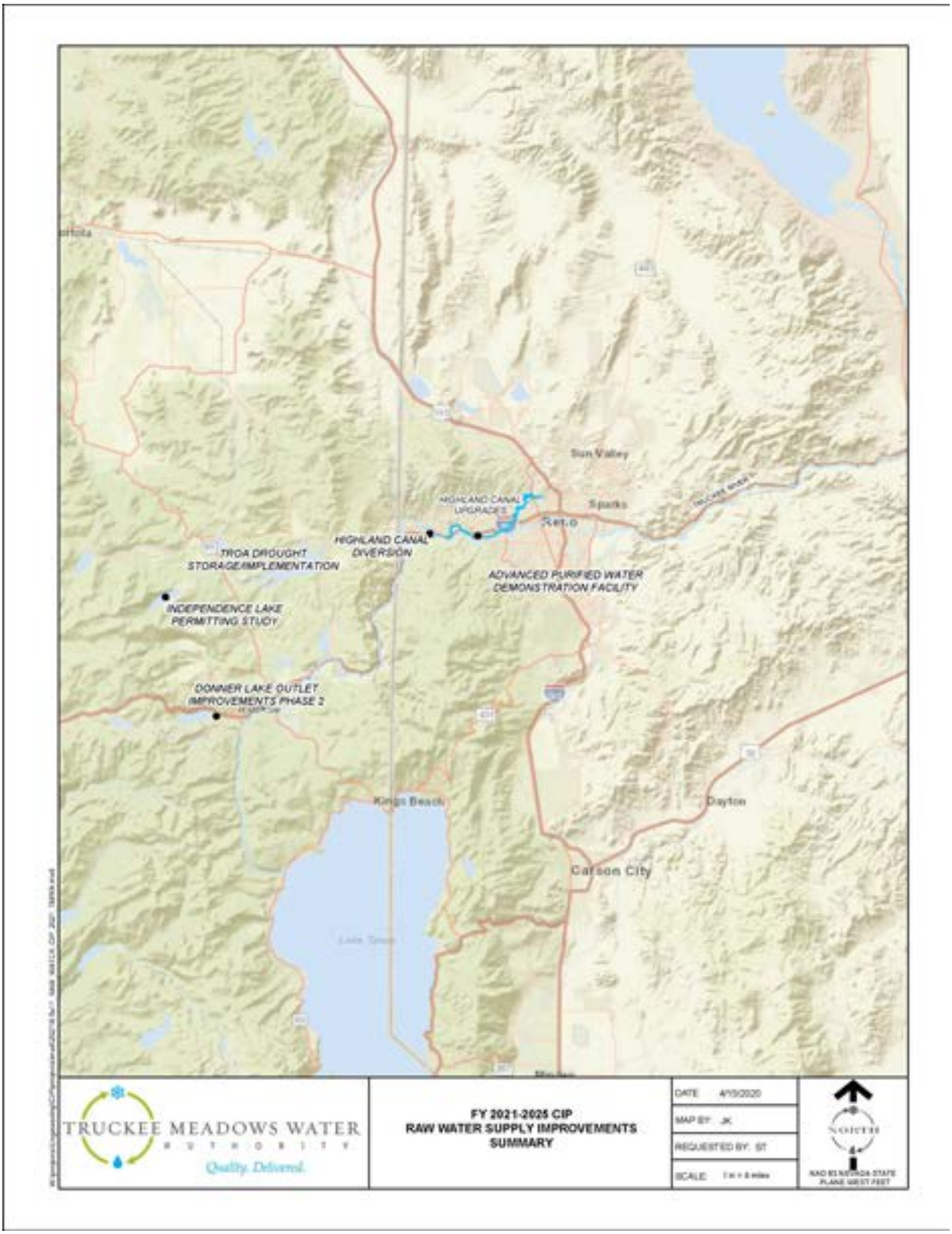
Summary of Funding by Priority	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	Five Year CIP Total
Priority 1 - Mandatory Spending, Projects in Progress, Regulatory	44,400	27,860	22,715	19,970	19,580	134,525
Priority 2 - Necessary Spending	7,920	24,320	23,780	17,085	5,955	79,060
Priority 3 - Contingency Spending	2,400	6,360	2,900	2,225	1,600	15,485
Total Projected Capital Spending	**54,720**	**58,540**	**49,395**	**39,280**	**27,135**	**229,070**



PROJECT FUNCTIONS AND DESCRIPTIONS
RAW WATER SUPPLY IMPROVEMENTS
Summary

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Customer Rates	Highland Canal-Upgrades-Downstream	225	225	225	225	225	1,125
1	Customer Rates	Highland Canal-Upgrades-Diversion to Chalk Bluff	1,500	300	300	100	100	2,300
1	Customer Rates	TROA Drought Storage / Implementation	50	50	50	50	50	250
2	Customer Rates	Donner Lake Outlet Improvements Phase 2	—	150	—	—	—	150
2	Developer Fees / Sustainability Fees	Advanced Purified Water Demonstration Facility	300	3,500	1,200	—	—	5,000
Subtotal Raw Water Supply			**2,075**	**4,225**	**1,775**	**375**	**375**	**8,825**

Project Locations: Map of all *Raw Water Supply Improvements* projects are highlighted in the following map.


Sun Valley
Sparks
Reno
HIGHLAND CANAL UPGRADES
HIGHLAND CANAL DIVERSION
TROA DROUGHT STORAGE/IMPLEMENTATION
ADVANCED PURIFIED WATER DEMONSTRATION FACILITY
INDEPENDENCE LAKE PERMITTING STUDY
DONNER LAKE OUTLET IMPROVEMENTS PHASE 2
Kings Beach
Dayton
Carson City
TRUCKEE MEADOWS WATER AUTHORITY
Quality. Delivered.
FY 2021-2025 CIP
RAW WATER SUPPLY IMPROVEMENTS
SUMMARY
DATE 4/15/2020
MAP BY: JK
REQUESTED BY: ST
SCALE

Raw Water Supply Improvements
Highland Canal-Upgrades-Downstream

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Customer Rates	Highland Canal-Upgrades-Downstream	225	225	225	225	225	1,125

PROJECT DESCRIPTION: The improvements reflected in this capital project item are for betterments along the canal downstream of the Chalk Bluff Water Treatment Plant to the Rancho San Rafael Park. Approximately 2,000 feet of "smart ditch" (a molded plastic trapezoidal channel section) has been installed downstream of Chalk Bluff in recent years. This product reduces leakage and maintenance and it is planned to continue to extend the installation in the future. Other efforts are rehabilitative in nature and may address access and security concerns.

SCHEDULE: Projects are identified and prioritized on an annual basis.

Raw Water Supply Improvements
Highland Canal – Upgrades – Diversion to Chalk Bluff

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Customer Rates	Highland Canal-Upgrades-Diversion to Chalk Bluff	1,500	300	300	100	100	2,300

PROJECT DESCRIPTION: These improvements are for the stretch of canal between the diversion on the Truckee River and Chalk Bluff Water Treatment Plant. The proposed spending is to secure the canal from trespass to enhance public safety and prevent encroachment on TMWA property. Due to swift flows in the Highland Canal TMWA will also complete fencing along the canal for public safety, install security cameras and access barriers. The proposed FY 2021 budget is for replacement of the existing 54-inch siphon pipe under the Truckee River just downstream of the diversion installed in 1954.

SCHEDULE: Projects are identified and prioritized on an annual basis.

Raw Water Supply Improvements
TROA Drought Storage/Implementation

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Customer Rates	TROA Drought Storage / Implementation	50	50	50	50	50	250

PROJECT DESCRIPTION: TROA became effective and TMWA began implementation officially on December 1, 2015.

SCHEUDLE: Ongoing budget under TROA implementation is for additional stream gages in new locations as required, as well as improving the monitoring capabilities of existing gages as needed on an annual basis. Other smaller capital improvements are related to the operation of reservoir sites.

Raw Water Supply Improvements
Donner Lake Outlet Improvements Phase 2

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Customer Rates	Donner Lake Outlet Improvements Phase 2	—	150	—	—	—	150

PROJECT DESCRIPTION: Dredging of a portion of the Donner Lake outlet channel was completed in FY2019. The project was scaled back to fit within the CEQA emergency permitting requirements. Additional work is required to extend and improve the outlet channel further into the lake, including possible bank stabilization improvements to minimize future dredging requirements.

SCHEDULE: Permitting and preliminary design will be conducted over the next two years. Construction of improvements is scheduled beyond FY 2025.

Raw Water Supply Improvements
Advanced Purified Water Demonstration Facility

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Developer Fees / Sustainability Fees	Advanced Purified Water Demonstration Facility	300	3,500	1,200	—	—	5,000

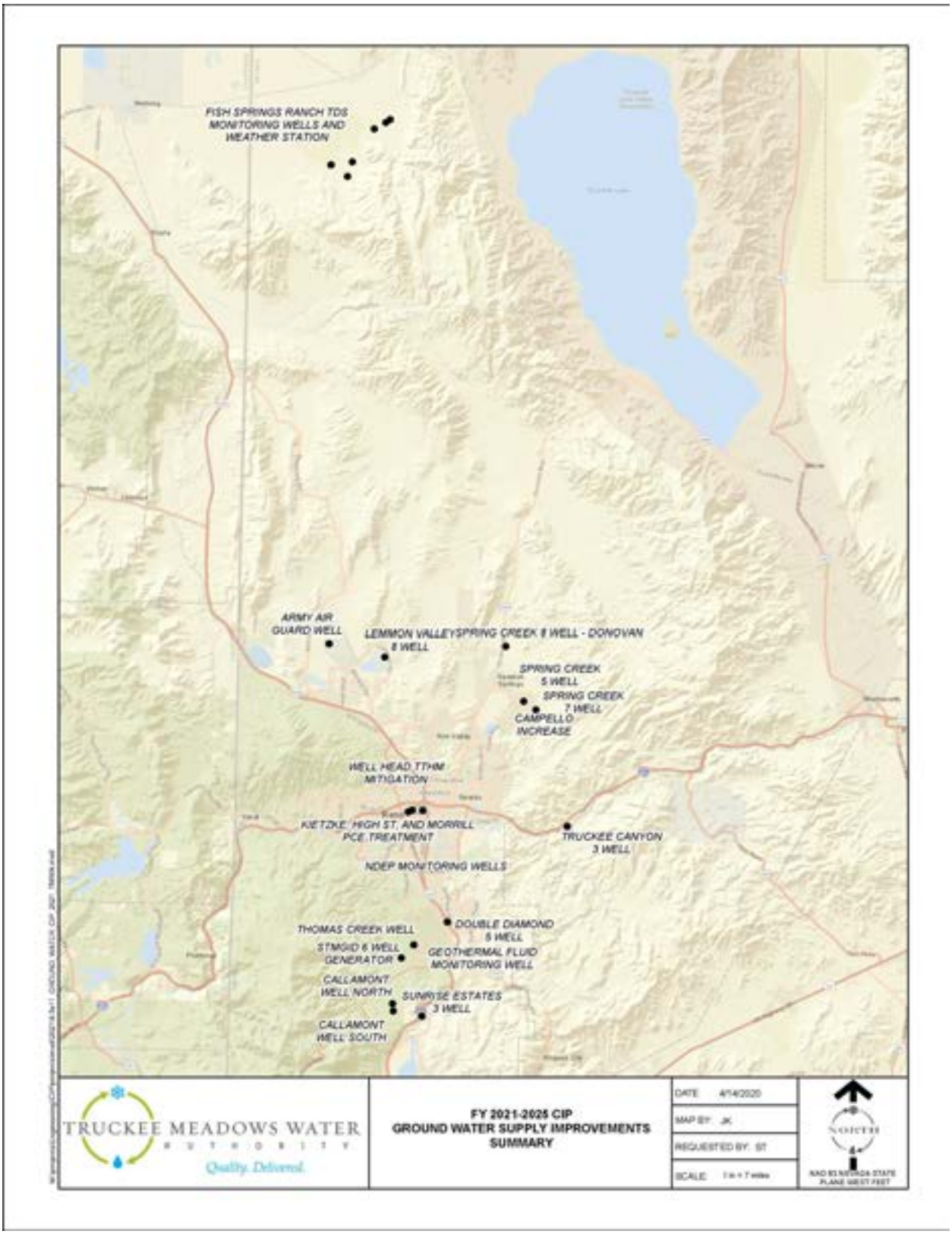
PROJECT DESCRIPTION: Funds are needed to continue the OneWater NV advanced purified water feasibility study. Following the small scale-pilot study, which will be completed in FY 2021, it is likely that a larger facility will be considered for demonstration purposes. There will likely be cost sharing on this project from other local agencies and outside funding sources.

SCHEDULE: Construction for this project will begin in FY 2022.

GROUND WATER SUPPLY IMPROVEMENTS
Summary

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Customer Rates	Well Rehabilitation Improvements	200	200	200	200	200	1,000
1	Developer Fees	Double Diamond #5 Equipping & Blending Main	50	450	—	60	1,140	1,700
2	Developer Fees	Callamont Well South Equipping	—	60	1,140	—	—	1,200
2	Customer Rates	Air Guard Well Replacement	—	—	—	1,100	—	1,100
2	Customer Rates	Sunrise Well #3 Replacement	100	—	—	—	—	100
2	Customer Rates	Lemmon Valley Well #8 Replacement	—	—	—	—	250	250
1	Customer Rates	Well Fix & Finish	200	200	200	200	200	1,000
2	Customer Rates	Well Plugging / Conversion	120	—	—	—	—	120
1	Customer Rates	NDEP Monitoring Wells	200	—	—	—	—	200
1	Customer Rates	Thomas Creek Well & Spring Creek #5 Equipping	750	500	—	—	—	1,250
2	Customer Rates	Truckee Canyon Well #3 Site	50	—	—	—	—	50
1	Customer Rates / Sustainability Fees	Well Head TTHM Mitigation	500	500	500	500	500	2,500
1	Customer Rates / Sustainability Fees	Spring Creek Well #7 Recharge	75	425	—	—	—	500
1	Customer Rates	Kietzke, High, Morrill PCE Treatment	50	—	—	—	—	50
2	Developer Fees	Callamont Well North Equipping	—	—	60	1,140	—	1,200
2	Developer Fees	Spring Creek Well #8 - Donovan	—	30	910	1,060	—	2,000
1	Customer Rates	Fish Springs Ranch TDS Monitoring	300	—	—	—	—	300
1	Customer Rates	Fish Springs Ranch Weather Station	10	—	—	—	—	10
1	Customer Rates	Geothermal Fluid Monitoring Well	100	—	—	—	—	100
Subtotal Ground Water Supply			**2,705**	**2,365**	**3,010**	**4,260**	**2,290**	**14,630**

Project Locations: Map of all *Ground Water Supply Improvements* projects are highlighted in the following map.


FISH SPRINGS RANCH TDS MONITORING WELLS AND WEATHER STATION
ARMY AIR GUARD WELL
LEMMON VALLEY WELL
SPRING CREEK 8 WELL - DONOVAN
SPRING CREEK 5 WELL
SPRING CREEK 7 WELL
CAMPELLO INCREASE
WELL HEAD TTHM MITIGATION
KIETZKE, HIGH ST, AND MORRILL PCE TREATMENT
TRUCKEE CANYON 3 WELL
NDEP MONITORING WELLS
THOMAS CREEK WELL
DOUBLE DIAMOND 5 WELL
STMGID 6 WELL GENERATOR
GEOTHERMAL FLUID MONITORING WELL
CALLAMONT WELL NORTH
SUNRISE ESTATES 3 WELL
CALLAMONT WELL SOUTH
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GROUND WATER SUPPLY IMPROVEMENTS
SUMMARY
DATE 4/14/2020
MAP BY: JK
REQUESTED BY: ST
SCALE 1 in = 7 miles
NAD 83 NEVADA STATE PLANE WEST FEET

Ground Water Supply Improvements
Well Rehabilitation Improvements

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Customer Rates	Well Rehabilitation Improvements	200	200	200	200	200	1,000

PROJECT DESCRIPTION: Funds are budgeted to rehabilitate TMWA production wells as required. Typically for subgrade rehabilitation efforts, five to six wells are inspected, tested and evaluated every year to determine if rehabilitation is required. Typical subgrade rehab activities include but are not limited to pump and pump column pipe replacements; rehabilitation of well casing and screen; and other enhancements to maintain well function and capacities. Spending in fiscal years 2021-2025 will include improvements at several wells to provide general above grade well equipment and building and/or electrical upgrades. Some of the spending will go towards converting an oil lubed shaft vertical turbine to water lubed and eliminate any standing oil in the well. TMWA has over 90 production wells operating throughout the water system. TMWA relies on these wells to provide drought and emergency supply and as a supplemental source to meet peak demands on the water system.

SCHEDULE: Wells targeted for rehabilitation improvements in FY 2021 include Nugget Well, Corbett Well, Silver Knolls Well, STMGID 8 Well, and Boomtown 7.

Ground Water Supply Improvements
Double Diamond #5 Equipping & Blending Main

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Developer Fees	Double Diamond #5 Equipping & Blending Main	50	450	—	60	1,140	1,700

PROJECT DESCRIPTION: Construct pumping facilities for the existing Double Diamond Well #5 including the pump house building, electrical power, pump/motor and valves and piping to provide an additional 1,200 gallons per minute of peak period supply to the Double Diamond area. The project also includes construction of a blending main between Double Diamond Wells #4 & #5.

SCHEDULE: Based on current growth rates, it is anticipated that the additional capacity from the new well will be needed in the summer of FY 2025.

Ground Water Supply Improvements
Callamont Well South Equipping

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Developer Fees	Callamont Well South Equipping	—	60	1,140	—	—	1,200

PROJECT DESCRIPTION: Construct pumping facilities for one of the existing Callamont wells in the Mt. Rose system including the pump house building, electrical power, pump/motor and valves and piping to provide an additional 500 gallons per minute of peak period supply to the area.

SCHEDULE: This project is currently scheduled for construction in FY 2023, but may be constructed sooner (or later) depending on the actual schedule for the proposed 210 unit Callamont residential development.

Ground Water Supply Improvements
Air Guard Well Replacement Equipping

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Customer Rates	Air Guard Well Replacement Equipping	—	—	—	1,100	—	1,100

PROJECT DESCRIPTION: Replacement of the Air Guard Well in Stead was necessary to reduce sanding and provide additional capacity to the Stead system. The new/replacement well was drilled and constructed in FY 2016. Test pumping indicates the new well will have a capacity of about 2,500 gallons per minute which is twice the capacity of the old well. The budget for FY 2024 is for constructing the pumping facilities including the well building, pump and motor, valves and piping, electrical and controls, etc.

SCHEDULE: The pumping facilities are scheduled for construction in FY 2024.

Ground Water Supply Improvements
Sunrise Well #3 Replacement

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Customer Rates	Sunrise Well #3 Replacement	100	—	—	—	—	100

PROJECT DESCRIPTION: This project involves construction activities required to move a septic tank located on a property adjacent to Sunrise Well #3. This will allow TMWA to activate the well with the Washoe County Health Department (allowing the well to be utilized as a backup well to meet demands). Sunrise Well #3 is currently located within the regulated septic tank setback radius. Allocated funds will be utilized to complete all required earthwork and install a new septic system outside of the regulated setback radius.

SCHEDULE: Septic tank relocation activities will begin during FY 2021.

Ground Water Supply Improvements
Lemmon Valley Well #8 Replacement

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Customer Rates	Lemmon Valley Well #8 Replacement	—	—	—	—	250	250

PROJECT DESCRIPTION: The existing Lemmon Valley 8 Well has been in service since 1974, making it one of the older wells in the East Lemmon Valley system. The existing well casing and screens show signs of significant corrosion. With the potential for a well casing failure, TMWA intends to drill and equip a replacement well on the existing well property. In addition, the replacement well is expected to have similar construction while producing at least 20 percent more capacity than the original Lemmon Valley 8 Well. The additional capacity will provide supply to support base load supplied from the Fish Springs groundwater system.

SCHEDULE: Well drilling will occur in FY 2025 and well equipping in FY 2026.

Ground Water Supply Improvements
Well Fix & Finish

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Customer Rates	Well Fix & Finish	200	200	200	200	200	1,000

PROJECT DESCRIPTION: Equipment improvements are expected to bring existing wells up to modern standards, including antiquated equipment replacements and improvements for water quality purposes. This project includes improvements to sodium hypochlorite rooms, pump to waste lines and drainage improvements. It also includes well retrofit for recharge where needed.

SCHEDULE: Projects are identified and prioritized on an annual basis.

Ground Water Supply Improvements
Well Plugging / Conversion

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Customer Rates	Well Plugging / Conversion	120	—	—	—	—	120

PROJECT DESCRIPTION: There are a number of old wells in the TMWA system that were recently replaced by new wells (or system supply) and are no longer viable or necessary. These old production wells may be plugged or, if they occur in areas where water level and water chemistry data are needed, they will be converted to monitoring wells. Wells slated for plugging will be disconnected from the distribution system and filled with neat cement to 2 feet below land surface. Wells slated for conversion will be designed to accommodate a 2" PVC monitoring well liner, appropriate gravel pack, and sanitary seal to allow formerly screened aquifer intervals to transmit water to the new monitoring well. Plugged wells will be terminated 1 foot below grade. Monitoring wells will be completed to 2' above land surface and secured with a steel monument where possible; otherwise they will be completed at grade with a traffic-rated vault.

SCHEDULE: New monitoring well drilling and installation as well as old monitoring well plugging activities will occur in FY 2021.

Ground Water Supply Improvements
NDEP Monitoring Wells

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Customer Rates	NDEP Monitoring Wells	200	—	—	—	—	200

PROJECT DESCRIPTION: There are a number of old monitoring wells in the TMWA system that were relied on to collect water level and/or water quality data to meet the Nevada Division of Environmental Protection - Underground Injection Control (NDEP-UIC) Permit requirements. Several of these wells were found to be plugged and no longer viable monitoring points. This project estimate assumes 3 monitoring wells will be replaced with new monitoring wells and the 3 replaced monitoring wells will be plugged.

