CITY COUNCIL
WORKSHOP MEETING AGENDA

COUNCIL CHAMBERS, 401 CALIFORNIA AVE.
BOULDER CITY, NV 89005

SEPTEMBER 22, 2021 - 1:00 PM

The public may view the meeting live at the following link:

https://www.bcnv.org/191/City-Council-Meeting-Live-Stream-Video
ITEMS LISTED ON THE AGENDA MAY BE TAKEN OUT OF ORDER; TWO OR MORE AGENDA ITEMS FOR CONSIDERATION MAY BE COMBINED; AND ANY ITEM ON THE AGENDA MAY BE REMOVED OR RELATED DISCUSSION MAY BE DELAYED AT ANY TIME.

CALL TO ORDER

CONFIRMATION OF POSTING AND ROLL CALL

PUBLIC COMMENT

PUBLIC COMMENT DURING THIS PORTION OF THE AGENDA MUST BE LIMITED TO MATTERS ON THE AGENDA FOR ACTION. EACH PERSON HAS UP TO FIVE MINUTES TO SPEAK ON A SPECIFIC AGENDA ITEM.

MEMBERS OF THE PUBLIC MAY PARTICIPATE IN THE MEETING WITHOUT BEING PHYSICALLY PRESENT BY ONE OF THE FOLLOWING METHODS:

- Written comments may be submitted via the Public Comment Form (https://www.bcnv.org/FormCenter/Contact-Forms-3/City-Council-Comment-Form-111)
- To comment during the meeting, members of the public may call (702) 589-9629 when the public comment period is opened.

WORKSHOP AGENDA

1. Discussion of Utility infrastructure components
2. Discussion and review of ongoing and 5-year Capital Improvement Plan projects
3. Discussion about the reporting of Allocation and Funding Multi-Year

Capital Improvement Projects

4. Discussion of financial data for the Utility Fund
5. Discussion of utility rate review process
6. Discussion of renewable energy and water conservation projects
7. Discussion of goals for the Utility Advisory Committee
8. Discussion of future agenda items
9. Public Comment

Each person has up to five minutes to speak at the discretion of the Mayor/Chair. Comments made during the Public Comment period of the agenda may be on any subject. All remarks shall be addressed to the City Council/Board as a whole, not to any individual member of the Council/Board, of the audience, or of the City staff. There shall be no personal attacks against the Mayor, members of the City Council, the City staff, or any other individual. No person, other than members of the City Council and the person who has the floor, shall be permitted to enter into any discussion, either directly or through a member of the Council without the permission of the Mayor or Presiding Officer. No action may be taken on a matter raised under this item of the agenda until the matter itself has been specifically included on an agenda as an item upon which action will be taken.

Supporting material is on file and available for public inspection at the City Clerk's Office, 401 California Avenue, Boulder City, Nevada 89005 and the Boulder City website at www.bcnv.org, as per NRS 241. To request supporting material, please contact the City Clerk Tami McKay at (702) 293-9208 or cityclerk@bcnv.org.

Notice to persons with disabilities: Members of the public who are disabled and require special assistance or accommodations at the meeting are requested to notify the City Clerk by telephoning (702) 293-9208 at least seventy-two hours in advance of the meeting.

This notice and agenda has been posted on or before 9 a.m. on the third working day before the meeting at the following locations:

Boulder City Hall, 401 California Avenue
www.bcnv.org
https://notice.nv.gov/

Infrastructure components

SUBJECT:

Discussion of Utility infrastructure components

ADDITIONAL INFORMATION:

ATTACHMENTS:

	Description	Type
🗋	Item 1 Staff Report	Cover Memo

City Council/Utility Advisory Committee Workshop
September 22, 2021
Item No. 1
Staff Report

TO: Mayor and City Council
Utility Advisory Committee

FROM: Tami McKay, City Clerk

DATE: September 16, 2021

SUBJECT: Discussion of Utility infrastructure components

Business Impact Statement: This action will not have a significant economic impact on business and will not directly restrict the formation, operation, or expansion of a business.

Action Requested: That the City Council and Utility Advisory Committee discuss the Utility infrastructure components

Attachment:
None

5-year Capital Improvement Plan and projects

SUBJECT:

Discussion and review of ongoing and 5-year Capital Improvement Plan projects

ADDITIONAL INFORMATION:

ATTACHMENTS:

	Description	Type
🗋	Item 2 Staff Report	Cover Memo
🗋	Utility Fund	Cover Memo
🗋	Electric Funding	Cover Memo
🗋	Landfill Funding	Cover Memo
🗋	Sewer Funding	Cover Memo
🗋	Water Funding	Cover Memo

City Council/Utility Advisory Committee Workshop
September 22, 2021
Item No. 2
Staff Report

TO: Mayor and City Council
Utility Advisory Committee

FROM: Keegan Littrell, P.E., Public Works Director

DATE: September 22, 2021

SUBJECT: Discussion and Review of ongoing and 5-year Capital Improvement Plan projects

Business Impact Statement: This action will not have a significant economic impact on business and will not directly restrict the formation, operation, or expansion of a business.

Action Requested: That the City Council and Utility Advisory Committee discuss the 5-year Capital Improvement Plan projects

Background Information: The Utilities Services and Public Works Department are responsible for the planning, design, and construction management for the Water, Sewer, Electric, and Landfill Capital Improvement Projects. At the request of the Utility Advisory Committee, staff has developed a spreadsheet that provides high level information on that status of the ongoing CIP projects.

Attachment:
Utility Fund YTD July 31, 2021
5-Year CIP Utility Worksheets

City of Boulder City's Utility Funds Capital Projects Year to Date
as of 7/31/2021

MUNIS PROJECT	ACCOUNT DESCRIPTION	ORIGINAL BUDGET FISCAL YEAR END	TOTAL APPROVED BUDGET PRIOR TO FYE 22	CIP FUNDS APPROVED FOR FYE 22	TOTAL APPROVED BUDGET AS OF FYE 22	PREVIOUSLY EXPENDED	REVISED BUDGET FY 22	YTD EXPENDED	ENCUMBRANCES	AVAILABLE BUDGET
U1901	CITY SHOP UTIL ADM BLDG REFURB	2019	100,000	0	100,000	82,523	17,477	0	0	17,477
	Total 60900 UT CAPITAL PROJECTS						17,477	0	0	17,477
	Total 60 UTILITY ADMIN FUND						17,477	0	0	17,477
E1901	FEEDER 63 TO SUBSTATION 3 TIE	2019	400,000	0	400,000	153,817	246,183	0	3,520	242,663
E1902	FEEDER 53 REPLACEMENT	2019	500,000	0	500,000	323,712	176,288	0	3,520	172,768
E1905	FEEDER 64-TEMPLE ROCK REROUTE	2019	150,000	0	150,000	55,869	94,131	0	0	94,131
E1907	SUBSTATION IMPROVEMENTS	2019	70,000	0	70,000	43,586	26,414	0	0	26,414
E1909	4KV OVERHEAD LINE INSULATOR, T	2019	3,590,000	0	3,590,000	3,083,593	506,407	524	485,806	20,077
E2001	BC TAP TO BUCHANAN OVERHEAD LI	2020	9,800,000	0	9,800,000	3,154,088	6,645,912	0	6,639,104	6,808
E2009	Capital Equipment Purchase	2020	836,232	0	836,232	648,987	187,245	0	0	187,245
E2010	Claremont Conversion	2020	500,000	0	500,000	170,834	329,166	0	19,963	309,203
E2011	Substation 5 Reclosure Replace	2020	90,000	0	90,000	91,555	(1,555)		0	(1,555)
E2101	San Felipe - Mendota Feeder	2021	500,000	1,400,000	1,900,000	0	1,900,000	0	0	1,900,000
E2102	Circuit 45-61-62 Tie	2021	1,100,000	0	1,100,000	10,640	1,089,360	0	2,480	1,086,880
E2103	Circuit 63-64 Tie	2021	100,000	300,000	400,000	6,400	393,600	0	1,960	391,640
E2105	Pole Replacement Program	2021	450,000	450,000	900,000	129,653	770,347	0	1	770,346
E2201	Feeder 14-24 Tie Replacement	2022	0	400,000	400,000	0	400,000	0	0	400,000
E2202	Red Mountain Distribution Line	2022	0	1,200,000	1,200,000	0	1,200,000	0	0	1,200,000
UE161	BC TAP TRANSFORMER/BKR	2016	2,720,000	0	2,720,000	2,420,808	299,192	0	0	299,192
UE182	Feeder Arizona St	2018	2,056,555	0	2,056,555	1,099,614	956,941	0	950,116	6,826
UE183	METER REPLACEMENT	2018	1,000,000	0	1,000,000	947,843	52,157	0	41,958	10,199
	Total 61900 ELECT FUND CAPITAL						15,271,787	524	8,148,428	7,122,837
	Total 61 ELECTRIC FUND						15,271,787	524	8,148,428	7,122,837
UW171	WATER LINE TO ELDORADO VALLEY	2017	2,400,000	0	2,400,000	2,002,145	397,855	0	69,614	328,241
W2006	Copper Service Replacement	2020	1,063,300	600,000	1,663,300	838,445	824,855	0	194,905	629,950
W2008	Eldorado Valley Line PRV Desig	2020	250,000	0	250,000	0	250,000	0	0	250,000
W2009	ACCESS AND SECURITY IMPROV RES	2020	50,000	0	50,000	0	50,000	0	0	50,000
W2101	Rebuild Pressure Reducing Valve	2021	100,000	0	100,000	96,030	3,970	0	0	3,970
W2102	Install PRV on "A" Line to National Par	2021	250,000	0	250,000	0	250,000	0	0	250,000
W2103	Reservoir Improvements	2021	80,000	559,600	639,600	0	639,600	0	0	639,600
W2104	Replace 8" Butterfly Valves	2021	80,000	200,000	280,000	12,479	267,521	0	0	267,521
W2201	Water Meter Replacements	2022	0	75,000	75,000	0	75,000	0	0	75,000
	Total 62900 WF CAPITAL PROJECTS						2,758,801	0	264,519	2,494,282
	Total 62 WATER FUND						2,758,801	0	264,519	2,494,282
S1901	SANITARY SEWER REHABILITATION	2019	100,000	0	100,000	46,070	53,930	0	0	53,930
S2004	WWTP Headworks Upgrade	2020	400,000	0	400,000	17,960	382,040	0	40	382,000
S2101	Evaluate Hemenway Valley Sewer	2021	100,000	0	100,000	81,587	18,413	0	8,413	10,000
S2102	Sewage Lift Station Mobile Eme	2021	120,000	0	120,000	109,016	10,984	0	39	10,945
S2103	Rehabilitate Sanitary Sewer Ma	2021	120,000	750,000	870,000	5,440	864,560	0	0	864,560
S2201	Lift Station No 1 Improvements	2022	0	100,000	100,000	0	100,000	0	0	100,000
S2202	Chlorine Contact Chamber	2022	0	100,000	100,000	0	100,000	0	0	100,000
S2203	Concrete Line Aeration Basins	2022	0	200,000	200,000	0	200,000	0	0	200,000
	Total 63900 WWATER FUND CAPITAL						1,729,927	0	8,492	1,721,435
	Total 63 WASTEWATER FUND						1,729,927	0	8,492	1,721,435
UL151	LANDFILL EXPANSION	2016	562,000	0	562,000	365,999	196,000	0	96,752	99,248
UL201	Landfill Expansion Phasing Pla	2020	60,000	0	60,000	0	60,000	0	0	60,000
UL202	Perimeter Fencing/Road Design	2020	460,000	0	460,000	16,335	443,665	0	0	431,037
	Total 64900 LANDFILL FUND CAPITAL						699,665	0	96,752	590,285
	Total 64 LANDFILL FUND						699,665	0	96,752	590,285
	Revenue Total						0	0	0	0
	Expense Total						20,477,657	524	8,518,190	11,946,316
	Grand Total						20,477,657	524	8,518,190	11,946,316

ELECTRIC Category

Funding Sources

Priority	Project ID	Name	2022 Electric	2022 CIP#2	2022 CIP#3	2022 RDA	TOTAL FY22	2023 Electric	2023 CIP#2	2023 CIP#3	2023 RDA	TOTAL FY23	2024 Electric	2024 CIP#2	2024 CIP#3	2024 RDA	TOTAL FY24	2025 Electric	2025 CIP#2	2025 CIP#3	2025 RDA	TOTAL FY25	2026 Electric	2026 CIP#2	2026 CIP#3	2026 RDA	TOTAL FY26	Total Project Cost over life of project
1	ELEC 20-103	Red Mountain Distribution Line Rebuild	$1,200,000				$1,200,000					$0					$0					$0					$0	$1,200,000
1	ELEC 20-105	Substation 3 Rebuild					$0	$500,000				$500,000	$3,000,000				$3,000,000					$0					$0	$3,500,000
2	ELEC 20-106	Substation 4 Rebuild					$0					$0	$2,500,000				$2,500,000					$0					$0	$2,500,000
1	ELEC 20-108	San Felipe - Mendota Feeder	$1,400,000				$1,400,000			$100,000		$100,000					$0					$0					$0	$2,000,000
1	ELEC 20-112	Circuit 63-64 Tie	$100,000		$200,000		$300,000					$0					$0					$0					$0	$400,000
2	ELEC 20-115	Substation 5 Transformer and Foundation Replacement					$0					$0	$2,500,000				$2,500,000					$0					$0	$2,500,000
2	ELEC 20-116	Substation 1 - Substation 4 Feeder Ties					$0			$1,200,000		$1,200,000					$0					$0					$0	$1,200,000
1	ELEC 20-117	Feeder 14-24 Tie Replacement			$400,000		$400,000					$0					$0					$0					$0	$400,000
2	ELEC 20-118	Substation 2 - Substation 3 Feeder Ties					$0	$750,000				$750,000					$0					$0					$0	$750,000
2	ELEC 20-119	4-12kV Cutover, 4kV substation Removals					$0					$0	$1,500,000				$1,500,000					$0					$0	$1,500,000
3	ELEC 20-120	Transmission Switches					$0					$0					$0	$400,000				$400,000					$0	$400,000
1	ELEC 21-101	Pole Replacement Program	$450,000				$450,000					$0					$0					$0					$0	$900,000
		subtotal	**$3,150,000**	**$0**	**$600,000**	**$0**		**$1,250,000**	**$0**	**$1,300,000**	**$0**		**$9,500,000**	**$0**	**$0**	**$0**		**$400,000**	**$0**	**$0**	**$0**		**$0**	**$0**	**$0**	**$0**		
		FY Total	**$3,750,000**					**$2,550,000**					**$9,500,000**					**$400,000**					**$0**					
		Grand Total																										**$16,200,000**

Legend:

CIP Designations

CIP#1: Voter approved #1 - Up to $1M/year for city facilities and infrastructure (2015)
CIP#2: Voter approved #2 - Up to $500k annually for 7 years for City utility infrastructure needs (2014 election)
CIP#3: Voter Approved #3 - Proceeds from Tract 349 to be used for City Utility Infrastructure Improvements (2014
CIP#4: Voter approved #4 - Proceeds from Tract 350 (Boulder Creek) to be split 10% for Public Safety needs,

FAA: Federal grant funding under the FAA's Airport Capital Improvement Program
Airport" Municipal Airport Fund
Res Const Tax: Residential Construction Tax. Can only be used on parks/recreation projects (NRS limitation)
RTC: Regional Transportation Commission of Southern Nevada
CMAQ: Congestion Management/Air Quality grant
RFC: Regional Flood Control District

Electric: Electric Utility Fund
Water: Water Utility Fund
Sewer: Sewer Utility Fund
Landfill: Landfill Utility Construction Fund

GF: General Fund
Cemetery: Cemetery Perpetual care and improvement fund
Surcharge: Golf Surcharge Fund
Court: Municipal Court Surcharge Fund
RDA: Redevelopment Agency Fund (must be approved by RDA for eligible projects)
Special Projects Fund: Revenue derived from 0.05 per $100 ad valorem tax per NRS 354.598155
CCCHP: Commission for Cultural Centers and Historic Preservation

Revision 3

LANDFILL Category

Funding Sources

Priority	Project ID	Name	2022 Landfill	2022 CIP#2	2022 CIP#3	2022 Grant	TOTAL FY22	2023 Landfill	2023 CIP#2	2023 CIP#3	2023 Grant	TOTAL FY23	2024 Landfill	2024 CIP#2	2024 CIP#3	2024 Grant	TOTAL FY24	2025 Landfill	2025 CIP#2	2025 CIP#3	2025 Grant	TOTAL FY25	2026 Landfill	2026 CIP#2	2026 CIP#3	2026 Grant	TOTAL FY26	Total Project Cost over life of project
		NONE																										
		subtotal	**$0**	**$0**	**$0**	**$0**		**$0**	**$0**	**$0**	**$0**		**$0**	**$0**	**$0**	**$0**		**$0**	**$0**	**$0**	**$0**		**$0**	**$0**	**$0**	**$0**		
		FY Total	**$0**					**$0**					**$0**					**$0**					**$0**					
		Grand Total																										**$0**

Legend:

CIP Designations

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CIP#2: Voter approved #2 - Up to $500k annually for 7 years for City utility infrastructure needs (2014 election)
CIP#3: Voter Approved #3 - Proceeds from Tract 349 to be used for City Utility
CIP#4: Voter approved #4 - Proceeds from Tract 350 (Boulder Creek) to be split 10% for Public Safety needs, remaining to pay off other capital debt obligations (2010 election)

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Airport" Municipal Airport Fund
Res Const Tax: Residential Construction Tax. Can only be used on parks/recreation projects (NRS limitation)
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Court: Municipal Court Surcharge Fund
RDA: Redevelopment Agency Fund (must be approved by RDA for eligible projects)
Special Projects Fund: Revenue derived from 0.05 per $100 ad valorem tax per NRS 354.598155
CCCHP: Commission for Cultural Centers and Historic Preservation

SEWER Category

Funding Sources

Priority	Project ID	Name	2022 Sewer	2022 CIP#2	2022 CIP#3	2022 Grant	TOTAL FY22	2023 Sewer	2023 CIP#2	2023 CIP#3	2023 Grant	TOTAL FY23	2024 Sewer	2024 CIP#2	2024 CIP#3	2024 Grant	TOTAL FY24	2025 Sewer	2025 CIP#2	2025 CIP#3	2025 Grant	TOTAL FY25	2026 Sewer	2026 CIP#2	2026 CIP#3	2026 Grant	TOTAL FY26	Total Project Cost over life of project
2	SEWER 20-106	Georgia @ Buchanan Relocation					$0					$0					$0	$75,000				$75,000					$0	$825,000
1	SEWER 21-102	Rehabilitate Sanitary Sewer Manholes	$750,000				$750,000	$360,000				$360,000					$0					$0					$0	$1,230,000
2	SEWER 21-103	Lift Station No 1 Improvements	$100,000				$100,000			$447,000		$447,000					$0					$0					$0	$547,000
2	SEWER 21-104	Chlorine Contact Chamber			$100,000		$100,000	$434,000				$434,000					$0					$0					$0	$534,000
2	SEWER 21-105	Concrete Line Aeration Basins			$200,000		$200,000			$200,000		$200,000	$200,000				$200,000	$200,000				$200,000					$0	$800,000
2	SEWER 21-106	Lift Station No 3 Improvements					$0	$80,000				$80,000	$178,500				$178,500					$0					$0	$258,500
2	SEWER 21-107	Rehabilitate 18-inch Sanitary Sewer Mains					$0	$150,000				$150,000	$700,000				$700,000					$0					$0	$850,000
3	SEWER 21-108	Lift Station No 4 Improvements					$0					$0	$60,000				$60,000	$259,000									$0	$319,000
370000	SEWER 21-109	Effluent Splitter Box Improvements					$0					$0	$0				$0	$70,000				$70,000					$0	$70,000
		subtotal	**$850,000**	**$0**	**$300,000**	**$0**		**$1,024,000**	**$0**	**$647,000**	**$0**		**$1,138,500**	**$0**	**$0**	**$0**		**$604,000**	**$0**	**$0**	**$0**		**$0**	**$0**	**$0**	**$0**		
		FY Total	**$1,150,000**					**$1,671,000**					**$1,138,500**					**$604,000**					**$0**					

Grand Total **$4,563,500**

Legend:

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Surcharge: Golf Surcharge Fund
Court: Municipal Court Surcharge Fund
RDA: Redevelopment Agency Fund (must be approved by RDA for eligible projects)
Special Projects Fund: Revenue derived from 0.05 per $100 ad valorem tax per NRS 354.598155

WATER Category

Funding Sources

Priority	Project ID	Name	2022 Water	2022 CIP#2	2022 CIP#3	2022 Water/Sewer Ad Valorem Tax	2022 Grant	TOTAL FY22	2023 Water	2023 CIP#2	2023 CIP#3	2023 Water/Sewer Ad Valorem Tax	2023 Grant	TOTAL FY23	2024 Water	2024 CIP#2	2024 CIP#3	2024 Water/Sewer Ad Valorem Tax	2024 Grant	TOTAL FY24	2025 Water	2025 CIP#2	2025 CIP#3	2025 Water/Sewer Ad Valorem Tax	2025 Grant	TOTAL FY25	2026 Water	2026 CIP#2	2026 CIP#3	2026 Water/Sewer Ad Valorem Tax	2026 Grant	TOTAL FY26	Total Project Cost over life of project
2	WATER 20-102	Install PRV at Airport and at Lower End of Georgia						$0						$0	$250,000					$250,000						$0						$0	$250,000
2	WATER 20-105	Rebuild Pressure Reducing Valve Stations						$0			$100,000			$100,000						$0						$0						$0	$200,000
1	WATER 20-106	Copper Service Replacement Project		$500,000	$100,000			$600,000	$600,000					$600,000	$600,000					$600,000	$600,000					$600,000	$600,000					$600,000	$6,500,000
1	WATER 21-101	Reservoir Improvements	$509,600		$50,000			$559,600						$0						$0						$0						$0	$639,600
2	WATER 21-103	ARV and Backflow Replacement						$0			$10,000			$10,000	$50,000					$50,000						$0						$0	$60,000
1	WATER 21-104	8" Butterfly Valve Replacement			$200,000			$200,000	$200,000					$200,000	$200,000					$200,000	$200,000					$200,000						$0	$880,000
1	Water 22-100	Water Meter Replacement Program	$75,000				$75,000	$150,000																									$150,000
		subtotal	**$584,600**	**$500,000**	**$350,000**	**$0**	**$75,000**		**$800,000**	**$0**	**$110,000**	**$0**	**$0**		**$1,100,000**	**$0**	**$0**	**$0**	**$0**		**$800,000**	**$0**	**$0**	**$0**	**$0**		**$600,000**	**$0**	**$0**	**$0**	**$0**		
		FY Total	**$1,509,600**						**$910,000**						**$1,100,000**						**$800,000**						**$600,000**						

Grand Total	**$5,319,600**

Legend:

CIP Designations

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CCCHP: Commission for Cultural Centers and Historic Preservation

Revision 3

Allocation and Funding Multi-Year Capital Improvement Projects

SUBJECT:

Discussion about the reporting of Allocation and Funding Multi-Year Capital Improvement Projects

ADDITIONAL INFORMATION:

ATTACHMENTS:

	Description	Type
🗋	Item 3 Staff Report	Cover Memo

City Council/Utility Advisory Committee Workshop
September 22, 2021
Item No. 3
Staff Report

TO: Mayor and City Council
Utility Advisory Committee

FROM: Tami McKay, City Clerk

DATE: September 16, 2021

SUBJECT: Discussion about the reporting of Allocation and Funding of Multi-Year Capital Improvement Projects

Business Impact Statement: This action will not have a significant economic impact on business and will not directly restrict the formation, operation, or expansion of a business.

Action Requested: That the City Council and Utility Advisory Committee discuss the reporting of allocation and funding of multi-year Capital Improvement Projects

Attachment:
None

Financial data for the Utility Fund

SUBJECT:

Discussion of financial data for the Utility Fund

ADDITIONAL INFORMATION:

ATTACHMENTS:

	Description	Type
🗋	Item 4 Staff Report	Cover Memo

City Council/Utility Advisory Committee Workshop
September 22, 2021
Item No. 4
Staff Report

TO: Mayor and City Council
Utility Advisory Committee

FROM: Tami McKay, City Clerk

DATE: September 16, 2021

SUBJECT: Discussion of financial data for the Utility Fund

Business Impact Statement: This action will not have a significant economic impact on business and will not directly restrict the formation, operation, or expansion of a business.

Action Requested: That the City Council and Utility Advisory Committee discuss financial data for the Utility Fund

Attachment:
None

Utility rate review process

SUBJECT:

Discussion of utility rate review process

ADDITIONAL INFORMATION:

ATTACHMENTS:

	Description	Type
🗋	Item 5 Staff Report	Cover Memo
🗋	BC Rate Study	Cover Memo

City Council/Utility Advisory Committee Workshop
September 22, 2021
Item No. 5
Staff Report

TO: Mayor and City Council
Utility Advisory Committee

FROM: Keegan Littrell, P.E., Public Works Director

DATE: September 22, 2021

SUBJECT: Discussion of Utility Rate Review Process

Business Impact Statement: This action will not have a significant economic impact on business and will not directly restrict the formation, operation, or expansion of a business.

Action Requested: That the City Council and Utility Advisory Committee discuss the Utility rate review process

Background Information: In 2019, the City contracted Raftelis to prepare the City's Utilities Rate Study. Boulder City Utility staff commissioned Raftelis Consulting to study the cost of service and utility rates for Boulder City Utilities. On May 25, 2021, City Council approved reductions to the City's electric rate by 3 percent and reduced the water service fees by ten dollars following the recommendation of Raftelis. The Utility Advisory Committee and City Council would like to discuss the rate review process for potential rate changes in the future.

Attachment:
Raftelis Final Rate Study Report

CITY OF

Boulder City

Utility Rate Study

Final Report / January 4, 2021

RAFTELIS

RAFTELIS

January 4, 2021

Dennis Porter
Utilities Director
City of Boulder City
401 California Avenue
Boulder City, NV 89005

Subject: Utility Rate Study

Dear Mr. Porter,

Raftelis Financial Consultants, Inc. (Raftelis) is pleased to provide this Utility Rate Study Report for the City of Boulder City (City).

The critical outcomes of the study include the following:

1. **Financial plans** which establish the level of revenues necessary to sustainably fund the ongoing provision of safe and reliable utility service.
2. A **cost of service analysis** which assigns responsibility for utility costs to customer classes, based on how each class uses the utility systems.
3. **Rate recommendations** which can improve alignment between the cost of providing service to each customer class and the rates paid by that class.

This Report summarizes our key findings and recommendations related to the development of the financial plan, cost of service analysis and rate recommendations for each utility owned and managed by the City, including Electric, Water, Wastewater and Solid Waste.

This report represents the culmination of nearly 1 year of effort, not only on the part of behalf of Raftelis, but City staff and the Utility Advisory Committee as well. We truly appreciate the efforts of all parties in providing the information needed to complete the study and providing helpful feedback on study deliverables. It has been a pleasure working with you and City staff and we thank you for the support provided during the course of this study.

Sincerely,

William G. Stannard
Chairman of the Board

Collin Drat
Manager

227 W. Trade Street, Suite 1400
Charlotte, NC 28202
www.raftelis.com

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Appendix A – Detailed O&M Projections and Capital Improvement Plans
Appendix B – Load Factor and Peaking Factor Calculations
Appendix C – Rate Recommendations

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1. Executive Summary

Study Background

The City of Boulder City (City) engaged Raftelis to conduct a comprehensive financial planning, cost of service and rate design study for the City's utility funds. The Raftelis Project Team worked closely with City staff over the past year to develop an in-depth understanding of each utility's finances and operations in order to develop the recommendations contained in this report. The rate study process involves three steps:

1. **Financial plans** which establish the level of revenues necessary to sustainably fund the ongoing provision of safe and reliable utility service.
2. A **cost of service analysis** which assigns responsibility for utility costs to customer classes, based on how each class uses the utility systems.
3. **Rate recommendations** which can improve alignment between the cost of providing service to each customer class and the rates paid by that class.

Financial Plan Key Findings and Recommendations

Key Findings

Raftelis developed individual utility cash flow projections based the revenues, operating expenditures and capital projects for each utility (electric, water, wastewater and solid waste) over the next five fiscal years.[1] These projections evaluate the sufficiency of existing revenues to deliver safe and reliable utility service in a financially sustainable manner.

We find that the City's utilities are in sound financial condition. Existing revenues are sufficient to fund ongoing operation and maintenance expenditures and the substantial replacement of backbone capital infrastructure using existing unrestricted fund balance (i.e., PAYGO capital financing). Under existing revenues, the combined unrestricted fund balance will exceed 150% of operating expenditures in FY 2026, as compared to a minimum required balance (per City policy) of 20% of operating expenditures. Accordingly, no additional revenue is needed for the utility funds, in total. For context utility rate increases nationwide have consistently outpaced inflation in recent years.

Recommendations

Based on the current financial condition of the utilities, we believe it would be appropriate to reduce the electric energy charge by 3% and the water fixed charge by $10 per month for the 5/8" – 1" meter size. This would reduce revenues for the electric and water utilities by 2.7% and 14.2%, respectively. We also recommend that the City begin accelerated repayment of the raw water line debt. The City can make additional payments any time after June 1, 2022. By using the existing bond reserve ($2.3 million) and making an additional payment of $600,000 per year, the City can repay the raw water line debt 3 years early. Even after implementing these recommendations the unrestricted fund balance for the utility funds will still exceed 108% of projected operating expenditures in FY 2026. **Figure 1** below indicates a summary of the combined cash flow projections for the utility funds. **Figure 2** indicates the projected unrestricted fund balance, both under existing revenues and with the recommended rate reductions.

[1] The City's fiscal year begins on July 1 and ends on June 30 of the following calendar year. Throughout this report the years shown refer to the calendar year in which that fiscal year ends. For example, "FY 2021" refers to the current fiscal year which began on July 1, 2020 and will end on June 30, 2021.

Figure 1 – Financial Plan Summary

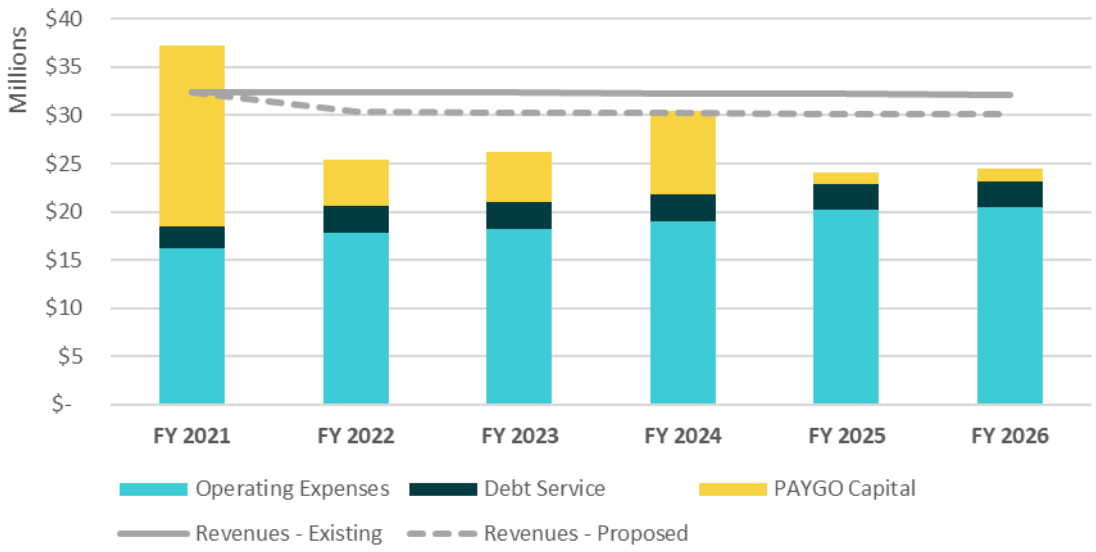
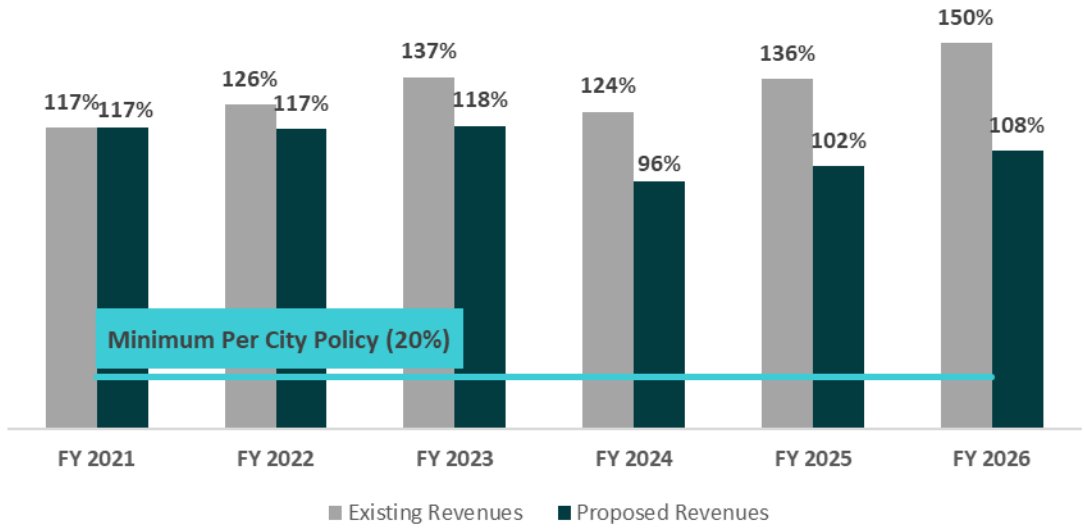


Figure 2 – Combined Unrestricted Fund Balance (% of Operating Expenditures)



Cost of Service Analysis Key Findings and Recommendations

Key Findings

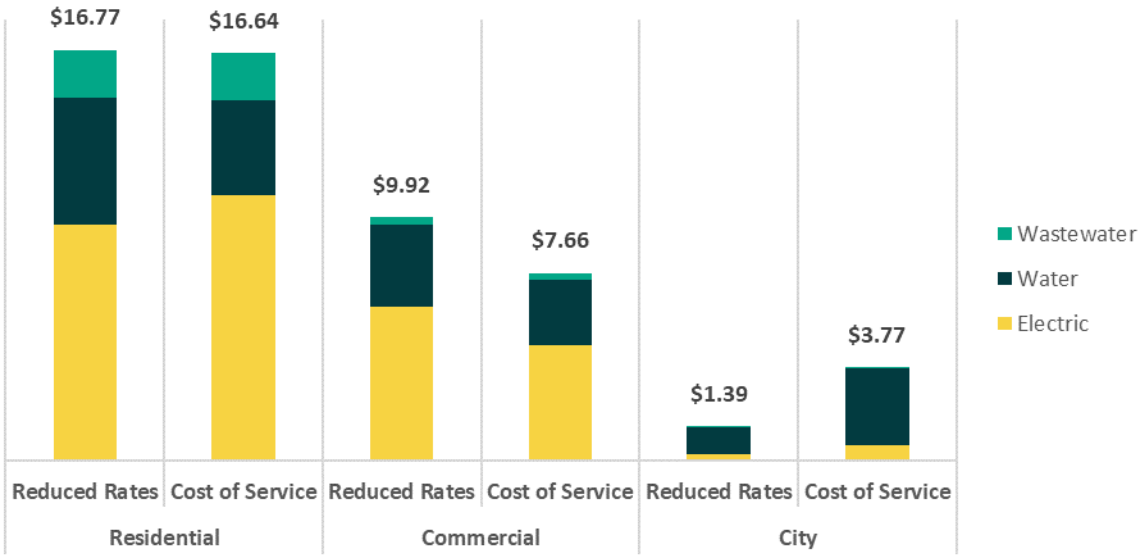
Raftelis conducted a cost of service analysis to determine the cost to serve different types of customers depending on how they use the electric, water and wastewater systems. This is different than the financial plan, which evaluates revenue sufficiency in total. The cost of service analysis seeks to identify the proportion of that total that can be attributed to different types of users based on the principle of cost causation. The utility systems are designed and operated to meet the demands of City customers. This means that the cost to operate and maintain these systems is directly attributable to these demands. That said, not all types of customers (referred to as customer classes) use the utility systems in the same way. The principle of cost causation attributes the cost to provide utility service to the customers that cause them to be incurred based on their demand characteristics. The results of the cost of service analysis can be used as a guide to adjust rates to improve alignment between revenues, by customer class, and costs by customer class.

We find significant variances between the revenues currently being recovered by each of the City's customer classes and the cost to provide them service based on their use of the utility systems. For the electric utility, residential customers and City government customers are paying less than cost of service and commercial customers are paying more than cost of service. For the water utility, City government customers are paying less than cost of service and residential and commercial customers are paying more than cost of service. We did not find significant variances for the wastewater utility.

There are two primary drivers of this result. First, the electric rate structure charges commercial customers a higher average cost per kilowatt hour (kWh) than residential customers. By contrast, the cost of service analysis suggests this cost should be slightly lower for commercial customers who are less expensive to serve. The second driver relates to City government accounts, which are charged significantly lower rates for utility service based on City policy. City electric accounts pay a $10 monthly service charge and the average cost of purchased power per kWh. The City is also not billed for streetlights. This means that City accounts are paying for the cost to purchase power, but they are not paying for the cost to distribute it via the City's electric system. The water rate structure for City government accounts is similar with a monthly service charge and a volume charge based on the cost to purchase water only. Again, the cost of purchasing the water is included, but the full cost of distributing it is not.

Figure 3 below indicates the difference between revenues under the rate reductions recommended above and cost of service for FY 2022. For residential customers, the under-recovery for electric is offset by the over-recovery on water, meaning—in total—this group is paying about the right amount for electric, water and wastewater service. Commercial customers are overpaying for both electric and water service. City government customers are underpaying for both electric and water service.

Figure 3 – Revenues Under Reduced Rates vs. Cost of Service



Recommendations

We recommend that the City adjust rates over time to recover class cost of service. The following section outlines rate recommendations consistent with achieving class cost of service by FY 2026.

Rate Design Key Findings and Recommendations

Key Findings

The City's previous rate study, conducted in 2015, did not evaluate cost of service, but recommended "across the board" adjustments to each rate in total. The City's existing rate structure, including the proportion of revenues recovered from each class is, therefore, a function of longstanding City policy which has been in place for a number of years. Cost of service is one principle among many that could be used for utility rate setting. There is no specific legal or jurisprudential requirement in the State of Nevada dictating that utility rates be set according to cost of service, immediately, or ever. This is a policy decision that must be made by the City's elected officials.

As noted above, we find that while utility revenues, in total, are adequate to recover utility costs, there are variances between revenue recovery and cost of service which could be addressed by changes to the utility rates.

Recommendations

Throughout the course of this engagement Raftelis participated in numerous discussions with City staff regarding potential options for rate structure modifications which would result in rates that achieve the objectives of the City. The outcome of those discussions is the recommendation for a phase-in approach, which balances cost of service rate setting with the differential impacts on City customer classes. A "phase-in" approach moves each class incrementally towards cost of service over a multi-year period. The approach we have laid out in this report is based on a 4 year phase-in (FY 2023 through FY 2026) consistent with the following overall rate recommendations

1. Electric Utility
    a. Reduce electric energy rates (per kWh charge) by 3% across the board as soon as practicable
    b. Maintain monthly customer charges and demand charges constant through FY 2026
    c. Phase-in to cost of service rates over a 4-year period, beginning in FY 2023
2. Water Utility
    a. Reduce monthly fixed charge by $10 for the 5/8" to 1" meter sizes, as soon as practicable. Larger reductions for larger sizes based on meter capacity.
    b. Equalize residential and non-residential fixed charges
    c. Maintain monthly fixed charges constant through FY 2026
    d. Phase-in to cost of service rates over a 4-year period, beginning in FY 2023
3. Wastewater Utility
    a. Maintain residential charges constant through FY 2026
    b. Phase-in the replacement of the commercial inclining block rate with a uniform rate over a 4-year period beginning in FY 2023

The detailed rate projections under this approach are indicated in **Appendices C1 through C3**. The combined impact on residential and commercial accounts is indicated in **Figures 4 through 5** below. Additional examples are included in **Section 5** of this report. In general, all customers would see the benefit of reduced energy charges and water fixed charges (assumed to be implemented on July 1, 2021, which represents the beginning of FY 2022). From there commercial customers would continue to see reductions based on a movement toward cost of service for electric and water. Residential customer bills would see modest increases due to the concurrent reductions in water rates and increases in electric rates.

Figure 4 – Average Residential Monthly Bill (1,200 kWh, ¾" Meter, 10,000 gallons)

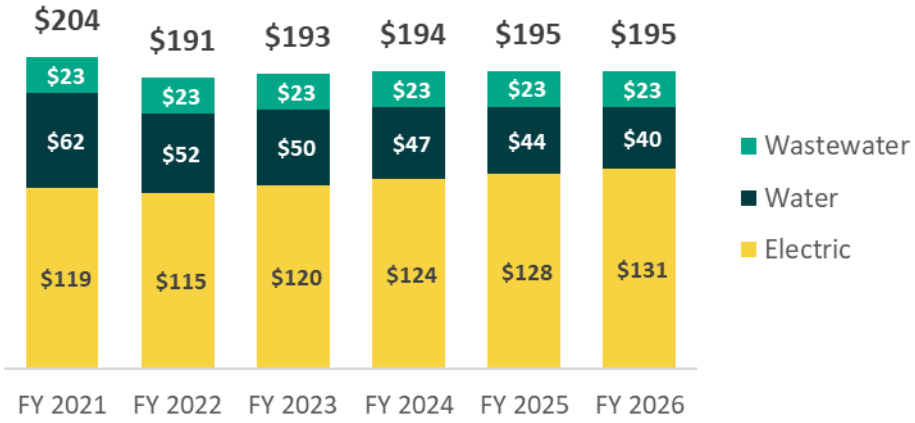
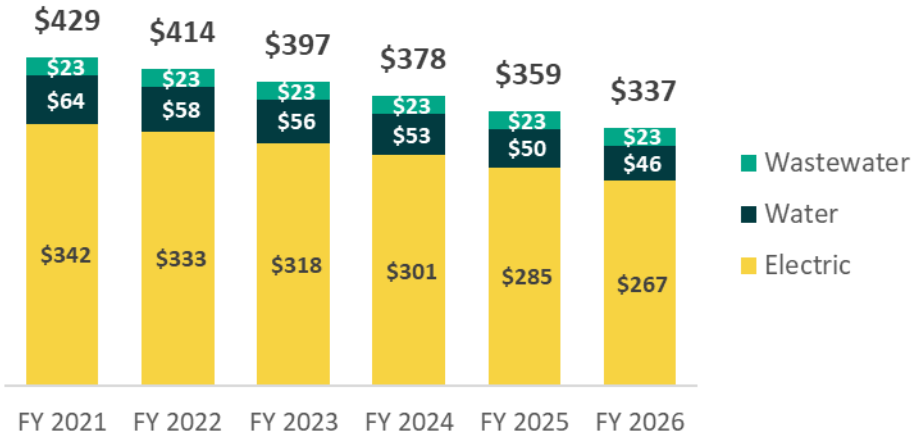
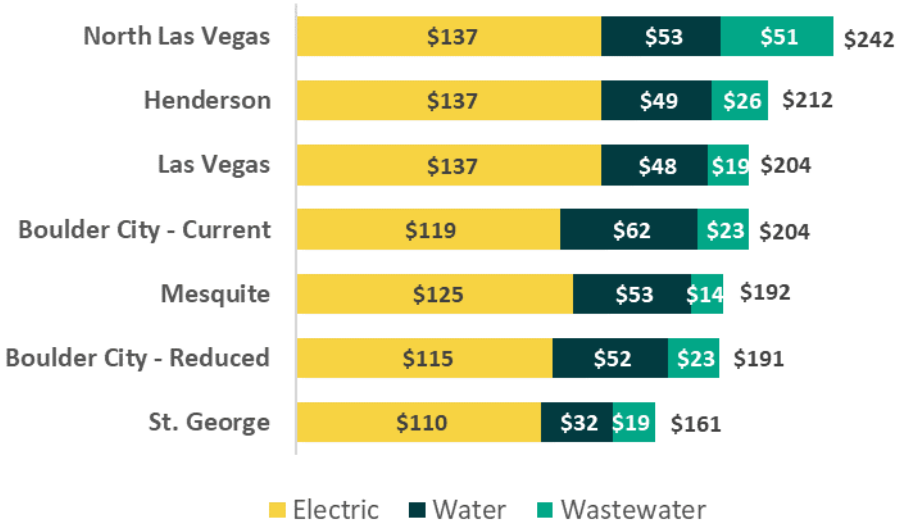


Figure 5 – Average Commercial Monthly Bill (3,000 kWh, ¾" Meter, 11,000 gallons)



Raftelis also developed a comparison of the average residential bill in Boulder City, to what a customer with these same usage characteristics would pay in other neighboring communities. This is shown in **Figure 6**. Under the City's current rates, the average bill in Boulder City is lower than it would be in the other members of the Southern Nevada Water Authority (SNWA), primarily due to lower electric rates. After the recommended reductions, the water component of the bill would be more in line with the other SNWA communities, further lowering the Boulder City bill, relative to its neighbors. Also shown are the City of Mesquite, Nevada, which is more comparable in size to Boulder City; and St. George Utah, which provides all three services (electric, water and wastewater) at the municipal level. The reduced Boulder City bill would be comparable to Mesquite, but somewhat higher than St. George, primarily due to the difference in the water component of the bill.

Figure 6 – Bill Comparison Average Residential Customer (1,200 kWh, ¾" Meter, 10,000 gallons)[2]



[2] Based on rates currently in effect.

2. Introduction

In September 2019, the City of Boulder City (City) engaged Raftelis to conduct a comprehensive financial planning, cost of service and rate design study for the City's utility funds. The Raftelis Project Team worked closely with City staff over the past year to develop an in-depth understanding of each utility's finances and operations leading to the development of the recommendations contained in this report.

Following the Executive Summary and this Introduction, the report is organized into three major sections.

- **Section 3 overviews the Financial Plan**. The primary objective of the financial plan is to identify the level of revenues necessary to fund ongoing operations and capital repair and replacement in a financially sustainable manner.

- **Section 4 describes the Cost of Service Analysis**. The primary objective of the cost of service analysis is to determine each customer class's share of the cost service based on the demands they place on the City's electric, water and wastewater systems.

- **Section 5 presents our Rate Recommendations**. The key objective of rate design is to develop rates which will recover the level of revenues identified in the financial plan and are reasonable in relation to the cost of service provided to the various classes of customers and will achieve the policy objectives of the City.

It should also be noted that in March 2020 which included the State of Emergency declared by the Governor of Nevada on March 12, 2020 affected the conduct of this project and the ability of the Project Team to interact with City Staff and the Utility Advisory Committee (UAC). As such, work on the project was paused for several months before work could be completed culminating in a joint workshop with the City Council and UAC on October 7, 2020 and this report.

During the course of this project, the City provided Raftelis with a variety of technical information, including but not limited to: the results of the City's utility condition assessments, audited and unaudited financial results, customer billing data, and cost and revenue data. Raftelis did not independently assess or test the accuracy of such data – historic or projected. We have relied on this data in the formulation of our findings and subsequent recommendations, as well as in the preparation of this report. As is often the case, there will be differences between actual and projected data, and some of the assumptions used in this report will not be realized. In addition, unanticipated events and circumstances may occur. Therefore, there are likely to be differences between the data or results projected in this report and actual results achieved and those differences may be material. As such, we take no responsibility for the accuracy of data or projections provided by or prepared on behalf of the City, nor do we have any responsibility for updating this report for events occurring after the date of this report.

3. Financial Plans

3.1. Background

3.1.1. UTILITY FUND STRUCTURE AND TRANSFERS

The financial operations of Boulder City's four utilities are structured in four separate funds:

1. Electric
2. Water
3. Wastewater
4. Solid Waste

In addition, the overall administration of the utilities is maintained within its own fund (Utilities Administration). The costs for utilities administration include the salaries and benefits for utility staff that manage all 4 utilities, as well as an annual transfer of cash to the City's general fund to recognize costs that are incurred to support the utility funds but are budgeted and incurred within the general fund. In addition, the utility funds are directly assigned a portion of the salaries and benefits costs of Public Works employees who spend a portion of their time directly on utility issues.

The City's financial operations are reported on a fiscal year basis running from July 1 through June 30 of the following calendar year.[3] The most recent financial audit covered the fiscal year ended June 30, 2019. (FY 2019). In addition to reviewing the prior year financial audits, our analyses also utilized the City's Budgets for FY 2020 and FY 2021.

3.1.2. UTILITY FUND BALANCES

Restricted Reserve Funds

The City's utilities have several restricted reserve funds which can be used to support utility operations under certain circumstances. While some reserve funds are utility specific, others represent a total for all four utilities. In order to develop individual utility specific financial plans, these funds were divided between the utilities based on actual revenues, as noted below.

The balance of each fund as of 6/30/2020, along with its restrictions and the method used to allocate it (where applicable) is indicated below.

Emergency Capital Reserve ($5 Million). The emergency capital reserve can only be used in the event of a failure of a critical component of utility infrastructure such as a large water main break or a substation failure. This reserve is not utility specific. In order to develop individual utility financial plans this amount was allocated to each utility based on FY 2019 actual revenues. That said, the full amount of the reserve is available for use by any of the utilities in the event of an emergency.

Rate Stabilization Reserve ($3.0 Million). The rate stabilization reserve can only be used in the event of large increases in wholesale utility costs. The required funding for the reserve is $3 Million. Currently, only the electric and water utilities have wholesale utility costs. Accordingly, the balance of this reserve was allocated between the

[3] Throughout this report the years shown refer to the calendar year in which that fiscal year ends. For example, "FY 2021" refers to the current fiscal year which began on July 1, 2020 and will end on June 30, 2021.

electric and water utilities based on FY 2019 actual revenues. Similar to the emergency capital reserve, the full amount is accessible by either utility (water or electric).

Bond Reserve ($2.3 Million). The bond reserve was required as part of the trust indenture associated with the bonds issued by the City to fund the raw water transmission line. That debt was recently refunded, and the bond reserve requirement removed. Accordingly, the use of these funds is unrestricted. The funds are specific to the water utility. As part of the development of the financial plan, Raftelis has applied these funds to pay off a portion of the bonds early, reducing the interest payments which would otherwise be required on those bonds.

Redevelopment Area (RDA) Reserve ($0.9 Million). The source of these funds is external to utilities. They are not utility specific and have been allocated based on FY 2019 actual revenues. They can only be used on capital improvements in the "redevelopment area" of the City. No such projects have been identified in the City's capital improvement program (CIP).

Landfill Closure Fund ($1.4 Million). The source of these funds is a $0.50 per account charge[4] for the solid waste fund. It represents a set aside to meet future regulatory requirements related to closing the City's landfill.

Landfill Construction Fund ($1.2 Million). The source of these funds is a $1.00 per account charge[5] for the solid waste fund. It can only be used for necessary improvements to the City's landfill.

Unrestricted Fund Balance

Unrestricted fund balance represents utility funds that can be used to fund any utility expenditure when current expenses (operating or capital) exceed current revenues. It will generally be used when current revenues, after accounting for operating expenses and debt service, are insufficient to fund capital projects. Even though these funds are not restricted, City policy requires the utility funds to "strive to maintain" at least 20% of budgeted operating expenses. These balances are tracked by utility and the fund balances were provided by the City. The unrestricted fund balance totaled $30.6 Million as of 6/30/2020, which represents 158% of FY 2021 projected operating expenditures. As described in detail in **Section 2**, the recommendations included in this report—if implemented—are projected to reduce this balance to 108% over the next 5 years.

3.1.3. FINANCIAL PLANNING PROCESS

The primary objective of financial planning involves comparing forecasted utility revenues under existing rates to forecasted expenditures and determining what annual adjustments to revenues are necessary to ensure the financial sustainability of the utilities going forward. This involves four steps:

1. Forecast revenue under existing rates
2. Forecast utility operating expenses
3. Develop a capital improvement financing plan
4. Evaluate the sufficiency of existing revenues to fund utility expenditures in a financially sustainable fashion

Evaluating financial sustainability involves two key financial performance metrics: unrestricted fund balance as a % of utility operating expenditures, and debt service coverage.

---

[4] This charge is referred to as the "Landfill Maintenance Fee" on customer bills. The term "Landfill Closure Fund" refers to the description used by the City's finance department to account for these funds.

[5] This charge is referred to as the "Landfill Construction Fee" on customer bills. The term "Landfill Construction Fund" refers to the description used by the City's finance department to account for these funds.

Unrestricted Fund Balance as a % of Utility Operating Expenses is a measure of the ability of the utility to deal with unanticipated declines in revenue or emergency expenditures without reducing service quality or dramatically increasing rates. It is determined by dividing the dollar amount of unrestricted fund balance by projected operating expenditures. As noted above, City policy requires that the utilities "strive to maintain" a balance of at least 20%. That said, it is not uncommon for utilities to maintain balances much higher than this minimum. Utilities with the strongest ratings from debt rating agencies (S&P, Fitch and Moody's) frequently maintain balances of 100% of annual operating expenses. The City's 20% policy is in line with what we would typically recommend as an appropriate *minimum* balance.