SCHEDULE: New monitor well drilling and installation as well as old monitoring well plugging activities began in FY 2020 and are scheduled to be completed in FY 2021.

Ground Water Supply Improvements
Thomas Creek Well & Spring Creek 5 Equipping

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Customer Rates	Thomas Creek Well & Spring Creek #5 Equipping	750	500	—	—	—	1,250

PROJECT DESCRIPTION: The Thomas Creek and Spring Creek 5 production wells were both replaced in FY 2019. Each well will require new infrastructure prior to use. Allocated funds will be utilized for engineering and construction activities required to bring the wells online.

SCHEDULE: This project requires new well infrastructure in FY 2021 and well equipping in FY 2022.

Ground Water Supply Improvements
Truckee Canyon Well #3 Site Modifications

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Customer Rates	Truckee Canyon Well #3 Site Modifications	50	—	—	—	—	50

PROJECT DESCRIPTION: Project includes minor site modifications in cooperation with an A&K Earthmovers project to expand their equipment yard by backfilling an existing drainage channel, relocating the Truckee Canyon Well 3 pump to waste discharge, and installing a security fence and gate. The improvements will provide a new TMWA access point to the well site that does not require travel through the A&K equipment yard.

SCHEDULE: Design was completed in FY 2019 and construction will be completed in FY 2021.

Ground Water Supply Improvements
Well Head TTHM Mitigation

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Customer Rates / Sustainability Fees	Well Head TTHM Mitigation	500	500	500	500	500	2,500

PROJECT DESCRIPTION: Planning, permitting and implementation of tank mixers and ventilation equipment technologies to reduce disinfection by product (DBP) formation in recharged water and receiving groundwater.

SCHEDULE: Planning and design began in FY 2018 and is ongoing. Construction of tank mixers and ventilation equipment at Zolezzi and Verdi Business Park tanks were completed in FY 2019 . Other technologies will be implemented at key recharge well sites in subsequent years based on priority.

Ground Water Supply Improvements
Spring Creek Well #7 Recharge

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Customer Rates / Sustainability Fees	Spring Creek Well #7 Recharge	75	425	—	—	—	500

PROJECT DESCRIPTION: A new 12-inch diameter recharge water line and well piping improvements are needed to provide the necessary capacity to allow TMWA to recharge SC Well 7. TMWA is in the process of expanding its ASR program into areas formerly served by Washoe County.

SCHEDULE: Construction will begin in FY 2022.

Ground Water Supply Improvements
Kietzke, High, Morrill PCE Treatment

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Customer Rates	Kietzke, High, Morrill PCE Treatment	50	—	—	—	—	50

PROJECT DESCRIPTION: Currently, the raw water from these wells exceed the PCE limit, and pump-to-waste water discharges directly to the Truckee River without treatment. The project will study treatment alternatives, select a design and construct improvements to reduce PCE to acceptable levels prior to discharge into the Truckee River. It should be noted that discharge of untreated pump-to-waste water only occurs a few times per year and for very short durations since these facilities normally stay on-line for long periods once they are started up. Reimbursement for the project costs will be provided from the remediation district.

SCHEDULE: The improvements are scheduled for completion in FY 2021.

Ground Water Supply Improvements
Callamont Well North Equipping

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Developer Fees	Callamont Well North Equipping	—	—	60	1,140	—	1,200

PROJECT DESCRIPTION: Construct pumping facilities for the remaining existing Callamont well in the Mt. Rose system including the pump house building, electrical power, pump/motor and valves and piping to provide an additional 500 gallons per minute of peak period supply to the area.

SCHEDULE: This project is currently scheduled for construction in FY 2024, but may be constructed sooner (or later) depending on the actual schedule for the proposed 210 unit Callamont residential development.

Ground Water Supply Improvements
Spring Creek Well #8 - Donovan

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Developer Fees	Spring Creek Well #8 - Donovan	—	—	30	910	1,060	2,000

PROJECT DESCRIPTION: The project involves construction and equipping of a new production well located just south of Indian Sage Court in Spanish Springs Valley. TMWA owns a 6,000 square feet parcel at this location where a test well was previously constructed but will need access and pipeline/utility easements. It is anticipated that the new well will produce up to 500 gallons per minute of new supply for the area.

SCHEDULE: This project schedule assumes the new well is drilled and constructed in FY 2024 and the pumping facilities are constructed in FY 2025.

Ground Water Supply Improvements
Fish Springs Ranch TDS Monitoring Wells

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Customer Rates	Fish Springs Ranch TDS Monitoring Wells	300	—	—	—	—	300

PROJECT DESCRIPTION: This project involves installing a network of wells that will monitor TDS concentrations and vertical gradients near the Fish Springs Ranch production wellfield in Honey Lake Valley. These monitoring locations will provide critical water quality information associated with increased groundwater production at Fish Springs Ranch. Allocated funds will be utilized to drill and construct three nested monitoring wells completed to approximately 450-feet below land surface.

SCHEDULE: Design and construction for the project is scheduled to be completed in FY 2021.

Ground Water Supply Improvements
Fish Springs Ranch Weather Station

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Customer Rates	Fish Springs Ranch Weather Station	10	—	—	—	—	10

PROJECT DESCRIPTION: This project involves purchasing and installing a new weather station that will record information required by the Nevada Department of Water Resources as part of the Honey Lake Valley Hydrogeologic Monitoring Plan. Allocated funds will be utilized to purchase all new weather station components required to achieve all monitoring requirements.

SCHEDULE: The project is scheduled to be completed in FY 2021.

Ground Water Supply Improvements
Geothermal Fluid Monitoring Well

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Customer Rates	Geothermal Fluid Monitoring Well	100	—	—	—	—	100

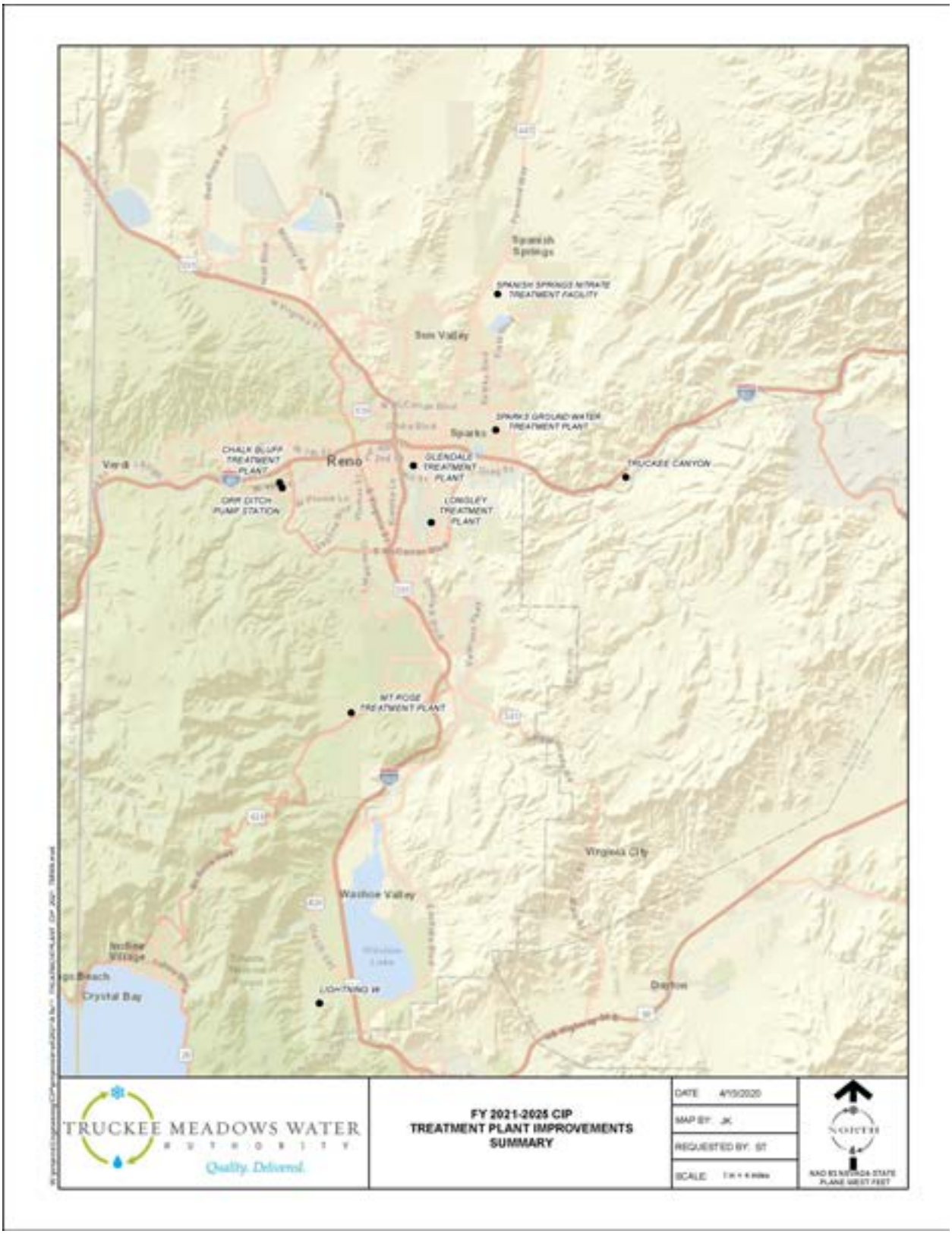
PROJECT DESCRIPTION: This project involves drilling and constructing a new well that will monitor fluid flux on the boundary of the Steamboat Hills geothermal outflow zone in South Truckee Meadows. The well will be installed to monitor water quality changes that may eventually impact down gradient municipal supply wells. Allocated funds will be utilized to drill, construct and test a four- to six-inch monitoring well completed to approximately 600-feet below land surface.

SCHEDULE: New monitoring well drilling and construction will occur in FY 2021.

TREATMENT PLANT IMPROVEMENTS
Summary

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Customer Rates	Chalk Bluff Treatment Plant Improvements	650	750	550	365	360	2,675
1	Customer Rates	Glendale Treatment Plant Improvements	400	375	200	1,000	375	2,350
1	Customer Rates	Chalk Bluff Filter Underdrains	800	800	800	800	800	4,000
1	Customer Rates	Glendale Filter Underdrains	—	—	—	500	500	1,000
3	Customer Rates	Chalk Bluff Lighting Upgrade	—	—	350	—	—	350
3	Customer Rates	Glendale Lighting Upgrade	—	250	—	—	—	250
2	Customer Rates	Orr Ditch Pump Station Rehabilitation	200	5,000	5,000	—	—	10,200
1	Customer Rates	Truckee Canyon Water Treatment Improvements	100	100	20	20	20	260
1	Customer Rates	Lightning W Treatment Improvements	60	20	20	20	150	270
1	Customer Rates	SCADA Rehab / Plant Operating Software	800	500	500	—	—	1,800
1	Customer Rates / Developer Fees	Mount Rose Surface Water Treatment Plant	4,000	—	—	—	—	4,000
2	Customer Rates	Longley Plant HV 3 & 4 Treatment Improvements	200	900	400	—	—	1,500
2	Customer Rates	Spanish Springs Nitrate Treatment Facility	300	500	500	—	—	1,300
1	Customer Rates	Chalk Bluff Electrical System Upgrades	150	—	—	—	—	150
Subtotal Treatment Improvements			**7,660**	**9,195**	**8,340**	**2,705**	**2,205**	**30,105**

Project Locations: Map of all *Treatment Plant Improvements* projects are highlighted in the following map.


Spanish Springs
SPANISH SPRINGS NITRATE TREATMENT FACILITY
Sun Valley
SPARKS GROUND WATER TREATMENT PLANT
Sparks
Reno
CHALK BLUFF TREATMENT PLANT
ORR DITCH PUMP STATION
GLENDALE TREATMENT PLANT
LONGLEY TREATMENT PLANT
TRUCKEE CANYON
MT ROSE TREATMENT PLANT
Virginia City
Washoe Valley
Incline Village
Crystal Bay
LIGHTNING W
Dayton
TRUCKEE MEADOWS WATER AUTHORITY
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DATE 4/15/2020
MAP BY: JK
REQUESTED BY: ST
SCALE

Treatment Plant Improvements
Chalk Bluff Treatment Plant Improvements

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Customer Rates	Chalk Bluff Treatment Plant Improvements	650	750	550	365	360	2,675

PROJECT DESCRIPTION: The Chalk Bluff Water Treatment Plant is 24 years old and requires rehabilitation work to remain operational 24/7/365. This spending is classified as necessary due to the criticality of maintaining plant operations during rehabilitation work. Plant improvements include, but are not limited to, plate settlers inspections, valve and instrument replacement, filter media replacement, UPS upgrades, Trac Vac/sludge removal improvements, treatment train isolation valves, flow meter improvements and safety improvements.

SCHEDULE: Major projects and timelines include: ice fighting improvements to maintain raw water supply via the Highland Canal will continue in FY 2021, instrumentation upgrades will continue within the next five years as obsolete instruments are no longer supported by suppliers, solids removal upgrades started in 2018 will wrap up in FY 2021. Work to isolate sections of the treatment plant influent trains will begin in FY 2019. Filter media replacement will occur when yearly filter media evaluation indicates that replacement will soon be necessary. Since the Chalk Bluff plant is operated year-round, most work will continue over the course of the five-year CIP and when system demands allow maintenance.

Treatment Plant Improvements
Glendale Treatment Plant Improvements

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Customer Rates	Glendale Treatment Plant Improvements	400	375	200	1,000	375	2,350

PROJECT DESCRIPTION: The Glendale Water Treatment Plant is 40 years old and while there have been significant upgrades, Glendale remains a significant piece of the water supply portfolio by operating 24/7 typically during the months of April through October. Glendale plays an important role due to its availability to treat off-river water supplies, such as groundwater wells that cannot pump straight to the distribution system. This spending is classified as necessary due to the criticality of maintaining plant operations. Plant improvements include, but are not limited to, plate settler inspections, valve and instrument replacement, Trac Vac improvements, flow meter improvements, treatment chemical upgrades and maintenance storage/ shop upgrades.

SCHEDULE: The treatment plant maintenance shop and storage improvements are currently scheduled in FY 2024. Instrumentation upgrades will continue within the next five years as obsolete instruments are no longer supported by suppliers. Filter media replacement will occur when yearly filter media evaluation indicates that replacement will soon be necessary. Since the Glendale plant is used seasonally, most work will continue over the course of the five-year CIP and during the periods that the plant is not operating.

Treatment Plant Improvements
Chalk Bluff Filter Underdrains

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Customer Rates	Chalk Bluff Filter Underdrains	800	800	800	800	800	4,000

PROJECT DESCRIPTION: The dual media filters at Chalk Bluff are nearing 27 years old and maintenance and/or repairs are needed on filters that have experienced recent underdrain performance issues. An engineering evaluation of the filters has been completed and an entire replacement of one or more filter underdrains is recommended.

SCHEDULE: Due to cost and operational complexities associated with taking a filter out of service, this will be a multi-year effort beginning with design and bidding in FY 2021 and construction taking place in at least FY's 2021-25.

Treatment Plant Improvements
Glendale Filter Underdrains

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Customer Rates	Glendale Filter Underdrains	—	—	—	500	500	1,000

PROJECT DESCRIPTION: The dual media filters at Glendale are nearing 24 years old and maintenance and/or repairs are needed on filters that have experienced recent underdrain performance issues. An engineering evaluation of the filters has been completed and an entire replacement of one or more filter underdrains is recommended.

SCHEDULE: Due to cost and operational complexities associated with taking a filter out of service, this will be a multi-year effort beginning with design and bidding in FY 2024 and construction taking place in at least FY's 2024-25.

Treatment Plant Improvements
Chalk Bluff Lighting Upgrade

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
3	Customer Rates	Chalk Bluff Lighting Upgrade	—	—	350	—	—	350

PROJECT DESCRIPTION: Upgrade lighting at the Chalk Bluff Water Treatment Plant. Work will include all areas and buildings outside of the most recent remodel areas as well as upgrades to outside area lighting.

SCHEDULE: Lighting upgrade is scheduled to begin in FY 2023.

Treatment Plant Improvements
Glendale Lighting Upgrade

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
3	Customer Rates	Glendale Lighting Upgrade	—	250	—	—	—	250

PROJECT DESCRIPTION: Upgrade lighting at the Glendale Water Treatment Plant. Work will include all areas and buildings outside of the most recent remodel areas as well as upgrades to outside area lighting.

SCHEDULE: Lighting upgrade is scheduled to begin in FY 2022.

Treatment Plant Improvements
Orr Ditch Pump Station Rehabilitation

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Customer Rates	Orr Ditch Pump Station Rehabilitation	200	5,000	5,000	—	—	10,200

PROJECT DESCRIPTION: This project will increase redundancy and reliability by enhancing the Truckee River source of supply to the Chalk Bluff Water Treatment Plant. Currently, there are very limited options to facilitate repairs or conduct preventative maintenance due to the location and arrangement of the intake structure and wet well. The project design may include modifying the existing proprietary wet well submersible pump design into a pedestal-style vertical turbine pump arrangement with non-submerged motors, may include the construction of a building over the top of the wet well to increase security and allow a safer means of performing maintenance activities and may also incorporate a system to eliminate silting issues within the intake structure.

SCHEDULE: Planning and design will be completed in FY 2021. Construction will commence in FY's 2022-23 and scheduled to be completed in FY 2023.

Treatment Plant Improvements
Truckee Canyon Water Treatment Improvements

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Customer Rates	Truckee Canyon Water Treatment Improvements	100	100	20	20	20	260

PROJECT DESCRIPTION: The current treatment system which removes arsenic, iron, and manganese consists of a greensand filter system and an evaporation pond for backwash water with a total capacity of about 100 gallons per minute. Scheduled improvements may include the addition of a polymer feed system to improve filter performance, fine tuning of the treatment process to reflect chemical changes in the raw water and replacement of miscellaneous components and control upgrades.

SCHEDULE: Expenditures in FY's 2021- 25 are contingent spending related to treatment efficiency and for chemical changes in the raw water.

Treatment Plant Improvements
Lightning W Treatment Improvements

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Customer Rates	Lightning W Treatment Improvements	60	20	20	20	150	270

PROJECT DESCRIPTION: The existing treatment process consists of two ion exchange resin pressure vessels to remove uranium. Previous work included change out/replacement of the filter media, disposal of the spent media. The remaining work includes miscellaneous improvements to the building that houses the treatment equipment.

SCHEDULE: The FY 2021 work includes miscellaneous building improvements.

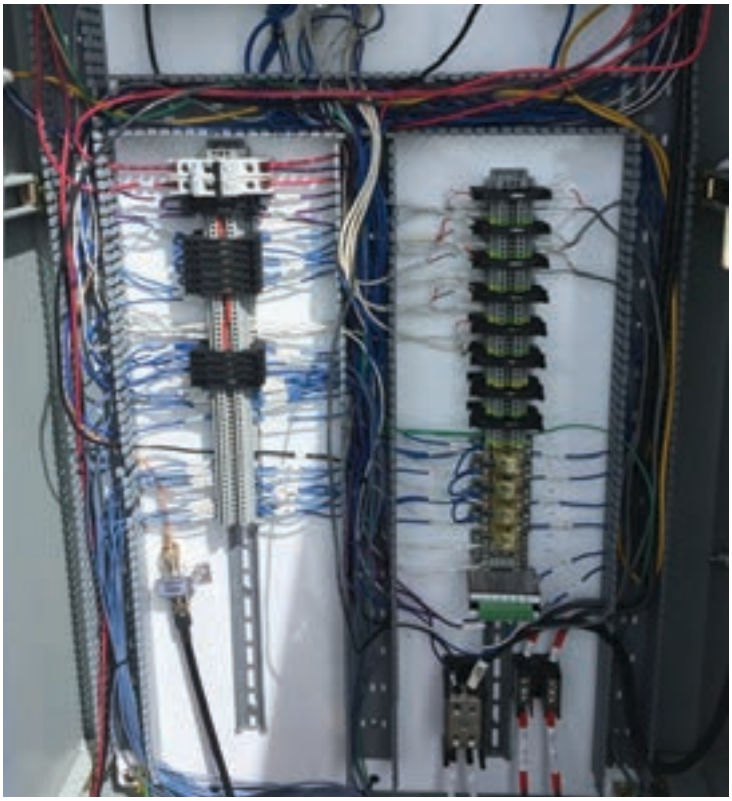
Treatment Plant Improvements
SCADA Rehab/Plant Operating Software

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Customer Rates	SCADA Rehab / Plant Operating Software	800	500	500	—	—	1,800

PROJECT DESCRIPTION: SCADA (Supervisory Control and Data Acquisition) is the system by which TMWA monitors, records and controls the water system inputs, outputs, flows and pressures. Data acquired by these system controls are primarily monitored at the treatment plants, but the system equipment and technology are spread throughout the water system infrastructure. Much of the technology is approaching obsolescence and needs to be replaced with emphasis on standardization of programmable logic controllers (PLC) and other equipment. Therefore, TMWA decided on a systematic approach to updating the equipment and operating software starting in fiscal year 2015 with telemetry improvement in the ensuing four years to convert to wireless transmission of data feeds where possible.

SCHEDULE: The improvements and replacements of the equipment and operating software have already begun and will continue through FY 2023.



Treatment Plant Improvements
Mt. Rose Surface Water Treatment Plant

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Customer Rates / Developer Fees	Mount Rose Surface Water Treatment Plant	4,000	—	—	—	—	4,000

PROJECT DESCRIPTION: Due to a combination of municipal and domestic well pumping and the extended drought, TMWA has determined that additional infrastructure and facilities are needed to utilize Whites Creek resources to improve the long-term viability and sustainability of groundwater supplies in this region. To provide reliability of supply, avoid or reduce pumping costs and avoid major on-peak capacity improvements within the lower TMWA gravity system, a 4 MGD treatment plant located off of Callahan Road near the Monte Vista subdivision has received a SUP to treat Whites Creek water. The County's South Truckee Meadows Facility Plan recognized "The upper treatment plant is an integral component of the recommended water supply plan. Most importantly; it will provide recharge water and/or offset winter groundwater pumping in the upper Mt. Rose fan area."