Debt Service Coverage is a measure of a utility's ability to support ongoing operations and repay bondholders, with room to spare. A typical ratio is calculated by dividing net revenues (revenues, less operating expenses) by annual principal and interest payments. A ratio above 1 indicates that current net revenues (operating revenues less expenses) are sufficient to meet current debt service obligations with room to spare for unforeseen emergencies. A ratio of less than 1 would mean that the utility does not have sufficient current revenues to cover operating expenses and meet debt service payment obligations.

The only outstanding utility debt for the City relates to the raw water line. The coverage requirements for the City's debt are somewhat unique in that gross revenues are divided by operating expenses *plus* debt service. The minimum requirement for the City is 1.25 times. In other words, total utility revenues must be at least 125% of the annual principal and interest payments on the raw water line debt plus utility operating expenses. This is a more restrictive covenant in the sense that the City agreed with its bondholders to set rates to provide a factor of safety on operating expenses in addition to debt service. While coverage is an important consideration for the City, it is only critical if the City intends to issue additional revenue bonds in the future. It is our understanding that the raw water line debt was an exception to a general policy of funding utility capital improvements out of existing revenues or unrestricted fund balance, also referred to as a "pay as you go" (PAYGO) capital financing policy[6].

3.2. Step 1 – Revenue Under Existing Rates

Determining revenue under the City's existing rate levels is the first step in developing the financial plan. These revenues form the baseline (i.e., in the absence of any action to adjust rates) against which projected expenditures are compared. Step 1 asks the question: "what would our revenues be, if we did not take any action to adjust rates?"

3.2.1. FORECAST OF CUSTOMER ACCOUNTS

Tables 1, 2, and 3 indicate the forecast of electric, water, and wastewater accounts. The historical data for each utility are summarized from detailed billing records provided by the City. Due to a conversion in billing systems in 2016, reliable historical billing data are only available from FY 2017 onward. Historically, the City has restricted new development within the City. The projections below assume a 0.5% per year increase in residential accounts.

[6] It is also important to note that the City desires to retire the debt as quickly as possible. Accordingly, the plan assumes that the City will make additional principal payments of $600,000 per year in addition to making the required principal and interest payments. In addition, the City also plans to use the bond reserve, which was unrestricted following the most recent refunding, to make an additional $2.3 million payment. See the "Water Utility Cash Flows" section for additional discussion.

Table 1 – Electric Account Forecast

Description	Historical FY 2017	Historical FY 2018	Historical FY 2019	Estimated FY 2020	Forecast FY 2021	Forecast FY 2022	Forecast FY 2023	Forecast FY 2024	Forecast FY 2025	Forecast FY 2026
Residential	6,949	6,955	6,990	6,990	7,025	7,060	7,095	7,131	7,167	7,202
Residential - Master Meter	3	2	2	2	2	2	2	2	2	2
Commercial - <300 kW	906	909	916	916	916	916	916	916	916	916
Commercial - >300 kW	8	8	8	8	8	8	8	8	8	8
Time of Use - <600V	1	1	1	1	1	1	1	1	1	1
Time of Use - >2,400V	1	1	1	1	1	1	1	1	1	1
Boulder City Hospital	1	1	1	1	1	1	1	1	1	1
City	105	108	108	108	108	108	108	108	108	108
Area Lighting	311	311	311	311	311	311	311	311	311	311
Sportsfield Lighting	1	1	1	1	1	1	1	1	1	1
Grand Total Accounts	**8,286**	**8,297**	**8,339**	**8,339**	**8,374**	**8,409**	**8,444**	**8,480**	**8,516**	**8,551**

Table 2 – Water Account Forecast

Description	Historical FY 2017	Historical FY 2018	Historical FY 2019	Estimated FY 2020	Forecast FY 2021	Forecast FY 2022	Forecast FY 2023	Forecast FY 2024	Forecast FY 2025	Forecast FY 2026
Residential - Single Family	5,133	5,154	5,205	5,205	5,231	5,257	5,283	5,310	5,336	5,363
Residential - Multi-Family	1,807	1,898	2,053	2,053	2,063	2,074	2,084	2,094	2,105	2,115
Commercial - Potable	420	419	431	431	431	431	431	431	431	431
Cascata - Potable	1	1	1	1	1	1	1	1	1	1
City - Potable (Golf Course)	8	8	8	8	8	8	8	8	8	8
City - Potable (All Other)	118	119	118	118	118	118	118	118	118	118
Commercial - Raw	6	6	6	6	6	6	6	6	6	6
Cascata - Raw	2	2	2	2	2	2	2	2	2	2
City - Raw (Golf Course)	4	4	4	4	4	4	4	4	4	4
City - Raw (All Other)	24	24	24	24	24	24	24	24	24	24
Grand Total	**7,523**	**7,635**	**7,852**	**7,852**	**7,888**	**7,925**	**7,961**	**7,998**	**8,035**	**8,072**

Table 3 – Wastewater Account Forecast

Description	Historical FY 2017	Historical FY 2018	Historical FY 2019	Estimated FY 2020	Forecast FY 2021	Forecast FY 2022	Forecast FY 2023	Forecast FY 2024	Forecast FY 2025	Forecast FY 2026
Residential - Single Family	5,095	5,114	5,161	5,161	5,187	5,213	5,239	5,265	5,291	5,318
Residential - Multi-Family	1,399	1,523	1,686	1,686	1,694	1,703	1,711	1,720	1,729	1,737
Commercial	361	364	363	363	363	363	363	363	363	363
City	10	11	11	11	11	11	11	11	11	11
Grand Total	**6,865**	**7,012**	**7,221**	**7,221**	**7,255**	**7,290**	**7,324**	**7,359**	**7,394**	**7,429**

3.2.2. FORECAST OF CUSTOMER USAGE

Tables 4, 5, 6 and 7 present historical and projected electric, water, and wastewater usage[7]. FY 2020 electric usage was estimated based on a multi-year average for each class. Water and wastewater usage were forecast based on FY 2019 actuals. In addition, we have assumed a 0.5% per year decline in electric, water and wastewater usage to reflect a continuation of increased fixture and appliance efficiency and customer conservation.

Table 4 – Electric Energy Usage Forecast (kWh)

Description	Historical FY 2017	Historical FY 2018	Historical FY 2019	Estimated FY 2020	Forecast FY 2021	Forecast FY 2022	Forecast FY 2023	Forecast FY 2024	Forecast FY 2025	Forecast FY 2026
Residential	93,836,346	92,101,124	93,709,628	93,215,699	92,749,621	92,285,873	91,824,443	91,365,321	90,908,495	90,453,952
Residential - Master Meter	3,352,680	3,147,480	3,190,320	3,230,160	3,214,009	3,197,939	3,181,949	3,166,040	3,150,210	3,134,458
Commercial - <300 kW	32,517,135	32,108,230	32,480,294	32,368,553	32,206,710	32,045,677	31,885,448	31,726,021	31,567,391	31,409,554
Commercial - >300 kW	8,042,200	8,523,720	8,337,220	8,301,047	8,259,541	8,218,244	8,177,153	8,136,267	8,095,585	8,055,107
Time of Use - <600V	2,571,600	2,389,600	2,525,600	2,495,600	2,483,122	2,470,706	2,458,353	2,446,061	2,433,831	2,421,662
Time of Use - >2,400V	3,425,400	3,488,400	3,357,000	3,423,600	3,406,482	3,389,450	3,372,502	3,355,640	3,338,862	3,322,167
Boulder City Hospital	2,495,200	2,449,400	2,423,800	2,456,133	2,443,853	2,431,633	2,419,475	2,407,378	2,395,341	2,383,364
City	5,406,626	5,805,127	6,123,354	5,964,241	5,934,419	5,904,747	5,875,223	5,845,847	5,816,618	5,787,535
Area Lighting	-	-	-	-	-	-	-	-	-	-
Sportsfield Lighting	3,680	1,920	2,440	2,680	2,667	2,653	2,640	2,627	2,614	2,601
Grand Total Usage	**151,650,867**	**150,015,001**	**152,149,656**	**151,457,713**	**150,700,424**	**149,946,922**	**149,197,188**	**148,451,202**	**147,708,946**	**146,970,401**

[7] Wastewater usage is currently based on water usage for commercial customers. Residential customers are not billed based on usage. Wastewater volumes shown for residential customers are based on average winter water usage.

Table 5 – Electric Power Demand Forecast (kW)

Description	Historical FY 2017	Historical FY 2018	Historical FY 2019	Estimated FY 2020	Forecast FY 2021	Forecast FY 2022	Forecast FY 2023	Forecast FY 2024	Forecast FY 2025	Forecast FY 2026
Commercial - <300 kW	101,560	102,199	100,081	101,280	100,774	100,270	99,768	99,269	98,773	98,279
Commercial - >300 kW	21,526	20,383	20,426	20,405	20,303	20,201	20,100	20,000	19,900	19,800
Time of Use - <600V	18	2,379	9,192	5,785	5,756	5,728	5,699	5,670	5,642	5,614
Time of Use - >2,400V	10,515	10,028	11,165	10,597	10,544	10,491	10,438	10,386	10,334	10,283
Grand Total Demand	**133,619**	**134,989**	**140,864**	**138,066**	**137,376**	**136,689**	**136,006**	**135,326**	**134,649**	**133,976**

Table 6 – Water Usage Forecast (1,000 gal)

Description	Historical FY 2017	Historical FY 2018	Historical FY 2019	Estimated FY 2020	Forecast FY 2021	Forecast FY 2022	Forecast FY 2023	Forecast FY 2024	Forecast FY 2025	Forecast FY 2026
Residential - Single Family	952,649	934,406	893,991	893,991	889,521	885,073	880,648	876,245	871,864	867,504
Residential - Multi-Family	182,309	175,307	169,427	169,427	168,580	167,737	166,898	166,064	165,233	164,407
Commercial - Potable	494,744	482,729	448,069	448,069	445,829	443,600	441,382	439,175	436,979	434,794
Cascata - Potable	1,303	967	956	956	951	946	942	937	932	928
City - Potable (Golf Course)	366,353	417,537	300,347	300,347	298,845	297,351	295,864	294,385	292,913	291,448
City - Potable (All Other)	146,763	142,648	135,745	135,745	135,066	134,391	133,719	133,050	132,385	131,723
Commercial - Raw	139,601	128,181	134,580	134,580	133,907	133,238	132,571	131,909	131,249	130,593
Cascata - Raw	307,655	321,034	297,552	297,552	296,064	294,584	293,111	291,645	290,187	288,736
City - Raw (Golf Course)	472,719	513,089	438,389	438,389	436,197	434,016	431,846	429,687	427,538	425,401
City - Raw (All Other)	185,589	194,628	160,090	160,090	159,290	158,493	157,701	156,912	156,128	155,347
Grand Total	**3,249,685**	**3,310,526**	**2,979,146**	**2,979,146**	**2,964,250**	**2,949,429**	**2,934,682**	**2,920,008**	**2,905,408**	**2,890,881**

Table 7 – Wastewater Usage Forecast (1,000 gal)

Description	Historical FY 2017	Historical FY 2018	Historical FY 2019	Estimated FY 2020	Forecast FY 2021	Forecast FY 2022	Forecast FY 2023	Forecast FY 2024	Forecast FY 2025	Forecast FY 2026
Residential - Single Family	608,380	643,384	614,076	614,076	611,006	607,951	604,911	601,886	598,877	595,882
Residential - Multi-Family	116,976	118,765	114,993	114,993	114,418	113,846	113,277	112,710	112,147	111,586
Commercial	138,495	139,376	128,220	128,220	127,579	126,941	126,306	125,675	125,046	124,421
City	1,645	1,996	1,832	1,832	1,823	1,814	1,805	1,796	1,787	1,778
Grand Total	**865,496**	**903,521**	**859,121**	**859,121**	**854,825**	**850,551**	**846,299**	**842,067**	**837,857**	**833,667**

Table 8 below indicates annual per capita water usage based on City billing data and population estimates for the City. As indicated, City customers use a significant amount of water per person, much of which is used for outdoor watering. The Southern Nevada Water Authority (SNWA) has established a desired 2035 target of 105 gallons per person per day for the communities it serves. Even though the City represents a small proportion of the water distributed by SNWA, it is possible that prior to 2035 the City may need to put in place policies to achieve further reductions in per capita water consumption.

Table 8 – Per Capita Water Usage (1,000 gal)

Description	Usage (1,000 gal)		Population	Per Capita Daily Usage (Gallons)	
	FY 2018	FY 2019		FY 2018	FY 2019
Annual					
Residential	1,109,713	1,063,418	15,977	190	182
Potable (Non-Residential)	1,043,881	885,117	15,977	179	152
Raw (Non-Residential)	1,156,932	1,030,611	15,977	198	177
Combined Annual	**3,310,526**	**2,979,146**	**15,977**	**568**	**511**
Spring					
Residential	200,197	185,792	15,977	136	126
Potable (Non-Residential)	188,304	150,017	15,977	128	102
Raw (Non-Residential)	214,150	182,915	15,977	146	124
Combined Spring	**602,651**	**518,724**	**15,977**	**410**	**353**
Summer					
Residential	370,508	339,955	15,977	252	231
Potable (Non-Residential)	384,006	342,699	15,977	261	233
Raw (Non-Residential)	418,638	379,697	15,977	285	258
Combined Summer	**1,173,152**	**1,062,351**	**15,977**	**798**	**723**
Fall					
Residential	341,090	347,006	15,977	232	236
Potable (Non-Residential)	318,945	288,856	15,977	217	197
Raw (Non-Residential)	375,957	350,126	15,977	256	238
Combined Fall	**1,035,992**	**985,988**	**15,977**	**705**	**671**
Winter					
Residential	197,918	190,665	15,977	138	133
Potable (Non-Residential)	152,626	103,545	15,977	106	72
Raw (Non-Residential)	148,187	117,873	15,977	103	82
Combined Winter	**498,731**	**412,083**	**15,977**	**347**	**287**

Source: City provided billing data, United States Census Bureau (American Communities Survey)

3.2.3. FORECAST OF REVENUE UNDER EXISTING RATES

A critical step in developing the utility financial plan is to evaluate revenues under existing rates. In other words, given customer demand, what can the utility expect to receive in revenues if rates remain the same. These projected revenues are then compared to projected expenditures to determine if any adjustments are needed to maintain financial sustainability.

Tables 9, 10, and 11 present historical and projected revenues for the City's electric, water, and wastewater utilities. The projected revenues are based on the current rate schedules and are projected to decline slightly over the forecast period due to assumed declines in customer usage. These projections are in line with the preliminary unaudited

actual rate revenues for FY 2020 which are $16.9 million, $11.6 million and $2.3 million for electric, water[8] and wastewater, respectively.

Table 9 – Forecast Electric Revenues Under Existing Rates

Description	Historical FY 2018	Historical FY 2019	Estimated FY 2020	Forecast FY 2021	Forecast FY 2022	Forecast FY 2023	Forecast FY 2024	Forecast FY 2025	Forecast FY 2026
Residential	$ 9,511,600	$ 9,667,900	$ 9,625,400	$ 9,585,700	$ 9,546,200	$ 9,506,900	$ 9,467,900	$ 9,429,100	$ 9,390,600
Residential - Master Meter	350,600	355,300	359,700	358,000	356,200	354,400	352,600	350,900	349,100
Commercial - <300 kW	3,990,200	4,110,100	4,110,900	4,091,100	4,071,500	4,052,000	4,032,500	4,013,200	3,994,000
Commercial - >300 kW	1,194,700	1,199,300	1,194,300	1,188,400	1,182,500	1,176,600	1,170,700	1,164,900	1,159,100
Time of Use - <600V	355,000	432,400	402,900	400,900	398,900	397,000	395,000	393,000	391,100
Time of Use - >2,400V	543,300	554,200	560,100	557,300	554,500	551,800	549,000	546,300	543,600
Boulder City Hospital	218,500	221,600	224,500	223,400	222,300	221,200	220,100	219,000	217,900
City	165,600	249,900	243,800	242,600	241,500	240,300	239,200	238,100	236,900
Area Lighting	33,300	34,200	34,200	34,200	34,200	34,200	34,200	34,200	34,200
Sportsfield Lighting	800	900	900	900	900	900	900	900	900
Total Rate Revenue	**$ 16,363,600**	**$ 16,825,800**	**$ 16,756,700**	**$ 16,682,500**	**$ 16,608,700**	**$ 16,535,300**	**$ 16,462,100**	**$ 16,389,600**	**$ 16,317,400**
Non-Rate Revenue	**$ 252,600**	**$ 272,400**	**$ 165,000**	**$ 145,000**	**$ 210,000**	**$ 210,000**	**$ 210,000**	**$ 210,000**	**$ 210,000**
Grand Total Revenue	**$ 16,616,200**	**$ 17,098,200**	**$ 16,921,700**	**$ 16,827,500**	**$ 16,818,700**	**$ 16,745,300**	**$ 16,672,100**	**$ 16,599,600**	**$ 16,527,400**

Table 10 – Forecast of Water Revenues Under Existing Rates

Description	Historical FY 2018	Historical FY 2019	Estimated FY 2020	Forecast FY 2021	Forecast FY 2022	Forecast FY 2023	Forecast FY 2024	Forecast FY 2025	Forecast FY 2026
Residential - Single Family	$ 4,112,600	$ 4,732,100	$ 4,732,100	$ 4,732,500	$ 4,733,000	$ 4,733,600	$ 4,734,300	$ 4,735,100	$ 4,736,100
Residential - Multi-Family	1,118,500	1,345,800	1,345,800	1,348,300	1,350,800	1,353,400	1,356,100	1,358,700	1,361,400
Commercial - Potable	1,912,600	2,120,000	2,120,000	2,112,400	2,104,800	2,097,300	2,089,800	2,082,300	2,074,900
Cascata - Potable	3,900	4,200	5,700	5,600	5,600	5,600	5,600	5,600	5,600
City - Potable (Golf Course)	410,500	318,400	357,500	356,000	354,500	353,100	351,600	350,100	348,700
City - Potable (All Other)	380,800	414,200	431,900	431,200	430,500	429,900	429,200	428,600	427,900
Commercial - Raw	408,000	497,400	497,400	495,300	493,100	491,000	488,900	486,900	484,800
Cascata - Raw	705,500	664,700	1,119,900	1,114,600	1,109,300	1,104,000	1,098,700	1,093,500	1,088,300
City - Raw (Golf Course)	386,100	346,400	390,300	388,600	387,000	385,400	383,800	382,100	380,500
City - Raw (All Other)	265,200	266,300	282,300	281,700	281,100	280,500	279,900	279,400	278,800
Total Rate Revenue	**$ 9,703,700**	**$ 10,709,500**	**$ 11,282,900**	**$ 11,266,200**	**$ 11,249,700**	**$ 11,233,800**	**$ 11,217,900**	**$ 11,202,300**	**$ 11,187,000**
Contract Revenue	**$ 108,900**	**$ 282,400**	**$ 282,400**	**$ 281,100**	**$ 279,800**	**$ 278,500**	**$ 277,300**	**$ 276,000**	**$ 274,800**
Non-Rate Revenue	**$ 305,600**	**$ 508,800**	**$ 55,600**	**$ 255,600**	**$ 255,600**	**$ 255,600**	**$ 255,600**	**$ 255,600**	**$ 255,600**
Grand Total Revenue	**$ 10,118,200**	**$ 11,500,700**	**$ 11,620,900**	**$ 11,802,900**	**$ 11,785,100**	**$ 11,767,900**	**$ 11,750,800**	**$ 11,733,900**	**$ 11,717,400**

Table 11 – Forecast of Wastewater Revenues Under Existing Rates

Description	Historical FY 2018	Historical FY 2019	Estimated FY 2020	Forecast FY 2021	Forecast FY 2022	Forecast FY 2023	Forecast FY 2024	Forecast FY 2025	Forecast FY 2026
Residential - Single Family	$ 1,230,400	$ 1,452,900	$ 1,452,900	$ 1,460,200	$ 1,467,500	$ 1,474,800	$ 1,482,200	$ 1,489,600	$ 1,497,100
Residential - Multi-Family	366,400	474,600	474,600	477,000	479,400	481,800	484,200	486,600	489,100
Commercial	269,700	292,100	292,100	291,100	290,200	289,200	288,300	287,400	286,400
City	3,800	4,200	4,200	4,200	4,200	4,200	4,200	4,200	4,200
Total Rate Revenue	**$ 1,870,300**	**$ 2,223,800**	**$ 2,223,800**	**$ 2,232,500**	**$ 2,241,300**	**$ 2,250,000**	**$ 2,258,900**	**$ 2,267,800**	**$ 2,276,800**
Non-Rate Revenue	**$ 96,700**	**$ 116,000**	**$ 6,000**	**$ 40,000**	**$ 40,000**	**$ 40,000**	**$ 40,000**	**$ 40,000**	**$ 40,000**
Grand Total Revenue	**$ 1,967,000**	**$ 2,339,800**	**$ 2,229,800**	**$ 2,272,500**	**$ 2,281,300**	**$ 2,290,000**	**$ 2,298,900**	**$ 2,307,800**	**$ 2,316,800**

3.3. Step 2 – Forecast Operating Expenditures

Operation and Maintenance (O&M) expenses are those which the utility incurs on a consistent day to day basis and which generally do not involve the study, design or construction of a capital asset. Excluding purchased power and purchased water, O&M expenses for FY 2021 are based on the City's approved budgets.

[8] Note that contract effluent revenues are broken out separately for water. The appropriate comparison against FY 2020 actuals would be rate revenues ($11.3 million) and contract effluent revenues ($0.3 million), or $11.6 million total.

The cost of purchased power was forecast by applying a 5% line loss factor to our projection of retail electric sales and multiplying by average cost per kilowatt hour projections provided by the Colorado River Commission.

Purchased water cost was calculated using the current charges from the Southern Nevada Water Authority (SNWA). The City's share of expansion debt service was held constant. The volumetric cost of SNWA water was calculated by applying a 10% loss factor to the retail potable and raw usage and multiplying by the SNWA rate per acre foot, which is assumed to increase at 5% per year[9]. The Infrastructure Planning and Advisory Committee (IRPAC) charge per meter was held constant. This cost is now included as direct pass-through charge (the "SNWA Charges") on customer bills. It is our understanding that if and when any increases in this charge occur, they will be reflected directly on customer bills.

The forecasted expenses for FY 2022 and beyond are generally based on the *preliminary* FY 2021 budget received in February, plus inflation[10]. Subsequent to the preliminary budget, the City considered the near term fiscal impacts of the COVID-19 pandemic and made appropriate reductions in the preliminary budget resulting in the adopted FY 2021 budget. Rather than project the reduced budget forward, which could result in an understatement of future expenses, the projections for FY 2022 and beyond have been based on the FY 2021 preliminary budget (i.e., before the COVID-19 related reductions).

In addition, adjustments were made to the maintenance and equipment category of expenses and technical and professional expenses. Maintenance and equipment expenses for water and wastewater were increased to reflect a more normalized level of expenditures going forward. Technical and professional expenses were increased in FY 2025 to reflect another round of condition assessments, and in FY 2026 to reflect another rate study.

As noted above, the City's Utilities Administration Fund includes the internal utility expenses incurred to support all 4 utilities, as well as a transfer to the City's General Fund to recover costs budgeted within the General Fund but incurred to support all 4 utilities. These transfers are shown throughout this report as "Fund 60." "UT Admin Billing," is an internal utility fund cost which represents the cost of providing meter reading, billing, collection and customers service to all four utilities. "UT Admin All Other" represents the internal utility fund cost of utility employees and supplies related to the management of all four utilities. "GF Central Services" represents the cost of services provided by the general fund to the utility fund[11].

Tables 12, 13, and 14 show the forecasted O&M expenses for the electric, water, and wastewater utilities. Please note that theses tables display the budget in summary categories. A reconciliation to the City's detailed FY 21 budget can be found in **Appendices A1 through A3**.

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[9] A January 29, 2020 SNWA presentation indicated long-run estimated increases of 1.5 to 4.5 percent per year for the wholesale delivery charge (i.e., per acre foot charge). The 5% used in our projections provides an additional factor of safety beyond these projections.

[10]Personnel costs (excluding health insurance), assumed to increase at 7% per year, are reflective of annual cost of living and step adjustments typically received by utility employees. Health insurance is assumed to increase at 5.5% per year. All other operating expenses were forecast to increase at 2.21% per year, which represents the three-year compounded average annual growth rate of the Consumer Price Index for All Urban Consumers (CPI-U) from the United States Bureau of Labor Statistics for FY 17 to FY 19.

[11] This includes costs related to the City Manager, City Attorney, financial staff, human resources etc, all of which are incurred at the general fund level to support utility operations.

Table 12 – Forecast of Electric O&M Expenses

Summary Category	Note	Budget FY 2021	Forecast FY 2022	Forecast FY 2023	Forecast FY 2024	Forecast FY 2025	Forecast FY 2026
Purchased Power	1	$ 5,221,500	$ 5,326,100	$ 5,208,400	$ 5,598,200	$ 5,581,000	$ 5,697,200
Maintenance and Equipment	2	966,900	1,217,200	1,242,700	1,268,800	1,295,500	1,322,700
Personnel	2	1,837,700	2,135,900	2,282,900	2,440,000	2,608,100	2,787,700
Technical and Professional	2, 3	100,000	137,800	140,700	143,700	350,000	270,000
Supplies	2	285,400	405,100	413,600	422,300	431,200	440,200
Other		29,100	29,700	30,400	31,000	31,700	32,300
Fund 60 - UT Admin Billing	4	453,500	472,200	501,400	532,400	565,500	600,700
Fund 60 - UT Admin All Other	5	692,100	670,200	710,800	754,100	800,400	849,700
Fund 60 - GF Central Services	6	584,300	584,300	584,300	584,300	584,300	584,300
Grand Total		**$ 10,170,500**	**$ 10,978,500**	**$ 11,115,200**	**$ 11,774,800**	**$ 12,247,700**	**$ 12,584,800**

(1) Average cost per kWh projections from Colorado River Commission and projected sales + 5% loss factor.
(2) FY 22 increase restores funding that was reduced in FY 21 due to COVID-19
(3) Increases in FY25 and FY26 for condition assessments and rate study.
(4) Internal utilities administration costs (billing/CS), net of utilities admin misc. revenue
(5) Internal utilities administration costs (all other), net of utilities admin misc. revenue
(6) General Fund Central Services Fee

Table 13 – Forecast of Water O&M Expenses

Summary Category	Note	Budget FY 2021	Forecast FY 2022	Forecast FY 2023	Forecast FY 2024	Forecast FY 2025	Forecast FY 2026
Purchased Water	1	$ 4,491,600	$ 4,632,100	$ 4,778,800	$ 4,932,100	$ 5,092,200	$ 5,259,500
Maintenance and Equipment	2	588,900	850,000	867,900	886,100	904,700	923,700
Personnel	3	757,700	868,600	928,000	991,500	1,059,300	1,131,800
Technical and Professional	4	60,000	61,300	62,500	63,900	264,000	165,000
Supplies		32,800	33,500	34,200	34,900	35,600	36,400
Other		27,400	28,300	28,900	29,500	30,100	30,700
Fund 60 - UT Admin Billing	5	238,700	248,600	263,900	280,200	297,700	316,200
Fund 60 - UT Admin All Other	6	364,300	352,600	374,100	397,000	421,300	447,200
Fund 60 - GF Central Services	7	307,500	307,500	307,500	307,500	307,500	307,500
Grand Total		**$ 6,868,900**	**$ 7,382,500**	**$ 7,645,800**	**$ 7,922,700**	**$ 8,412,400**	**$ 8,618,000**

(1) Purchased water based on SNWA charges and projected sales + 10% loss factor
(2) FY 22 increase to normalized maintenance and equipment expenditures
(3) FY 22 increase restores funding that was reduced in FY 21 due to COVID-19
(4) Increases in FY25 and FY26 for condition assessments and rate study.
(5) Internal utilities administration costs (billing/CS), net of utilities admin misc. revenue
(6) Internal utilities administration costs (all other), net of utilities admin misc. revenue
(7) General Fund Central Services Fee

Table 14 – Forecast of Wastewater O&M Expenses

Summary Category	Note	Budget FY 2021	Forecast FY 2022	Forecast FY 2023	Forecast FY 2024	Forecast FY 2025	Forecast FY 2026
Maintenance and Equipment	1	$ 361,300	$ 500,000	$ 510,500	$ 521,200	$ 532,200	$ 543,300
Personnel	2	333,500	388,400	414,900	443,300	473,600	506,000
Technical and Professional	2, 3	28,500	54,600	55,800	56,900	258,000	75,000
Supplies		90,400	92,300	94,200	96,200	98,200	100,300
Other		4,400	4,600	4,700	4,800	4,900	5,000
Fund 60 - UT Admin Billing	4	79,600	82,900	88,000	93,400	99,200	105,400
Fund 60 - UT Admin All Other	5	121,400	117,500	124,700	132,300	140,500	149,100
Fund 60 - GF Central Services	6	102,500	102,500	102,500	102,500	102,500	102,500
Grand Total		**$ 1,121,600**	**$ 1,342,800**	**$ 1,395,300**	**$ 1,450,600**	**$ 1,709,100**	**$ 1,586,600**

(1) FY 22 increase to normalized maintenance and equipment expenditures
(2) FY 22 increase restores funding that was reduced in FY 21 due to COVID-19
(3) Increases in FY25 and FY26 for condition assessments and rate study.
(4) Internal utilities administration costs (billing/CS), net of utilities admin misc. revenue
(5) Internal utilities administration costs (all other), net of utilities admin misc. revenue
(6) General Fund Central Services Fee

3.4. Step 3 – Develop Capital Improvement Financing Plans

The City has developed a forward looking 5-year capital improvement plan (CIP) for each utility. In addition, the City has ongoing projects from previously approved CIPs that are underway and are anticipated to be completed in the current fiscal year.

Funding for both types of projects (new and ongoing) comes from both internal (i.e., utility fund sources) and external (City, non-utility fund) sources. The primary external sources of funding for capital improvement projects are revenues from land leased by the City to solar developers (Solar Lease Payments), the sale of land held by the City (Land Sales) and a quarter cent infrastructure sales tax levied by Clark County and distributed among the various water systems in the County. The voter approved revenues related to Solar Lease Payments and Land Sales will expire in FY 2023.

In the absence of these sources, increased funding from customer rates would be required to fund utility capital expenditures. When the external sources are not sufficient to fully fund utility capital projects in a given year, the City has historically relied on cash, or "pay as you go" (PAYGO), financing of capital improvement projects. PAYGO funding represents funding either from current revenues or unrestricted fund balance. Some communities use debt financing either through municipal debt markets or state revolving loan programs to finance capital improvement projects. Debt financing reduces the impact of large capital improvements in any given year, but ultimately represents a higher cost of financing because the funding must be paid back with interest.

Capital financing plans for the electric, water and wastewater utilities are presented in **Tables 15, 16 and 17**. Even though the capital financing plans are based on the City's approved CIP dated May 26, 2020, the capital financing plan examines the estimated cash flow required for both planned projects as well as the amounts remaining to be spent on ongoing projects. In addition, beginning in FY 2022 project costs have been escalated by 3% per cent per year to reflect construction cost inflation.

For reference, the detailed versions of each CIP (with and without construction cost inflation) are included in **Appendices A4 through A9**. Note that for the water utility, the sources of funding exceed the uses in certain years.

We have assumed that the difference will be used for future capital projects. For the water utility, the balance in each year is included in the "Construction Fund"[12] balances shown in **Tables 16, 23 and 29**.

Table 15 – Electric Utility Capital Improvement Financing Plan

Description	Note	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Sources of Capital Improvement Funding							
Solar Lease Revenue		$ -	$ -	$ -	$ -	$ -	$ -
Land Sales Revenue		1,900,000	600,000	1,300,000	-	-	-
Transfer from RDA Reserve		-	-	-	-	-	-
PAYGO	1	17,017,800	3,777,500	4,057,500	7,102,700	450,200	-
Other		$ -	$ -	$ -	$ -	$ -	$ -
Subtotal: CIP Sources		**$ 18,917,800**	**$ 4,377,500**	**$ 5,357,500**	**$ 7,102,700**	**$ 450,200**	**$ -**
Uses of Capital Improvement Funding							
Capital Improvements	2	$ 18,917,800	$ 4,377,500	$ 5,357,500	$ 7,102,700	$ 450,200	$ -
Other		-	-	-	-	-	-
Subtotal: CIP Uses		**$ 18,917,800**	**$ 4,377,500**	**$ 5,357,500**	**$ 7,102,700**	**$ 450,200**	**$ -**
Construction Fund Balance							
Beginning Balance		$ -	$ -	$ -	$ -	$ -	$ -
Annual Surplus/(Deficit)		-	-	-	-	-	-
Ending Balance		**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**

Source: City Capital Improvement Program (CIP) approved on 5/26/2020. Ongoing projects per City staff

(1) Capital Improvements, net of beginning balance, external sources of financing (i.e. solar lease, land sales)

(2) Please see detailed CIP in Appendix A for full project listing.

Table 16 – Water Utility Capital Improvement Financing Plan

Description	Note	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Sources of Capital Improvement Funding							
Solar Lease Revenue		$ 500,000	$ 500,000	$ -	$ -	$ -	$ -
Land Sales Revenue		110,000	350,000	360,000	-	-	-
Infrastructure Sales Tax		600,000	800,000	800,000	800,000	1,000,000	1,000,000
Transfer from RDA Reserve		-	-	-	-	-	-
PAYGO	1	881,500	-	-	274,500	-	-
Other		$ -	$ -	$ -	$ -	$ -	$ -
Subtotal: CIP Sources		**$ 2,091,500**	**$ 1,650,000**	**$ 1,160,000**	**$ 1,074,500**	**$ 1,000,000**	**$ 1,000,000**
Uses of Capital Improvement Funding							
Capital Improvements	2	$ 2,091,500	$ 1,451,900	$ 1,230,600	$ 1,202,000	$ 900,400	$ 695,600
Other		-	-	-	-	-	-
Subtotal: CIP Uses		**$ 2,091,500**	**$ 1,451,900**	**$ 1,230,600**	**$ 1,202,000**	**$ 900,400**	**$ 695,600**
Construction Fund Balance							
Beginning Balance		$ -	$ -	$ 198,100	$ 127,500	$ -	$ 99,600
Annual Surplus/(Deficit)		-	198,100	(70,600)	(127,500)	99,600	304,400
Ending Balance	**3**	**$ -**	**$ 198,100**	**$ 127,500**	**$ -**	**$ 99,600**	**$ 404,000**

Source: City Capital Improvement Program (CIP) approved on 5/26/2020. Ongoing projects per City staff.

(1) Capital Improvements, net of beginning balance, external sources of financing (i.e. solar, land, infrastructure sales tax)

(2) Please see detailed CIP in Appendix A for full project listing.

(3) Balance results when sources exceed uses in a given year due to project timing. Used for future capital projects.

[12] The City does not utilize a construction fund. The balance is intended to demonstrate that—to the extent that the sources of capital improvement funding for each utility exceed their uses in a given year—additional funds will be available to fund future capital projects.

Table 17 – Wastewater Utility Capital Improvement Financing Plan

Description	Note	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Sources of Capital Improvement Funding							
Solar Lease Revenue		$ -	$ -	$ -	$ -	$ -	$ -
Land Sales Revenue		340,000	300,000	647,000	-	-	-
Infrastructure Sales Tax		-	-	-	-	-	-
Transfer from RDA Reserve		-	-	-	-	-	-
PAYGO	1	790,000	884,500	1,125,800	1,244,100	679,800	1,263,600
Other		$ -	$ -	$ -	$ -	$ -	$ -
Subtotal: CIP Sources		**$ 1,130,000**	**$ 1,184,500**	**$ 1,772,800**	**$ 1,244,100**	**$ 679,800**	**$ 1,263,600**
Uses of Capital Improvement Funding							
Capital Improvements	2	$ 1,130,000	$ 1,184,500	$ 1,772,800	$ 1,244,100	$ 679,800	$ 1,263,600
Other		-	-	-	-	-	-
Subtotal: CIP Uses		**$ 1,130,000**	**$ 1,184,500**	**$ 1,772,800**	**$ 1,244,100**	**$ 679,800**	**$ 1,263,600**
Construction Fund Balance							
Beginning Balance		$ -	$ -	$ -	$ -	$ -	$ -
Annual Surplus/(Deficit)		-	-	-	-	-	-
Ending Balance		**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**

Source: City Capital Improvement Program (CIP) approved on 5/26/2020.

(1) Capital Improvements, net of beginning balance, external sources of financing (i.e. solar lease, land sales)

(2) Please see detailed CIP in Appendix A for full project listing.

3.5. Step 4 – Cash Flow and Revenue Sufficiency Analysis

3.5.1. ELECTRIC UTILITY CASH FLOWS

Table 18 indicates the electric utility cash flow projection under existing rate levels. As indicated, electric revenues plus the electric utility unrestricted fund balance are sufficient to meet current expenses. In FY 2021 projected expenditures will exceed projected revenues with the difference being funded through the use of the electric fund's unrestricted fund balance. City staff has indicated that capital expenditures over the next six years represent a period of catching up on projects from prior years which are just now being completed. Beyond FY 2025, capital expenditures are anticipated to stabilize at an annual amount of around $2 – 3 million, amounts which can be funded under existing rate revenues. In addition, the electric utility has access to the emergency capital reserve and the rate stabilization reserve, which can be used to address unanticipated capital expenditures or large increases in purchased power costs. For these reasons, we believe it would be reasonable to reduce the per kWh energy rates by 3%. Implementing this recommendation will reduce overall revenues, which include customer and demand charges, by approximately 2.7%[13].

Table 19 indicates the electric utility cash flow projection under the reduced rates. Even after reducing the energy rates the ending unrestricted fund balance will exceed the minimum 20% required by City policy. **Table 20** indicates the projected restricted and unrestricted fund balances under the reduced rates. As indicated, after reducing rates, the electric fund is projected to end FY 2026 with unrestricted fund balance of $12 million or 96% of operating expenditures.

[13] The revenue projections presented assume reduced rates are effective for bills rendered on, or after, July 1, 2021.

Table 18 – Electric Utility Cash Flows (Existing Revenues)

Description	Note	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Revenues							
Rate Revenues	1	$ 16,682,500	$ 16,608,700	$ 16,535,300	$ 16,462,100	$ 16,389,600	$ 16,317,400
Non-Rate Revenues	2	145,000	210,000	210,000	210,000	210,000	210,000
Total Revenues		**$ 16,827,500**	**$ 16,818,700**	**$ 16,745,300**	**$ 16,672,100**	**$ 16,599,600**	**$ 16,527,400**
Revenue Requirement							
Operation and Maintenance (O&M)							
Purchased Power	3	$ 5,221,500	$ 5,326,100	$ 5,208,400	$ 5,598,200	$ 5,581,000	$ 5,697,200
Maintenance and Equipment	4	966,900	1,217,200	1,242,700	1,268,800	1,295,500	1,322,700
Personnel	4	1,837,700	2,135,900	2,282,900	2,440,000	2,608,100	2,787,700
Technical and Professional	4, 5	100,000	137,800	140,700	143,700	350,000	270,000
Supplies	4	285,400	405,100	413,600	422,300	431,200	440,200
Other		29,100	29,700	30,400	31,000	31,700	32,300
Fund 60 - UT Admin Billing	6	453,500	472,200	501,400	532,400	565,500	600,700
Fund 60 - UT Admin All Other	7	692,100	670,200	710,800	754,100	800,400	849,700
Fund 60 - GF Central Services	8	584,300	584,300	584,300	584,300	584,300	584,300
Total O&M		**$ 10,170,500**	**$ 10,978,500**	**$ 11,115,200**	**$ 11,774,800**	**$ 12,247,700**	**$ 12,584,800**
Capital							
PAYGO Capital	9	$ 17,017,800	$ 3,777,500	$ 4,057,500	$ 7,102,700	$ 450,200	$ -
Total Capital		**$ 17,017,800**	**$ 3,777,500**	**$ 4,057,500**	**$ 7,102,700**	**$ 450,200**	**$ -**
Total Revenue Requirement		**$ 27,188,300**	**$ 14,756,000**	**$ 15,172,700**	**$ 18,877,500**	**$ 12,697,900**	**$ 12,584,800**
Financial Performance							
Beginning Unrestricted Fund Balance	10	$ 15,202,200	$ 4,841,400	$ 6,904,100	$ 8,476,700	$ 6,271,300	$ 10,173,000
Change in Unrestricted Fund Balance		(10,360,800)	2,062,700	1,572,600	(2,205,400)	3,901,700	3,942,600
Ending Unrestricted Fund Balance		**$ 4,841,400**	**$ 6,904,100**	**$ 8,476,700**	**$ 6,271,300**	**$ 10,173,000**	**$ 14,115,600**
% of O&M		**48%**	**63%**	**76%**	**53%**	**83%**	**112%**

(1) Calculated based on multi-year average of usage by customer class and City rates BEFORE recommended reduction
(2) Based on City FY 2021 Budget
(3) Average cost per kWh projections from Colorado River Commission and projected sales + line loss.
(4) FY 22 increase restores funding that was reduced in FY 21 due to COVID-19
(5) Increases in FY25 and FY26 for condition assessments and rate study.
(6) Internal utilities administration costs (billing/CS), net of utilities admin misc. revenue
(7) Internal utilities administration costs (all other), net of utilities admin misc. revenue
(8) General Fund Central Services Fee
(9) City Capital Improvement Plan, Escalated at 3% per year beginning in FY 2022, net of outside funding sources
(10) FY 21 beginning = Balance on 6/30/2020 as provided by City

Table 19 – Electric Utility Cash Flows (Reduced Revenues)

Description	Note	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Revenues							
Rate Revenues	1	$ 16,682,500	$ 16,187,200	$ 16,115,700	$ 16,044,400	$ 15,973,700	$ 15,903,300
Non-Rate Revenues	2	145,000	210,000	210,000	210,000	210,000	210,000
Total Revenues		**$ 16,827,500**	**$ 16,397,200**	**$ 16,325,700**	**$ 16,254,400**	**$ 16,183,700**	**$ 16,113,300**
Revenue Requirement							
Operation and Maintenance (O&M)							
Purchased Power	3	$ 5,221,500	$ 5,326,100	$ 5,208,400	$ 5,598,200	$ 5,581,000	$ 5,697,200
Maintenance and Equipment	4	966,900	1,217,200	1,242,700	1,268,800	1,295,500	1,322,700
Personnel	4	1,837,700	2,135,900	2,282,900	2,440,000	2,608,100	2,787,700
Technical and Professional	4, 5	100,000	137,800	140,700	143,700	350,000	270,000
Supplies	4	285,400	405,100	413,600	422,300	431,200	440,200
Other		29,100	29,700	30,400	31,000	31,700	32,300
Fund 60 - UT Admin Billing	6	453,500	472,200	501,400	532,400	565,500	600,700
Fund 60 - UT Admin All Other	7	692,100	670,200	710,800	754,100	800,400	849,700
Fund 60 - GF Central Services	8	584,300	584,300	584,300	584,300	584,300	584,300
Total O&M		**$ 10,170,500**	**$ 10,978,500**	**$ 11,115,200**	**$ 11,774,800**	**$ 12,247,700**	**$ 12,584,800**
Capital							
PAYGO Capital	9	$ 17,017,800	$ 3,777,500	$ 4,057,500	$ 7,102,700	$ 450,200	$ -
Total Capital		**$ 17,017,800**	**$ 3,777,500**	**$ 4,057,500**	**$ 7,102,700**	**$ 450,200**	**$ -**
Total Revenue Requirement		**$ 27,188,300**	**$ 14,756,000**	**$ 15,172,700**	**$ 18,877,500**	**$ 12,697,900**	**$ 12,584,800**
Financial Performance							
Beginning Unrestricted Fund Balance	10	$ 15,202,200	$ 4,841,400	$ 6,482,600	$ 7,635,600	$ 5,012,500	$ 8,498,300
Change in Unrestricted Fund Balance		(10,360,800)	1,641,200	1,153,000	(2,623,100)	3,485,800	3,528,500
Ending Unrestricted Fund Balance		**$ 4,841,400**	**$ 6,482,600**	**$ 7,635,600**	**$ 5,012,500**	**$ 8,498,300**	**$ 12,026,800**
% of O&M		**48%**	**59%**	**69%**	**43%**	**69%**	**96%**

(1) Calculated based on multi-year average of usage by customer class and City rates BEFORE recommended reduction
(2) Based on City FY 2021 Budget
(3) Average cost per kWh projections from Colorado River Commission and projected sales + line loss.
(4) FY 22 increase restores funding that was reduced in FY 21 due to COVID-19
(5) Increases in FY25 and FY26 for condition assessments and rate study.
(6) Internal utilities administration costs (billing/CS), net of utilities admin misc. revenue
(7) Internal utilities administration costs (all other), net of utilities admin misc. revenue
(8) General Fund Central Services Fee
(9) City Capital Improvement Plan, Escalated at 3% per year beginning in FY 2022, net of outside funding sources
(10) FY 21 beginning = Balance on 6/30/2020 as provided by City

Table 20 – Electric Utility Fund Balance Summary (Reduced Revenues)

Description	Note	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Reserve Beginning Balances							
Unrestricted Fund Balance	1	$ 15,202,200	$ 4,841,400	$ 6,482,600	$ 7,635,600	$ 5,012,500	$ 8,498,300
Emergency Capital Reserve	2	2,604,900	2,604,900	2,604,900	2,604,900	2,604,900	2,604,900
Rate Stabilization Reserve	2	1,773,900	1,773,900	1,773,900	1,773,900	1,773,900	1,773,900
RDA Reserve	2	515,600	515,600	515,600	515,600	515,600	515,600
Construction Fund		-	-	-	-	-	-
Total		**$ 20,096,600**	**$ 9,735,800**	**$ 11,377,000**	**$ 12,530,000**	**$ 9,906,900**	**$ 13,392,700**
Use of/Addition to Reserves							
Unrestricted Fund Balance	3	$ (10,360,800)	$ 1,641,200	$ 1,153,000	$ (2,623,100)	$ 3,485,800	$ 3,528,500
Emergency Capital Reserve		-	-	-	-	-	-
Rate Stabilization Reserve		-	-	-	-	-	-
RDA Reserve		-	-	-	-	-	-
Construction Fund		-	-	-	-	-	-
Total		**$ (10,360,800)**	**$ 1,641,200**	**$ 1,153,000**	**$ (2,623,100)**	**$ 3,485,800**	**$ 3,528,500**
Reserve Ending Balances							
Unrestricted Cash		$ 4,841,400	$ 6,482,600	$ 7,635,600	$ 5,012,500	$ 8,498,300	$ 12,026,800
Emergency Capital Reserve		2,604,900	2,604,900	2,604,900	2,604,900	2,604,900	2,604,900
Rate Stabilization Reserve		1,773,900	1,773,900	1,773,900	1,773,900	1,773,900	1,773,900
RDA Reserve		515,600	515,600	515,600	515,600	515,600	515,600
Construction Fund		-	-	-	-	-	-
Grand Total		**$ 9,735,800**	**$ 11,377,000**	**$ 12,530,000**	**$ 9,906,900**	**$ 13,392,700**	**$ 16,921,200**

(1) FY 21 beginning = Balance on 6/30/2020 as provided by City

(2) FY 21 beginning = Balance on 6/30/2020 as provided by City. Allocated to based on FY 19 Actual Revenues

(3) Negative = use of fund balance to fund current year capital. Positive = additions to fund balance for future capital.

3.5.2. WATER UTILITY CASH FLOWS

Table 21 indicates the water utility cash flow projection under existing rate levels. As indicated, water revenues are sufficient to meet current expenses. Under existing revenues, the water utility has sufficient capacity to pay operating expenses and repayment of the raw water line debt obligation. In addition, the water utility has access to external sources of financing for capital improvement projects which, in most years, fully fund those projects without the need to use existing revenues or draw down the unrestricted fund balance. The water unrestricted fund balance also exceeds the minimum requirement (20%), and—like the electric utility—the water utility has access to the rate stabilization and emergency capital reserves. For these reasons, we believe it would be reasonable to reduce the water fixed charge by $10 for 5/8" through 1" accounts with decreases for larger meters in proportion to the size and capacity of the meter. This reduction would reduce overall water revenues by approximately $1.6 million or 14.2%[14].

In addition, the cash flow projection assumes accelerated repayment of the raw water line debt. This includes the use of the City's bond reserve ($2.3 million), which following the recent refunding, is now unrestricted. In addition, the projections include an additional principal payment of $600,000 per year. This will allow the City to fully retire the raw water line debt in FY 2029, 3 years earlier than the current schedule.

[14] The revenue projections presented assume reduced rates are effective for bills rendered on, or after, July 1, 2021.

Fiscal Year	Regular Repayment			Accelerated Repayment			
	Principal	Interest	Total Regular	Principal	Additional Principal	Interest	Total
FY 2021	$ 1,746,000	$ 483,997	$ 2,229,997	$ 1,746,000	$ -	$ 483,997	$ 2,229,997
FY 2022	1,782,000	448,029	2,230,029	1,782,000	2,926,900 (1)	448,029	5,156,929
FY 2023	1,818,000	411,320	2,229,320	1,818,000	600,000	351,026	2,769,026
FY 2024	1,856,000	373,869	2,229,869	1,856,000	600,000	301,215	2,757,215
FY 2025	1,894,000	335,636	2,229,636	1,894,000	600,000	250,621	2,744,621
FY 2026	1,933,000	296,619	2,229,619	1,933,000	600,000	199,245	2,732,245
FY 2027	1,973,000	256,800	2,229,800	1,973,000	600,000	147,065	2,720,065
FY 2028	2,014,000	216,156	2,230,156	2,014,000	600,000	94,061	2,708,061
FY 2029	2,055,000	174,667	2,229,667	1,952,078	-	40,213	1,992,291
FY 2030	2,098,000	132,334	2,230,334	-	-	-	-
FY 2031	2,141,000	89,116	2,230,116	-	-	-	-
FY 2032	2,185,000	45,011	2,230,011	-	-	-	-

(1) Includes use of bond reserve (2.3MM).

Table 22 indicates the water utility cash flow projection under the reduced service charge. Even after reducing rates the ending unrestricted fund balance will exceed the minimum 20% required by City policy. **Table 23** indicates the projected restricted and unrestricted fund balances under the reduced rates. As indicated, even after reducing rates, the water fund is projected to end FY 2026 with an unrestricted fund balance of $8.9 million, or 103% of operating expenditures.