SCHEDULE: Permitting, design, and bidding was completed in FY 2019. Construction began in FY 2019. Construction is scheduled for completion in FY 2021.

Treatment Plant Improvements
Longley Lane HV 3 and HV 4 Treatment Improvements

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Customer Rates	Longley Plant HV 3 & 4 Treatment Improvements	200	900	400	—	—	1,500

PROJECT DESCRIPTION: TMWA completed planning and preliminary design of an innovative UV disinfection / Arsenic blending water treatment process to treat the HV 3 and HV 4 groundwater wells that are out of service due to surface water influence and elevated arsenic. These wells were formerly treated at the Longley Lane WTP which is currently not being utilized as a treatment facility due to needed safety improvements on the chemical feed, membrane clean-in-place and the solids handling piping systems. An assessment of the plant was completed, and short-term improvements identified to modify the facility to serve as a booster pump station using either surface water or groundwater supply sources.

SCHEDULE: Planning and permitting to be completed in FY 2021. Design and construction to be performed in FY's 2021 - 23.

Treatment Plant Improvements
Spanish Springs Nitrate Treatment Facility

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Customer Rates	Spanish Springs Nitrate Treatment Facility	300	500	500	—	—	1,300

PROJECT DESCRIPTION: Initiation of planning, permitting, site acquisition and design for a 3 MGD biological water treatment process to treat several groundwater wells in Spanish Springs that are out of service due to elevated nitrate and arsenic. Treatment is required to maintain and restore the service capacity of the wells.

TMWA completed the operation and testing of a 5 GPM pilot treatment plant in 2018. Biological treatment of nitrate in potable water is currently not permitted in Nevada. TMWA, working with Carollo Engineers, UNR and WaterStart, has evaluated this innovative technology and determined it to be a cost-effective treatment solution compared to traditional, high cost alternatives such as ion exchange.

SCHEDULE: Planning, permitting, site acquisition and design to be conducted in FY's 2021-23.

Treatment Plant Improvements
Chalk Bluff Electrical System Upgrades

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Customer Rates	Chalk Bluff Electrical System Upgrades	150	—	—	—	—	150

PROJECT DESCRIPTION: Evaluation of the existing electrical system at the Chalk Bluff Treatment Plant to identify the cause of main breaker power disruption when electrical faults occur in auxiliary plant equipment.

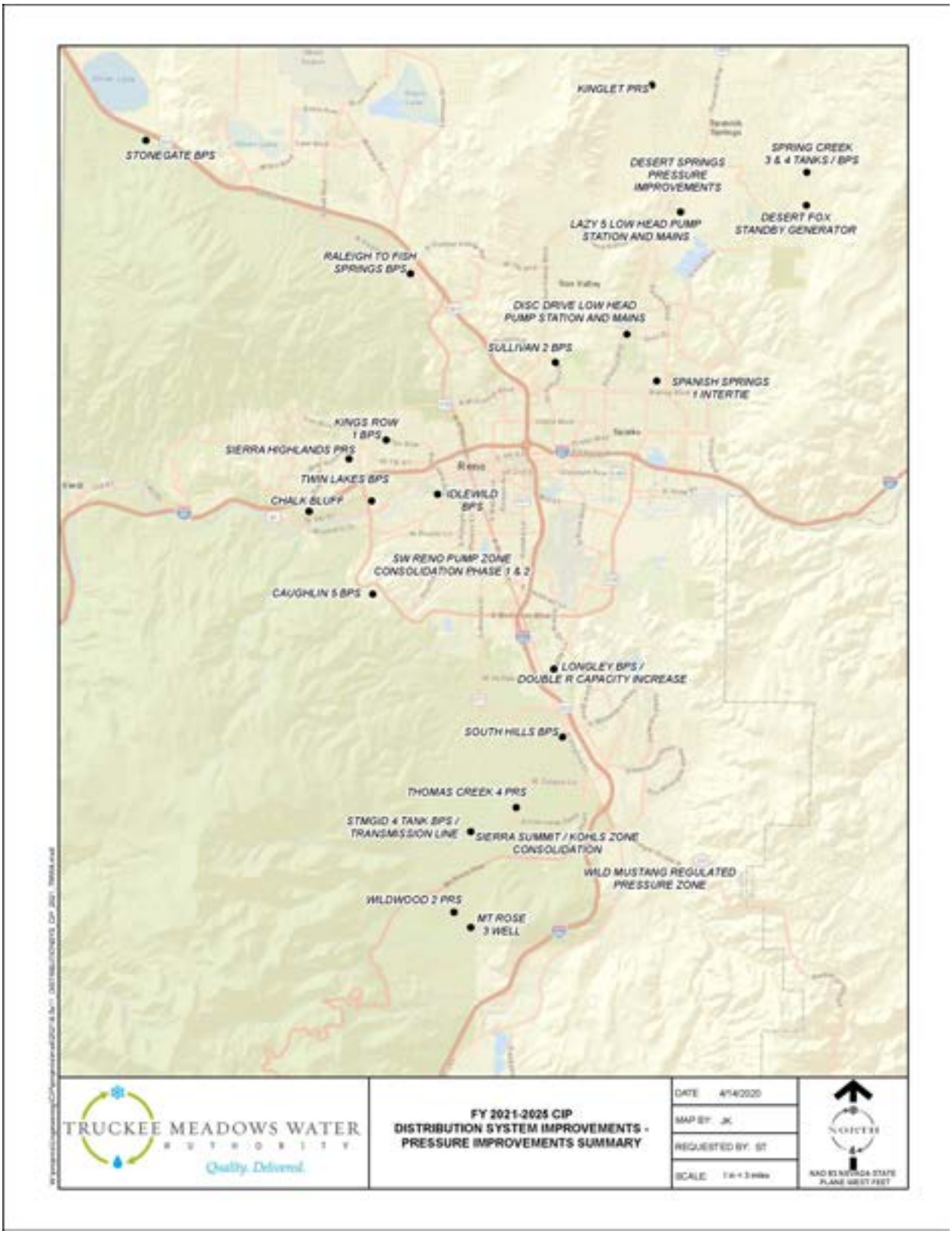
SCHEDULE: Electrical System upgrades are scheduled to be completed in FY 2021.

DISTRIBUTION SYSTEM PRESSURE IMPROVEMENTS
Summary

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Customer Rates	Pressure Regulators Rehabilitation	—	1,000	500	500	500	2,500
1	Customer Rates	Pressure Reducing Valve (Roll Seal) Removal	400	—	—	—	—	400
2	Customer Rates	Land Acquisitions	250	250	250	250	250	1,250
2	Customer Rates	Desert Fox Standby Generator	—	150	—	—	—	150
1	Developer Fees	Disc Drive Low Head Pump Station & Mains	1,900	1,900	—	—	—	3,800
1	Developer Fees	Longley BPS / Double R Capacity Increase	—	250	1,000	—	—	1,250
3	Customer Rates	Pump Station Oversizing	100	100	100	100	100	500
1	Customer Rates	Pump Station Rebuilds, Rehabilitations	1,200	250	250	250	250	2,200
2	Customer Rates / Developer Fees	Sullivan #2 BPS Replacement	—	—	—	—	80	80
1	Customer Rates	Mount Rose Well #3 Pump Station Improvements	250	—	—	—	—	250
3	Customer Rates	Standby Generator Improvements	150	150	150	150	150	750
2	Customer Rates	Idlewild BPS Improvements	100	1,200	—	—	—	1,300
1	Developer Fees	Raleigh to Fish Springs BPS Station	—	300	1,600	—	—	1,900
2	Customer Rates / Developer Fees	South-West Reno Pump Zone Consolidation Phase 1	—	330	6,330	—	—	6,660
2	Customer Rates	Spanish Springs #1 Pump Zone Intertie	600	—	—	—	—	600
1	Developer Fees	STMGID Tank #4 BPS / Transmission Line	—	—	—	—	550	550
2	Developer Fees	Wildwood Pressure Regulating Station SCADA Control	—	—	100	—	—	100
2	Customer Rates / Developer Fees	South-West Reno Pump Zone Consolidation Phase 2	—	—	50	990	—	1,040

Priority	Funding Source	Description	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	CIP Total
2	Customer Rates	Sierra Summit-Kohl's Zone Consolidation	—	—	380	400	—	780
2	Customer Rates	Wild Mustang Regulated Pressure Zone	—	—	50	380	—	430
1	Customer Rates	Twin Lakes BPS	400	—	—	—	—	400
2	Customer Rates	Thomas Creek #4 PRS	—	—	—	170	—	170
1	Customer Rates	Kings Row 1 BPS	50	—	—	—		50
2	Developer Fees	Spring Creek Tanks #3 & 4 BPS Modifications	—	—	—	600	—	600
2	Developer Fees	Lazy 5 Low Head Pump Station & Mains	150	1,200	—	—	—	1,350
1	Developer Reimbursement	Common (Stonegate) Booster Pump Station	2,500	—	—	—	—	2,500
2	Customer Rates	Caughlin 5C Pump and Motor Replacement	150	—	—	—	—	150
1	Developer Reimbursement	Kinglet Pump Station	1,400	—	—	—	—	1,400
2	Customer Rates	South Hills BPS Replacement	—	—	70	3,760	490	4,320
2	Customer Rates	Sierra Highlands PRS	—	—	—	—	210	210
Sub-Total Pressure Improvements			**9,600**	**7,080**	**10,830**	**7,550**	**2,580**	**37,640**

Project Locations: Map of all *Distribution System Pressure Improvements* projects are highlighted in the following map.


KINGLET PRS
STONE GATE BPS
DESERT SPRINGS PRESSURE IMPROVEMENTS
SPRING CREEK 3 & 4 TANKS / BPS
LAZY 5 LOW HEAD PUMP STATION AND MAINS
DESERT FOX STANDBY GENERATOR
RALEIGH TO FISH SPRINGS BPS
DISC DRIVE LOW HEAD PUMP STATION AND MAINS
SULLIVAN 2 BPS
SPANISH SPRINGS 1 INTERTIE
KINGS ROW 1 BPS
SIERRA HIGHLANDS PRS
Reno
TWIN LAKES BPS
CHALK BLUFF
IDLEWILD BPS
SW RENO PUMP ZONE CONSOLIDATION PHASE 1 & 2
CAUGHLIN 5 BPS
LONGLEY BPS / DOUBLE R CAPACITY INCREASE
SOUTH HILLS BPS
THOMAS CREEK 4 PRS
STMGID 4 TANK BPS / TRANSMISSION LINE
SIERRA SUMMIT / KOHLS ZONE CONSOLIDATION
WILD MUSTANG REGULATED PRESSURE ZONE
WILDWOOD 2 PRS
MT ROSE 3 WELL
TRUCKEE MEADOWS WATER AUTHORITY
Quality. Delivered.
FY 2021-2025 CIP
DISTRIBUTION SYSTEM IMPROVEMENTS -
PRESSURE IMPROVEMENTS SUMMARY
DATE 4/14/2020
MAP BY: JK
REQUESTED BY: ST
SCALE 1 in = 3 miles
NAD 83 NEVADA STATE PLANE WEST FEET

Distribution System Pressure Improvements
Pressure Regulators Rehabilitation

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Customer Rates	Pressure Regulators Rehabilitation	—	1,000	500	500	500	2,500

PROJECT DESCRIPTION: Provision is made in the annual budget for major rehabilitation or complete reconstruction of several pressure regulators in the distribution system. TMWA has evaluated nearly 130 pressure regulator stations currently in service and has identified a number of pressure regulator stations requiring a certain amount of rehabilitation on an annual basis.

SCHEDULE: This is an ongoing rehabilitation project with about 130 individual stations identified as requiring rehabilitation or replacement over the next fifteen years.

Distribution System Pressure Improvements
Pressure Reducing Valve (Roll Seal) Removal

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Customer Rates	Pressure Reducing Valve (Roll Seal) Removal	400	—	—	—	—	400

PROJECT DESCRIPTION: There were approximately 180 pressure regulating stations in former County systems where Roll Seal pressure reducing valves are installed. These valves are subject to failure on a 3-5 year basis as compared to an expected life of 10-20 years for the Cla-Val regulator valves utilized in the TMWA system. A Roll Seal failure can result in significant damage to customer homes and in most cases requires a major service outage to repair or replace the valve.

SCHEDULE: Projects will be prioritized based on potential damage (unregulated pressure) and failure rate records. FY 2021 will be the last year of multi-year project to replace Roll Seals at about 20 stations per year.

Distribution System Pressure Improvements
Land Acquisitions

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Customer Rates	Land Acquisitions	250	250	250	250	250	1,250

PROJECT DESCRIPTION: TMWA has over 120 pump stations in service. Many of these pump stations have 480 volt electrical services and are underground (below grade) in locations that allows for water infiltration. Many underground pump stations will be reaching the end of their service life, which will require replacement of the underground vault. Rather than replace the stations in place TMWA is planning to acquire other sites so these stations can be rebuilt above grade improving access and safety. Acquisition of sites may be time consuming and may not be purchased in a particular year.

SCHEDULE: This is an ongoing project with funding to allow purchase of 3-4 sites per year depending on location and market conditions.

Distribution System Pressure Improvements
Desert Fox Standby Generator

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Customer Rates	Desert Fox Standby Generator	—	150	—	—	—	150

PROJECT DESCRIPTION: This project involves furnishing and installing a new standby generator and ATS to power one 50 Hp pump at the existing Desert Fox booster pump station. This alternative pumping capacity is needed when the existing 0.5 MG Spring Creek #5A Tank is out of service for recoating or other maintenance or if an extended power outage occurs in the area.

SCHEDULE: The installation of the generator is scheduled in FY 2021.

Distribution System Pressure Improvements
Disc Drive Low Head Pump Station and Mains

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Developer Fees	Disc Drive Low Head Pump Station & Mains	1,900	1,900	—	—	—	3,800

PROJECT DESCRIPTION: This involves construction of a new low head pump station located just north of the intersection of Disc Dr. and Sparks Blvd. in North-East Sparks/Spanish Springs Valley, along with suction and discharge mains. TMWA owns a 6,000 square foot parcel in this location and has obtained an easement out to Vista Blvd. A suction pipe must be extended from Disc Dr. to Sparks Blvd. The pump station is needed to maintain peak period distribution pressure in the area and to provide adequate suction pressure to the Vista #1 and Spanish Springs #2 pump stations. The low-head pumping option was determined to be more cost effective than oversizing of the Sparks Feeder Main projects.

SCHEDULE: Improvements are scheduled for design in FY 2021 and construction in FY's 2021 - 22.

Distribution System Pressure Improvements
Longley Booster Pump Station/Double R Capacity Increase

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Developer Fees	Longley BPS / Double R Capacity Increase	—	250	1,000	—	—	1,250

PROJECT DESCRIPTION: Increase pumping capacity at the existing Longley Lane Booster Pump Station and make improvements at the Double R Intertie to provide additional peak supply to the Double Diamond area. The improvements at the Longley pump station will consist of replacing one of the existing pumps/motors with a new higher capacity unit along with electrical and motor starter upgrades. Certain components of the Double R Intertie will be replaced to provide the additional capacity without excessive friction losses.

SCHEDULE: The improvements are scheduled for FY 2022. The improvements are necessary when supply through the Double R Intertie must exceed 5,400 gallons per minute.

Distribution System Pressure Improvements
Pump Station Oversizing

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
3	Customer Rates	Pump Station Oversizing	100	100	100	100	100	500

PROJECT DESCRIPTION: The FY 2021 project may consist of cash contributions towards construction of a new above ground booster pump station located near the Comstock Tank to replace the existing Sierra Pump Station which is located in an underground vault and is in need of major rehabilitation. TMWA would normally expend approximately $1 million to replace an existing underground pump station with a new above ground station.

SCHEDULE: The improvements are ongoing, but the schedule is subject to change based on development & operational needs.

Distribution System Pressure Improvements
Pump Station Rebuilds, Rehabilitations

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Customer Rates	Pump Station Rebuilds, Rehabilitations	1,200	250	250	250	250	2,200

PROJECT DESCRIPTION: TMWA has over 120 pump stations in service. An amount is budgeted annually for rehabilitation of TMWA's older pump stations. Other pump stations may require pump, motor, and electrical upgrades. Budget for future years will allow TMWA to complete up to one above ground replacement project per year if suitable sites can be acquired. Otherwise, normal rehabilitation work will be performed per the priorities established by the study at a lower overall annual cost.

SCHEDULE: In FY 2021, TMWA is preparing to reconstruct a number of booster stations above ground. Depending on land acquisition timing and priorities of rehabilitation, it could be the Seventh Street High Pump Station, Seventh Street Low Pump Station, or Kings Row #2 Pump Station.

Distribution System Pressure Improvements
Sullivan #2 Booster Pump Station Replacement

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Customer Rates / Developer Fees	Sullivan #2 BPS Replacement	—	—	—	—	80	80

PROJECT DESCRIPTION: The project involves construction of a new above grade pump station at the site of the existing Sullivan Tank on El Rancho. The new pump station will pump to the proposed Sun Valley #2 Tank tentatively located off of Dandini Drive near the TMCC/DRI complex. Completion of these facilities should allow the retirement of the existing Sun Valley #1 pump station.

SCHEDULE: Construction has been pushed out to FY 2026 to reflect delays in obtaining a tank site due to unknowns with the US 395 Connector Project.

Distribution System Pressure Improvements
Mt. Rose Well #3 Pump Station Improvements

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Customer Rates	Mount Rose Well #3 Pump Station Improvements	250	—	—	—	—	250

PROJECT DESCRIPTION: The project involves rehab of the building, removal of pipe and valves that will no longer be necessary following completion of the Mt. Rose Well #3 improvements and upgrades to electrical and control systems.

SCHEDULE: Construction is scheduled in FY 2021.

Distribution System Pressure Improvements
Standby Generator Improvements

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
3	Customer Rates	Standby Generator Improvements	150	150	150	150	150	750

PROJECT DESCRIPTION: A number of TMWA pumps stations have backup generation in case of power failures. TMWA incorporates a contingency for replacement of a generator in case of failure or if the Washoe County Health District requires backup generation at a particular site. No spending will occur unless necessary. This spending does not include backup generation for new pump stations required by and paid for by growth.

SCHEDULE: No single project has been identified for the current 5-year CIP and no funds will be expended unless necessary.

Distribution System Pressure Improvements
Idlewild Booster Pump Station Improvements

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Customer Rates	Idlewild BPS Improvements	100	1,200	—	—	—	1,300

PROJECT DESCRIPTION: The project will replace existing pumps and motors at the Idlewild BPS Transfer Station to insure adequate and reliable emergency capacity. It is the only booster station that is capable of transferring water from the Highland Reservoir Zone to the Hunter Creek Reservoir Zone. The station was originally constructed as part of the Idlewild WTP, and was never designed specifically for the purpose that it is used for today. Improvements identified in the project include: Properly sizing new pumps and motors for today's application, upgrading antiquated electrical systems and HVAC systems and bringing building up to modern construction codes. Evaluations by TMWA indicated this was the most cost effective alternative to provide a redundant supply for the zone and allowed retirement of the old 24-inch transmission pipeline on Plumb Lane all the way to the Hunter Creek Reservoir.

SCHEDULE: Design is scheduled for FY2021 and construction should begin in FY 2022. This schedule may be moved based on system needs.

Distribution System Pressure Improvements
Raleigh to Fish Springs Booster Pump Station

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Developer Fees	Raleigh to Fish Springs BPS Station	—	300	1,600	—	—	1,900

PROJECT DESCRIPTION: The project involves construction of a new pump station to pump water from the Raleigh Heights zone to the Fish Springs terminal tank when the Fish Springs Wells are off-line or if a main break occurs on the Fish Springs transmission line. In the future, there will be a number of customers served directly from the Fish Springs terminal tank; therefore, it is necessary to provide a secondary supply to maintain continuous water service.

SCHEDULE: Implementation will begin in FY 2022 and construction in FY 2023.

Distribution System Pressure Improvements
South-West Reno Pump Zone Consolidation Phase 1

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Customer Rates / Developer Fees	South-West Reno Pump Zone Consolidation Phase 1	—	330	6,330	—	—	6,660

PROJECT DESCRIPTION: The project includes a new high head booster pump station located on Lakeridge golf course property adjacent to Plumas; a new 12-inch suction pipeline from Lakeside Dr.; a high pressure transmission pipeline from the pump station across golf course property to Greensboro and McCarran Blvd.; and another 12-inch pipeline tie to the Ridgeview #1 pump zone. The completion of Phase 1 will allow the retirement of four existing below ground pump stations (Lakeside, Lakeridge, Plumas, Ridgeview #1).

SCHEDULE: Design of the improvements is scheduled to begin in FY 2022. Construction is scheduled for FY 2023.

Distribution System Pressure Improvements
Spanish Springs #1 Pressure Zone Intertie

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Customer Rates	Spanish Springs #1 Pump Zone Intertie	600	—	—	—	—	600

PROJECT DESCRIPTION: The project consists of about 1,600 feet of 8-inch main from Rio Alayne Ct to Martini Rd. paralleling the Orr Ditch and a new pressure regulating station. Completion of the facilities will allow the retirement of the existing underground Spanish Springs #1 pump station.

SCHEDULE: The project is scheduled for FY 2021.

Distribution System Pressure Improvements
STMGID Tank #4 Booster Pump Station / Transmission Line

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Developer Fees	STMGID Tank #4 BPS / Transmission Line	—	—	—	—	550	550

PROJECT DESCRIPTION: The project includes a new booster pump station located near the STMGID Tank 4/5 site and approximately 6,000 feet of 12-inch discharge main to the Mt Rose WTP. The facilities will provide a supplemental source to the Mt Rose WTP that will back up plant production on the maximum day during drought and will also provide another source of supply for implementing conjunctive use in the area.