Table 21 – Water Utility Cash Flows (Existing Revenue)

Description	Note	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Revenues							
Rate Revenues	1	$ 11,266,200	$ 11,249,700	$ 11,233,800	$ 11,217,900	$ 11,202,300	$ 11,187,000
Contract Revenue	2	281,100	279,800	278,500	277,300	276,000	274,800
Non-Rate Revenues	3	255,600	255,600	255,600	255,600	255,600	255,600
Total Revenues		**$ 11,802,900**	**$ 11,785,100**	**$ 11,767,900**	**$ 11,750,800**	**$ 11,733,900**	**$ 11,717,400**
Revenue Requirement							
Operation and Maintenance (O&M)							
Purchased Water	4	$ 4,491,600	$ 4,632,100	$ 4,778,800	$ 4,932,100	$ 5,092,200	$ 5,259,500
Maintenance and Equipment	5	588,900	850,000	867,900	886,100	904,700	923,700
Personnel	6	757,700	868,600	928,000	991,500	1,059,300	1,131,800
Technical and Professional	7	60,000	61,300	62,500	63,900	264,000	165,000
Supplies		32,800	33,500	34,200	34,900	35,600	36,400
Other		27,400	28,300	28,900	29,500	30,100	30,700
Fund 60 - UT Admin Billing	8	238,700	248,600	263,900	280,200	297,700	316,200
Fund 60 - UT Admin All Other	9	364,300	352,600	374,100	397,000	421,300	447,200
Fund 60 - GF Central Services	10	307,500	307,500	307,500	307,500	307,500	307,500
Total O&M		**$ 6,868,900**	**$ 7,382,500**	**$ 7,645,800**	**$ 7,922,700**	**$ 8,412,400**	**$ 8,618,000**
Capital							
Debt Service	11	$ 2,230,000	$ 2,230,000	$ 2,169,000	$ 2,157,200	$ 2,144,600	$ 2,132,200
Accelerated Repayment	12	-	600,000	600,000	600,000	600,000	600,000
PAYGO Capital	13	881,500	-	-	274,500	-	-
Total Capital		**$ 3,111,500**	**$ 2,830,000**	**$ 2,769,000**	**$ 3,031,700**	**$ 2,744,600**	**$ 2,732,200**
Total Revenue Requirement		**$ 9,980,400**	**$ 10,212,500**	**$ 10,414,800**	**$ 10,954,400**	**$ 11,157,000**	**$ 11,350,200**
Financial Performance							
Beginning Unrestricted Fund Balance	14	$ 10,427,200	$ 12,249,700	$ 13,822,300	$ 15,175,400	$ 15,971,800	$ 16,548,700
Change in Unrestricted Fund Balance		1,822,500	1,572,600	1,353,100	796,400	576,900	367,200
Ending Unrestricted Fund Balance		**$ 12,249,700**	**$ 13,822,300**	**$ 15,175,400**	**$ 15,971,800**	**$ 16,548,700**	**$ 16,915,900**
% of O&M		**178%**	**187%**	**198%**	**202%**	**197%**	**196%**

(1) Calculated based on FY 2019 actual usage and City rates BEFORE recommended reduction
(2) Contract Wastewater Effluent Customers
(3) Based on City FY 2021 Budget
(4) Purchased water based on SNWA charges and projected sales + 10% loss factor
(5) FY 22 increase to normalized maintenance and equipment expenditures
(6) FY 22 increase restores funding that was reduced in FY 21 due to COVID-19
(7) Increases in FY25 and FY26 for condition assessments and rate study.
(8) Internal utilities administration costs (billing/CS), net of utilities admin misc. revenue
(9) Internal utilities administration costs (all other), net of utilities admin misc. revenue
(10) General Fund Central Services Fee
(11) Reductions beginning in FY 23 reflect use of bond reserve ($2,362,922) plus $600k/yr in add'l pmts to retire oldest bonds early.
(12) Additional principal payments on Raw Water Line Debt
(13) City Capital Improvement Plan, Escalated at 3% per year beginning in FY 2022, net of external funding sources
(14) FY 21 beginning = Balance on 6/30/2020 as provided by City

Table 22 – Water Utility Cash Flows (Reduced Revenue)

Description	Note	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Revenues							
Rate Revenues	1	$ 11,266,200	$ 9,644,200	$ 9,630,600	$ 9,617,000	$ 9,603,600	$ 9,590,500
Contract Revenues	2	281,100	279,800	278,500	277,300	276,000	274,800
Non-Rate Revenues	3	255,600	255,600	255,600	255,600	255,600	255,600
Total Revenues		**$ 11,802,900**	**$ 10,179,600**	**$ 10,164,700**	**$ 10,149,900**	**$ 10,135,200**	**$ 10,120,900**
Revenue Requirement							
Operation and Maintenance (O&M)							
Purchased Water	4	$ 4,491,600	$ 4,632,100	$ 4,778,800	$ 4,932,100	$ 5,092,200	$ 5,259,500
Maintenance and Equipment	5	588,900	850,000	867,900	886,100	904,700	923,700
Personnel	6	757,700	868,600	928,000	991,500	1,059,300	1,131,800
Technical and Professional	7	60,000	61,300	62,500	63,900	264,000	165,000
Supplies		32,800	33,500	34,200	34,900	35,600	36,400
Other		27,400	28,300	28,900	29,500	30,100	30,700
Fund 60 - UT Admin Billing	8	238,700	248,600	263,900	280,200	297,700	316,200
Fund 60 - UT Admin All Other	9	364,300	352,600	374,100	397,000	421,300	447,200
Fund 60 - GF Central Services	10	307,500	307,500	307,500	307,500	307,500	307,500
Total O&M		**$ 6,868,900**	**$ 7,382,500**	**$ 7,645,800**	**$ 7,922,700**	**$ 8,412,400**	**$ 8,618,000**
Capital							
Debt Service	11	$ 2,230,000	$ 2,230,000	$ 2,169,000	$ 2,157,200	$ 2,144,600	$ 2,132,200
Accelerated Repayment	12	-	600,000	600,000	600,000	600,000	600,000
PAYGO Capital	13	881,500	-	-	274,500	-	-
Total Capital		**$ 3,111,500**	**$ 2,830,000**	**$ 2,769,000**	**$ 3,031,700**	**$ 2,744,600**	**$ 2,732,200**
Total Revenue Requirement		**$ 9,980,400**	**$ 10,212,500**	**$ 10,414,800**	**$ 10,954,400**	**$ 11,157,000**	**$ 11,350,200**
Financial Performance							
Beginning Unrestricted Fund Balance	14	$ 10,427,200	$ 12,249,700	$ 12,216,800	$ 11,966,700	$ 11,162,200	$ 10,140,400
Change in Unrestricted Fund Balance		1,822,500	(32,900)	(250,100)	(804,500)	(1,021,800)	(1,229,300)
Ending Unrestricted Fund Balance		**$ 12,249,700**	**$ 12,216,800**	**$ 11,966,700**	**$ 11,162,200**	**$ 10,140,400**	**$ 8,911,100**
% of O&M		**178%**	**165%**	**157%**	**141%**	**121%**	**103%**

(1) Calculated based on FY 2019 actual usage and City rates AFTER recommended reduction
(2) Contract Wastewater Effluent Customers
(3) Based on City FY 2021 Budget
(4) Purchased water based on SNWA charges and projected sales + 10% loss factor
(5) FY 22 increase to normalized maintenance and equipment expenditures
(6) FY 22 increase restores funding that was reduced in FY 21 due to COVID-19
(7) Increases in FY25 and FY26 for condition assessments and rate study.
(8) Internal utilities administration costs (billing/CS), net of utilities admin misc. revenue
(9) Internal utilities administration costs (all other), net of utilities admin misc. revenue
(10) General Fund Central Services Fee
(11) Reductions beginning in FY 23 reflect use of bond reserve ($2,362,922) plus $600k/yr in add'l pmts to retire oldest bonds early.
(12) Additional principal payments on Raw Water Line Debt
(13) City Capital Improvement Plan, Escalated at 3% per year beginning in FY 2022, net of external funding sources
(14) FY 21 beginning = Balance on 6/30/2020 as provided by City

Table 23 – Water Utility Fund Balance Summary (Reduced Revenue)

Description	Note	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Reserve Beginning Balances							
Unrestricted Fund Balance	1	$ 10,427,200	$ 12,249,700	$ 12,216,800	$ 11,966,700	$ 11,162,200	$ 10,140,400
Emergency Capital Reserve	2	1,800,400	1,800,400	1,800,400	1,800,400	1,800,400	1,800,400
Rate Stabilization Reserve	2	1,226,100	1,226,100	1,226,100	1,226,100	1,226,100	1,226,100
Bond Reserve	1	2,326,900	2,326,900	-	-	-	-
RDA Reserve	2	356,400	356,400	356,400	356,400	356,400	356,400
Construction Fund	3	-	-	198,100	127,500	-	99,600
Total		**$ 16,137,027**	**$ 17,959,500**	**$ 15,797,800**	**$ 15,477,100**	**$ 14,545,100**	**$ 13,622,900**
Use of/Addition to Reserves							
Unrestricted Fund Balance	4	$ 1,822,500	$ (32,900)	$ (250,100)	$ (804,500)	$ (1,021,800)	$ (1,229,300)
Emergency Capital Reserve		-	-	-	-	-	-
Rate Stabilization Reserve		-	-	-	-	-	-
Bond Reserve	5	-	(2,326,900)	-	-	-	-
RDA Reserve		-	-	-	-	-	-
Construction Fund		-	198,100	(70,600)	(127,500)	99,600	304,400
Total		**$ 1,822,500**	**$ (2,161,700)**	**$ (320,700)**	**$ (932,000)**	**$ (922,200)**	**$ (924,900)**
Reserve Ending Balances							
Unrestricted Fund Balance		$ 12,249,700	$ 12,216,800	$ 11,966,700	$ 11,162,200	$ 10,140,400	$ 8,911,100
Emergency Capital Reserve		1,800,400	1,800,400	1,800,400	1,800,400	1,800,400	1,800,400
Rate Stabilization Reserve		1,226,100	1,226,100	1,226,100	1,226,100	1,226,100	1,226,100
Bond Reserve		2,326,900	-	-	-	-	-
RDA Reserve		356,400	356,400	356,400	356,400	356,400	356,400
Construction Fund		-	198,100	127,500	-	99,600	404,000
Grand Total		**$ 17,959,500**	**$ 15,797,800**	**$ 15,477,100**	**$ 14,545,100**	**$ 13,622,900**	**$ 12,698,000**

(1) FY 21 beginning = Balance on 6/30/2020 as provided by City

(2) FY 21 beginning = Balance on 6/30/2020 as provided by City. Allocated based on FY 19 actual revenues

(3) Balance results when sources exceed uses in a given year due to project timing. Used for future capital projects.

(4) Negative = use of unrestricted cash to fund current year capital. Positive = additions to unrestricted cash for future capital.

(5) FY 2022 = Use of bond reserve for early repayment of raw water line debt

3.5.3. WASTEWATER UTILITY CASH FLOWS

As indicated by **Table 24**, wastewater revenues are sufficient to meet expenses. **Table 25** shows the wastewater fund balance including the wastewater utility's share of the rate stabilization and emergency capital reserves.

Table 24 – Wastewater Utility Cash Flows (Existing Revenue)

Description	Note	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Revenues							
Rate Revenues	1	$ 2,232,500	$ 2,241,300	$ 2,250,000	$ 2,258,900	$ 2,267,800	$ 2,276,800
Non-Rate Revenues	2	40,000	40,000	40,000	40,000	40,000	40,000
Total Revenues		**$ 2,272,500**	**$ 2,281,300**	**$ 2,290,000**	**$ 2,298,900**	**$ 2,307,800**	**$ 2,316,800**
Revenue Requirement							
Operation and Maintenance (O&M)							
Maintenance and Equipment	3	$ 361,300	$ 500,000	$ 510,500	$ 521,200	$ 532,200	$ 543,300
Personnel	4	333,500	388,400	414,900	443,300	473,600	506,000
Technical and Professional	4, 5	28,500	54,600	55,800	56,900	258,000	75,000
Supplies		90,400	92,300	94,200	96,200	98,200	100,300
Other		4,400	4,600	4,700	4,800	4,900	5,000
Fund 60 - UT Admin Billing	6	79,600	82,900	88,000	93,400	99,200	105,400
Fund 60 - UT Admin All Other	7	121,400	117,500	124,700	132,300	140,500	149,100
Fund 60 - GF Central Services	8	102,500	102,500	102,500	102,500	102,500	102,500
Total O&M		**$ 1,121,600**	**$ 1,342,800**	**$ 1,395,300**	**$ 1,450,600**	**$ 1,709,100**	**$ 1,586,600**
Capital							
PAYGO Capital	9	$ 790,000	$ 884,500	$ 1,125,800	$ 1,244,100	$ 679,800	$ 1,263,600
Total Capital		**$ 790,000**	**$ 884,500**	**$ 1,125,800**	**$ 1,244,100**	**$ 679,800**	**$ 1,263,600**
Total Revenue Requirement		**$ 1,911,600**	**$ 2,227,300**	**$ 2,521,100**	**$ 2,694,700**	**$ 2,388,900**	**$ 2,850,200**
Financial Performance							
Beginning Unrestricted Fund Balance	10	$ 3,390,000	$ 3,750,900	$ 3,804,900	$ 3,573,800	$ 3,178,000	$ 3,096,900
Change in Unrestricted Fund Balance		360,900	54,000	(231,100)	(395,800)	(81,100)	(533,400)
Ending Unrestricted Fund Balance		**$ 3,750,900**	**$ 3,804,900**	**$ 3,573,800**	**$ 3,178,000**	**$ 3,096,900**	**$ 2,563,500**
% of O&M		**334%**	**283%**	**256%**	**219%**	**181%**	**162%**

(1) Calculated based on FY 2019 actual usage and existing City wastewater rates
(2) Per City FY 2021 Budget
(3) FY 22 increase to normalized maintenance and equipment expenditures
(4) FY 22 increase restores funding that was reduced in FY 21 due to COVID-19
(5) Increases in FY25 and FY26 for condition assessments and rate study.
(6) Internal utilities administration costs (billing/CS), net of utilities admin misc. revenue
(7) Internal utilities administration costs (all other), net of utilities admin misc. revenue
(8) General Fund Central Services Fee
(9) City Capital Improvement Plan, Escalated at 3% per year beginning in FY 2022, net of external funding sources
(10) FY 21 beginning = Balance on 6/30/2020 as provided by City

Table 25 – Wastewater Utility Fund Balance Summary (Existing Revenue)

Description	Note	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Reserve Beginning Balances							
Unrestricted Fund Balance	1	$ 3,390,000	$ 3,750,900	$ 3,804,900	$ 3,573,800	$ 3,178,000	$ 3,096,900
Emergency Capital Reserve	2	357,100	357,100	357,100	357,100	357,100	357,100
RDA Reserve	2	70,700	70,700	70,700	70,700	70,700	70,700
Construction Fund		-	-	-	-	-	-
Total		**$ 3,817,800**	**$ 4,178,700**	**$ 4,232,700**	**$ 4,001,600**	**$ 3,605,800**	**$ 3,524,700**
Use of/Addition to Reserves							
Unrestricted Fund Balance	3	$ 360,900	$ 54,000	$ (231,100)	$ (395,800)	$ (81,100)	$ (533,400)
Emergency Capital Reserve		-	-	-	-	-	-
RDA Reserve		-	-	-	-	-	-
Construction Fund		-	-	-	-	-	-
Total		**$ 360,900**	**$ 54,000**	**$ (231,100)**	**$ (395,800)**	**$ (81,100)**	**$ (533,400)**
Reserve Ending Balances							
Unrestricted Fund Balance		$ 3,750,900	$ 3,804,900	$ 3,573,800	$ 3,178,000	$ 3,096,900	$ 2,563,500
Emergency Capital Reserve		357,100	357,100	357,100	357,100	357,100	357,100
RDA Reserve		70,700	70,700	70,700	70,700	70,700	70,700
Construction Fund		-	-	-	-	-	-
Grand Total		**$ 4,178,700**	**$ 4,232,700**	**$ 4,001,600**	**$ 3,605,800**	**$ 3,524,700**	**$ 2,991,300**

(1) Balance on 6/30/2019, as provided by the City

(2) Balance on 6/30/2019, as provided by the City. Allocated based on FY 19 actual revenues

(3) Negative = use of unrestricted cash to fund current year capital. Positive = additions to unrestricted cash for future capital.

3.5.4. SOLID WASTE UTILITY CASH FLOWS

The solid waste utility is different from electric, water, and wastewater as the service is provided by Boulder City Disposal. The cost of this service is recovered via monthly fixed charges per customer and per container charge both of which are billed by the City, but mostly passed through directly to the third-party solid waste provider Boulder City Disposal. The rates are defined in the contract and are only adjusted annually by inflation. The City retains a portion of the revenues to cover administrative costs, improvements to the landfill and regulatory requirements related to landfill closure. The cash flow in **Table 26** below is shown for informational purposes and is included in the combined cash flow indicated in **Table 28**. **Table 27** summarizes the beginning and projected balances for the various solid waste reserve funds.

As noted in the background discussion above, the solid waste utility has two additional reserve funds: landfill closure and landfill construction. The landfill closure fund is funded by a $0.50 per account per month charge[15] to all solid waste customers and represents a set aside to meet future regulatory requirements relate to closing the City's landfill. The landfill construction fund is funded by a $1.00 per account per month charge[16] to all solid waste customers and is dedicated to funding capital improvements at the landfill.

[15] This charge is referred to as the "Landfill Maintenance Fee" on customer bills. The term "Landfill Closure Fund" refers to the description used by the City's finance department to account for these funds.

[16] This charge is referred to as the "Landfill Construction Fee" on customer bills. The term "Landfill Construction Fund" refers to the description used by the City's finance department to account for these funds.

Table 26 – Solid Waste Utility Cash Flows

Description	Note	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Revenues							
Refuse Charges	1	$ 1,080,800	$ 1,086,900	$ 1,093,000	$ 1,099,200	$ 1,105,400	$ 1,111,600
Landfill Receipts	1	263,700	264,000	264,300	264,700	265,000	265,300
Landfill Closure/Construction	1	112,300	112,900	113,500	114,200	114,800	115,500
Non-Rate Revenues		-	-	-	-	-	-
Total Revenues		**$ 1,456,800**	**$ 1,463,800**	**$ 1,470,800**	**$ 1,478,100**	**$ 1,485,200**	**$ 1,492,400**
Revenue Requirement							
Operation and Maintenance (O&M)							
Solid Waste Services	1	$ 1,026,700	$ 1,032,500	$ 1,038,300	$ 1,044,200	$ 1,050,100	$ 1,056,000
Maintenance and Equipment		-	-	-	-	-	-
Personnel		-	-	-	-	-	-
Technical and Professional		25,000	50,000	51,100	52,100	53,200	54,300
Supplies		-	-	-	-	-	-
Other		-	-	-	-	-	-
Fund 60 - UT Admin Billing	2	23,900	24,900	26,400	28,100	29,800	31,700
Fund 60 - UT Admin All Other	3	36,400	35,300	37,500	39,700	42,200	44,700
Fund 60 - GF Central Services	4	30,800	30,800	30,800	30,800	30,800	30,800
Total O&M		**$ 1,142,800**	**$ 1,173,500**	**$ 1,184,100**	**$ 1,194,900**	**$ 1,206,100**	**$ 1,217,500**
Capital							
PAYGO Capital	5	$ -	$ -	$ -	$ -	$ -	$ -
Total Capital		**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Transfer to Landfill Closure/Constr	6	**$ 112,300**	**$ 112,900**	**$ 113,500**	**$ 114,200**	**$ 114,800**	**$ 115,500**
Total Revenue Requirement		**$ 1,255,100**	**$ 1,286,400**	**$ 1,297,600**	**$ 1,309,100**	**$ 1,320,900**	**$ 1,333,000**
Financial Performance							
Beginning Unrestricted Fund Balance	7	$ 1,552,300	$ 1,754,000	$ 1,931,400	$ 2,104,600	$ 2,273,600	$ 2,437,900
Change in Unrestricted Fund Balance		201,700	177,400	173,200	169,000	164,300	159,400
Ending Unrestricted Fund Balance		**$ 1,754,000**	**$ 1,931,400**	**$ 2,104,600**	**$ 2,273,600**	**$ 2,437,900**	**$ 2,597,300**
% of O&M		**153%**	**165%**	**178%**	**190%**	**202%**	**213%**

(1) Per FY 19 BC Disposal Invoices
(2) Internal utilities administration costs (billing/CS), net of utilities admin misc. revenue
(3) Internal utilities administration costs (all other), net of utilities admin misc. revenue
(4) General Fund Central Services Fee
(5) City Capital Improvement Plan, Escalated at 3% per year beginning in FY 2022, net of external funding sources.
(6) Transfer of Restricted Revenue to Landfill Construction and Landfill Closure Funds
(7) FY 21 beginning = Balance on 6/30/2020 as provided by City

Table 27 – Solid Waste Utility Fund Balance Summary

Description	Note	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Reserve Beginning Balances							
Unrestricted Fund Balance	1	$ 1,552,300	$ 1,754,000	$ 1,931,400	$ 2,104,600	$ 2,273,600	$ 2,437,900
Emergency Capital Reserve	2	237,600	237,600	237,600	237,600	237,600	237,600
Landfill Closure	1, 3	1,436,100	1,473,500	1,511,100	1,548,900	1,587,000	1,625,300
Landfill Construction	1, 4	1,159,900	1,234,700	1,310,000	1,385,700	1,461,800	1,538,300
Total		**$ 4,385,900**	**$ 4,699,800**	**$ 4,990,100**	**$ 5,276,800**	**$ 5,560,000**	**$ 5,839,100**
Use of/Addition to Reserves							
Unrestricted Cash	5	$ 201,700	$ 177,400	$ 173,200	$ 169,000	$ 164,300	$ 159,400
Emergency Capital Reserve		-	-	-	-	-	-
Landfill Closure		37,400	37,600	37,800	38,100	38,300	38,500
Landfill Construction		74,800	75,300	75,700	76,100	76,500	77,000
Total		**$ 313,900**	**$ 290,300**	**$ 286,700**	**$ 283,200**	**$ 279,100**	**$ 274,900**
Reserve Ending Balances							
Unrestricted Cash		$ 1,754,000	$ 1,931,400	$ 2,104,600	$ 2,273,600	$ 2,437,900	$ 2,597,300
Emergency Capital Reserve		237,600	237,600	237,600	237,600	237,600	237,600
Landfill Closure		1,473,500	1,511,100	1,548,900	1,587,000	1,625,300	1,663,800
Landfill Construction		1,234,700	1,310,000	1,385,700	1,461,800	1,538,300	1,615,300
Grand Total		**$ 4,699,800**	**$ 4,990,100**	**$ 5,276,800**	**$ 5,560,000**	**$ 5,839,100**	**$ 6,114,000**

(1) FY 21 beginning = Balance on 6/30/2020 as provided by City

(2) FY 21 beginning = Balance on 6/30/2020 as provided by City. Allocated to based on FY 19 Actual Revenues

(3) Required set aside for landfill closure

(4) Required set aside for landfill construction

(5) Negative = use of unrestricted cash to fund current year capital. Positive = additions to unrestricted cash for future capital.

3.5.5. COMBINED UTILITY CASH FLOWS

Table 28 indicates the combined utility cash flow. This includes the revenues and expenditures from all 4 utilities as well as the costs associated with the utilities administration fund, which—in the individual cash flows—were captured under the "Fund 60" descriptions. Debt service coverage levels are projected to decline over the forecast period, but based on discussions with City staff, it is unlikely that the City will seek to access the municipal debt markets for capital improvement financing. The utility funds are projected to maintain high levels of liquidity as demonstrated by the ending unrestricted fund balance of $26.1 million in FY 2026 (108% of operating expenditures), while cash funding the projects proposed in the City's CIP and decreasing water revenues and electric revenues 14.2% and 2.7%, respectively.

The relative financial strength of the utility funds is, in part, attributable to the City's access to external sources of funding for capital improvement projects, which are generally the biggest driver of the level of utility rates. While these sources are not guaranteed[17], they have provided significant benefit to City customers, by reducing the amount of funding needed from customer rates.

[17] Allocation of solar lease and land sales revenues require voter approval. Amounts have currently been approved through FY 2023. The plans presented in this report to do not these sources of funding beyond FY 2023.

Table 28 – Combined Utility Cash Flows (Reduced Revenues)

Description	Note	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Revenues							
Rate Revenues	1	$ 31,638,000	$ 29,536,500	$ 29,467,100	$ 29,398,400	$ 29,330,300	$ 29,263,000
Contract Revenues	2	281,100	279,800	278,500	277,300	276,000	274,800
Non-Rate Revenues - Utility Admin.	3	50,400	75,900	75,900	75,900	75,900	75,900
Non-Rate Revenues - E, W, WW, S	3	440,600	505,600	505,600	505,600	505,600	505,600
Total Revenues		**$ 32,410,100**	**$ 30,397,800**	**$ 30,327,100**	**$ 30,257,200**	**$ 30,187,800**	**$ 30,119,300**
Revenue Requirement							
Operation and Maintenance (O&M) - Utility Administration (Fund 60)							
UT Admin Billing		$ 815,700	$ 859,900	$ 911,000	$ 965,400	$ 1,023,500	$ 1,085,300
UT Admin All Other		1,182,700	1,220,200	1,291,600	1,367,600	1,448,800	1,535,100
GF Central Services Fee	4	1,025,000	1,025,000	1,025,000	1,025,000	1,025,000	1,025,000
Total Utilities Admin. (Fund 60) O&M		$ 3,023,400	$ 3,105,100	$ 3,227,600	$ 3,358,000	$ 3,497,300	$ 3,645,400
Operation and Maintenance (O&M) - E, W, WW, S							
Purchased Power	5	$ 5,221,500	$ 5,326,100	$ 5,208,400	$ 5,598,200	$ 5,581,000	$ 5,697,200
Purchased Water	6	4,491,600	4,632,100	4,778,800	4,932,100	5,092,200	5,259,500
Solid Waste Services	7	1,026,700	1,032,500	1,038,300	1,044,200	1,050,100	1,056,000
Maintenance and Equipment	8	1,917,100	2,567,200	2,621,100	2,676,100	2,732,400	2,789,700
Personnel	9	2,928,900	3,392,900	3,625,800	3,874,800	4,141,000	4,425,500
Technical and Professional	10	213,500	303,700	310,100	316,600	925,200	564,300
Supplies	11	408,600	530,900	542,000	553,400	565,000	576,900
Other		60,900	62,600	64,000	65,300	66,700	68,000
Total E, W, WW, S O&M		$ 16,268,800	$ 17,848,000	$ 18,188,500	$ 19,060,700	$ 20,153,600	$ 20,437,100
Total Utilities O&M		**$ 19,292,200**	**$ 20,953,100**	**$ 21,416,100**	**$ 22,418,700**	**$ 23,650,900**	**$ 24,082,500**
Capital							
Debt Service	12	$ 2,230,000	$ 2,230,000	$ 2,169,000	$ 2,157,200	$ 2,144,600	$ 2,132,200
Accelerated Repayment	13	$ -	$ 600,000	$ 600,000	$ 600,000	$ 600,000	$ 600,000
PAYGO Capital - Utilities Admin	14	62,000	-	-	-	-	-
PAYGO Capital - E, W, WW, S	14	$ 18,689,300	$ 4,662,000	$ 5,183,300	$ 8,621,300	$ 1,130,000	$ 1,263,600
Total Capital		**$ 20,981,300**	**$ 7,492,000**	**$ 7,952,300**	**$ 11,378,500**	**$ 3,874,600**	**$ 3,995,800**
Transfer to Landfill Closure/Constr	15	**$ 112,300**	**$ 112,900**	**$ 113,500**	**$ 114,200**	**$ 114,800**	**$ 115,500**
Total Revenue Requirement		**$ 40,385,800**	**$ 28,558,000**	**$ 29,481,900**	**$ 33,911,400**	**$ 27,640,300**	**$ 28,193,800**
Financial Performance							
Beginning Unrestricted Fund Balance	16	$ 30,571,700	$ 22,596,000	$ 24,435,800	$ 25,281,000	$ 21,626,800	$ 24,174,300
Change in Unrestricted Fund Balance		$ (7,975,700)	$ 1,839,800	$ 845,200	$ (3,654,200)	$ 2,547,500	$ 1,925,500
Ending Unrestricted Fund Balance		**$ 22,596,000**	**$ 24,435,800**	**$ 25,281,000**	**$ 21,626,800**	**$ 24,174,300**	**$ 26,099,800**
% of O&M		**117%**	**117%**	**118%**	**96%**	**102%**	**108%**
Debt Service Coverage Ratio	**17**	**148%**	**129%**	**126%**	**121%**	**115%**	**113%**