SCHEDULE: Design and construction will begin in FY 2025 and construction will continue into FY 2026. Schedule assumes that the STMGID Conjunctive Use Facilities are completed by FY 2024.

Distribution System Pressure Improvements
Wildwood Pressure Regulating Station/Scada Control

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Developer Fees	Wildwood Pressure Regulating Station SCADA Control	—	—	100	—	—	100

PROJECT DESCRIPTION: The project involves retrofitting an existing pressure regulating station to SCADA (remote) control to provide additional transfer capacity into the Mt Rose Tank #2 zone. It will be necessary to obtain electrical service to the existing vault; install a new PLC; and to equip the existing pressure regulating valve with solenoid control to allow the valve to be remotely operated from the Glendale control room.

SCHEDULE: The project is scheduled for FY 2023 but may be delayed or accelerated depending on the timing of growth and the need for the additional tank fill capacity.

Distribution System Pressure Improvements
South-West Reno Pump Zone Consolidation Phase #2

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Customer Rates / Developer Fees	South-West Reno Pump Zone Consolidation Phase 2	—	—	50	990	—	1,040

PROJECT DESCRIPTION: The project is a continuation of Phase 1 and involves construction of additional water main to further integrate the new South-West Reno pump station and allow the retirement of one more existing underground pump station plus provide backup to two other pump zones.

SCHEDULE: Design of the facilities is scheduled to begin in FY 2023. Construction is scheduled to start in FY 2024.

Distribution System Pressure Improvements
Sierra Summit-Kohl's Zone Consolidation

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Customer Rates	Sierra Summit-Kohl's Zone Consolidation	—	—	380	400	—	780

PROJECT DESCRIPTION: The project involves construction of a new pressure regulating station (PRS) at Old Virginia and Sutherland; a short main tie between the former STMGID Well #9 site and the distribution system; and about 950 feet of 8-inch main in Sutherland from the PRS to Sage Hill Road. The improvements will convert an area with very high distribution system pressures to the existing Kohl's Regulated Zone and would expand the regulated zone by consolidating the Kohl's, Walmart and Old Virginia #2 regulated pressure zones.

SCHEDULE: The project is scheduled for construction in FY 2024.

Distribution System Pressure Improvements
Wild Mustang Regulated Pressure Zone

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Customer Rates	Wild Mustang Regulated Pressure Zone	—	—	50	380	—	430

PROJECT DESCRIPTION: The project involves construction of a new pressure regulator station and approximately 750 LF of water main to create a new pressure zone in the Geiger Grade area of the South Truckee Meadows to reduce distribution system pressures in the area.

SCHEDULE: Design of the construction is scheduled to begin in FY 2023. Construction is scheduled to start in FY 2024.

Distribution System Pressure Improvements
Twin Lakes Booster Pump Station

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Customer Rates	Twin Lakes BPS	400	—	—	—	—	400

PROJECT DESCRIPTION: The project cost contains oversizing of a developer funded booster pump station to provide redundant supply to the Summit Ridge Regulated Zone which is currently fed off of the Chalk Bluff / Highland Zone. Supply will be provided from the Hunter Creek zone. The current total is estimated at $800,000 with TMWA providing 50% reimbursement to the developer.

SCHEDULE: Construction is planned to be completed in FY 2021.

Distribution System Pressure Improvements
Thomas Creek #4 PRS

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Customer Rates	Thomas Creek #4 PRS	—	—	—	170	—	170

PROJECT DESCRIPTION: The project involves construction of a new PRS and approximately 160 LF of water main to increase capacity to the Moonrise pressure zone. The increase in capacity will help with replenishing storage in the STMGID Tank and increase fire flow within the zone.

SCHEDULE: The project is scheduled for FY 2024.

Distribution System Pressure Improvements
Kings Row 1 Booster Pump Station

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Customer Rates	Kings Row 1 BPS	50	—	—	—		50

PROJECT DESCRIPTION: This project will replace the existing underground Kings Row #1 pump station with a new above ground pump station on TMWA property. The project is part of annual booster pump station rehabilitation/replacement program focused on reconstructing existing pump stations above grade.

SCHEDULE: Planning and design were completed in FY 2019. The project will be completed in FY 2021.

Distribution System Pressure Improvements
Spring Creek Tanks #3 & #4 Booster Pump Station Modifications

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Developer Fees	Spring Creek Tanks #3 & 4 BPS Modifications	—	—	—	600	—	600

PROJECT DESCRIPTION: This project will replace an existing 200 GPM pump with a new pump/motor rated for 1800 GPM at the existing Spring Creek 3/4 Tanks site in Spanish Springs Valley. The existing regulated bypass will also be equipped for SCADA control. The improvements will provide redundant supply to the Desert Springs 3 and Spring Creek 6 tank zones.

SCHEDULE: Planning, design and construction will occur in FY 2024.

Distribution System Pressure Improvements
Lazy 5 Low Head Pump Station & Mains

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Developer Fees	Lazy 5 Low Head Pump Station & Mains	150	1,200	—	—	—	1,350

PROJECT DESCRIPTION: The project involves construction of a new low head pump station located near the existing Lazy 5 Intertie in NE Sparks/Spanish Springs Valley along with suction and discharge mains. TMWA will need to acquire a parcel of land and pipeline easements out to the Pyramid Hwy. The project will increase TMWA's ability to transfer surface water to the Spanish Springs Valley and may defer more costly groundwater treatment options to increase capacity for growth.

SCHEDULE: Planning and design will occur in FY 2021 with construction scheduled in FY 2022.

Distribution System Pressure Improvements
Common (Stonegate) Booster Pump Station

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Developer Reimbursements	Common (Stonegate) Booster Pump Station	2,500	—	—	—	—	2,500

PROJECT DESCRIPTION: The project consists of design and construction of a new booster pump station to deliver the water supply for the proposed Stonegate development in Cold Springs. Suction and discharge pipelines on North Virginia and terminal storage facilities in Cold Springs will be constructed by Stonegate as applicant-installed projects. The pump station will be located on a parcel on North Virginia that has already been acquired by Stonegate. Stonegate is responsible for 100 percent of the project costs.

SCHEDULE: Design was initiated in FY 2020 and construction will occur in FY 2021.

Distribution System Pressure Improvements
Caughlin 5C Pump and Motor Replacement

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Customer Rates	Caughlin 5C Pump and Motor Replacement	150	—	—	—	—	150

PROJECT DESCRIPTION: The project involves replacement of the existing Caughlin #5 pump station "C" Pump with a higher capacity unit and construction of a main tie near Foxcreek Trail and Village Green Parkway to avoid a 300+ customer outage when Caughlin #5 Pump Station is off-line.

SCHEDULE: The project will be designed and built in FY 2021.

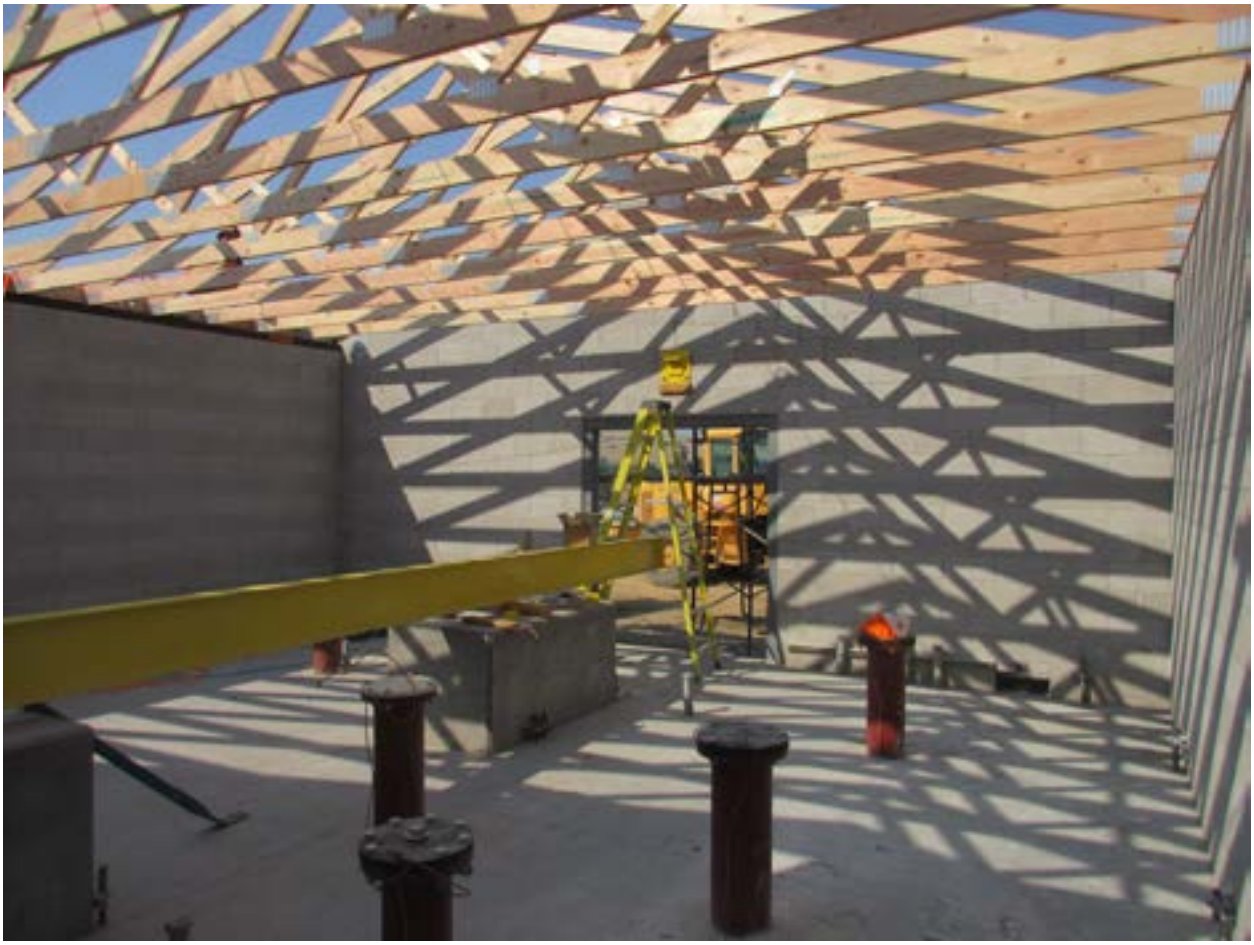
Distribution System Pressure Improvements
Kinglet Pump Station

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Developer Reimbursement	Kinglet Pump Station	1,400	—	—	—	—	1,400

PROJECT DESCRIPTION: The project involves construction of a new, above grade Booster Pump Station with a standby generator to serve the Broken Hills residential development in Spanish Springs. The developer is responsible for 100% of the pump station project costs. The pump station will fill a developer designed and built water storage tank for the project.

SCHEDULE: Some design work will occur in FY 2020 and construction will occur in FY 2021.



Distribution System Pressure Improvements
South Hills BPS Replacement

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Customer Rates	South Hills BPS Replacement	—	—	70	3,760	490	4,320

PROJECT DESCRIPTION: The project involves construction of a new, above grade BPS with genset; 3,700 feet of l6-inch main, 250 feet of l4-inch main and 2,300 feet of l2-inch main on Broken Hills Rd, Foothill Rd and Broili; a new Caribou PRS; and 9 each individual PRV'S on customer service lines.

SCHEDULE: Planning and design is scheduled to begin in FY 2023 and construction is scheduled to begin in FY 2024 with the project completing in FY 2025.

Distribution System Pressure Improvements
Sierra Highlands PRS

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Customer Rates	Sierra Highlands PRS	—	—	—	—	210	210

PROJECT DESCRIPTION: The project involves construction of a new PRS located near the intersection of Sierra Highlands Drive and North McCarran Blvd. to provide a secondary/supplemental supply from the Mae Anne-McCarran zone to the Chalk Bluff zone.

SCHEDULE: Construction for the project is scheduled for FY 2025.

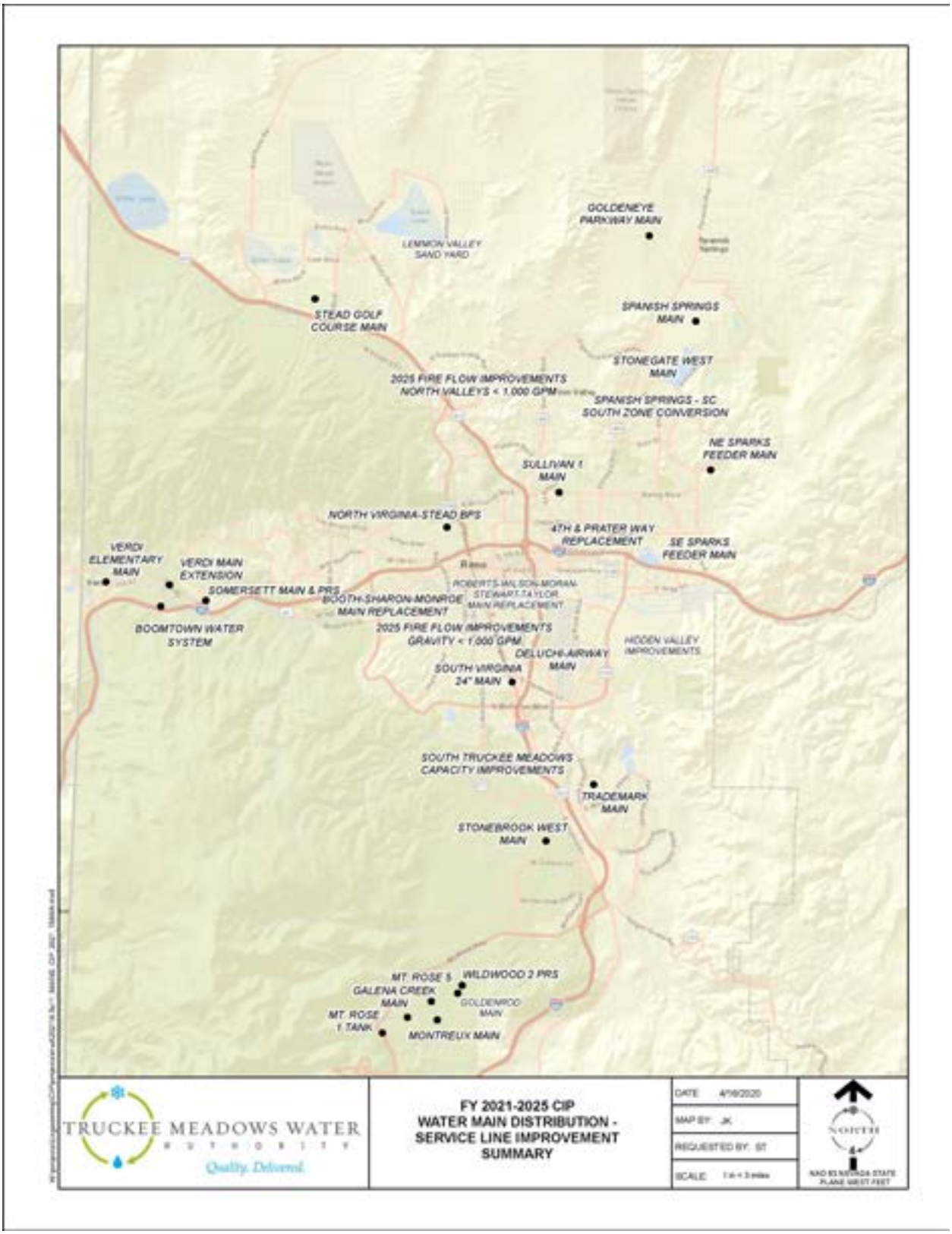
WATER MAIN DISTRIBUTION & SERVICE LINE IMPROVEMENTS

Summary

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Customer Rates	Street & Highway Main Replacements	4,500	4,500	4,500	5,000	5,000	23,500
2	Customer Rates	Spring Creek South Zone Conversion	1,500	—	—	—	—	1,500
2	Customer Rates	Booth, Sharon Way, Monroe 24" Main Replacements	—	1,800	1,100	2,200	—	5,100
1	Developer Fees	South Virginia 24" Main - Kumle to Peckham	1,000	—	—	—	—	1,000
2	Customer Rates	North-East Sparks Feeder Tank Main Relocation	—	975	—	—	—	975
2	Customer Rates	Goldeneye Parkway Main & CV Tie	—	180	—	—	—	180
2	Developer Fees	Trademark 14" Main Tie	—	—	—	—	350	350
2	Customer Rates	Spanish Springs Main Replacement	2,300	—	—	—	—	2,300
2	Customer Rates	Mt. Rose Tank 1 Fire Flow Improvements	—	400	570	—	—	970
2	Customer Rates / Developer Fees	Stead Golf Course Main Replacement	—	—	170	2,400	—	2,570
3	Customer Rates	General Waterline Extensions	100	100	100	100	100	500
1	Developer Fees	North-East Sparks Feeder Main Phase 8		50	2,050	—	—	2,100
1	Developer Fees	Mount Rose 5 Distribution / Pressure Improvements	750	—	—	—	—	750
2	Developer Fees	Goldenrod Main	—	50	1,200	—	—	1,250
1	Developer Fees	Boomtown Water System Improvements	2,500	—	—	—	—	2,500
1	Developer Fees	Boomtown to TMWA Connection	1,900	—	—	—	—	1,900
2	Customer Rates	Lemmon Valley Sand Yard	—	530	—	—	—	530
2	Customer Rates / Developer Fees	Sullivan #1 Main Tie & PRS	—	—	—	—	50	50
2	Customer Rates	Montreux High Pressure ACP Replacement	—	—	—	520	1,060	1,580
2	Customer Rates	2nd Galena Creek Main Crossing	—	—	—	40	560	600
2	Customer Rates	Off-River Supply Improvements - STM	—	—	—	50	1,050	1,100

Priority	Funding Source	Description	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	CIP Total
2	Customer Rates	Off-River Supply Improvements - NVS Pump Station	—	—	—	400	—	400
2	Customer Rates	Somersett #6 Main Tie & PRS	—	—	—	280	—	280
1	Developer Fees	Stonebrook West Main Oversizing	450	—	—	—	—	450
1	Customer Rates	2025 Fire Flow Improvements - Gravity <1,000 GPM	—	—	—	—	550	550
1	Customer Rates	2025 Fire Flow Improvements - North Valleys <1,000 GPM	—	—	—	—	940	940
2	Developer Fees	Deluchi to Airway Main Tie	—	—	—	—	440	440
1	Developer Fees	South-East Sparks Feeder Main Phase 1	—	—	—	50	4,450	4,500
1	Developer Fees	South Truckee Meadows Capacity Improvements	430	670	—	—	—	1,100
1	Customer Rates	Stewart-Taylor Main Replacements	2,000	—	—	—	—	2,000
1	Customer Rates	Roberts-Wilson-Moran Main Replacements	2,340	—	—	—	—	2,340
2	Customer Rates	Verdi Hydro Main Extension	—	320	—	—	—	320
Subtotal Water Main Distribution Improvements			**19,770**	**9,575**	**9,690**	**11,040**	**14,550**	**64,625**

Project Locations: Map of all *Water Main Distribution Service Line Improvements* projects are highlighted in the following map.


GOLDENEYE PARKWAY MAIN
LEMMON VALLEY SAND YARD
STEAD GOLF COURSE MAIN
SPANISH SPRINGS MAIN
STONEGATE WEST MAIN
2025 FIRE FLOW IMPROVEMENTS NORTH VALLEYS < 1,000 GPM
SPANISH SPRINGS - SC SOUTH ZONE CONVERSION
NE SPARKS FEEDER MAIN
SULLIVAN 1 MAIN
NORTH VIRGINIA-STEAD BPS
4TH & PRATER WAY REPLACEMENT
SE SPARKS FEEDER MAIN
VERDI ELEMENTARY MAIN
VERDI MAIN EXTENSION
SOMERSETT MAIN & PRS
BOOMTOWN WATER SYSTEM
BOOTH-SHARON-MONROE MAIN REPLACEMENT
ROBERTS-WILSON-MORAN-STEWART-TAYLOR MAIN REPLACEMENT
2025 FIRE FLOW IMPROVEMENTS GRAVITY < 1,000 GPM
DELUCHI-AIRWAY MAIN
HIDDEN VALLEY IMPROVEMENTS
SOUTH VIRGINIA 24" MAIN
SOUTH TRUCKEE MEADOWS CAPACITY IMPROVEMENTS
TRADEMARK MAIN
STONEBROOK WEST MAIN
MT. ROSE 5
WILDWOOD 2 PRS
GALENA CREEK MAIN
GOLDENROD MAIN
MT. ROSE 1 TANK
MONTREUX MAIN
TRUCKEE MEADOWS WATER AUTHORITY
Quality. Delivered.
FY 2021-2025 CIP
WATER MAIN DISTRIBUTION -
SERVICE LINE IMPROVEMENT
SUMMARY
DATE 4/16/2020
MAP BY: JK
REQUESTED BY: ST
SCALE 1 in = 3 miles
NAD 83 NEVADA STATE PLANE WEST FEET

Water Main-Distribution Service Line Improvements
Street & Highway Main Replacements

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Customer Rates	Street & Highway Main Replacements	4,500	4,500	4,500	5,000	5,000	23,500

PROJECT DESCRIPTION: Provision is made each year for water main replacements in conjunction with repaving efforts by the City of Reno, City of Sparks, Washoe County and RTC. In addition to repaving projects, TMWA coordinates water main replacements with sewer main replacements in areas where TMWA also has older water lines. TMWA plans for approximately $5.0 million annually for these efforts, so that TMWA can capitalize on repaving projects planned by other entities. Anticipated spending in the out years is reflective of historical activity. Levels of spending can vary year to year and are difficult to predict. These efforts by far are the largest expenditure in the water system rehabilitation category.

SCHEUDLE: Projects are identified and prioritized on an annual basis.

Water Main-Distribution Service Line Improvements
Spring Creek South Zone Conversion

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Customer Rates	Spring Creek South Zone Conversion	1,500	—	—	—	—	1,500

PROJECT DESCRIPTION: The project involves construction of approximately 2,800 linear feed of various size water mains, several interties, retirement of several mains and facilities including the existing Spring Creek Tanks. New water mains include 2060 linear feet of 12-inch on Pyramid Highway and 300 linear feet of 8-inch main across Pyramid Highway at Spring Ridge.

SCHEDULE: Implementation and construction will be completed by FY 2021.

Water Main-Distribution Service Line Improvements
Booth, Sharon Way, Monroe 24" Main Replacements

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Customer Rates	Booth, Sharon Way, Monroe 24" Main Replacements	—	1,800	1,100	2,200	—	5,100

PROJECT DESCRIPTION: This project is a continuation of the previously constructed California-Marsh Intertie to provide reliable emergency capacity to the Hunter Creek gravity zone. The project consists of about 6,900 feet of 24-inch main on Booth, Sharon to Plumb Lane and on Monroe between Sharon and Nixon to supply the Nixon-Monroe regulator.

SCHEDULE: Construction is scheduled for FY 2022. TMWA will attempt to coordinate construction with other municipal infrastructure projects if possible, but the existing pipes will be 73-years old by the proposed construction date.

Water Main-Distribution Service Line Improvements
South Virginia 24" Main (Kumle to Peckham)

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Developer Fees	South Virginia 24" Main - Kumle to Peckham	1,000	—	—	—	—	1,000

PROJECT DESCRIPTION: The project consists of construction of about 1,700 feet of new 24-inch water main on South Virginia Street between Kumle Lane and Peckham Lane. The project is required to expand transmission capacity to the South Truckee Meadows area.

SCHEDULE: Construction is scheduled to be completed in FY 2021 subject to adjustment for actual growth or coordination with road improvements.

Water Main-Distribution Service Line Improvements
North-East Sparks Tank Feeder Main Relocation

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Customer Rates	North-East Sparks Feeder Tank Main Relocation	—	975	—	—	—	975

PROJECT DESCRIPTION: The North-East Sparks Tank Feeder Main was constructed in 1988 within private easements several years prior to the construction of South Los Altos Parkway. The final alignment selected for South Los Altos Parkway does not follow the alignment of the tank feeder main. As a result, the tank feeder main now runs through developed properties next to buildings, under parking areas and at considerable depth in some locations. This situation presents potential problems for access to the pipe for maintenance and repair of the critical pipeline. This project will relocate approximately 3,000 feet of the 18-inch tank feeder main out into the public right-of-way in South Los Altos Parkway.

SCHEDULE: Design and the improvements are scheduled for FY 2021.

Water Main-Distribution Service Line Improvements
Goldeneye Parkway Main & CV Tie

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Customer Rates	Goldeneye Parkway Main & CV Tie	—	180	—	—	—	180

PROJECT DESCRIPTION: The project involves construction of approximately 450 linear of 8-inch water main with a Check Valve from the Eagle Canyon PRS to Longspur Way to provide a secondary supply to the Nightingale Regulated Zone and avoid customer outages when maintenance of the Nightingale pressure reguator station is required.

SCHEDULE: Implementation and construction will be completed in FY 2022.

Water Main-Distribution Service Line Improvements
Trademark 14" Main Tie

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Developer Fees	Trademark 14" Main Tie	—	—	—	—	350	350

PROJECT DESCRIPTION: This project involves construction of approximately 350 LF of 14” water main from Trademark to South Meadows Parkway, including crossing of an existing major drainage channel. The project will increase transmission capacity in the Double Diamond system to meet the needs of growth.

SCHEDULE: Construction is scheduled to be completed in FY 2025.

Water Main-Distribution Service Line Improvements
Spanish Springs Main Replacement

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Customer Rates	Spanish Springs Main Replacement	2,300	—	—	—	—	2,300

PROJECT DESCRIPTION: The project involves replacement of approximately 6,700 feet of existing Schedule 40 PVC pipe on Cordoba Blvd, Virgil Dr., Virgil Ct, La Posada, Benedict Dr., Valparaiso Ct. and Cortez Ct. in Spanish Springs. The actual extent of the Schedule 40 pipe has not been determined, but several of these substandard pipes have failed in the last several years in the areas noted.

SCHEDULE: Construction is scheduled to be completed in FY 2021.

Water Main-Distribution Service Line Improvements
Mt. Rose Tank 1 Fire Flow Improvements

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Customer Rates	Mt. Rose Tank 1 Fire Flow Improvements	—	400	570	—	—	970

PROJECT DESCRIPTION: The project involves reconstruction of an existing PRS at Mt. Rose Tank #1, a new PRS on Blue Spruce and approximately 3100 linear feet of 10-inch water main on Blue Spruce and Douglas Fir to increase system pressure and fire flow capacity to existing customers in Galena Forest Estates. Existing fire flows are currently less than 1,000 GPM in the area.

SCHEDULE: Planning and design will be completed in FY 2021. Construction will occur in FY's 2021- 2022.

Water Main-Distribution Service Line Improvements
Stead Golf Course Main Replacement

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Customer Rates / Developer Fees	Stead Golf Course Main Replacement	—	—	170	2,400	—	2,570

PROJECT DESCRIPTION: The project consists of replacement of about 10,000 feet of 14-inch steel pipe installed around 1945. The pipe provides an important hydraulic tie between the Stead tanks and the northeast extremities of the Stead distribution system. The pipeline may also be useful to alleviate an existing bottleneck between the Stead wells and the distribution system.

SCHEDULE: The project is scheduled for construction in FY 2024.

Water Main-Distribution Service Line Improvements
General Waterline Extensions

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
3	Customer Rates	General Waterline Extensions	100	100	100	100	100	500

PROJECT DESCRIPTION: A nominal amount of funding is budgeted each year to accommodate water main extensions to correct pressure, dead ends and fire flow deficiencies as they are identified. Funds will not be expended unless determined necessary.

SCHEDULE: This is an ongoing annual project budget. Projects will not be constructed unless determined necessary to correct deficiencies identified above.

Water Main-Distribution Service Line Improvements
North-East Sparks Feeder Main Ph. 8

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Developer Fees	North-East Sparks Feeder Main Phase 8		50	2,050	—	—	2,100

PROJECT DESCRIPTION: The project involves construction of approximately 6,400 linear feet of 14-inch water main on Satellite Drive from Vista Blvd to Sparks Blvd to increase capacity for growth in Spanish Springs and maintain adequate suction pressure at the Satellite Hills booster pump station.

SCHEDULE: Design is scheduled for FY 2022 and the improvements will be constructed in FY 2023.

Water Main-Distribution Service Line Improvements
Mount Rose 5 Distribution / Pressure Improvements

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Developer Fees	Mount Rose 5 Distribution / Pressure Improvements	750	—	—	—	—	750

PROJECT DESCRIPTION: Improvements are intended to provide off-peak conjunctive use supply. The proposed improvements are intended to be consistent with future improvements to improve peaking supply to the Mt. Rose system and will reduce pressure in the high pressure pipeline downhill of Mt. Rose Well 5. It will also increase the off-peak pumping capacity of surface water into the Mt. Rose 1 and 4 tanks to 650 gpm from 400 gpm. Future phases are intended to increase system redundancy and further reduce high pressures in the system.

SCHEDULE: Construction is scheduled for FY 2021.

Water Main-Distribution Service Line Improvements
Goldenrod Main

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Developer Fees	Goldenrod Main	—	50	1,200	—	—	1,250

PROJECT DESCRIPTION: The project involves construction of approximately 4,500 LF of 12" water main from the Tessa West Well to the intersection of Goldenrod and Mountain Meadows Lane. This project will provide additional capacity between the Arrowcreek and Mt Rose systems for Mt Rose 2 tank fills and for on-peak supply from the Mt Rose Water Treatment Plant.

SCHEDULE: Design is planned in FY 2022 and construction is planned in FY 2023.

Water Main-Distribution Service Line Improvements
Boomtown Water System Improvements

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Developer Fees	Boomtown Water System Improvements	2,500	—	—	—	—	2,500

PROJECT DESCRIPTION: If TMWA successfully acquires the Boomtown water system assets, the system will initially be operated as a stand-alone system that will be 100 percent dependent upon local groundwater resources. To insure reliable water service to existing Boomtown customers, several high priority improvements are necessary to bring the system into compliance with NAC 445A regulations and TMWA standards and to allow efficient operation and maintenance of the water facilities. The improvements consist of upgrades to three existing wells (pump to waste facilities, SCADA, new pumps, new motors, new starters and arc flash analyses), tank site improvements (grading, drainage, overflow, fencing, paving, sampling vault, SCADA) and tank access improvements (improved gravel road, improvements to the existing bridge over Steamboat Ditch).

SCHEDULE: The improvements will be designed and constructed in FY 2021.

Water Main-Distribution Service Line Improvements
Boomtown to TMWA Connection

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Developer Fees	Boomtown to TMWA Connection	1,900	—	—	—	—	1,900

PROJECT DESCRIPTION: The Boomtown water system currently operates as a stand-alone system that is 100 percent dependent upon local groundwater resources. Significant growth in the Boomtown area will require increased pumping of Boomtown wells. The additional groundwater pumping may result in deficiencies in water quality and quantity. To insure reliable water service to Boomtown and to protect the viability of the groundwater resource, TMWA will connect the Boomtown system to the TMWA system. The connection will provide an emergency backup source of supply and most importantly, an off-peak source of supply that will allow TMWA to implement conjunctive use management of surface water and groundwater resources within the Boomtown system. The Boomtown connection consists of about 1,800 feet of 16" main, including a jack and bore crossing of the railroad tracks and a new booster pump station.

SCHEDULE: Design of the facilities was completed in FY 2020. Construction of the facilities would occur in FY's 2020 - 21.

Water Main-Distribution Service Line Improvements
Lemmon Valley Sand Yard

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Customer Rates	Lemmon Valley Sand Yard	—	530	—	—	—	530

PROJECT DESCRIPTION: With continued growth in the area including the acquisition of the Lemmon Valley water system formerly owned by Washoe County, it is very inefficient for TMWA crews to respond to a main break or other major issue in the North Valleys and have to either return to the Truckee Meadows or call out a second crew to transport materials to the site to complete the repairs. To increase the efficiency of maintenance operations in the North Valleys, TMWA plans to improve the balance of the 1.25 acre lot surrounding Lemmon Valley Well #6 (near the intersection of Lemmon Drive and Arkansas Drive) to store the common materials such as sand and base rock normally used in water system maintenance. The improvements consist of import, grading, fencing, drainage, material storage bins, lighting and landscaping. The project has been designed and the building permit has been acquired.

SCHEDULE: Assuming flood water recede sufficiently, the project would be constructed in FY 2021.

Water Main-Distribution Service Line Improvements
Sullivan #1 Main Tie & PRS

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Customer Rates / Developer Fees	Sullivan #1 Main Tie & PRS	—	—	—	—	50	50

PROJECT DESCRIPTION: The project involves construction of about 1,300 LF of 10" main on El Rancho and a new PRS to supply the Sullivan #1 zone. The project timeline assumes that the proposed Sun Valley #2 Tank and Sullivan #2 pump station are in service.

SCHEDULE: Planning and design is scheduled to begin in FY 2025.

Water Main-Distribution Service Line Improvements
Montreux High Pressure ACP Replacement

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Customer Rates	Montreux High Pressure ACP Replacement	—	—	—	520	1,060	1,580

PROJECT DESCRIPTION: The project involves replacement of approximately 6,500 linear feet of existing 10-inch transite water main between Mt Rose Well #5 and Joy Lake Road. The existing ACP pipe installed in the 1970's is currently operated at pressures between 120-250 psi.

SCHEDULE: Planning and design will occur in FY 2024 with construction to be completed in FY 2025.

Water Main-Distribution Service Line Improvements
2nd Galena Creek Main Crossing

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Customer Rates	2nd Galena Creek Main Crossing	—	—	—	40	560	600

PROJECT DESCRIPTION: The project involves construction of approximately 2,200 linear feet of 10-inch ductile iron water main between Breithorn Cir. and Piney Creek Parklet including a crossing of Galena Creek. The existing 10" ACP pipe that crosses Galena Creek is currently the only tie between well sources and storage tanks.

SCHEDULE: Design will occur in FY 2024 with construction to be completed in FY 2025.

Water Main-Distribution Service Line Improvements
Off-River Supply Improvements - South Truckee Meadows

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Customer Rates	Off-River Supply Improvements - STM	—	—	—	50	1,050	1,100

PROJECT DESCRIPTION: The project involves construction of four SCADA controlled, pressure reducing bypass stations in strategic locations in the South Truckee Meadows to allow excess well capacity and excess Mt. Rose Water Treatment Plant capacity to be provided to the Highland gravity zone in case of loss supply from the Truckee River. Two additional bypasses (Arrowcreek BPS & future Veteran's BPS) will be constructed separately under the budget for those facilities.

SCHEDULE: Planning and design will occur in FY 2024 with construction to be completed in FY 2025.

Water Main-Distribution Service Line Improvements
Off-River Supply Improvements - North Virginia-Stead Pump Station

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Customer Rates	Off-River Supply Improvements - NVS Pump Station	—	—	—	400	—	400

PROJECT DESCRIPTION: The project involves construction of a SCADA controlled, pressure reducing bypass station at the North Virginia-Stead booster pump station to allow excess Fish Springs well capacity to be provided to the Highland gravity zone in case of loss supply from the Truckee River.

SCHEDULE: Project implementation and construction will occur in FY 2024.

Water Main-Distribution Service Line Improvements
Somersett #6 Main Tie & Pressure Regulator Station

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Customer Rates	Somersett #6 Main Tie & PRS	—	—	—	280	—	280

PROJECT DESCRIPTION: The project involves construction of about 600 linear feet of 10-inch main within improved paved pathway and a new pressure regulator station to provide a secondary source (looping) to Somersett Village 6.

SCHEDULE: Project implementation and construction will occur in FY 2024.

Water Main-Distribution Service Line Improvements
Stonebrook West Main Oversizing

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Developer Fees	Stonebrook West Main Oversizing	450	—	—	—	—	450

PROJECT DESCRIPTION: The project involves oversizing of about 7,000 linear feet of 12-inch water main on Wingfield Hills Rd and Tierra Del Sol Prkwy to 16-inch diameter pipe as part of an Applicant-Installed new business project (Stonebrook West, PLL 19-6695 Annex.)

SCHEDULE: This project should be completed by FY 2021, subject to the schedule of the developer.

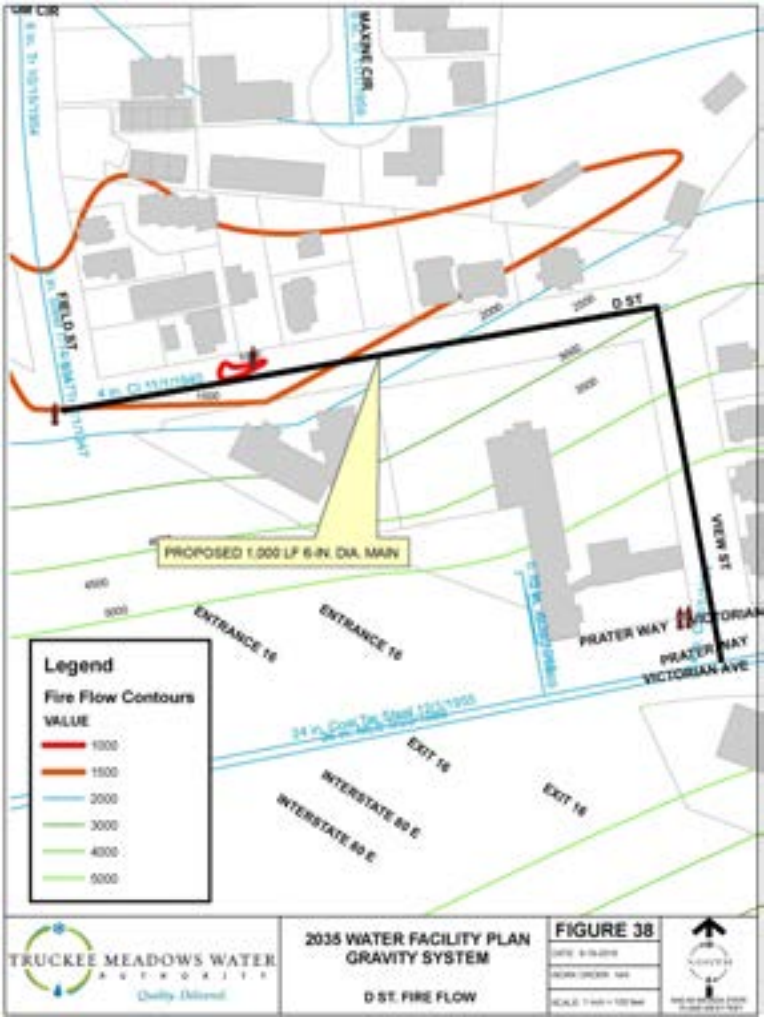
Water Main-Distribution Service Line Improvements
2025 Fire Flow Improvements - Gravity < 1,000 GPM

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Customer Rates	2025 Fire Flow Improvements - Gravity <1,000 GPM	—	—	—	—	550	550

PROJECT DESCRIPTION: The project involves improvements at 5 separate locations in the gravity zone that have an available fire flow of less than 1000 GPM. Reference Pages 20-22 of the 2035 WFP – Items 14,18,20,25,31 (also Figures 38,42,44,49,55). Construction consists of approximately 1,900 linear feet of new 6-inch & 8-inch main including new hydrant taps and laterals.

SCHEDULE: The improvements are scheduled for construction in FY 2025.



Water Main-Distribution Service Line Improvements
2025 Fire Flow Improvements - North Valleys < 1,000 GPM

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Customer Rates	2025 Fire Flow Improvements - North Valleys <1,000 GPM	—	—	—	—	940	940

PROJECT DESCRIPTION: This project involves improvements at two separate locations that have an available fire flow of less than 1,000 GPM. Reference Items SI6 and SI7 on pages 6-7 of the North Valleys section of the 2035 Water Facilities Plan (also Figures D and E). Construction of approximately 3,500 linear feet of new 6-inch and 8-inch main and new high pressure Regulating Station.

SCHEDULE: The improvements are scheduled for construction in FY 2025.

Water Main-Distribution Service Line Improvements
Deluchi to Airway Main Tie

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Developer Fees	Deluchi to Airway Main Tie	—	—	—	—	440	440

PROJECT DESCRIPTION: The project involves construction of approximately 1,200 linear feet of l4-inch main from Deluchi to Airway including crossing a major storm drainage channel. The project promotes looping of the distribution system and provides additional North to South peak period capacity.

SCHEDULE: The project is scheduled for construction in FY 2025.

Water Main-Distribution Service Line Improvements
South-East Sparks Feeder Main Phase 1

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Developer Fees	South-East Sparks Feeder Main Phase 1	—	—	—	50	4,450	4,500

PROJECT DESCRIPTION: The project involves construction of approximately 9,700 linear feet of 24-inch main on Greg Street between 21st Street and Stanford to provide additional capacity for future growth and to lower peak period pressure in the area.

SCHEDULE: Planning and design are scheduled to begin in FY 2024 and construction is scheduled to begin in FY 2025.

Water Main-Distribution Service Line Improvements
South Truckee Meadows Capacity Improvements

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Developer Fees	South Truckee Meadows Capacity Improvements	430	670	—	—	—	1,100

PROJECT DESCRIPTION: The project involves construction of approximately 1,500 linear feet of l4-inch main on Offenhauser and Gateway with a SCADA controlled valve installed an underground vault to provide an intertie between the Longley and Double Diamond systems. Also included is a short 8-inch main tie at Bluestone and Portman.The improvements increase capacity to the South Truckee Meadows system.

SCHEDULE: Design for the project is scheduled to begin in FY 2021 and construction is scheduled for FY 2022.

Water Main-Distribution Service Line Improvements
Stewart-Taylor Main Replacements

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Customer Rates	Stewart-Taylor Main Replacements	2,000	0	0	0	0	2,000

PROJECT DESCRIPTION: Replace approximately 5,000 linear feet of old cast iron water main ahead of COR's 2021 Neighborhood Street Rehabilitation Project.

SCHEDULE: The project is scheduled to begin in FY 2021.

Water Main-Distribution Service Line Improvements
Roberts-Wilson-Moran Main Replacements

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Customer Rates	Roberts-Wilson-Moran Main Replacements	2,340	0	0	0	0	2,340

PROJECT DESCRIPTION: Replace approximately 5,100 linear feet of old cast iron water main ahead of COR's 2021 Neighborhood Street Rehabilitation Project.

SCHEDULE: The project is scheduled to begin in FY 2021.