(1) Calculated based on multi-year average of usage by customer class and City rates BEFORE recommended reduction
(2) Contract wastewater effluent customers
(3) Per City FY 2021 Budget
(4) General Fund Central Services Fee
(5) Average cost per kWh projections from Colorado River Commission and projected sales + 5% loss factor
(6) Purchased water based on SNWA charges and projected sales + 10% loss factor
(7) Per FY 19 BC Disposal Invoices
(8) FY 22 increase to normalized maintenance and equipment expenditures
(9) FY 22 increase restores funding that was reduced in FY 21 due to COVID-19
(10) Increases in FY25 and FY26 for condition assessments and rate study.
(11) Reductions beginning in FY 23 reflect use of debt service reserve ($2,362,922) plus $600k/yr in add'l pmts to retire oldest bonds early.
(12) Additional principal payments on Raw Water Line Debt
(13) City Capital Improvement Plan, Escalated at 3% per year beginning in FY 2022, Net of Outside Funding Sources
(14) Transfer of Restricted Revenue to Landfill Construction and Landfill Closure Funds
(15) FY 21 beginning = Balance on 6/30/2020 as provided by City
(16) Calculation excludes Franchise Fee

Table 29 – Combined Utility Fund Balance Summary (Reduced Revenues)

Description	Note	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Reserve Beginning Balances							
Unrestricted Fund Balance	1	$ 30,571,700	$ 22,596,000	$ 24,435,700	$ 25,280,700	$ 21,626,300	$ 24,173,500
Emergency Capital Reserve	1	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000
Rate Stabilization Reserve	1	3,000,000	3,000,000	3,000,000	3,000,000	3,000,000	3,000,000
Bond Reserve	1	2,326,900	2,326,900	-	-	-	-
RDA Reserve	1	942,700	942,700	942,700	942,700	942,700	942,700
Landfill Closure	1, 2	1,436,100	1,473,500	1,511,100	1,548,900	1,587,000	1,625,300
Landfill Construction	1, 3	1,159,900	1,234,700	1,310,000	1,385,700	1,461,800	1,538,300
Construction Fund	4	-	-	198,100	127,500	-	99,600
Total		**$ 44,437,300**	**$ 36,573,800**	**$ 36,397,600**	**$ 37,285,500**	**$ 33,617,800**	**$ 36,379,400**
Use of/Addition to Reserves							
Unrestricted Fund Balance	5	$ (7,975,700)	$ 1,839,700	$ 845,000	$ (3,654,400)	$ 2,547,200	$ 1,925,200
Emergency Capital Reserve		-	-	-	-	-	-
Rate Stabilization Reserve		-	-	-	-	-	-
Bond Reserve	6	-	(2,326,900)	-	-	-	-
RDA Reserve		-	-	-	-	-	-
Landfill Closure		37,400	37,600	37,800	38,100	38,300	38,500
Landfill Construction		74,800	75,300	75,700	76,100	76,500	77,000
Construction Fund		-	198,100	(70,600)	(127,500)	99,600	304,400
Total		**$ (7,863,500)**	**$ (176,200)**	**$ 887,900**	**$ (3,667,700)**	**$ 2,761,600**	**$ 2,345,100**
Reserve Ending Balances							
Unrestricted Fund Balance		$ 22,596,000	$ 24,435,700	$ 25,280,700	$ 21,626,300	$ 24,173,500	$ 26,098,700
Emergency Capital Reserve		5,000,000	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000
Rate Stabilization Reserve		3,000,000	3,000,000	3,000,000	3,000,000	3,000,000	3,000,000
Bond Reserve		2,326,900	-	-	-	-	-
RDA Reserve		942,700	942,700	942,700	942,700	942,700	942,700
Landfill Closure		1,473,500	1,511,100	1,548,900	1,587,000	1,625,300	1,663,800
Landfill Construction		1,234,700	1,310,000	1,385,700	1,461,800	1,538,300	1,615,300
Construction Fund		-	198,100	127,500	-	99,600	404,000
Grand Total		**$ 36,573,800**	**$ 36,397,600**	**$ 37,285,500**	**$ 33,617,800**	**$ 36,379,400**	**$ 38,724,500**

(1) FY 21 beginning = Balance on 6/30/2020 as provided by City
(2) Required set aside for landfill closure
(3) Required set aside for landfill construction
(4) Balances due to external funding sources exceeding projects, reserved for future capital
(5) Negative = use of unrestricted cash to fund current year capital. Positive = additions to unrestricted cash for future capital.
(6) FY 2022 = Use of bond reserve for early repayment of raw water line debt

4. Cost of Service Analysis

4.1. Cost of Service Analysis – Conceptual Overview

The key objective of the cost of service analysis is to determine each customer class's share of the cost service based on how they use the City's electric, water and wastewater systems. There are several guiding principles which inform the way a typical cost of service analysis is conducted which include:

Cost Causation. Electric, water and wastewater utility systems are designed and operated to deliver service to customers based on their demand patterns. Electric and water systems are designed with sufficient capacity to meet average and peak demands. A wastewater system is designed based on the volume and strength (the level of pollutants) of customer sewage. The cost of all three systems is directly attributable to meeting customer demands. That said, not all customers place the same level of demand on the City's utility systems. By extension, this also means that not all customers *cause* the City to incur the same level of cost. Customers that place greater demands on the utility system cause the City to incur greater costs and vice versa. The principle of cost causation means that the cost of service analysis attempts to align utility costs with the customers that cause them to be incurred, based on their demand characteristics.

Customer Class Based Analysis. While the principle of cost causation is important, it is not practical to determine the impact of each individual customer on the design and operation of the City's utility systems. Accordingly, it is common practice among utilities to group customers into "customer classes" based on similar demand characteristics. As noted in Section 3, the City has grouped customers into classes (e.g., residential, commercial, city) and charges different electric, water and wastewater rates to each class. The customer class based analysis applies the principle of cost causation at the class level, based on the demand characteristics of the class as a whole, rather than the individual customers within that class.

Revenue Neutrality. The electric, water and wastewater financial plans establish the total amount of rate revenue required (the revenue requirement) to fund ongoing operations, capital repair and replacement and the maintenance of appropriate unrestricted cash balances. In other words, these plans determine how much money is needed, in total, from all customers, regardless of customer class. Once established by the financial plans, the revenue requirement is fixed. The task of the cost of service analysis is to allocate this revenue requirement among the customer classes, based on their use of the electric, water and wastewater systems. In other words, the financial plans determine the "size of the pie," and the cost of service analysis determines how that pie is divided among the various customer classes. It is typical to establish the revenue requirement for a projected year, referred to as the "test year," to be used as the basis for the cost of service analysis. This study uses FY 2022 as the test year.

Cost of Service Analysis as a Guide for Rate Setting. A cost of service analysis is a well-established guide for utility rate setting. Certain states even require utility rates to be based on cost of service due to specific constitutional and/or jurisprudential requirements. There are no such requirements in the State of Nevada. In addition, cost of service is not the only consideration when establishing utility rates. There are a broad range of policy considerations that also factor into utility rate setting.

This is especially true for municipalities, such as the City, which have not had a formal cost of service study performed in many years. In these cases, the rates being charged often deviate significantly from what would be charged under a pure cost of service determination. In these situations, the utility has broad discretion in how to move forward. There are a range of options, all of which are entirely appropriate and under the policy discretion of municipalities in the State of Nevada including, but not limited to:

1. Establishing rates based on cost of service as soon as possible.
2. Establishing rates based on cost of service over a period of time (i.e., a phase-in approach)
3. Maintaining rates as is and reevaluating cost of service in the future to see if demand patterns observed still hold.

These options range from most disruptive (#1) to least disruptive (#3) and it is ultimately up to the City's elected officials to decide what is in the best interest of City customers. Throughout the course of this engagement Raftelis participated in numerous discussions with City staff regarding potential options for rate structure modifications which would result in rates that achieve the objectives of the City. The outcome of those discussions is the recommendation for a phase-in approach, which balances cost of service rate setting with the differential impacts on City customer classes.

4.2. Cost of Service Analysis – Process

A cost of service analysis involves the following steps:

Step 1 - Functionalize Revenue Requirement. Applying the principle of cost causation requires a determination of how the costs incurred relate to the design and operation of the utility systems. The functionalization step allocates the revenue requirement to the various functions each utility performs in order to deliver service. The cost of each function is then related to the demand characteristics which drive variation in those costs (Step 2) and ultimately to customer classes based on their proportionate share of that demand (Steps 3 through 5).

Step 2 - Allocate Functionalized Revenue Requirement to Cost Drivers. The cost of each function from Step 1 is driven by different types of customer demand. Step 2 attributes the functionalized costs to these cost drivers. The result is an understanding of the proportion of the revenue requirement for each utility which can be attributed to each type of customer demand. This allows for a distribution of the revenue requirement based on customer demands (Steps 3 through 5).

Step 3 - Determine Customer Class Units of Service. While Steps 1 and 2 allocate the revenue requirement according to the various types of customer demand, Step 3 determines the level of that demand for each customer class.

Step 4 - Calculate of Unit Cost of Service. This step divides the allocated revenue requirement determined in Step 2, by the customer class units of service determined in Step 3. The result is a unit cost of service for each type of customer demand.

Step 5 - Distribute Revenue Requirement to Customer Classes. This step multiplies the unit cost for each type of demand by the units of service for each customer class. The result is a determination of the cost to serve each customer class based on their share of demand.

4.3. Step 1 – Functionalize Revenue Requirement

Applying the principle of cost causation requires a determination of how the costs incurred relate to the design and operation of each utility system. The functionalization step allocates the revenue requirement to the various functions each utility performs in order to deliver service. The cost of each function is then related to the demand characteristics which drive variation in those costs (Step 2) and ultimately to customer classes based on their proportionate share of that demand (Steps 3 through 5).

Tables 30, 31 and 32 summarize the FY 2022 revenue requirement for the electric, water and wastewater utilities, respectively. Note that the revenue requirement for each utility is tied to the level of rate revenue[18] identified in the financial plan for FY 2022 ($16.2 million for electric, $9.6 million for water, $2.2 million for wastewater). This revenue requirement includes recovery of projected operating and capital costs. Also shown is the change in unrestricted fund balance that is expected to occur given the revenue and expense projections in the financial plans. This amount is included so that the revenue requirement included in the cost of service analysis aligns with the amount of projected revenue from the financial plan for the test year (FY 2022). As indicated in Section 3, this revenue level (including revenue reductions for water and electric) will allow each fund to fund ongoing operations, repair and replace utility assets and maintain an appropriate level of unrestricted fund balance over the forecast period. Finally, other sources of revenue such as the solar lease and sales revenue are shown as offsets to the revenue requirement.

Table 30 – Electric Utility Revenue Requirement (FY 2022)

Description	Operating	Capital	Total
O&M Expense	$ 10,978,500	$ -	$ 10,978,500
Debt Service	-	-	-
Capital Projects(1)	-	4,377,500	4,377,500
Change in Unrestricted Fund Balance	-	1,641,200	1,641,200
Gross Revenue Requirement	**$ 10,978,500**	**$ 6,018,700**	**$ 16,997,200**
Non-Rate Revenue	$ (210,000)	$ -	$ (210,000)
Solar Lease Revenue	-	-	-
Land Sales Revenue	-	(600,000)	(600,000)
Net Revenue Requirement	**$ 10,768,500**	**$ 5,418,700**	**$ 16,187,200**

(1) FY 22 Capital Projects. Nets to $3,777,500 in PAYGO after $600k in land sales revenue.

[18] This includes the 3% energy charge reduction for electric and the $10 service charge reduction for water.

Table 31 – Water Utility Revenue Requirement (FY 2022)

Description	Operating	Capital	Total
O&M Expense	$ 7,382,500	$ -	$ 7,382,500
Raw Water Debt Service	-	2,230,000	2,230,000
Accelerated Debt Repayment	-	600,000	600,000
Capital Projects[1]	-	1,451,900	1,451,900
Change in Unrestricted Fund Balance	-	(32,900)	(32,900)
Gross Revenue Requirement	**$ 7,382,500**	**$ 4,249,000**	**$ 11,631,500**
Other Revenue[2]	$ (535,400)	$ -	$ (535,400)
Solar Lease Revenue	-	(500,000)	(500,000)
Land Sales Revenue	-	(350,000)	(350,000)
Infrastructure Sales Tax[3]	-	(601,900)	(601,900)
Net Revenue Requirement	**$ 6,847,100**	**$ 2,797,100**	**$ 9,644,200**

(1) FY 22 Capital projects, nets to $0 in PAYGO after Solar Lease, Land Sales and Infr. Sales Tax

(2) Non-Rate Revenue + Contract Revenue

(3) $800,000 assumed, $601,900 needed (after Solar Lease and Land Sales) for FY 22 capital, balance will be saved for future capital.

Table 32 – Wastewater Utility Revenue Requirement (FY 2022)

Description	Operating	Capital	Total
O&M Expense	$ 1,342,800	$ -	$ 1,342,800
Debt Service	-	-	-
Capital Projects[1]	-	1,184,500	1,184,500
Change in Unrestricted Fund Balance	-	54,000	54,000
Gross Revenue Requirement	**$ 1,342,800**	**$ 1,238,500**	**$ 2,581,300**
Non-Rate Revenue	$ (40,000)		$ (40,000)
Solar Lease Revenue	-	-	-
Land Sales Revenue	-	(300,000)	(300,000)
Infrastructure Sales Tax	-	-	-
Net Revenue Requirement	**$ 1,302,800**	**$ 938,500**	**$ 2,241,300**

(1) FY 22 Capital Projects. Nets to $884,500 in PAYGO after Land Sales Revenue.

Cost functionalization involves allocating the operating and capital components of the revenue requirement to the various functions performed by the City to provide utility service to customers. Three approaches were used to functionalize the revenue requirement: direct allocation, allocation using gross plant investment and indirect allocation.

Direct allocation is used where a specific cost can be attributed directly to a specific function. In this case, that component of the revenue requirement is allocated directly to that function.

Gross plant investment is used where a cost is incurred to support multiple functions. The use of gross plant investment is common throughout the industry and is based on the presumption that the City incurs costs in

proportion to the investment in utility infrastructure used to provide service to customers. Capital costs were generally allocated using gross plant investment, based on the presumption that the City will reinvest in the utility systems in proportion to the existing level of investment. This results in a smoother allocation of capital costs over time relative to allocating capital costs on a project specific basis. Gross plant investment was derived from a detailed review of the City's fixed asset records for each utility, which serves as the basis for the asset value reported on the balance sheet within the City's comprehensive annual financial report (CAFR). Raftelis reviewed the fixed asset records of each utility and assigned each asset to the functional categories indicated in Sections 4.3.1 through 4.3.3. The resultant value, by function, relative to the total was then used to develop the gross plant investment allocations.

Indirect allocation was used for costs which are incurred to support all functions and are assumed to be incurred in proportion to the costs allocated directly and using gross plant investment.

4.3.1. ELECTRIC UTILITY FUNCTIONALIZATION

Table 33 shows the functionalization of electric utility operating costs. Purchased power was allocated 100% to the purchased power function. Internal electric fund costs (i.e., excluding purchased power and transfer to fund 60) were allocated based on gross plant investment. Internal utilities administration costs related to billing and customer service were allocated 100% to customer service. All other internal utilities administration costs and the General Fund Central Services Fee were allocated in proportion to the allocation of internal electric fund and utilities administration billing costs. Non-rate revenues were allocated in proportion to the allocation of total operating costs, excluding purchased power.

Table 33 – Electric O&M Functionalization

Description	Purchased Power	Internal Electric Fund	Transfer to Fund 60			Non-Rate Revenue	Total
			UT Admin Billing	UT Admin All Other	GF Central Services		
Purchased Power	$ 5,326,100	$ -	$ -	$ -	$ -	$ -	$ 5,326,100
Substations	-	766,200	-	116,800	101,800	(36,600)	948,200
Transformers	-	203,000	-	30,900	27,000	(9,700)	251,200
Distribution	-	2,572,700	-	392,100	341,800	(122,800)	3,183,800
Services	-	218,400	-	33,300	29,000	(10,400)	270,300
Meters	-	142,500	-	21,700	18,900	(6,800)	176,300
Customer Service	-	-	472,200	72,000	62,700	(22,500)	584,400
Area Lighting	-	-	-	-	-	-	-
Street Lighting	-	22,900	-	3,500	3,000	(1,100)	28,300
Total O&M	**$ 5,326,100**	**$ 3,925,700**	**$ 472,200**	**$ 670,300**	**$ 584,200**	**$ (209,900)**	**$ 10,768,600**

The functionalization of electric utility capital costs is presented in **Table 34**. These costs were functionalized based on gross plant investment, excluding services, meters and streetlights. The cost for these components of the electric system are generally repair and maintenance related and are included in operating expenses, rather than capitalized.

Table 34 – Electric Capital Functionalization

Description	Debt Service	Capital Projects	Addition to/(Use of) Reserves	Solar Lease	Land Sales	Total
Purchased Power	$ -	$ -	$ -	$ -	$ -	$ -
Substations	-	947,000	355,000	-	(129,800)	1,172,200
Transformers	-	250,900	94,100	-	(34,400)	310,600
Distribution	-	3,179,600	1,192,100	-	(435,800)	3,935,900
Services	-	-	-	-	-	-
Meters	-	-	-	-	-	-
Customer Service	-	-	-	-	-	-
Area Lighting	-	-	-	-	-	-
Street Lighting	-	-	-	-	-	-
Total Capital	**$ -**	**$ 4,377,500**	**$ 1,641,200**	**$ -**	**$ (600,000)**	**$ 5,418,700**

4.3.2. WATER UTILITY FUNCTIONALIZATION

Table 35 shows the functionalization of water utility operating costs. The commodity charges (the charge per acre foot of water purchased) from SNWA were allocated to purchased water (for the potable charge) and raw water supply for the (raw water charge). The infrastructure charges from SNWA were allocated to meters and services. The City pays these charges based on the number of customer meters within the City. 7% of Internal Water Fund costs were directly assigned to Meters & Services based on discussions with City staff. The remaining Internal Water Fund costs were allocated based on gross plant investment. Internal utilities administration costs related to billing and customer service were allocated 100% to customer service. All other internal utilities administration costs and the general fund central services fee were allocated in proportion to the allocation of internal water fund, utilities administration billing costs and the SNWA infrastructure charges. Non-rate revenues were allocated in proportion to the allocation of total operating costs, excluding SNWA commodity expenses.

Table 35 – Water O&M Functionalization

Description	SNWA Purchases				Internal Water Fund	Transfer to Fund 60			Non-Rate Revenue	Total
	Commodity Charge Potable	Infrastructure Charge Potable	Commodity Charge Raw	Infrastructure Charge Raw		UT Admin Billing	UT Admin All Other	GF Central Services		
Purchased Water	$ 2,418,400	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,418,400
Storage	-	-	-	-	335,200	-	35,500	31,000	(53,900)	347,800
Distribution System	-	-	-	-	1,343,600	-	142,400	124,100	(216,200)	1,393,900
Meters & Services	-	1,166,100	-	71,500	128,800	-	144,800	126,300	(219,800)	1,417,700
Customer Service	-	-	-	-	-	248,600	26,300	23,000	(40,000)	257,900
Raw Water Supply	-	-	976,100	-	-	-	-	-	-	976,100
Raw Water Distribution	-	-	-	-	34,100	-	3,600	3,100	(5,500)	35,300
Total O&M	**$ 2,418,400**	**$ 1,166,100**	**$ 976,100**	**$ 71,500**	**$ 1,841,700**	**$ 248,600**	**$ 352,600**	**$ 307,500**	**$ (535,400)**	**$ 6,847,100**

Table 36 indicates the functionalization of water utility capital costs. The debt service associated with the raw water line was allocated 100% to raw water supply. All other costs[19] were allocated using gross plant investment, excluding investment in the raw water line. The raw water line investment was excluded to avoid skewing the

[19] The accelerated debt repayment will allow the City to repay the debt three years early, at which time this amount will be available for capital projects which benefit all customers. Accordingly, this was allocated consistent with the other capital costs.

capital cost allocation towards raw water customers only. The City's capital plan does not include any projects related to the raw water line.

Table 36 – Water Capital Functionalization

Description	Raw Water Debt Service	Accelerated Debt Repayment	Capital Projects	Addition to/(Use of) Reserves	Solar Lease	Land Sales	Infrastructure Sales Tax	Total
Purchased Water	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Storage	-	100,800	243,900	(5,500)	(84,000)	(58,800)	(101,100)	95,300
Distribution System	-	404,000	977,600	(22,200)	(336,700)	(235,700)	(405,300)	381,700
Meters & Services	-	85,000	205,600	(4,700)	(70,800)	(49,600)	(85,300)	80,200
Customer Service	-	-	-	-	-	-	-	-
Raw Water Supply	2,230,000	-	-	-	-	-	-	2,230,000
Raw Water Distribution	-	10,200	24,800	(600)	(8,500)	(6,000)	(10,300)	9,600
Total Capital	**$ 2,230,000**	**$ 600,000**	**$ 1,451,900**	**$ (33,000)**	**$ (500,000)**	**$ (350,100)**	**$ (602,000)**	**$ 2,796,800**

4.3.3. WASTEWATER UTILITY FUNCTIONALIZATION

Table 37 presents the functionalization of wastewater utility operating costs. Internal wastewater fund costs were allocated based on gross plant investment. Internal utilities administration costs related to billing and customer service were allocated 100% to customer service. All other internal utilities administration costs and the general fund central services fee were allocated in proportion to the allocation of internal wastewater fund and utilities administration billing costs. Non-rate revenues were allocated in proportion to the allocation of total operating costs.

Table 37 – Wastewater O&M Functionalization

Description	Internal Wastewater Fund	Transfer to Fund 60			Non-Rate Revenue	Total
		UT Admin Billing	UT Admin All Other	GF Central Services		
Treatment	$ 671,800	$ -	$ 70,300	$ 61,300	$ (23,900)	$ 779,500
Collection	368,100	-	38,500	33,600	(13,100)	427,100
Billing	-	82,900	8,700	7,600	(3,000)	96,200
Total O&M	**$ 1,039,900**	**$ 82,900**	**$ 117,500**	**$ 102,500**	**$ (40,000)**	**$ 1,302,800**

Table 38 indicates the functionalization of wastewater capital costs, which is based on gross plant investment.

Table 38 – Wastewater Capital Functionalization

Description	Debt Service	Capital Projects	Addition to/(Use of) Reserves	Solar Lease	Land Sales	Infrastructure Sales Tax	Total
Treatment	$ -	$ 765,200	$ 34,900	$ -	$ (193,800)	$ -	$ 606,300
Collection	-	419,300	19,100	-	(106,200)	-	332,200
Billing	-	-	-	-	-	-	-
Total Capital	**$ -**	**$ 1,184,500**	**$ 54,000**	**$ -**	**$ (300,000)**	**$ -**	**$ 938,500**

Tables 39, 40 and 41 below summarize the functionalized revenue requirement for each utility. These are the functions which must be performed to deliver service to customers. These functionalized costs are allocated to *cost drivers* in Step 2, which are the components of customer demand which drive the design, operation and cost of each utility system.

Table 39 – Summary of Functionalized Costs (Electric Utility)

Description	O&M	Capital	Total
Purchased Power	$ 5,326,100	$ -	$ 5,326,100
Substations	948,200	1,172,200	2,120,400
Transformers	251,200	310,600	561,800
Distribution	3,183,800	3,935,900	7,119,700
Services	270,300	-	270,300
Meters	176,300	-	176,300
Customer Service	584,400	-	584,400
Area Lighting	-	-	-
Street Lighting	28,300	-	28,300
Grand Total	**$ 10,768,600**	**$ 5,418,700**	**$ 16,187,300**

Table 40 – Summary of Functionalized Costs (Water Utility)

Description	O&M	Capital	Total
Purchased Water	$ 2,418,400	$ -	$ 2,418,400
Storage	347,800	95,300	443,100
Distribution System	1,393,900	381,700	1,775,600
Meters & Services	1,417,700	80,200	1,497,900
Customer Service	257,900	-	257,900
Raw Water Supply	976,100	2,230,000	3,206,100
Raw Water Distribution	35,300	9,600	44,900
Grand Total	**$ 6,847,100**	**$ 2,796,800**	**$ 9,643,900**

Table 41 – Summary of Functionalized Costs (Wastewater Utility)

Description	O&M	Capital	Total
Treatment	$ 779,500	$ 606,300	$ 1,385,800
Collection	427,100	332,200	759,300
Billing	96,200	-	96,200
Grand Total	**$ 1,302,800**	**$ 938,500**	**$ 2,241,300**

4.4. Step 2 - Allocation to Cost Drivers

Step 1 assigns the revenue requirement to the functions which must be performed to deliver utility service to customers. Step 2 allocates these functionalized costs to *cost drivers*, which are the components of customer demand which drive the design, operation and cost of each utility system. As discussed above, the electric, water and wastewater systems are designed around the demands that customers place on them. Step 2 attributes the revenue requirement to each component of demand so that it can be allocated to each customer class based on their share of demand.

4.4.1. ELECTRIC UTILITY ALLOCATION TO COST DRIVERS

The allocation of electric utility costs to cost drivers is presented in **Table 42**. Purchased power is driven primarily by customer usage and was allocated 100% to annual usage.

Substation costs are incurred to meet non-coincident peak demand at the substation level of the electric system. These costs will be allocated based on total substation capacity and each customer class's estimated contribution to non-coincident peak demand in Step 3.

Transformer and distribution system costs are driven by customer maximum demand. The customer maximum demand driver relates to the nature of electric infrastructure used to serve customers at the distribution level of the electric system. The primary distinction relates to the sizing of infrastructure and how many customers are served from each component. Transformers for commercial customers, for example, may only serve one customer. Accordingly, the transformer can be sized to the load of that customer. Transformers for residential customers, by contrast, often serve more than one customer, resulting in less certainty regarding the load and the need for oversizing and additional cost. Customer maximum demand recognizes the additional variability in load, and resultant cost for these components of the electric system.

Service and meter related costs are driven by the number and size of electric customers. Larger customers require larger services and meters than smaller customers. These costs will be allocated based on weighted customers in Step 3.

Customer service related costs are a function of the number of customers in each class and allocated based on the number of customer bills.

Street lighting costs are related to the number of City streetlights and are allocated directly to this cost driver.

Table 42 – Electric Utility Allocation to Cost Drivers

Description	Total	Annual Usage	Non-Coincident Peak Demand	Customer Maximum Demand	Services	Meters	Customers	Area Lighting	Street Lighting
Purchased Power	$ 5,326,100	$ 5,326,100	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Substations	2,120,400	-	2,120,400	-	-	-	-	-	-
Transformers	561,800	-	-	561,800	-	-	-	-	-
Distribution	7,119,700	-	-	7,119,700	-	-	-	-	-
Services	270,300	-	-	-	270,300	-	-	-	-
Meters	176,300	-	-	-	-	176,300	-	-	-
Customer Service	584,400	-	-	-	-	-	584,400	-	-
Area Lighting	-	-	-	-	-	-	-	-	-
Street Lighting	28,300	-	-	-	-	-	-	-	28,300
Grand Total	**$ 16,187,300**	**$ 5,326,100**	**$ 2,120,400**	**$ 7,681,500**	**$ 270,300**	**$ 176,300**	**$ 584,400**	**$ -**	**$ 28,300**

4.4.2. WATER UTILITY ALLOCATION TO COST DRIVERS

The allocation of water utility costs to cost drivers is presented in **Table 43**.