Water Main-Distribution Service Line Improvements
Verdi Hydro Main Extension

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Customer Rates	Verdi Hydro Main Extension	—	320	—	—	—	320

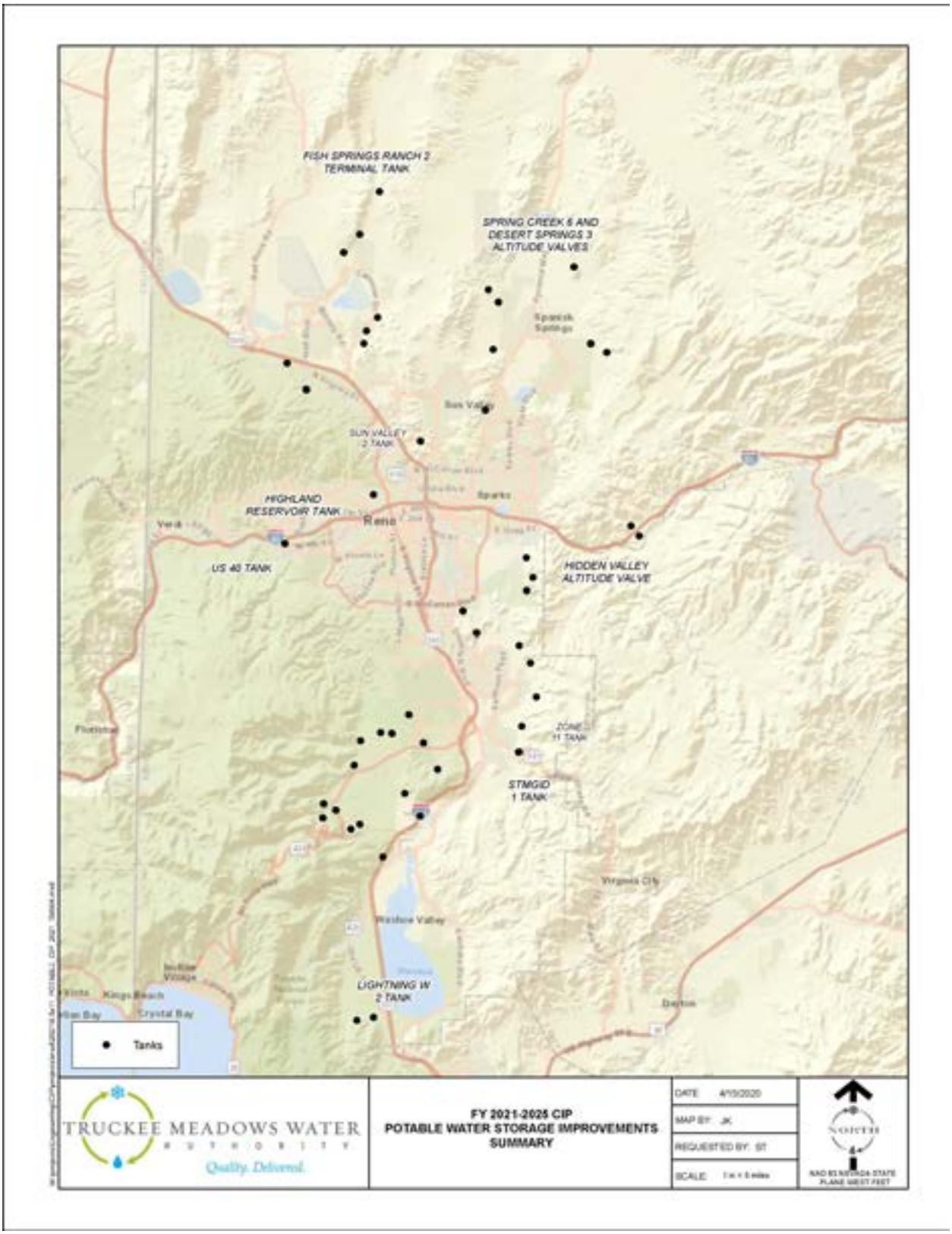
PROJECT DESCRIPTION: The project involves construction of approximately 1,700 linear feet of 8-inch main and 750 linear feet of 6-inch main parallel to the penstock from Verdi Elementary School to the Hydro building. Approximately half of the cost will be reimbursed by growth in the area. Completion of the main will also provide fire protection for the hydro facility and will allow the existing water service from the Verdi Mutual Water Co. to be retired, saving about $21,000 per year.

SCHEDULE: Construction is scheduled for FY 2021.

POTABLE WATER STORAGE IMPROVEMENTS
Summary

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Customer Rates / Developer Fees	Sun Valley Tank #2	—	—	—	—	420	420
2	Developer Fees	Fish Springs Terminal Tank #2	—	—	—	—	40	40
1	Customer Rates	Storage Tank Recoats; Access; Drainage Improvements	900	900	900	900	900	4,500
2	Customer Rates / Developer Fees	Highland Reservoir Tank	100	5,000	2,700	—	—	7,800
1	Customer Rates / Developer Fees	STMGID Tank East Zone 11 Tank	100	2,975	—	—	—	3,075
1	Customer Rates	Lightning W Tank #2	400	—	—	—	—	400
1	Customer Rates / Developer Fees	US 40 Tank & Feeder Main	—	170	300	2,730	—	3,200
2	Customer Rates / Developer Fees	Spanish Springs Altitude Valves	—	—	300	—	—	300
1	Customer Rates	Terminal Tank Generator	—	200	—	—	—	200
2	Customer Rates	Hidden Valley Tank Altitude Valve	—	350	—	—	—	350
Subtotal Storage Improvements			**1,500**	**9,595**	**4,200**	**3,630**	**1,360**	**20,285**

Project Locations: Map of all *Potable Water Storage Improvements* projects are highlighted in the following map.


FISH SPRINGS RANCH 2
TERMINAL TANK
SPRING CREEK 6 AND
DESERT SPRINGS 3
ALTITUDE VALVES
SUN VALLEY
2 TANK
HIGHLAND
RESERVOIR TANK
US 40 TANK
HIDDEN VALLEY
ALTITUDE VALVE
ZONE
11 TANK
STMGID
1 TANK
LIGHTNING W
2 TANK
Reno
Sparks
Verdi
Tanks
TRUCKEE MEADOWS WATER
AUTHORITY
Quality. Delivered.
FY 2021-2025 CIP
POTABLE WATER STORAGE IMPROVEMENTS
SUMMARY
DATE 4/15/2020
MAP BY: JK
REQUESTED BY: ST
SCALE 1 in = 5 miles
NAD 83 NEVADA STATE
PLANE WEST FEET

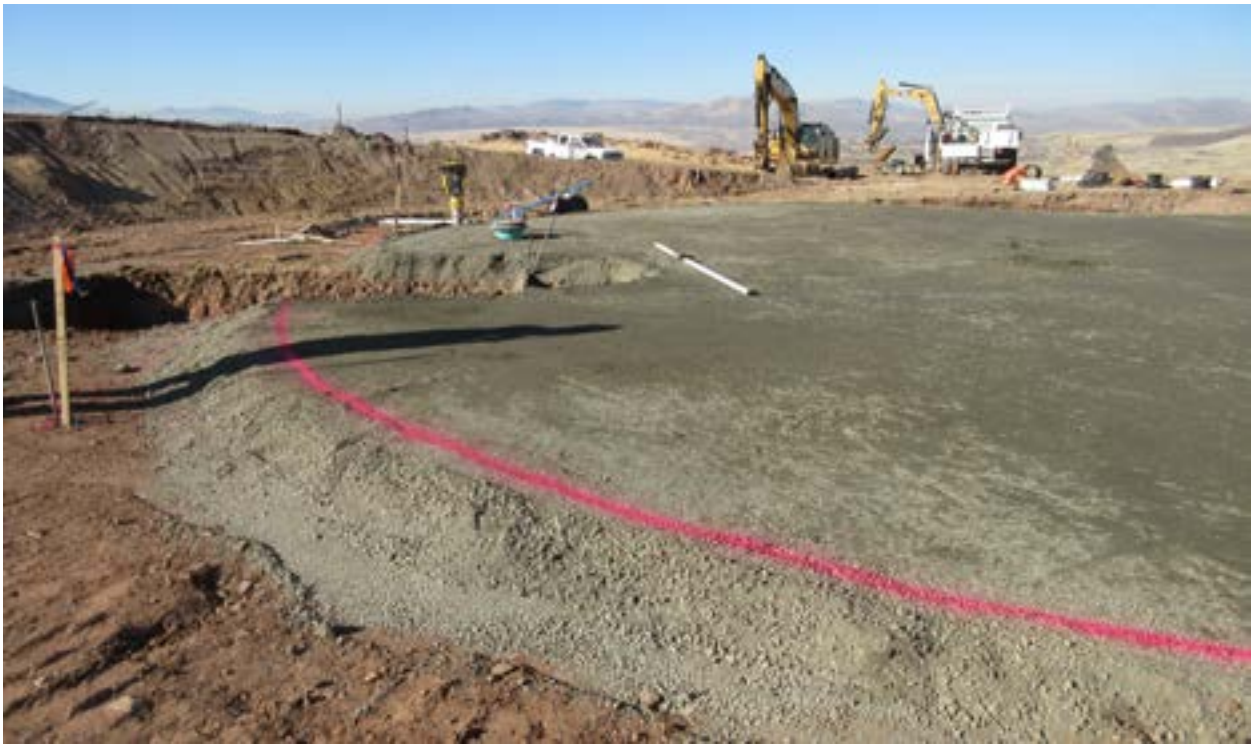
Potable Water Storage Improvements
Sun Valley #2 Tank

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Customer Rates / Developer Fees	Sun Valley Tank #2	—	—	—	—	420	420

PROJECT DESCRIPTION: TMWA continues to analyze opportunities to consolidate pump zones to eliminate future pump station replacement costs and to increase reliability to continuous pumping zones. Several years ago, TMWA consolidated the Sutro #1 pump zone with the Sun Valley/Sullivan pump zone, placing additional capacity requirements on the Sun Valley zone. This tank is needed to provide the required emergency storage capacity to the expanded zone and will also provide the capacity for the Sun Valley zone to reach buildout.

SCHEDULE: The project is scheduled for construction in FY 2025 subject to successful acquisition of a suitable tank site which is elevation sensitive and is complicated by the US 395 Connector project alignment.



Potable Water Storage Improvements
Fish Springs Terminal Tank #2

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Developer Fees	Fish Springs Terminal Tank #2	—	—	—	—	40	40

PROJECT DESCRIPTION: Ultimately, a second 2.5 MG storage tank is needed at the terminus of the Fish Springs pipeline at the north end of Lemmon Valley to equalize demand and supply during peak use periods.

SCHEDULE: The project is currently scheduled for design in FY 2025 with construction to follow in FY 2026. The actual schedule will be dependent upon the rate of growth in the North Valleys.

Potable Water Storage Improvements
Storage Tank Recoats; Access; Drainage Improvements

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Customer Rates	Storage Tank Recoats; Access; Drainage Improvements	900	900	900	900	900	4,500

PROJECT DESCRIPTION: TMWA has a very proactive tank reservoir maintenance program whereby 20% of all tanks are inspected annually on a rotating basis. Based upon these inspection observations, a determination is made as to whether interior tank coatings (for steel tanks) or other fix and finish work is required. TMWA has 93 storage tanks in service, with combined storage of approximately 121 million gallons. Interior coating/liners are generally replaced every 15 years resulting in the need to recoat several tanks per year to maintain the rehabilitation cycle. The budget and plan also includes exterior painting of steel tanks and any replacement of any interior components that may be corroded.

SCHEDULE: This is an ongoing annual project. It is anticipated that several tanks will need to be recoated approximately every year.

Potable Water Storage Improvements
Highland Reservoir Tank

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Customer Rates / Developer Fees	Highland Reservoir Tank	100	5,000	2,700	—	—	7,800

PROJECT DESCRIPTION: TMWA has two large finished water storage reservoirs, one at Hunter Creek and one at the Highland site just west of the intersection of Washington and College Drive. These reservoirs are lined and covered with flexible polyethylene or hypalon membranes. As such, they are more maintenance intensive and susceptible to damage than a conventional steel or concrete tank. To provide reliability during repairs or during extended outages for inspection and cleaning, it is proposed to construct a conventional 4 million gallon water storage tank at the reservoir site. Due to topography and proximity to residential areas the tank may need to be a buried pre-stressed concrete tank, which is reflected in the project budget. The tank will also provide additional storage capacity to meet future system requirements as required by the NAC regulations.

SCHEDULE: The tank is scheduled for construction in FY's 2022-23.

Potable Water Storage Improvements
STMGID Tank East (Zone 11 Tank)

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Customer Rates / Developer Fees	STMGID Tank East Zone 11 Tank	100	2,975	—	—	—	3,075

PROJECT DESCRIPTION: The project involves construction of a 3.7 MG above ground welded steel storage tank in the South Truckee Meadows area off of Geiger Grade formerly owned by STMGID. Due to growth in the area over the last several years, additional storage is required to meet the requirements of the NAC 445A regulations and TMWA standards. The tank will replace an existing 0.75 MG tank providing a net increase in storage of about 3 MG.

SCHEDULE: The project is currently scheduled for construction in FY 2022, subject to acquisition of the Special Use Permit and Bureau of Land Management (BLM) permitting.

Potable Water Storage Improvements
Lightning W Tank 2

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Customer Rates	Lightning W Tank #2	400	—	—	—	—	400

PROJECT DESCRIPTION: Construct a new 0.25 MG steel tank to provide redundancy, system reliability, and alleviate Washoe County Health District concerns related to service in the satellite systems.

SCHEDULE: This project will be completed in FY 2021.

Potable Water Storage Improvements
US 40 Tank & Feeder Main

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Customer Rates / Developer Fees	US 40 Tank & Feeder Main	—	170	300	2,730	—	3,200

PROJECT DESCRIPTION: The project involves construction of two 800,000 gallon steel tanks with site improvements, utilities, drain line and access road including about 2,100 LF of 20" feeder main. The project will improve reliability and hydraulic performance in the zone which experiences a lot of surge issues due to cycling of the Mae Anne pump train and the closed system on the Mogul end. This situation is only expected to worsen when pumping to Verdi begins.

SCHEDULE: The project is currently scheduled for design in FY's 2022 - 23 and construction in FY 2024.

Potable Water Storage Improvements
Spanish Springs Altitude Valves

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Customer Rates / Developer Fees	Spanish Springs Altitude Valves	—	—	300	—	—	300

PROJECT DESCRIPTION: The project involves the construction of altitude valves in underground vaults at the Desert Springs Tank #3 and at Spring Creek Tank #6. The altitude valves will keep the existing tanks from overflowing when well recharge operations are conducted in Spanish Springs Valley.

SCHEDULE: Implementation and construction will occur in FY 2023.

Potable Water Storage Improvements
Terminal Tank Generator

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Customer Rates	Terminal Tank Generator	—	200	—	—	—	200

PROJECT DESCRIPTION: This project includes adding a 40kW generator to provide backup power when NV Energy cannot provide power.

SCHEDULE: The project is scheduled to be completed in FY 2021.

Potable Water Storage Improvements
Hidden Valley Tank Altitude Valve

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Customer Rates	Hidden Valley Tank Altitude Valve	—	350	—	—	—	350

PROJECT DESCRIPTION: The project involves installation of a new altitude valve in a vault on the Hidden Valley Tank #l in/out line. Requires cutting into and rerouting existing piping, addition of new valves, etc.

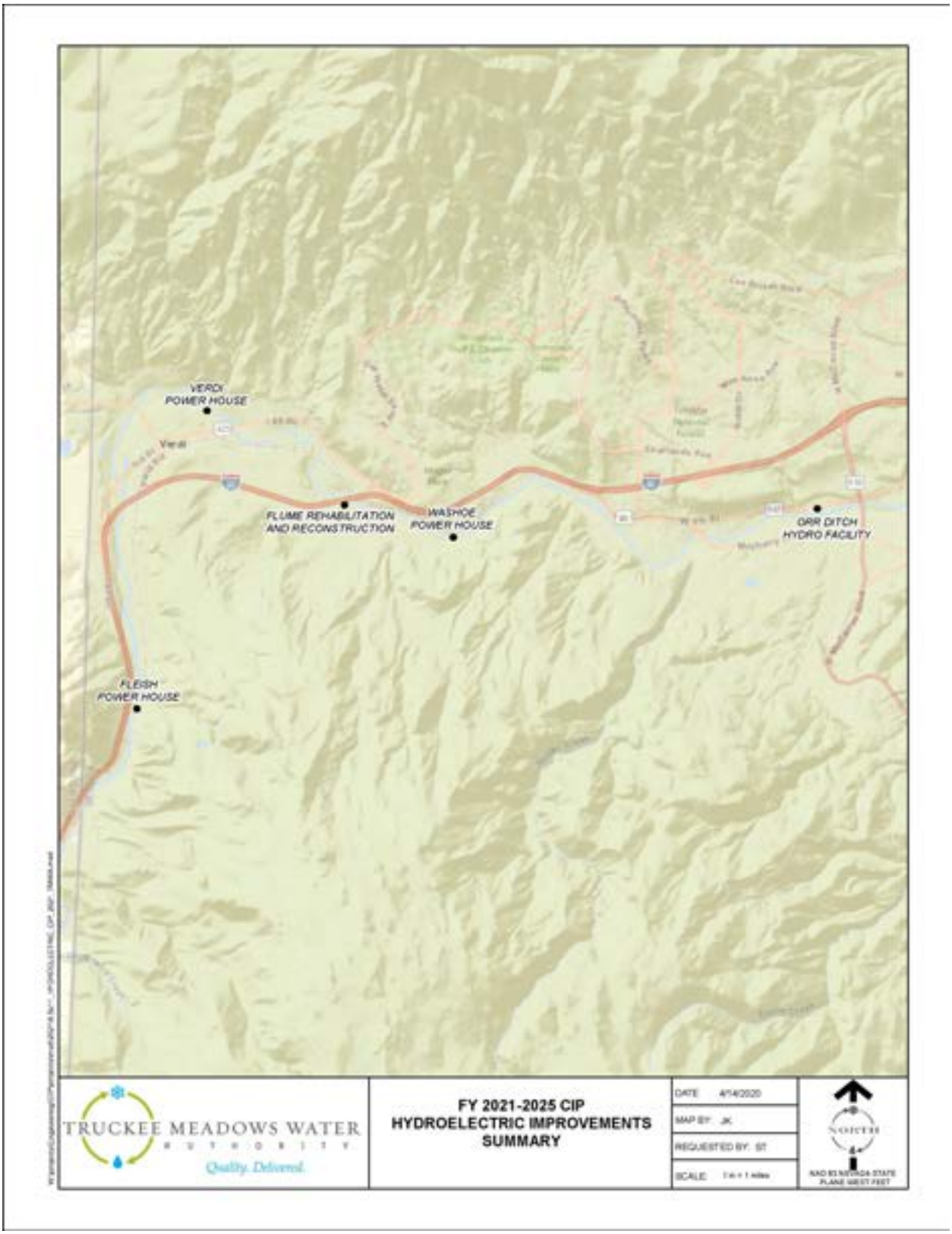
SCHEDULE: The project is schedule for construction in FY 2022.

HYDROELECTRIC IMPROVEMENTS

Summary

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Customer Rates	Forebay, Diversion, & Canal Improvements	100	100	100	100	100	500
3	Customer Rates	Flume Rehabilitation	150	150	—	—	—	300
3	Customer Rates	Hydro Plant Generator Rewinds	—	650	650	650	—	1,950
1	Customer Rates	Washoe Flume Reconstruction	50	1,450	—	—	—	1,500
3	Insurance Settlement	Orr Ditch Hydro Facility	1,100	4,000	500	—	—	5,600
1	Customer Rates	Washoe Flume Reconstruction Boxes	1,350	—	—	—	—	1,350
Subtotal Hydroelectric Improvements			**2,750**	**6,350**	**1,250**	**750**	**100**	**11,200**

Project Locations: Map of all *Hydroelectric Improvements* projects are highlighted in the following map.


VERDI
POWER HOUSE
Verdi
FLUME REHABILITATION
AND RECONSTRUCTION
WASHOE
POWER HOUSE
ORR DITCH
HYDRO FACILITY
FLEISH
POWER HOUSE
TRUCKEE MEADOWS WATER
AUTHORITY
Quality. Delivered.
FY 2021-2025 CIP
HYDROELECTRIC IMPROVEMENTS
SUMMARY
DATE 4/14/2020
MAP BY: JK
REQUESTED BY: ST
SCALE 1 in = 1 miles
NAD 83 NEVADA STATE
PLANE WEST FEET

Hydroelectric Improvements
Forebay, Diversion, and Canal Improvements

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Customer Rates	Forebay, Diversion, & Canal Improvements	100	100	100	100	100	500

PROJECT DESCRIPTION:

Provision is made each year for hydroelectric flume reconstruction to mitigate damage from unexpected rock falls, landslides and/or flooding events. Diversion structures including gates, canals, flumes, forebays and all hydro-plant water conveyance structures are monitored and evaluated for reliable and safe operation.

SCHEDULE: Ongoing annual evaluation and prioritization of forebay and canal conditions in the early spring (winter weather can change priorities) to identify projects for fall construction when historically, river flows are lower.

Hydroelectric Improvements
Flume Rehabilitation

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
3	Customer Rates	Flume Rehabilitation	150	150	—	—	—	300

PROJECT DESCRIPTION: TMWA's three operating hydroelectric facilities have nearly 12,150 feet of flume. The average service life for flume structures is 35 years using treated timbers, at an average replacement cost of approximately $1,000 per lineal foot of flume. The present cost to replace a linear foot of flume depends on the location and height of the flume structure.

SCHEDULE: Ongoing annual evaluation and prioritization of flume condition in the early spring (winter weather can change priorities) to identify projects for fall construction when historically, river flows are lower.

Hydroelectric Improvements
Hydro Plant Generator Rewinds

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
3	Customer Rates	Hydro Plant Generator Rewinds	—	650	650	650	—	1,950

PROJECT DESCRIPTION:

The Fleish generator was last rewound in 1958 and is still operational. The typical in-service life of this type of generator is about 50 years. The two Washoe generators were damaged in a flood in 2006. The units were cleaned and repaired but suffered damage to the core laminations that has shortened the operating life. Work would consist of rewinding the plant generators with spending in fiscal years 2020, 2021 and 2022.

SCHEDULE: Washoe Hydro Plant generators FY 2021 and FY 2022, Fleish Hydro Plant generator FY 2023. This schedule may be adjusted depending on river flows and generator condition evaluation.

Hydroelectric Improvements
Washoe Flume Reconstruction

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Customer Rates	Washoe Flume Reconstruction	50	1,450	—	—	—	1,500

PROJECT DESCRIPTION: The project includes the demolition and reconstruction of the Washoe Flume from the Boomtown Access Rd East to I-80. To be demolished and reconstructed is approximately 1,250 linear feet of wood flume and timer structure. An additional 150 linear feet of flume will be reconstructed with steel sub structure. Approximately 800 linear feet of slope stabilization will be included in the project.

SCHEDULE: This project is schedule to start in FY 2021 with construction to begin in FY 2022.

Hydroelectric Improvements
Orr Ditch Hydro Facility

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
3	Insurance Settlement	Orr Ditch Hydro Facility	1,100	4,000	500	—	—	5,600

PROJECT DESCRIPTION: During periods of low demand, the Highland Canal has available capacity to bring water to the Chalk Bluff Facility. An existing pipeline brings water from the river via the Orr Ditch Pump Station up to Chalk Bluff. A feasibility and financial study will be completed to analyze the possibility of using existing infrastructure with the addition of power generation equipment to produce power for direct use at the Chalk Bluff Water Treatment Facility.

SCHEDULE: A feasibility study was completed in FY 2020. Construction on the projected is scheduled to begin in FY 2021.

Hydroelectric Improvements
Washoe Flume Reconstruction Boxes 1-68

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Customer Rates	Washoe Flume Reconstruction Boxes 1-68	1,350	0	0	0	0	1,350

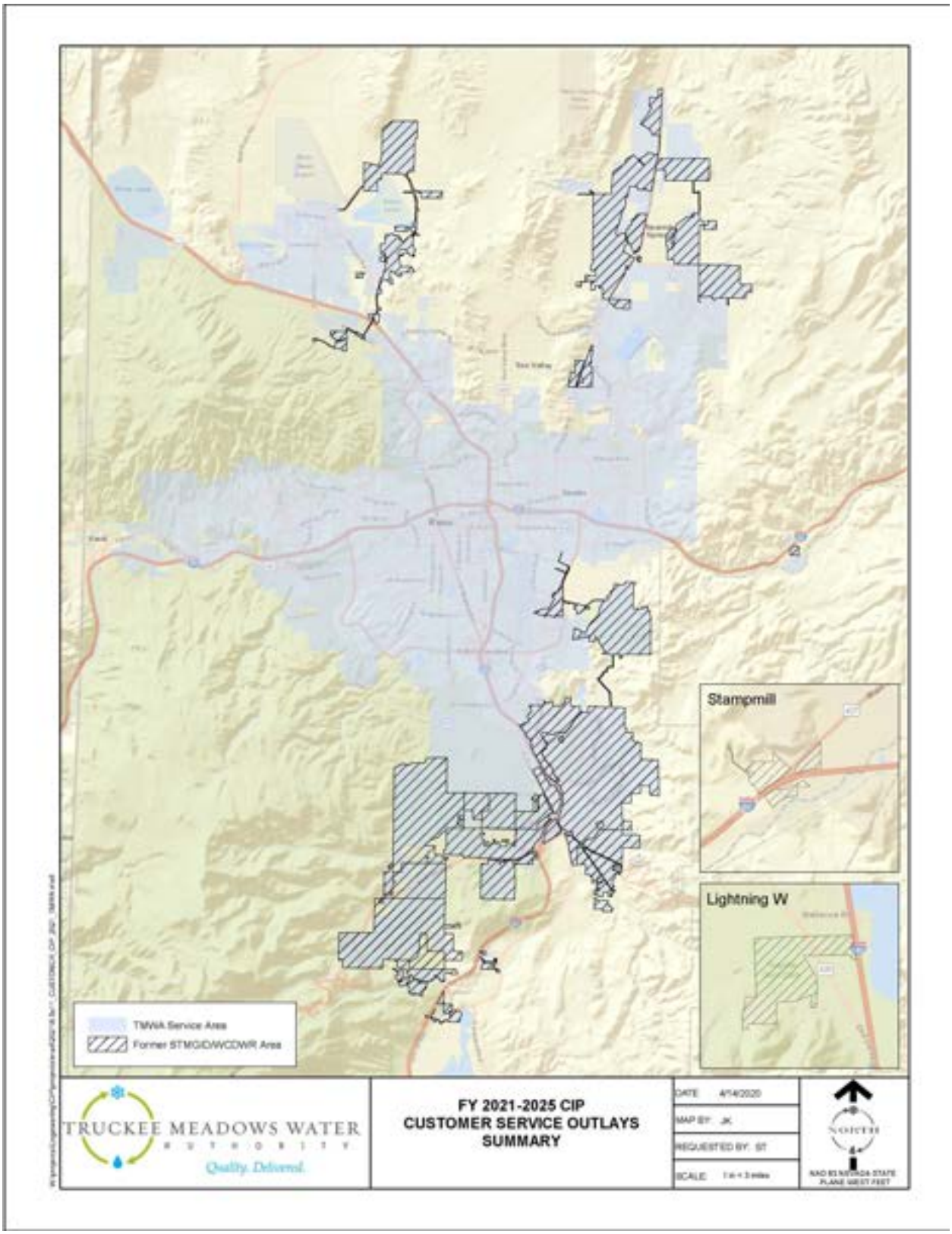
PROJECT DESCRIPTION: Project includes demolition and reconstruction of the Washoe Flume 64 box sections.

SCHEDULE: Construction for the project is scheduled to be completed in FY 2021.

CUSTOMER SERVICE OUTLAYS
Summary

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
3	Customer Rates	Meter Reading Equipment	—	60	—	75	—	135
2	Developer Fees	New Business Meters	100	100	100	100	100	500
1	Customer Rates	Mueller Pit Replacements former Washoe County	125	125	125	125	125	625
2	Customer Rates	Galvanized / Poly Service Line Replacements	250	250	250	250	250	1,250
1	Customer Rates / Meter Retrofit Fees	AMI Automated Meter Infrastructure	2,100	6,000	6,000	6,000	1,000	21,100
Subtotal Customer Service			**2,575**	**6,535**	**6,475**	**6,550**	**1,475**	**23,610**

Project Locations: Map of all *Customer Service Outlays* projects are highlighted in the following map.


Stampmill
Lightning W
TMWA Service Area
Former STMGID/WCDWR Area
TRUCKEE MEADOWS WATER AUTHORITY
Quality. Delivered.
FY 2021-2025 CIP
CUSTOMER SERVICE OUTLAYS
SUMMARY
DATE 4/14/2020
MAP BY: JK
REQUESTED BY: ST
SCALE 1 in = 3 miles
NAD 83 NEVADA STATE PLANE WEST FEET

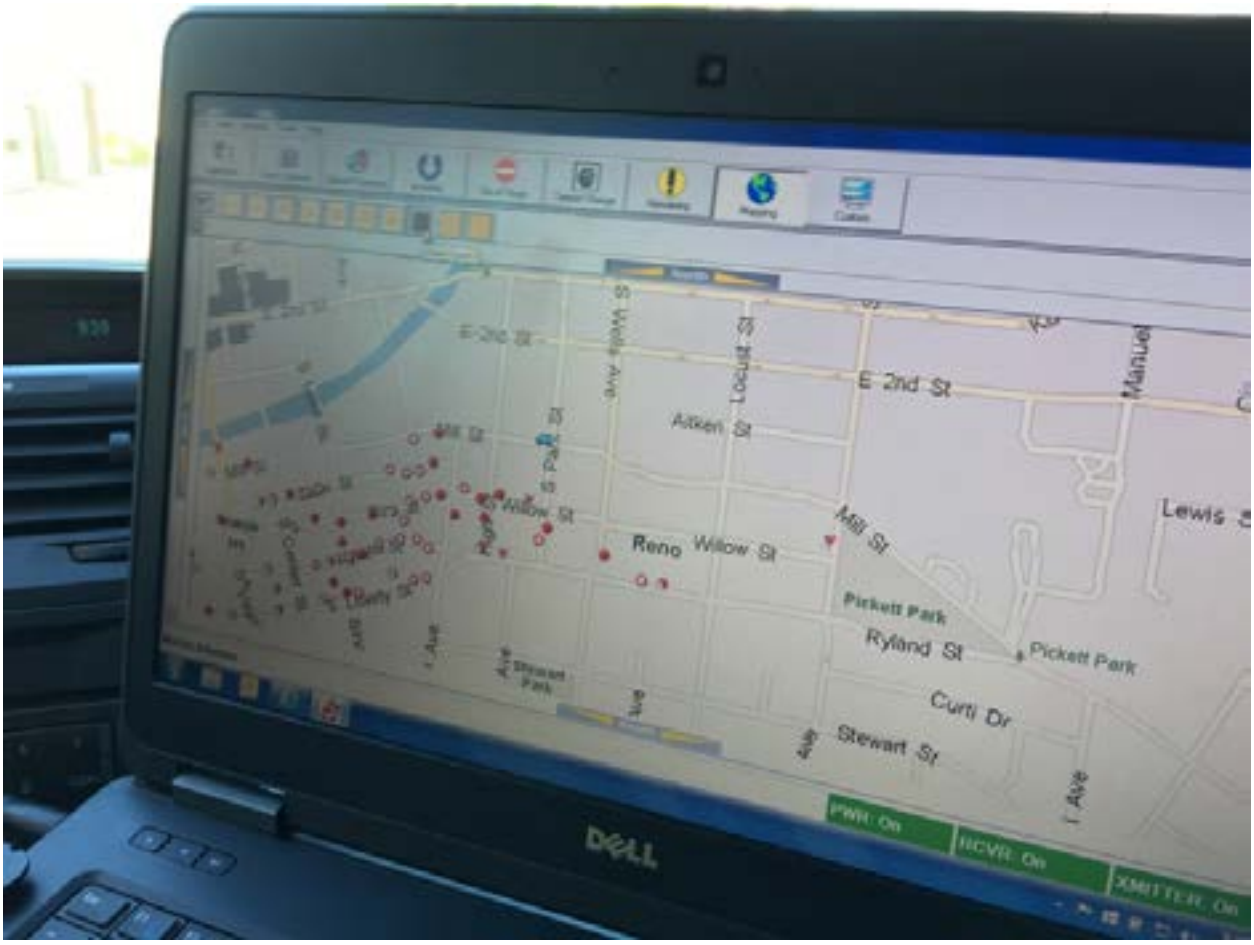
Customer Service Outlays
Meter Reading Equipment

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
3	Customer Rates	Meter Reading Equipment	—	60	—	75	—	135

PROJECT DESCRIPTION: TMWA utilizes a multiple meter reading systems in which the transmitters attached to the meters send a signal out to be collected by data collectors. These collectors are mounted in the meter reading vehicles or on various mountain peaks surrounding the valley. TMWA is anticipating replacing units that have degraded.

SCHEDULE: Will need to purchase equipment on an as needed basis.



Customer Service Outlays
New Business Meters

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Developer Fees	New Business Meters	100	100	100	100	100	500

PROJECT DESCRIPTION: All new water services are required to be metered. Meters are purchased by TMWA and installed for new development. New business fees pay for these installations.

SCHEDULE: As development picks up, more meters will need to be purchased.

Customer Service Outlays
Mueller Pit Replacements Former Washoe County

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Customer Rates	Mueller Pit Replacements former Washoe County	125	125	125	125	125	625

PROJECT DESCRIPTION: The Mueller metering pits are a very high maintenance metering facility and are prone to leaks and failures. TMWA plans to replace these facilities in response to leaks and or subsidence of these facilities.

SCHEDULE: Equipment and employee needs are evaluated and updated annually**.**

Customer Service Outlays
Galvanized / Poly Service Line Replacements

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Customer Rates	Galvanized / Poly Service Line Replacements	250	250	250	250	250	1,250

PROJECT DESCRIPTION: TMWA has shifted from just repairing service lines from the street main to the curb valve or meter box to completely replacing service lines that are galvanized steel or polybutylene. These two materials are responsible for many after-hours call outs which escalate overtime expenses to repair leaks in the street because the galvanized lines are corroded, and polybutylene once thought very durable, becomes brittle and cracks or splits very easily. Just repairing these lines does not prevent them from leaking in the near future, escalating repair costs while further damaging city streets. Complete replacement provides a permanent repair in a cost effective manner and prevents further water system losses.

SCHEDULE: This is an ongoing annual project budget. Service lines will be replaced as they are identified.

Customer Service Outlays
AMI Automated Meter Infrastructure

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Customer Rates / Meter Retrofit Fees	AMI Automated Meter Infrastructure	2,100	6,000	6,000	6,000	1,000	21,100

PROJECT DESCRIPTION: TMWA utilizes multiple meter reading systems in which the transmitters attached to the meters send a signal out to be collected by data collectors. We currently are utilizing two separate systems to collect this data. TMWA utilized a drive-by data collection system and Washoe County used a radio read system. The technology in these systems have improved vastly over the last couple of years and we are currently analyzing both systems, with the goal to move to one system. We are currently using a consultant to assist TMWA in the move to one remote reading data collection system.

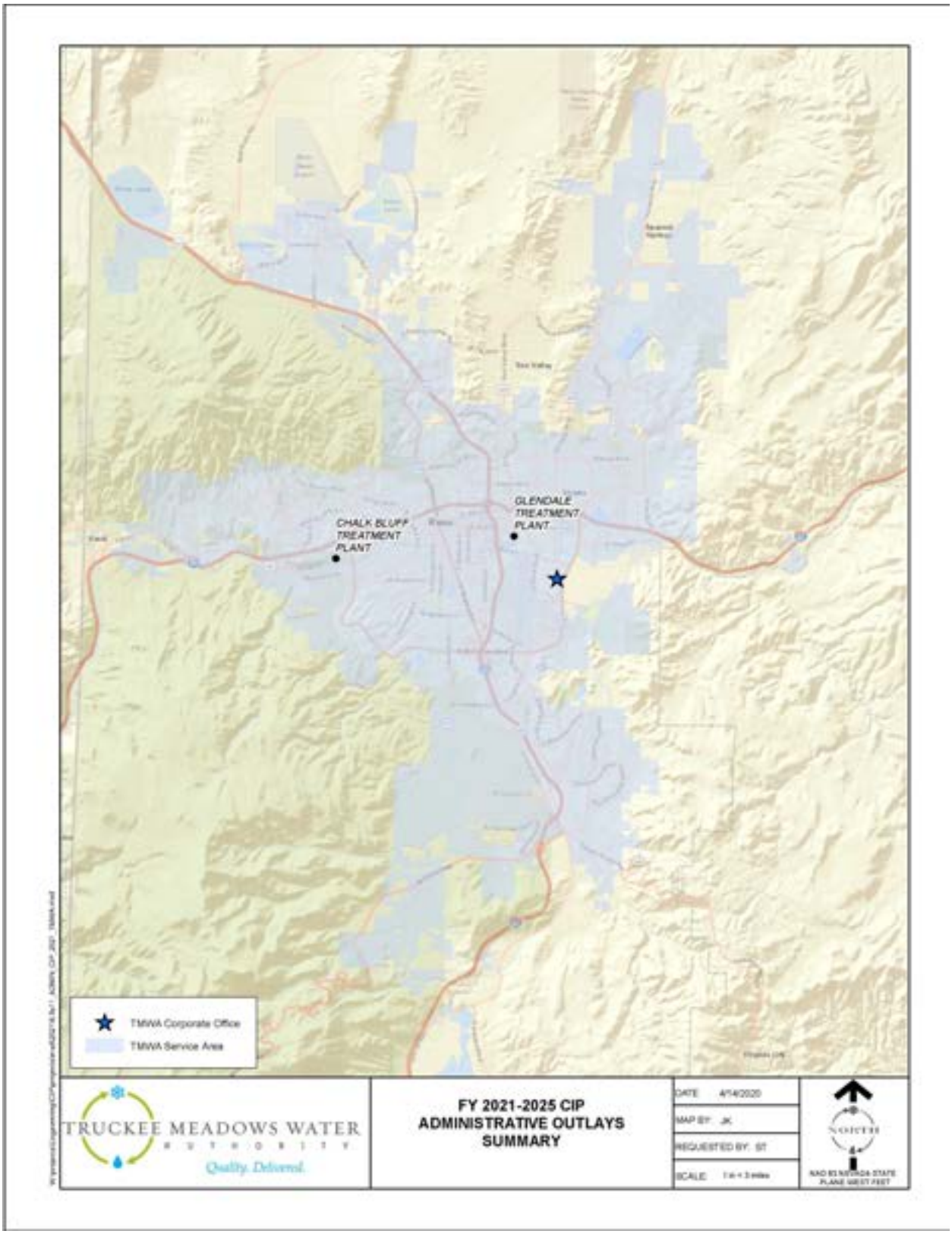
SCHEDULE: Once identified this project would be staged and implemented over the next 4-5 years, the equipment to be replaced or upgraded in many instances is already scheduled for replacement.

ADMINISTRATIVE OUTLAYS

Summary

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Customer Rates	GIS / GPS System Mapping Equipment	—	20	—	20	—	40
2	Customer Rates	IT Server Hardware	180	30	45	30	—	285
2	Customer Rates	IT Network Security Upgrades	45	160	70	10	—	285
2	Customer Rates	IT Physical Access Security Upgrades	60	60	60	60	—	240
2	Customer Rates	Printer / Scanner Replacement	40	50	—	100	—	190
3	Customer Rates	Crew Trucks / Vehicles	650	750	750	850	950	3,950
1	Customer Rates	Emergency Response Projects	150	150	150	150	150	750
1	Customer Rates	CIS System Replacement	1,000	—	—	—	—	1,000
1	Customer Rates	Emergency Operations Annex Design / Construction	—	—	—	250	250	500
2	Customer Rates	System Wide Asphalt Rehabilitation	250	200	200	200	200	1,050
1	Customer Rates	CSR Work Area Security Upgrade	360	—	—	—	—	360
1	Customer Rates	Physical Access Control System Upgrade	200	—	—	—	—	200
1	Customer Rates	Physical Site Security Improvements	200	150	100	100	100	650
1	Customer Rates	Medeco Intelligent Key System	—	150	100	100	—	350
Subtotal Administrative Outlays			**3,135**	**1,720**	**1,475**	**1,870**	**1,650**	**9,850**

Project Locations: Map of all *Administrative Outlays* projects are highlighted in the following map.


CHALK BLUFF TREATMENT PLANT
GLENDALE TREATMENT PLANT
TMWA Corporate Office
TMWA Service Area
TRUCKEE MEADOWS WATER AUTHORITY
Quality. Delivered.
FY 2021-2025 CIP
ADMINISTRATIVE OUTLAYS
SUMMARY
DATE 4/14/2020
MAP BY: JK
REQUESTED BY: ST
SCALE

Administrative Outlays
GIS/GPS System Mapping Equipment

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Customer Rates	GIS / GPS System Mapping Equipment	—	20	—	20	—	40

PROJECT DESCRIPTION: TMWA will have to update mapping equipment on a periodic basis to keep up with changes in technology; and to replace existing equipment as it reaches obsolescence.

SCHEDULE: Equipment is replaced and/or purchased as needed.

Administrative Outlays
IT Server Hardware

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Customer Rates	IT Server Hardware	180	30	45	30	—	285

PROJECT DESCRIPTION: TMWA currently has over 50 physical servers and 130 virtual servers, hosting a variety of enterprise software applications that support TMWA's daily business operations. All physical servers are typically purchased with a three year warranty, with the expectation that they will reach the end of their system life cycle in a three to five year time frame, requiring a replacement. TMWA annually reviews its server platforms and can option a strategy of warranty extension, if cost effective, rather than outright hardware replacement. All servers require an Operating System Software license to run. Operating System Software is upgraded only when the current release is obsolete or a newer version offers a significant advantage over the current iteration.

SCHEDULE: Spending would be determined on an as needed basis.

Administrative Outlays
IT Network Security Upgrades

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Customer Rates	IT Network Security Upgrades	45	160	70	10	—	285

PROJECT DESCRIPTION: As a leading water purveyor for a major metropolitan area, TMWA is reliant on the internet for employee productivity enhancement and providing valuable customer information and outreach. Such dependency on the internet also carries a significant degree of risk, as it makes TMWA a major target for external security threats looming within globalized networks. To offset this risk and combat network threats, a variety of security specific hardware and software solutions are used, weaving them into a layered deployment strategy called Defense in Depth. In order to continually evolve and reinforce this Defense in Depth strategy and effectively fight new unforeseen threats, TMWA must continually acquire new security platforms that adapt to the continually changing security landscape.

SCHEDULE: Spending occurs only on an as needed basis**.**

Administrative Outlays
IT Physical Security Upgrades

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Customer Rates	IT Physical Access Security Upgrades	60	60	60	60	—	240

PROJECT DESCRIPTION: Security measures that are designed to deny unauthorized access to facilities, equipment and resources to protect personnel from damage or harm such as theft or attacks. Physical security involves the use of multiple layers of interdependent systems which can include surveillance, security guards, protective barriers, locks and other techniques.

SCHEDULE: Equipment is replaced and/or purchased as needed.

Administrative Outlays
Printer / Scanner Replacement

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Customer Rates	Printer / Scanner Replacement	40	50	—	100	—	190

PROJECT DESCRIPTION: TMWA currently has variety of printers and scanners that support TMWA's daily business operations. All printers are typically purchased with a three-year warranty, with the expectation that they will reach the end of their system life cycle in a three to five year time frame, requiring a replacement. TMWA annually reviews its printer/scanner performance and business needs and can option a strategy of warranty extension, if cost effective, rather than outright replacement.

SCHEDULE: Equipment is replaced and/or purchased as needed.

Administrative Outlays
Crew Trucks/Vehicles

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
3	Customer Rates	Crew Trucks / Vehicles	650	750	750	850	950	3,950

PROJECT DESCRIPTION: TMWA's service fleet consists of light duty and heavy duty crew trucks. TMWA plans to cycle the light crew fleet over a period of seven to ten years. Spending is determined annually depending on vehicle availabilities and other factors. Spending only occurs if justified. TMWA's fleet cycles older vehicles to the treatment plants or other less demanding activities prior to disposal at auction. TMWA has scaled back spending on light vehicles for the past several years and a number of vehicles will be in excess of ten years old and greater than 120,000 miles of duty.