Purchased water is a function of the amount of water used by customers on an annual basis, regardless of peak demand. Accordingly, it is allocated 100% to base demand.

Storage and distribution system costs, which are used to meet the peak demands of customers, are split between base demand, maximum day demand and maximum hour demand. This split is based on assumed system design criteria of 1.5 and 3.00 times average day demand for maximum day and maximum hour respectively.

For maximum day, it is assumed that the water system is designed to deliver water at 1.5 times the average day (base) rate on maximum day. In other words, the water system needs incremental capacity to deliver water on a maximum day as compared to an average day. Accordingly, costs incurred to support base and maximum day service are allocated between base and maximum day based on the proportion of each relative to the overall capacity requirement. For a total of 1.5, 1.0 is related to base service and 0.5 is related to maximum day service. This results in an allocation of 67% and 33% for base and maximum day, respectively.

A similar approach is used for costs incurred to support base, maximum day and maximum hour service. Maximum hour demand represents the incremental demand above maximum day demand. Based on the design criteria outlined above the maximum hour allocation would be 50% (1.5 / 3.0). Base and maximum day would be 33% (1.0 / 3.0) and 17% (0.5 / 3.0).

Meters and services costs are a function of the number of customers at each meter size. These costs are allocated to equivalent meters, which recognizes difference in capacity and cost for meters of different sizes.

Raw water supply and raw water distribution costs are driven by the usage of raw water customers only. Accordingly, these are allocated 100% to the raw water usage cost driver.

Table 43 – Water Utility Allocation to Cost Drivers

Description	Total	Base	Max Day	Max Hour	Equivalent Meters	Bills	Raw Water Usage
Purchased Water	$ 2,418,400	$ 2,418,400	$ -	$ -	$ -	$ -	$ -
Storage	443,100	295,400	147,700	-	-	-	-
Distribution System	1,775,600	591,900	295,900	887,800	-	-	-
Meters & Services	1,497,900	-	-	-	1,497,900	-	-
Customer Service	257,900	-	-	-	-	257,900	-
Raw Water Supply	3,206,100	-	-	-	-	-	3,206,100
Raw Water Distribution	44,900	-	-	-	-	-	44,900
Grand Total	**$ 9,643,900**	**$ 3,305,700**	**$ 443,600**	**$ 887,800**	**$ 1,497,900**	**$ 257,900**	**$ 3,251,000**

4.4.3. WASTEWATER UTILITY ALLOCATION TO COST DRIVERS

The allocation of wastewater utility costs to cost drivers is presented in **Table 44**. The wastewater utility incurs costs to collect, treat and discharge customer sewage.

Treatment costs are driven by the volume of customer sewage discharged by customers as well as the strength of pollutants, which must be removed via the physical and biological processes at the treatment plant. Treatment costs were allocated 70% to volume, 15% to biochemical oxygen demand (BOD), and 15% to total suspended solids (TSS)

Collection system costs are driven by the volume of sewage discharged by customers both directly, via indoor water use, and indirectly via the infiltration and inflow (I/I) of additional volumes during heavy rain events. These costs were allocated 100% to volume.

Billing costs are related to the provision of billing, collection and customer service, which is a function of the number of wastewater customers. Accordingly, these costs were allocated 100% to the bills cost driver.

Table 44 – Wastewater Utility Allocation to Cost Drivers

Description	Total	Volume	BOD	TSS	Billing
Treatment	$ 1,385,800	$ 970,000	$ 207,900	$ 207,900	$ -
Collection	759,400	759,400	-	-	-
Billing	96,200	-	-	-	96,200
Grand Total	**$ 2,241,400**	**$ 1,729,400**	**$ 207,900**	**$ 207,900**	**$ 96,200**

4.5. Step 3 – Determine Customer Class Units of Service

While Steps 1 and 2 allocate the revenue requirement according to the various types of customer demand, Step 3 determines the level of that demand for each customer class, which is described as units of service. This allows for assignment of the revenue requirement to each customer class proportionate to their share of the type of demand which drives variation in those costs. This involves a detailed analysis of customer usage information to determine the units of service which relate to each cost component.

4.5.1. ELECTRIC UTILITY UNITS OF SERVICE

Table 45 indicates the units of service for the electric utility. *Annual usage* is based on billed usage for metered customers and estimated usage for Area Lighting and City Street Lights.

Coincident peak demand represents the demand at the input level of the electric system. Each customer class's contribution to coincident peak demand was estimated using load factors. For demand metered customers (Commercial and Time of Use), load factors were calculated by dividing average hourly usage in kW (annual / 8760) into the maximum billed kW. Load factors for all other customers were estimated using monthly maximum monthly demand, plus an adjustment based on the ratio of the system peak demand relative to the system maximum monthly demand[20]. This represents the peak demand for the electric system in total, which is comprised of the non-coincident peaks of individual customers, which all occur at slightly different times. These non-coincident peaks become increasingly important as the point of delivery moves from the input level (where the system is designed around peak demand in total) to the customer level (where the system is tailored to the characteristics of smaller groups of customers).

To account for this, the electric cost of service study divides the electric system between the substation level and the customer level. Substation costs are allocated based on *non-coincident peak demand*, which is calculated as each class's coincident peak demand, divided by a coincidence factor. This factor accounts for how homogenous customers within a class are. Residential customer demand patterns are relatively similar and the differences, when aggregated at the substation level, are a smaller driver of substation capacity than commercial customers, who are more heterogenous. This is recognized by the coincidence factor, which is higher for residential than commercial.

Customer maximum demand is similar to non-coincident peak demand but includes an additional adjustment to account for the nature of the infrastructure used to serve residential and commercial customers. For example, as

[20] For non-demand metered customers, only maximum monthly demand is known. For the system as a whole, the maximum hour and maximum month demand are known. This adjustment represents the ratio of maximum hour demand to maximum month demand for the electric system as a whole. This is then applied to maximum monthly demand for non-demand metered customers, to scale-up this demand to an estimated max hour demand. The details of this calculation are included in **Appendix B1**. As shown on Table 45, the result of this calculation is a coincident peak demand of 50 MW, which is closely ties to the observed peak demand from City's 2018 – 2022 Integrated Resource Plan (51 MW).

noted above, transformers for commercial customers can be sized based on the individual customer, which is more efficient and less costly than the residential class, whose transformers may serve multiple customers. The adjustment factor, which is higher for residential, than commercial, accounts for this difference.
For example, residential customer coincident peak demand is estimated as:

- Annual Average kW: Annual Usage (92,285,873) / 8,760 = 10,535 kW
- Coincident Peak Demand: Annual Average kW (10,535) / Load Factor (32.806% or 0.32806) = 32,113 kW

This is then adjusted to non-coincident demand using the coincidence factor:

- Non-Coincident Peak Demand: Coincident Peak Demand (32,113 kW) / Coincidence Factor (90% or 0.90) = 35,681 kW

Finally, Non-Coincident Peak Demand is converted to customer maximum demand:

- Customer Maximum Demand: Non-Coincident Peak Demand x Factor (2.10) = 74,930 kW

Customer services and meters are weighted to account for the larger more expensive meters and conductors used to serve commercial customers as compared to residential. *Customers* represents the number of customers in each customer class.

Table 45 – Electric Utility Units of Service

Customer Class	Annual Usage	Average Annual	Load Factor	Coincident Peak Demand	Coincidence Factor	Non-Coincident Peak Demand	Factor	Customer Max Demand	Services	Meters	Customers	Area Lighting	Street Lighting
	kWh	kW		kW		kW		kW					
Residential	92,285,873	10,535	32.806%	32,113	90%	35,681	2.10	74,930	7,060	7,060	7,060	-	-
Residential - Master Meter	3,197,939	365	35.230%	1,036	90%	1,151	2.10	2,418	2	2	2	-	-
Commercial - <300 kW	32,045,677	3,658	35.994%	10,163	75%	13,551	1.60	21,682	1,374	1,832	916	-	-
Commercial - >300 kW	8,218,244	938	42.832%	2,190	75%	2,920	1.60	4,673	12	16	8	-	-
Time of Use - <600V	2,470,706	282	40.071%	704	75%	938	1.60	1,502	2	2	1	-	-
Time of Use - >2,400V	3,389,450	387	38.777%	998	75%	1,330	1.60	2,129	2	2	1	-	-
Boulder City Hospital	2,431,633	278	45.974%	604	75%	805	1.60	1,288	2	2	1	-	-
City Electric	5,904,747	674	45.110%	1,494	75%	1,992	1.60	3,188	162	216	108	-	-
Area Lighting	204,695	23	100.000%	23	100%	23	1.00	23	-	-	105	105	-
Sportsfield Lighting	2,653	0	100.000%	0	100%	0	1.00	0	-	-	1	1	-
City Street Lights	1,752,000	200	100.000%	200	100%	200	1.00	200	-	-	1	-	2,400
Combined System	**151,903,617**	**17,341**		**49,526**		**58,594**		**112,032**	**8,615**	**9,132**	**8,204**	**106**	**2,400**

4.5.2. WATER UTILITY UNITS OF SERVICE

Table 46 indicates the water utility units of service. As described above the water system is designed to meet both base and peak (maximum day and hour demand). The most common approach for allocating such costs is known as the base-extra capacity method, which assigns costs to each customer class in proportion to their incremental, or extra capacity, demand requirements. A customers' maximum day extra capacity is a function of their maximum day demand, in excess of average or base demand. Their maximum hour extra capacity is a function of their maximum hour demand, in excess of their maximum day demand. For this study, these demands were estimated using maximum day and maximum hour peaking factors developed using monthly customer billing data[21].

For example, residential customers have an estimated maximum day peaking factor of 1.821. This means that this class is estimated to use 1.821 times the amount of water on a maximum day as they do on an average day. This is calculated as follows (totals will not match due to rounding):

- Average Day = annual usage / 365 (885,073 / 365 = 2,425 gpd)
- Max Day Total = Average Day x Max Day Factor (2,425 x 1.821 = 4,416 gpd)

[21] Please see Appendix B2 for the details of these calculations.

» Max Day Extra = Max Day Total – Average Day (4,416 gpd – 2,425 gpd = 1,991 gpd)

This calculation is repeated for maximum hour as follows

» Max Hour Total = Average Day x Max Hour Peaking Factor (2,425 x 3.642 = 8,832 gpd)
» Max Hour Extra = Max Hour Total – Max Day Total (8,832 gpd – 4,416 = 4,416 gpd)

Equivalent meters are based on the number of bills at each meter size which have been scaled up according to the capacity of each meter. The final category, raw water, is based on the billed volumes of raw water customers.

Table 46 – Water Utility Units of Service

Customer Class	Annual Usage	Avg. Day	Max Day Factor	Max Day Total	Max Day Extra	Max Hour Factor	Max Hour Total	Max Hour Extra Capacity	Eq. Meters	Bills	Raw Water
	1,000 gal	1,000 gpd		1,000 gpd	1,000 gpd		1,000 gpd	1,000 gpd			1,000 gal
Residential - Single Family	885,073	2,425	1.821	4,416	1,991	3.642	8,832	4,416	64,502	63,086	-
Residential - Multi-Family	167,737	460	1.759	809	349	3.519	1,617	809	3,663	1,903	-
Commercial - Potable	443,600	1,215	1.804	2,193	977	3.608	4,385	2,193	10,634	5,172	-
Cascata - Potable	946	3	2.265	6	3	4.529	12	6	38	12	-
City - Potable (Golf Course)	297,351	815	2.210	1,801	986	4.421	3,601	1,801	943	96	-
City - Potable (All Other)	134,391	368	2.044	753	384	4.088	1,505	753	4,766	1,416	-
Commercial - Raw	-	-	-	-	-	-	-	-	1,061	72	133,238
Cascata - Raw	-	-	-	-	-	-	-	-	792	24	294,584
City - Raw (Golf Course)	-	-	-	-	-	-	-	-	902	48	434,016
City - Raw (All Other)	-	-	-	-	-	-	-	-	2,426	288	158,493
Combined System	**1,929,098**	**5,285**		**9,976**	**4,691**		**19,952**	**9,976**	**89,729**	**72,117**	**1,020,331**

4.5.3. WASTEWATER UTILITY UNITS OF SERVICE

Table 47 indicates the units of service for the wastewater utility. Costs will be allocated to customer classes based on total volume, BOD, TSS and bills.

Total volume includes estimated sanitary volumes, plus an allocation of assumed infiltration and inflow. Sanitary volumes were based on average winter consumption for residential single family and actual water use for all other classes. Infiltration and inflow (assumed to be 10% of total volume) was allocated to each customer class based on the number of customers (75% weighting) and on sanitary volumes (25% weighting). This recognizes the fact that infiltration and inflow is primarily a function of the number, rather than the size, of customers.

The City does not have any high strength customers and, it is our understanding that the strengths of customers are relatively homogenous. Accordingly, strength concentrations of 187 mg/L and 245 mg/L were assumed for BOD and TSS respectively. Table 48 below indicates the pounds of BOD and TSS contributed by class, based on those assumptions[22].

[22] The pounds shown are calculated by converting volume to liters, multiplying by the strength concentration and dividing by the number of milligrams in a pound (453,592). For example, single family residential BOD is calculated as (607,951 x 3,785 x 187) / 453,592 = 948,762.

Table 47 – Wastewater Utility Units of Service

Customer Class	Sanitary Volume	I&I	Total Volume	BOD	TSS	Bills
	1,000 gal	1,000 gal	1,000 gal	lbs	lbs	
Residential - Single Family	607,951	85,783	693,734	948,762	1,243,030	62,553
Residential - Multi-Family	113,846	4,734	118,580	177,667	232,772	1,427
Commercial	126,941	3,926	130,867	198,103	259,547	363
City	1,814	62	1,876	2,830	3,708	11
Combined System	**850,551**	**94,506**	**945,057**	**1,327,362**	**1,739,057**	**64,354**

4.6. Step 4 – Calculate Unit Cost of Service

Task 5.4 involves determining the unit cost of each cost driver. This involves dividing the costs (by driver), determined in Step 2, by the units of service (by driver) determined in Step 3. The unit cost of service, by cost driver, will be used to distribute costs to the City's customer classes in Step 5.

The unit cost of service development for the electric, water and wastewater utilities is presented in **Tables 48, 49 and 50**, respectively.

Table 48 – Electric Utility Unit Cost of Service

Description	Cost	Units		Unit Cost
Annual Usage	$ 5,326,100	151,903,617	kWh	$ 0.04
Non-Coincident Peak	2,120,400	58,594	kW	$ 36.19
Customer Maximum	7,681,500	112,032	kW	$ 68.57
Services	270,300	8,615	Wtd. Cust	$ 31.38
Meters	176,300	9,132	Wtd. Cust	$ 19.31
Customer	584,400	8,204	Cust	$ 71.23
Area Lighting	-	106	Cust	$ -
Street Lighting	28,300	2,400		$ 11.79
Grand Total	**$ 16,187,300**			

Table 49 – Water Utility Unit Cost of Service

Description	Cost	Units	Unit Cost	
Base	$ 3,305,700	1,929,098	1,000 gal	$ 1.71
Max Day	443,600	4,691	1,000 gpd	$ 94.56
Max Hour	887,800	9,976	1,000 gpd	$ 88.99
Equivalent Meters	1,497,900	89,729	Eq. Mtr	$ 16.69
Bills	257,900	72,117	Bills	$ 3.58
Raw Water Usage	3,251,000	1,020,331	1,000 gal	$ 3.19
Grand Total	**$ 9,643,900**			

Table 50 – Wastewater Utility Unit Cost of Service

Description	Cost	Units		Unit Cost
Volume	$ 1,729,400	945,057	1,000 gal	$ 1.83
BOD	207,900	1,327,362	Pounds	$ 0.16
TSS	207,900	1,739,057	Pounds	$ 0.12
Bills	96,200	64,354	Bills	$ 1.49
Grand Total	**$ 2,241,400**			

4.7. Step 5 – Distribute Costs to Customer Classes

Steps 1 through 4 associate utility costs with the types of demand that cause them to be incurred and determine each customer class's share of each type of demand. The result is a unit cost of service for each type of customer demand. Step 5 distributes costs to customer classes by multiplying the applicable unit cost for each component of demand by each customer class's units of service. The outcome is an understanding of each customer class's responsibility for the overall revenue requirement identified in Step 1, based usage characteristics of each customer class. The results of this cost distribution are presented in **Tables 51 through 53.**

Table 51 – Electric Utility Distribution of Costs to Customer Classes

Customer Class	Total	Annual Usage	Non-Coincident Peak Demand	Customer Maximum Demand	Services	Meters	Customer	Area Lighting	Street Lighting
Residential	$ 10,525,300	$ 3,235,800	$ 1,291,200	$ 5,137,600	$ 221,500	$ 136,300	$ 502,900	$ -	$ -
Residential - Master Meter	319,800	112,100	41,700	165,800	100	-	100	-	-
Commercial - <300 kW	3,244,300	1,123,600	490,400	1,486,600	43,100	35,400	65,200	-	-
Commercial - >300 kW	715,600	288,200	105,700	320,400	400	300	600	-	-
Time of Use - <600V	223,700	86,600	34,000	103,000	-	-	100	-	-
Time of Use - >2,400V	313,000	118,800	48,100	146,000	-	-	100	-	-
Boulder City Hospital	202,800	85,300	29,100	88,300	-	-	100	-	-
City Electric	514,700	207,000	72,100	218,600	5,100	4,200	7,700	-	-
Area Lighting	17,100	7,200	800	1,600	-	-	7,500	-	-
Sportsfield Lighting	200	100	-	-	-	-	100	-	-
City Street Lights	110,700	61,400	7,200	13,700	-	-	100	-	28,300
Combined System	**$ 16,187,200**	**$ 5,326,100**	**$ 2,120,300**	**$ 7,681,600**	**$ 270,200**	**$ 176,200**	**$ 584,500**	**$ -**	**$ 28,300**

Table 52 – Water Utility Distribution of Costs to Customer Classes

Customer Class	Total	Base	Max Day	Max Hour	Equivalent Meters	Bills	Raw Water Usage
Residential - Single Family	$ 3,400,400	$ 1,516,700	$ 188,300	$ 393,000	$ 1,076,800	$ 225,600	$ -
Residential - Multi-Family	460,300	287,400	33,000	72,000	61,100	6,800	-
Commercial - Potable	1,243,700	760,200	92,400	195,100	177,500	18,500	-
Cascata - Potable	3,000	1,600	300	500	600	-	-
City - Potable (Golf Course)	778,900	509,500	93,200	160,200	15,700	300	-
City - Potable (All Other)	418,400	230,300	36,400	67,000	79,600	5,100	-
Commercial - Raw	442,500	-	-	-	17,700	300	424,500
Cascata - Raw	951,900	-	-	-	13,200	100	938,600
City - Raw (Golf Course)	1,398,200	-	-	-	15,100	200	1,382,900
City - Raw (All Other)	546,500	-	-	-	40,500	1,000	505,000
Combined System	**$ 9,643,800**	**$ 3,305,700**	**$ 443,600**	**$ 887,800**	**$ 1,497,800**	**$ 257,900**	**$ 3,251,000**

Table 53 – Wastewater Utility Distribution of Costs to Customer Classes

Customer Class	Total	Volume	BOD	TSS	Bills
Residential - Single Family	$ 1,660,200	$ 1,269,500	$ 148,600	$ 148,600	$ 93,500
Residential - Multi-Family	274,700	217,000	27,800	27,800	2,100
Commercial	302,000	239,500	31,000	31,000	500
City	4,200	3,400	400	400	-
Combined System	**$ 2,241,100**	**$ 1,729,400**	**$ 207,800**	**$ 207,800**	**$ 96,100**

Tables 54 through 56 indicate each class's calculated cost of service as compared to the revenue generated under existing rates. As described in Section 3, based on the financial plans developed for each utility, no revenue increase is required or recommended. That said the result of the cost of service analysis indicates that there are variances between revenue generation under the current rate structure and the cost to serve each customer class under the City's existing rate structure. The tables below compare projected cost of service, by class, in FY 2022 to revenue under the proposed rate reductions ($10 fixed charge reduction and 3% energy charge reduction).

It is important to consider that cost of service determination involves a significant number of projections and estimates and are subject to a certain level of uncertainty. Accordingly, the cost of service results shown below should be considered a guide for rate setting, to be considered alongside other policy objectives and considerations. As described in further detail in **Section 5**, our recommendation, based on numerous discussions of potential options with City staff, is a multi-year phase-in to cost of service for all customer classes.

Table 54 – Electric Utility Cost of Service vs. Reduced Revenues

Customer Class	FY 2022 Reduced Rates	FY 2022 Cost of Service	% Difference Proposed vs. COS	$ Difference Proposed vs. COS
Residential	$ 9,287,200	$ 10,525,300	13%	$ 1,238,100
Residential - Master Meter	345,600	319,800	-7%	(25,800)
Commercial - <300 kW	3,961,300	3,244,300	-18%	(717,000)
Commercial - >300 kW	1,149,600	715,600	-38%	(434,000)
Time of Use - <600V	388,500	223,700	-42%	(164,800)
Time of Use - >2,400V	540,400	313,000	-42%	(227,400)
Boulder City Hospital	215,700	202,800	-6%	(12,900)
City Electric	235,000	514,700	119%	279,700
Area Lighting	34,200	17,100	-50%	(17,100)
Sportsfield Lighting	900	200	-78%	(700)
City Street Lights	28,800	110,700	284%	81,900
Combined System	**$ 16,187,200**	**$ 16,187,200**	**0.00%**	**$ -**

Table 55 – Water Utility Cost of Service vs. Reduced Revenues

Customer Class	FY 2022 Reduced Rates	FY 2022 Cost of Service	% Difference	$ Difference
Residential	$ 5,186,400	$ 3,860,700	-25.6%	$ (1,325,700)
Commercial - Potable	1,802,600	1,243,700	-31.0%	(558,900)
Cascata - Potable	4,500	3,000	-33.3%	(1,500)
City - Potable (Golf Course)	320,400	778,900	143.1%	458,500
City - Potable (All Other)	264,800	418,400	58.0%	153,600
Commercial - Raw	450,200	442,500	-1.7%	(7,700)
Cascata - Raw	1,079,400	951,900	-11.8%	(127,500)
City - Raw (Golf Course)	350,400	1,398,200	299.0%	1,047,800
City - Raw (All Other)	185,800	546,500	194.1%	360,700
Combined System	**$ 9,644,500**	**$ 9,643,800**	**0.0%**	**$ (700)**

Table 56 – Wastewater Utility Cost of Service vs. Existing Revenues

Customer Class	Existing Revenue	Cost of Service	% Difference	$ Difference
Residential	$ 1,946,900	$ 1,934,900	-0.6%	$ (12,000)
Commercial	290,200	302,000	4.1%	11,800
City	4,200	4,200	0.0%	-
Combined System	**$ 2,241,300**	**$ 2,241,100**	**-0.01%**	**$ (200)**

Currently City government accounts pay lower rates than other retail customers. This includes usage for City parks, the City owned golf courses and other City administrative buildings. Currently, City accounts pay the wholesale cost of water and power and $0.60 per 1,000 gallons for wastewater. The City also does not charge for City streetlights. **Tables 54 through 56** above indicate a significant under-recovery of electric and water costs from City government accounts relative to cost of service based on this policy. **Tables 57 and 58** indicate the cost of service results if this policy is maintained by reducing City cost of service to current levels and allocating the differences back to the remaining classes. For the electric utility, this exacerbates the differences between residential and commercial. For the water utility, the biggest change is to the raw water customers. City accounts are the most significant users of raw water. Without these accounts picking up their share of cost of service, the remaining raw water accounts would *under-recover* relative to cost of service versus the *over-recovery* indicated in **Table 55**.

Table 57 – Electric Utility Cost of Service (City Account Status Quo)

Customer Class	FY 2022 Reduced Rates	FY 2022 Cost of Service	Adjustment	FY 2022 Adj. Cost of Service	% Difference Proposed vs. Adj COS	$ Difference Proposed vs. Adj COS
Residential	$ 9,287,200	$ 10,525,300	$ 264,000	$ 10,789,300	16.2%	$ 1,502,100
Residential - Master Meter	345,600	319,800	8,000	327,800	-5.2%	(17,800)
Commercial - <300 kW	3,961,300	3,244,300	81,400	3,325,700	-16.0%	(635,600)
Commercial - >300 kW	1,149,600	715,600	18,000	733,600	-36.2%	(416,000)
Time of Use - <600V	388,500	223,700	5,600	229,300	-41.0%	(159,200)
Time of Use - >2,400V	540,400	313,000	7,900	320,900	-40.6%	(219,500)
Boulder City Hospital	215,700	202,800	5,100	207,900	-3.6%	(7,800)
City Electric	235,000	514,700	(279,700)	235,000	0.0%	-
Area Lighting	34,200	17,100	400	17,500	-48.8%	(16,700)
Sportsfield Lighting	900	200	-	200	-77.8%	(700)
City Street Lights	28,800	110,700	(110,700)	-	-100.0%	(28,800)
Combined System	**$ 16,187,200**	**$ 16,187,200**	**$ -**	**$ 16,187,200**	**0.00%**	**$ -**

Table 58 – Water Utility Cost of Service (City Account Status Quo)

Customer Class	FY 2022 Reduced Rates	FY 2022 Cost of Service	Adjustment	FY 2022 Adj. Cost of Service	% Difference Proposed vs. Adj COS	$ Difference Proposed vs. Adj COS
Residential	$ 5,186,400	$ 3,860,700	$ 1,199,800	$ 5,060,500	-2.4%	$ (125,900)
Commercial - Potable	1,802,600	1,243,700	386,500	1,630,200	-9.6%	(172,400)
Cascata - Potable	4,500	3,000	900	3,900	-13.3%	(600)
City - Potable (Golf Course)	320,400	778,900	(458,500)	320,400	0.0%	-
City - Potable (All Other)	264,800	418,400	(153,600)	264,800	0.0%	-
Commercial - Raw	450,200	442,500	137,500	580,000	28.8%	129,800
Cascata - Raw	1,079,400	951,900	295,800	1,247,700	15.6%	168,300
City - Raw (Golf Course)	350,400	1,398,200	(1,047,800)	350,400	0.0%	-
City - Raw (All Other)	185,800	546,500	(360,700)	185,800	0.0%	-
Combined System	**$ 9,644,500**	**$ 9,643,800**	**$ (100)**	**$ 9,643,700**	**0.0%**	**$ (800)**

5. Rate Design

5.1. Rate Recommendations

As described above in Section 3, the City's utilities are in sound financial condition. Current revenues are adequate to cover ongoing operations and reinvestment in a substantial portion of each utility's backbone infrastructure over the forecast period. Accordingly, no additional revenue is needed during the study period for the utility funds, in total. For context utility rate increases nationwide have consistently outpaced inflation in recent years. That said, the cost of service analysis (Section 4) has identified some differences between the cost to serve each customer class and the revenues currently recovered from each class, under the City's existing rates, assuming the implementation of the recommended reductions in electric and water rates.