SCHEDULE: Equipment and employee needs are evaluated and updated annually**.**

Administrative Outlays
Emergency Response Projects

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Customer Rates	Emergency Response Projects	150	150	150	150	150	750

PROJECT DESCRIPTION: Various ongoing improvements to security infrastructure are required to protect TMWA facilities. TMWA has performed vulnerability assessment studies in the past and reviews the applicability of the findings to continually improve physical security as needed. In addition, TMWA is preparing a new disaster recovery plan with procedures to recover and protect water system operations.

SCHEDULE: Upgrades to security projects is ongoing and completed on a review of priorities each year.

PROJECT LOCATION: Various locations at treatment plants, at well sites, storage area for water fill station manifolds.

Administrative Outlays
CIS System Replacement

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Customer Rates	CIS System Replacement	1,000	—	—	—	—	1,000

PROJECT DESCRIPTION: Software configuration, training and consulting to implement new Customer Information (billing) system, which will also include a customer portal for water usage information and bill payment.

SCHEDULE: Project implementation began in FY 2020 and will be completed in FY 2021.

TRUCKEE MEADOWS WATER AUTHORITY

John Doe
Service Address:
123 Corporate Drive
RENO, NV 89502

Page 1
Account No. 00000001
Billing Date 03/21/18
Next Meter Read Date 04/17/18

Previous Statement Balance	Payments	Balance Forward (+)	Additional Activity (+/-)	New Water Charges (+)	NEW Charges Past Due On	New Balance (=)
$24.11	$24.11 CR	$0.00	$0.00	$26.00	04/11/18	$26.00

If "Balance Forward" is not a credit, this amount may be past due. Please pay immediately to avoid collection activity.

Previous Statement Balance			$24.11
Payments	Payment - THANK YOU	$24.11 CR	
	Total Payments	**$24.11 CR**	
Balance Forward			
	Total Balance Forward		**$0.00**
New Water Charges	Water Charges (see detail on back)	$24.41	
	Regional Water Mgmt Fee - 1.5%	$0.37	
	Right of Way Toll-Reno - 5%	$1.22	
	Total New Water Charges		**$26.00**
	New Balance		**$26.00**

Have a new phone number? Please update your account contact number in case we have an emergency and need to contact you.
Log into your account at www.tmwa.com or call us at (775) 834-8080.

Customer Service	Payment Options	Main Office and Payment Location
775-834-8080 Monday - Friday 7:30 a.m. - 5:30 p.m.	Please visit www.tmwa.com or call 775-834-8080.	1355 Capital Blvd., Reno, NV 89502 Monday - Friday 8:00 a.m. - 5:00 p.m.

Please return this portion with your payment to ensure proper credit to your account.
Please write your account number on your check
and make your check payable to TMWA. Thank you!

TRUCKEE MEADOWS WATER AUTHORITY

Account No. 00000001 **Amount Due:** $26.00
Past Due On: 04/11/18 **Amount Enclosed:** $ _____

Truckee Meadows Water Authority
PO Box 70002
Prescott, AZ 86304-7002

John Doe
123 Corporate Drive
RENO, NV 89502

Administrative Outlays
Emergency Operations Annex-Design / Construction

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Customer Rates	Emergency Operations Annex Design / Construction	—	—	—	250	250	500

PROJECT DESCRIPTION: TMWA is currently in the planning and conceptual design phase for a Primary Emergency Operations Center (EOC) including Disaster Recovery (DR) capacity. TMWA's EOC will relocate from the current location at the corporate office to the Chalk Bluff Water Treatment Plant. Which includes scope review, design, and contract bid packages, bid and award, construction, and testing. Potential emergency operations would include responding to earthquakes, floods, or other emergency related events.

SCHEDULE: Construction of water fill stations at four tank sites, standby power retrofits at four existing wells and ten portable water fill manifold stations to be completed in FY's 2024 - 25.

Administrative Outlays
System Wide Asphalt Rehabilitation

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Customer Rates	System Wide Asphalt Rehabilitation	250	200	200	200	200	1,050

PROJECT DESCRIPTION: TMWA has 93 tanks, 90 wells, 113 pump stations, 2 storage reservoirs and 3 treatment plants, most of which have some asphalt pavement. It is much more economical to extend the life of existing pavement with routine maintenance such as repairing cracks and applying slurry seals than it is to prematurely replace the pavement.

SCHEDULE: This is a new reoccurring maintenance item. It is originally assumed that up to 15 sites per year will receive some sort of rehabilitation that may include patching, crack repair, slurry seal and/or partial replacement.

Administrative Outlays
Physical Access Control System Upgrade

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Customer Rates	Physical Access Control System Upgrade	200	—	—	—	—	200

PROJECT DESCRIPTION: Replacement of legacy readers and employee cards with multi-frequency readers and smart cards to address several vulnerabilities and increase the physical security of various TMWA sites.

SCHEDULE: Construction is scheduled for FY 2021.

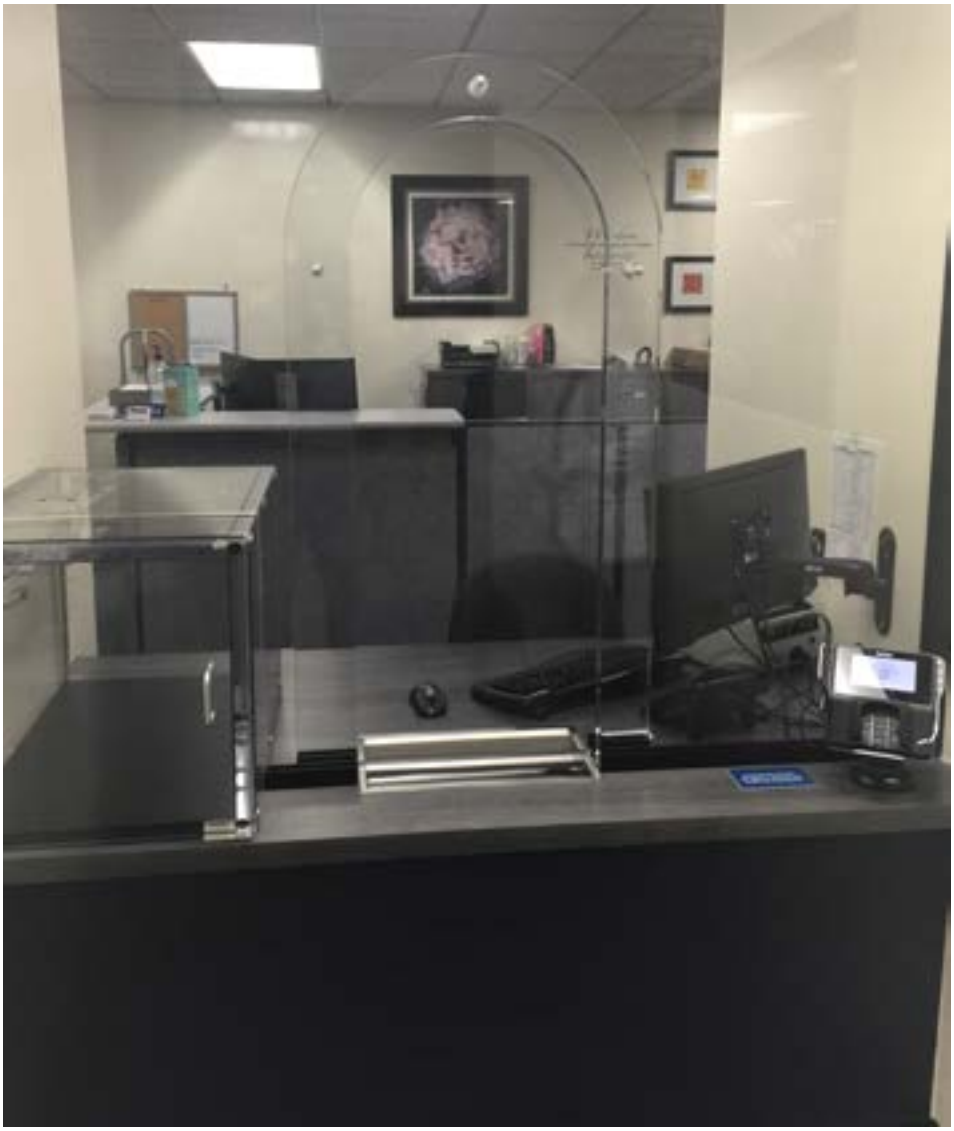
Administrative Outlays
CSR Work Area Security Upgrade

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Customer Rates	CSR Work Area Security Upgrade	360	—	—	—	—	360

PROJECT DESCRIPTION: Project involves design of a new desktop work area accommodating UL-3 Ballistic Security Glass as well as security upgrades to doors and walls.

SCHEDULE: Construction is scheduled to be completed in FY 2021.



Administrative Outlays
Physical Site Security Improvements

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Customer Rates	Physical Site Security Improvements	200	150	100	100	100	650

PROJECT DESCRIPTION: Physical site security improvements for Chalk Bluff, Glendale and Corporate based on recommendations from the Department of Homeland Security Infrastructure Survey, Security & Resilience Report dated 18 July 2018. These recommendations were echoed in the Department of Emergency Managements Vulnerability Assessment completed in December 2019. Recommended priority improvements include:

1. Enhanced perimeter fencing with outriggers and barbed wire around 100% of site perimeters, fencing secured into the ground, and repairs as needed to existing fencing.

2. Dedicated security camera system for perimeter fence coverage as well as critical points in and around key buildings.

3. Solar powered LED lighting with motion detection along full fence perimeter of both WTP's.

4. 3M window film application for windows on exteriors of Corporate building not within fenced perimeters.

5. Intrusion detection systems for perimeter fencing and gate areas to be used with the new security camera system.

6. Landscaping improvements including the placement of large boulders around the SE corner of the Chalk Bluff Control Room to protect against high speed vehicle ramming. Cleared areas along both sides of all perimeter fencing.

SCHEDULE: The project is scheduled to begin in FY 2021.

Administrative Outlays
Medeco Intelligent Key System

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Customer Rates	Medeco Intelligent Key System	—	150	100	100	—	350

PROJECT DESCRIPTION: The Medeco XT Intelligent Key System consists of a robust electronic locking and access control system that is managed by state-of-the-art web-based system software. It uses existing hardware, reduces the risk of lost keys, provides electronic scheduling, and gives audit accountability to the system manager. Key management software and programming devices allow administrators to program, amend or delete keys remotely and instantly.

This system would be used to eventually replace our current CA keys which have left our physical security compromised due to lost keys and unaccounted distribution and recovery of CA keys in the past. It would initially be installed to protect the critical infrastructure sites throughout our system that do not have any form of electronic access control. Eventually it will replace all CA keyed locking devices at all TMWA facilities.

The Medeco Intelligent Key System replaces the existing mechanical locking cylinder core with an intelligent electronic locking cylinder on almost all type of locking devices. All other existing hardware remains the same.

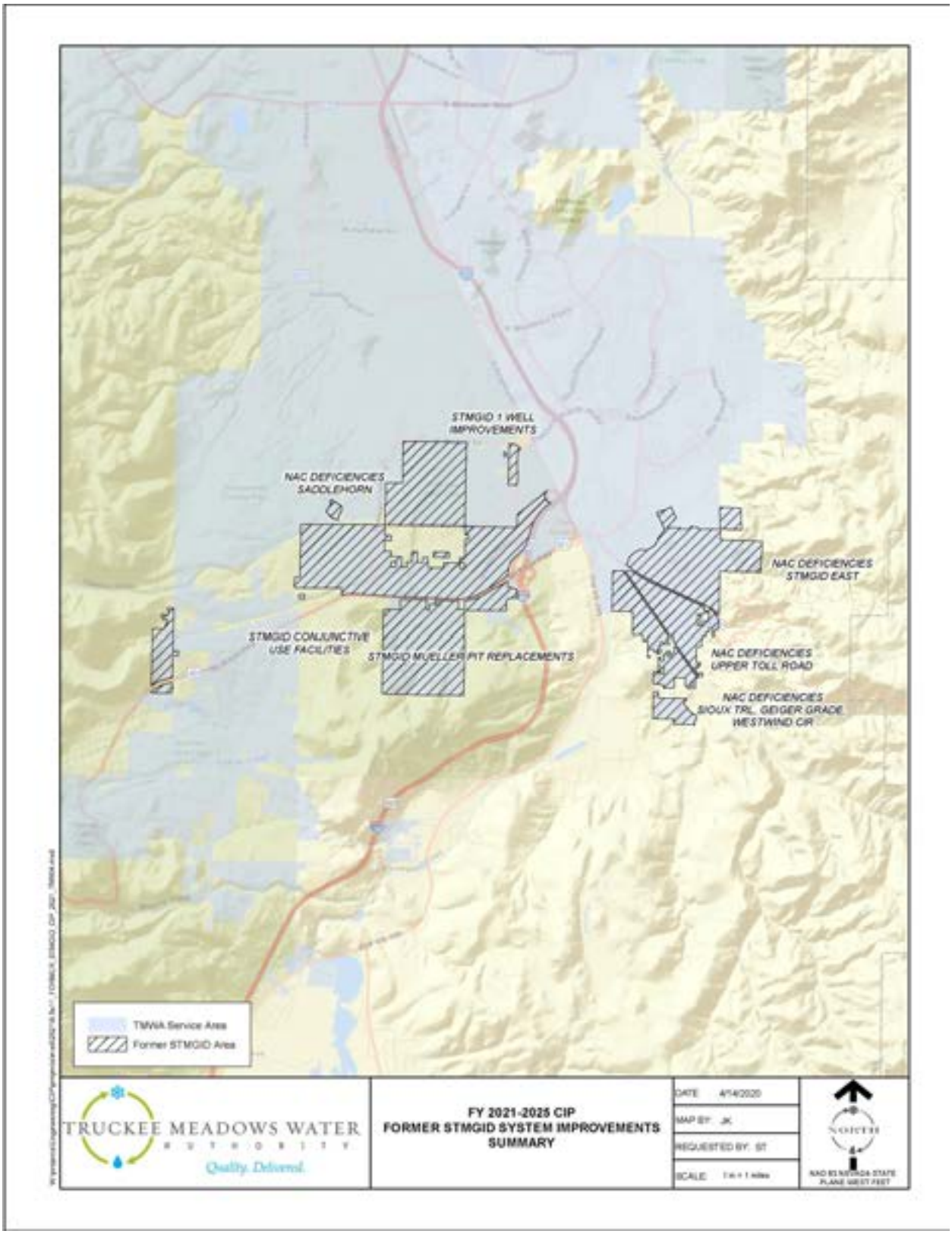
Once installed, this system helps reduce the overall costs of key control program management while providing a high level of security for our employees. It meets all NERC CIP standards and is in currentuse by major utilities in Nevada.

SCHEDULE: The project is scheduled to begin in FY 2021.

FORMER STMGID SYSTEM IMPROVEMENTS
Summary

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Reserve	STMGID Well Fix & Finish	150	150	150	150	150	750
1	Reserve	STMGID Conjunctive Use Facilities	1,600	500	—	—	—	2,100
1	Reserve	STMGID Mueller Pit Replacements	50	—	—	—	—	50
1	Reserve	STMGID NAC Deficiencies - Saddlehorn, Upper Toll, STMGID East	100	100	1,800	—	—	2,000
1	Reserve	STMGID NAC Deficiencies Phase 2 - Sioux Trail, Geiger Grade, Westwind Cr.	800	—	—	—	—	800
1	Reserve	STMGID Well #1 Re-Drill and Equipping	—	900	—	—	—	900
Subtotal STMGID System Improvements			**2,700**	**1,650**	**1,950**	**150**	**150**	**6,600**

Project Locations: Map of all *Former STMGID System Improvements* projects are highlighted in the following map.


STMGID 1 WELL IMPROVEMENTS
NAC DEFICIENCIES SADDLEHORN
NAC DEFICIENCIES STMGID EAST
STMGID CONJUNCTIVE USE FACILITIES
STMGID MUELLER PIT REPLACEMENTS
NAC DEFICIENCIES UPPER TOLL ROAD
NAC DEFICIENCIES SIOUX TRL, GEIGER GRADE WESTWIND CIR
TMWA Service Area
Former STMGID Area
TRUCKEE MEADOWS WATER AUTHORITY
Quality. Delivered.
FY 2021-2025 CIP
FORMER STMGID SYSTEM IMPROVEMENTS SUMMARY
DATE 4/14/2020
MAP BY: JK
REQUESTED BY: ST
SCALE 1 in = 1 miles
NAD 83 NEVADA STATE PLANE WEST FEET

Ground Water Supply Improvements
STMGID Well Fix & Finish

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
2	Reserve	STMGID Well Fix & Finish	150	150	150	150	150	750

PROJECT DESCRIPTION: Equipment improvements are expected to bring existing wells up to modern standards, including antiquated equipment replacements and improvements for water quality purposes. This project includes improvements to sodium hypochlorite rooms, electrical and instrumentation equipment, pump to waste lines and drainage improvements. It also includes retrofit for recharge where needed.

SCHEDULE: Improvements are planned to continue for the duration of this CIP funding plan.

Water Main-Distribution & Service Line Improvements
STMGID Conjunctive Use Facilities

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Reserve	STMGID Conjunctive Use Facilities	1,600	500	—	—	—	2,100

PROJECT DESCRIPTION: The project involves construction of a new booster pump station on the reclaim water reservoir site on Arrowcreek Parkway and approximately 8,100 feet of 14-inch discharge pipe on Arrowcreek Parkway to the STMGID Tank 4/5 pressure zone. Approximately $0.5 million of the $3.6 million will be used for pipeline oversizing which will be allocated to new development. The facilities will provide off-peak supply which will allow TMWA to implement conjunctive use in the STMGID West system.

SCHEDULE: Construction of the pipeline was completed in FY 2019 and the booster station design/construction is scheduled to begin in FY 2021 completing in FY 2022.

Customer Service Outlays
STMGID Mueller Pit Replacements

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Reserve	STMGID Mueller Pit Replacements	50	—	—	—	—	50

PROJECT DESCRIPTION: The Mueller metering pits are a very high maintenance metering facility and are prone to leaks and failures. TMWA plans to replace these facilities to leaks and or subsidence of these facilities.

SCHEDULE: Equipment and employee needs are evaluated and updated annually**.**

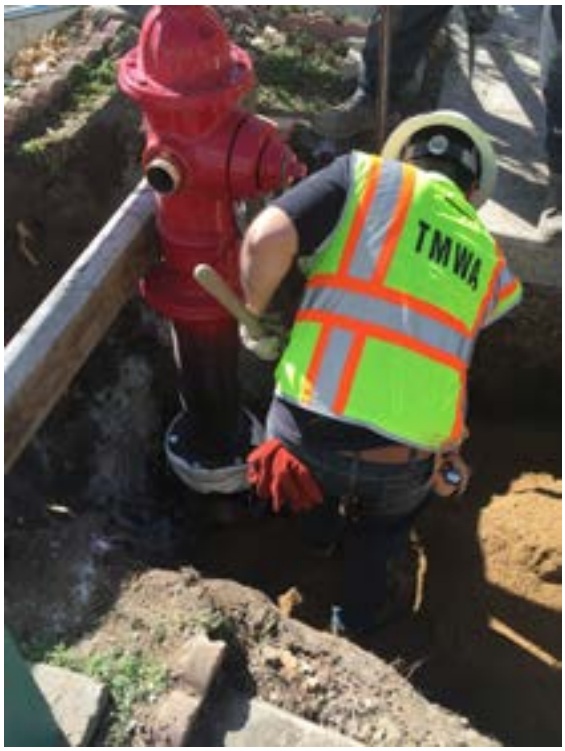
Distribution System Pressure Improvements
NAC Deficiencies-Saddlehorn, Upper Toll Road, STMGID East

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Reserve	STMGID NAC Deficiencies - Saddlehorn, Upper Toll, STMGID East	100	100	1,800	—	—	2,000

PROJECT DESCRIPTION: The project consists of main ties, hydrant installations and individual booster pump systems to be constructed in multiple locations in former STMGID service areas to correct NAC pressure and fire flow deficiencies. In order to correct deficiencies in the upper Toll Road area, it will be necessary to create a new higher pressure zone by constructing a new tank, booster pump station and approximately 6,300 linear feet of 12-inch main.

SCHEDULE: The new pressure zone on upper Toll Road will be constructed in FY 2023 subject to acquisition of the tank site property which may be private or on BLM property.



Distribution System Pressure Improvements
NAC Deficiencies Phase 2 - Sioux Trail, Geiger Grade, Westwind Circle

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Reserve	STMGID NAC Deficiencies Phase 2 - Sioux Trail, Geiger Grade, Westwind Cr.	800	—	—	—	—	800

PROJECT DESCRIPTION: Sioux Trail Improvements - Replace existing main with ~204-400 linear feet of 8-inch diameter and ~377-410 linear feet of 10-inch diameter Geiger Grade Hydrant Improvements - Replace existing main with ~250 linear feet of 10-inch diameter Westwind Circle Improvements - Replace existing main with ~1150 linear feet of 8inch diameter Install 9 individual booster pumps.

SCHEDULE: The deficiencies on Sioux Trail, on Geiger Grade, on Westwind Circle and Terry Way will be addressed in FY 2019/20. The individual booster stations will start in FY 2021 depending on customer needs and coordination.

Distribution System Pressure Improvements
STMGID Well #1 Re-Drill and Equipping

FUNDING TIMELINE:

Priority	Funding Source	Description	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	CIP Total
1	Reserve	STMGID Well #1 Re-Drill and Equipping	—	900	—	—	—	900

PROJECT DESCRIPTION: This project involves the complete replacement of STMGID 1. Recent rehabilitation work on the production well indicated the screens have deteriorated enough to allow sediment and gravel pack to pass through. The well is a critical groundwater supply asset as it currently accounts for ~24% of the max day demand in STMGID Tank Zone 1.

SCHEDULE: The well is estimated to be drilled and constructed in FY 2022.