The City's previous rate study, conducted in 2015, did not analyze cost of service, but recommended "across the board" adjustments to each rate in total. City staff are not aware of when a full cost of service study was last conducted. The City's existing rate structure, including the proportion of revenues recovered from each class is, therefore, a function of longstanding City policy which has been in place for a number of years. Cost of service is one principle among many that could be used for utility rate setting. There is no specific legal or jurisprudential requirement in the State of Nevada dictating that utility rates be set according to cost of service, immediately, or ever.

Throughout the course of this engagement Raftelis participated in numerous discussions with City staff regarding potential options for rate structure modifications which would result in rates that achieve the objectives of the City. The outcome of those discussions is the recommendation for a phase-in approach, which balances cost of service rate setting with the differential impacts on City customer classes. A "phase-in" approach moves each class incrementally towards cost of service over a multi-year period. The approach we have laid out in this report is based on a 4 year phase-in (FY 2023 through FY 2026) consistent with the following overall rate recommendations

1. Electric Utility
    a. Reduce electric energy rates (per kWh charge) by 3% across the board as soon as practicable
    b. Maintain monthly customer charges and demand charges constant through FY 2026
    c. Phase-in to cost of service rates over a 4-year period, beginning in FY 2023
2. Water Utility
    a. Reduce monthly fixed charge by $10 for the 5/8" to 1" meter sizes, as soon as practicable. Larger reductions for larger sizes based on meter capacity.
    b. Equalize residential and non-residential fixed charges
    c. Maintain monthly fixed charge constant through FY 2026
    d. Phase-in to cost of service rates over a 4-year period, beginning in FY 2023
3. Wastewater Utility
    a. Maintain residential charges constant through FY 2026
    b. Phase-in the replacement of the commercial inclining block rate with a uniform rate over a 4-year period beginning in FY 2023

The detailed rate projections under this approach are indicated in **Appendices C1 through C3**.

5.2. Customer Bill Impacts and Bill Comparison

The combined impact on example residential and commercial accounts are indicated in Figures 7 through 12 below. In general, all customers would see the benefit for reduced energy charges and water fixed charges (assumed to be

implemented on July 1, 2021). From there commercial customers would continue to see reductions based on a movement toward cost of service for electric and water. Residential customer bills would see modest increases due to the concurrent reductions in water rates and increases in electric rates.

Figure 7 – Small Residential Monthly Bill (600 kWh, ¾" Meter, 5,000 gallons)

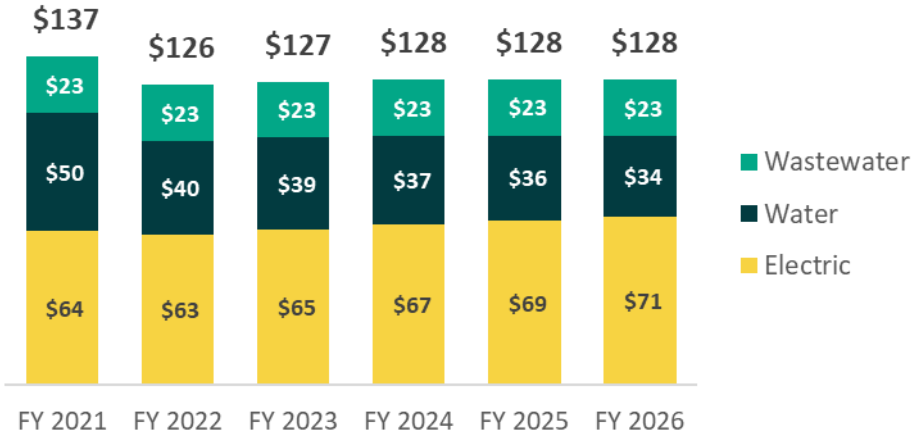


Figure 8 – Average Residential Monthly Bill (1,200 kWh, ¾" Meter, 10,000 gallons)

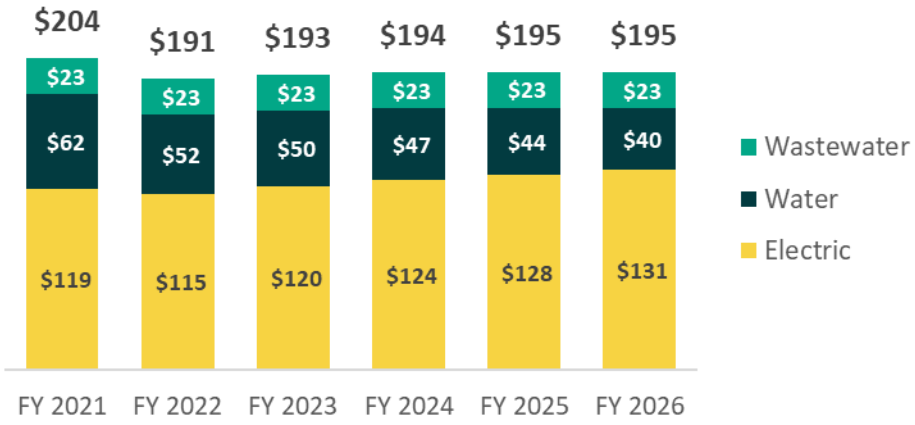


Figure 9 – Large Residential Monthly Bill (2,400 kWh, ¾" Meter, 30,000 gallons)

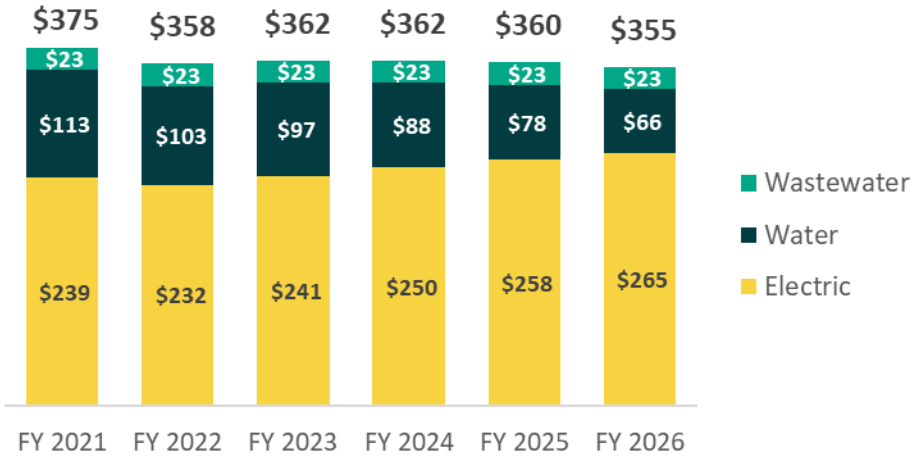


Figure 10 – Small Commercial Monthly Bill (1,500 kWh, ¾" Meter, 5,000 gallons)

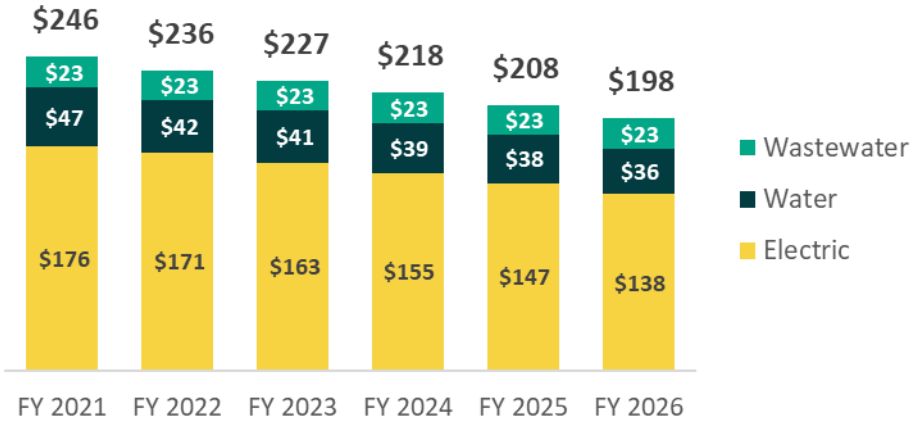


Figure 11 – Average Commercial Monthly Bill (3,000 kWh, ¾" Meter, 11,000 gallons)

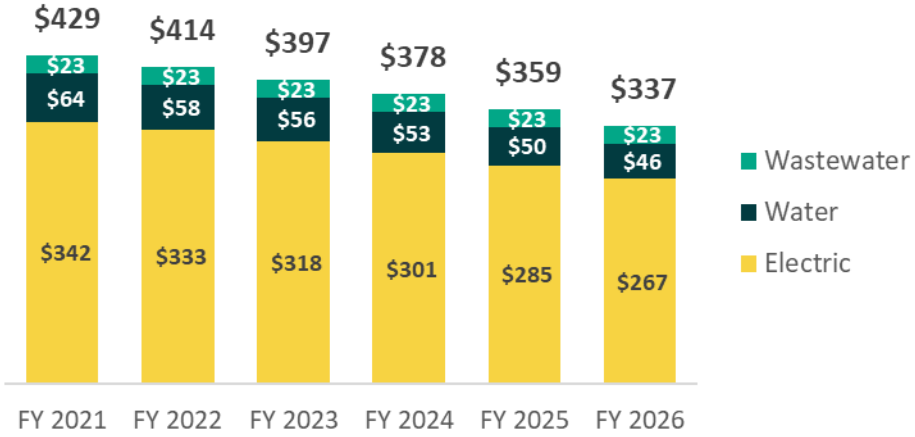
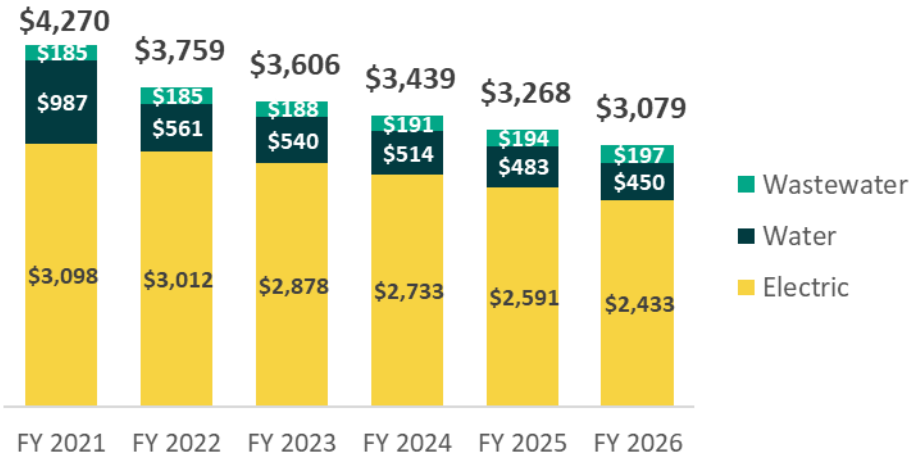
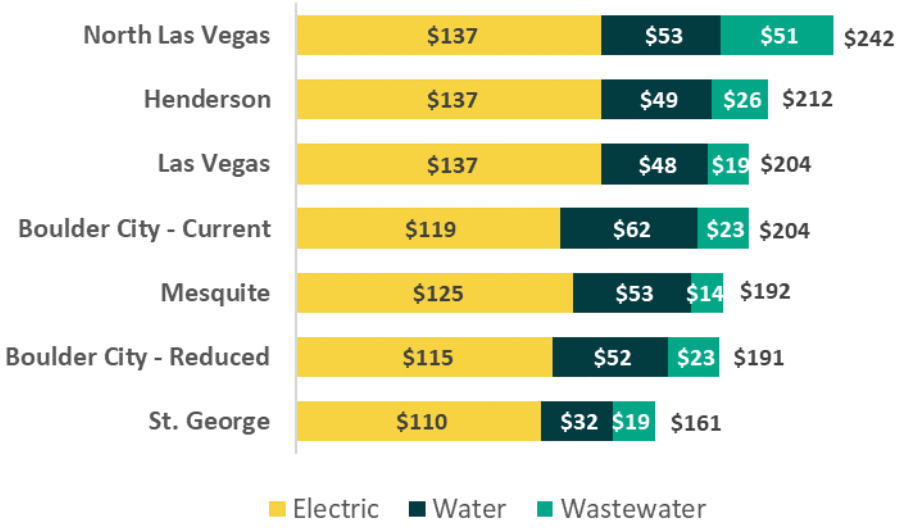


Figure 12 – Large Commercial Monthly Bill (24,000 kWh, 4" Meter, 100,000 gallons)



Raftelis also developed a comparison of the average residential bill in Boulder City, to what a customer with these same usage characteristics would pay in other neighboring communities. This is shown in **Figure 13**. Under the City's current rates, the average bill in Boulder City is lower than it would be in the other members of the Southern Nevada Water Authority (SNWA), primarily due to lower electric rates. After the recommended reductions, the water components of the bill would be more in line with the other SNWA communities, further lowering the Boulder City bill, relative to its neighbors. Also shown are the City of Mesquite, Nevada, which is more comparable in size to the City; and St. George Utah, which provides all three services (electric, water and wastewater) at the municipal level. The reduced Boulder City bill would be comparable to Mesquite, but somewhat higher than St. George, primarily due to the difference in the water component of the bill.

Figure 13 - Bill Comparison Average Residential Customer (1,200 kWh, ¾" Meter, 10,000 gallons)[23]



[23] Based on rates currently in effect.

Appendix A

Detailed O&M Projections
Capital Improvement Plans

Appendix A1 – Detailed O&M Projections (Electric Utility)

Budget Description	Acct. No.	Summary Category[1]	Note	FY 2021 Preliminary	FY 2021 Final	FY 2021 Raftelis	FY 2022 Raftelis	FY 2023 Raftelis	FY 2024 Raftelis	FY 2025 Raftelis	FY 2026 Raftelis
REGULAR	61650-5001	Personnel		$ 1,249,672	$ 1,134,809	$ 1,134,809	$ 1,337,149	$ 1,430,750	$ 1,530,902	$ 1,638,065	$ 1,752,730
OVERTIME PERS	61650-5010	Personnel		50,000	50,000	50,000	53,500	57,245	61,252	65,540	70,128
OVERTIME NON PERS	61650-5012	Personnel		110,000	110,000	110,000	117,700	125,939	134,755	144,188	154,281
EMPLOYEES RETIREMENT	61650-5020	Personnel		365,529	331,932	331,932	391,116	418,494	447,789	479,134	512,674
SIIS PREMIUMS	61650-5022	Personnel		37,586	40,218	40,218	40,217	43,032	46,045	49,268	52,717
MEDICARE	61650-5024	Personnel		20,366	18,701	18,701	21,792	23,317	24,950	26,696	28,565
GROUP HEALTH INSURANCE	61650-5028	Personnel		157,740	144,540	144,540	166,416	175,569	185,225	195,412	206,160
PROFESSIONAL	61650-5102	Technical and Professional		60,000	50,000	50,000	61,260	62,546	63,860	65,201	66,570
TECHNICAL	61650-5104	Technical and Professional		75,000	50,000	50,000	76,575	78,183	79,825	284,799	203,430
SOLID WASTES SERVICES	61650-5204	Other		4,130	4,130	4,130	4,217	4,305	4,396	4,488	4,582
MAINTENANCE FACILITIES	61650-5301	Maintenance and Equipment		800,000	640,000	640,000	816,800	833,953	851,466	869,347	887,603
MAINTENANCE VEHICLES	61650-5303	Maintenance and Equipment		36,000	28,800	28,800	36,756	37,528	38,316	39,121	39,942
RENTAL EQUIPMENT	61650-5401	Maintenance and Equipment		8,000	8,000	8,000	8,168	8,340	8,515	8,693	8,876
VERF Expense	61650-5403	Maintenance and Equipment		108,133	108,133	108,133	110,404	112,722	115,089	117,506	119,974
COMMUNICATIONS	61650-5502	Personnel		15,000	15,000	15,000	15,315	15,637	15,965	16,300	16,643
ELECTRICITY (UTILITY ONLY)	61650-5504	Purchased Power	2	6,000,000	6,000,000	5,221,515	5,326,066	5,208,374	5,598,218	5,581,031	5,697,216
POSTAGE/SHIPPING	61650-5506	Supplies		1,000	1,000	1,000	1,021	1,042	1,064	1,087	1,110
PRINTING	61650-5507	Supplies		9,000	9,000	9,000	9,189	9,382	9,579	9,780	9,986
PUBS SUBS DUES FEES	61650-5508	Supplies		10,000	10,000	10,000	10,210	10,424	10,643	10,867	11,095
TRAVEL & TRAINING	61650-5509	Personnel		10,000	10,000	10,000	10,210	10,424	10,643	10,867	11,095
SOFTWARE LICENSES	61650-5510	Supplies		15,000	15,000	15,000	15,315	15,637	15,965	16,300	16,643
EQUIPMENT	61650-5603	Supplies		12,449	12,449	12,449	12,710	12,977	13,250	13,528	13,812
FUEL	61650-5604	Supplies		13,000	13,000	13,000	13,273	13,552	13,836	14,127	14,424
OFFICE	61650-5610	Supplies		2,000	2,000	2,000	2,042	2,085	2,129	2,173	2,219
UNIFORM (ALLOWANCES BOOT)	61650-5614	Supplies		23,000	23,000	23,000	23,483	23,976	24,480	24,994	25,519
EQUIPMENT	61650-5904	Supplies		311,347	200,000	200,000	317,885	324,561	331,377	338,336	345,441
REGULAR	61655-5001	Personnel		5,095	5,095	5,095	5,452	5,834	6,242	6,679	7,147
EMPLOYEES RETIREMENT	61655-5020	Personnel		1,490	1,490	1,490	1,595	1,706	1,826	1,954	2,090
SIIS PREMIUMS	61655-5022	Personnel		154	181	181	165	176	189	202	216
MEDICARE	61655-5024	Personnel		74	74	74	79	85	91	97	104
GROUP HEALTH INSURANCE	61655-5028	Personnel		660	660	660	696	735	775	818	863
MAINTENANCE FACILITIES	61655-5301	Maintenance and Equipment		200,000	150,000	150,000	204,200	208,488	212,866	217,337	221,901
MAINTENANCE EQUIPMENT	61655-5302	Maintenance and Equipment		40,000	32,000	32,000	40,840	41,698	42,573	43,467	44,380
TRANSFERS OUT	61980-5975	Transfer to Fund 60 - Admin	3	1,980,601	1,694,910	1,729,900	1,726,700	1,796,500	1,870,800	1,950,200	2,034,700
Grand Total				**$ 11,732,028**	**$ 10,914,122**	**$ 10,170,628**	**$ 10,978,517**	**$ 11,115,216**	**$ 11,774,895**	**$ 12,247,601**	**$ 12,584,830**

Source: City FY 21 Budget Adopted on 5-26-2020

(1) Summary categories used in Electric Utility Cash Flows

(2) Raftelis amount based on on avg cost per kWh projections from Colorado River Commission and projected sales + line loss

(3) Transfer to Fund 60 for utility billing, utility administration and GF Central Svcs. Difference in FY 21 due to exclusion of depreciation and addition of carry-over admin capital (U1901 & 1902) to be spent this FY.

Appendix A2 – Detailed O&M Projections (Water Utility)

Budget Description	Acct. No.	Summary Category[1]	Note	FY 2021 Preliminary	FY 2021 Final	FY 2021 Raftelis	FY 2022 Raftelis	FY 2023 Raftelis	FY 2024 Raftelis	FY 2025 Raftelis	FY 2026 Raftelis
REGULAR	62670-5001	Personnel		$ 510,086	$ 473,197	$ 473,197	$ 545,792	$ 583,997	$ 624,877	$ 668,618	$ 715,422
OVERTIME PERS	62670-5010	Personnel		40,000	40,000	40,000	42,800	45,796	49,002	52,432	56,102
EMPLOYEES RETIREMENT	62670-5020	Personnel		149,200	138,410	138,410	159,644	170,819	182,776	195,571	209,261
SIIS PREMIUMS	62670-5022	Personnel		15,405	16,846	16,846	16,483	17,637	18,871	20,192	21,606
MEDICARE	62670-5024	Personnel		7,976	7,441	7,441	8,535	9,132	9,771	10,455	11,187
GROUP HEALTH INSURANCE	62670-5028	Personnel		90,420	81,840	81,840	95,393	100,640	106,175	112,015	118,175
PROFESSIONAL	62670-5102	Technical and Professional		10,000	10,000	10,000	10,210	10,424	10,643	10,867	11,095
TECHNICAL	62670-5104	Technical and Professional		50,000	50,000	50,000	51,050	52,122	53,217	253,133	153,905
SOLID WASTES SERVICES	62670-5204	Other		2,000	2,000	2,000	2,042	2,085	2,129	2,173	2,219
MAINTENANCE FACILITIES	62670-5301	Maintenance and Equipment		181,041	144,833	144,833	184,843	188,725	192,688	196,734	200,866
MAINTENANCE EQUIPMENT	62670-5302	Maintenance and Equipment		403,570	322,856	322,856	510,763	521,489	532,440	543,621	555,037
MAINTENANCE VEHICLES	62670-5303	Maintenance and Equipment		25,000	20,000	20,000	25,525	26,061	26,608	27,167	27,738
VERF Expense	62670-5403	Maintenance and Equipment		26,219	26,219	26,219	26,770	27,332	27,906	28,492	29,090
COMMUNICATIONS	62670-5502	Other		15,000	15,000	15,000	15,315	15,637	15,965	16,300	16,643
ADVERTISING MARKETING	62670-5503	Other		500	500	500	511	521	532	543	555
WATER (UTILITY ONLY)	62670-5505	Purchased Water	2	4,728,800	4,728,800	4,491,644	4,632,069	4,778,777	4,932,051	5,092,184	5,259,483
Postage	62670-5506	Supplies		600	600	600	613	625	639	652	666
PRINTING	62670-5507	Supplies		7,200	7,200	7,200	7,351	7,506	7,663	7,824	7,988
PUBS SUBS DUES FEES	62670-5508	Other		7,200	7,200	7,200	7,351	7,506	7,663	7,824	7,988
TRAVEL & TRAINING	62670-5509	Personnel		3,000	2,700	2,700	3,063	3,127	3,193	3,260	3,329
EQUIPMENT	62670-5603	Maintenance and Equipment		100,000	75,000	75,000	102,100	104,244	106,433	108,668	110,950
FUEL	62670-5604	Supplies		9,000	9,000	9,000	9,189	9,382	9,579	9,780	9,986
OFFICE	62670-5610	Supplies		10,000	10,000	10,000	10,210	10,424	10,643	10,867	11,095
UNIFORM (ALLOWANCES BOOT)	62670-5614	Supplies		6,000	6,000	6,000	6,126	6,255	6,386	6,520	6,657
TRANSFERS OUT	62980-5975	Fund 60	3	874,160	892,058	910,500	908,700	945,500	984,700	1,026,500	1,070,900
Grand Total				**$ 7,272,377**	**$ 7,087,700**	**$ 6,868,986**	**$ 7,382,446**	**$ 7,645,762**	**$ 7,922,551**	**$ 8,412,394**	**$ 8,617,941**

Source: City FY 21 Budget Adopted on 5-26-2020

(1) Summary categories used in Water Utility Cash Flows

(2) Raftelis purchased water based on SNWA charges and projected sales + 10% loss factor

(3) Transfer to Fund 60 for utility billing, utility administration and GF Central Svcs. Difference in FY 21 due to exclusion of depreciation and addition of carry-over admin capital (U1901 & 1902) to be spent this FY.

Appendix A3 – Detailed O&M Projections (Wastewater Utility)

Budget Description	Acct. No.	Summary Category[(1)]	Note	FY 2021 Preliminary	FY 2021 Final	FY 2021 Raftelis	FY 2022 Raftelis	FY 2023 Raftelis	FY 2024 Raftelis	FY 2025 Raftelis	FY 2026 Raftelis
REGULAR	63675-5001	Personnel		$ 228,735	$ 208,872	$ 208,872	$ 244,747	$ 261,879	$ 280,211	$ 299,825	$ 320,813
OVERTIME PERS	63675-5010	Personnel		15,900	15,900	15,900	17,013	18,204	19,478	20,842	22,301
OVERTIME NON PERS	63675-5012	Personnel		-	-	-	-	-	-	-	-
EMPLOYEES RETIREMENT	63675-5020	Personnel		66,905	61,095	61,095	71,588	76,600	81,962	87,699	93,838
SIIS PREMIUMS	63675-5022	Personnel		6,908	7,436	7,436	7,391	7,909	8,462	9,055	9,689
MEDICARE	63675-5024	Personnel		3,547	3,259	3,259	3,796	4,061	4,345	4,650	4,975
GROUP HEALTH INSURANCE	63675-5028	Personnel		41,580	36,960	36,960	43,867	46,280	48,825	51,510	54,343
PROFESSIONAL	63675-5102	Technical and Professional		3,500	3,500	3,500	3,574	3,649	3,725	3,803	3,883
TECHNICAL	63675-5104	Technical and Professional		50,000	25,000	25,000	51,050	52,122	53,217	254,197	71,117
PEST CONTROL	63675-5203	Other		500	500	500	511	521	532	543	555
SOLID WASTES SERVICES	63675-5204	Other		1,500	1,500	1,500	1,532	1,564	1,596	1,630	1,664
MAINTENANCE FACILITIES	63675-5301	Maintenance and Equipment		31,900	25,520	25,520	32,570	33,254	33,952	34,665	35,393
MAINTENANCE EQUIPMENT	63675-5302	Maintenance and Equipment		250,000	200,000	200,000	323,734	330,532	337,473	344,560	351,796
MAINTENANCE VEHICLES	63675-5303	Maintenance and Equipment		20,000	16,000	16,000	20,420	20,849	21,287	21,734	22,190
MAINTENANCE GROUNDS	63675-5305	Maintenance and Equipment		5,000	4,000	4,000	5,105	5,212	5,322	5,433	5,548
VERF Expense	63675-5403	Maintenance and Equipment		80,741	80,741	80,741	82,437	84,168	85,935	87,740	89,582
COMMUNICATIONS	63675-5502	Other		1,000	1,000	1,000	1,021	1,042	1,064	1,087	1,110
POSTAGE/SHIPPING	63675-5506	Supplies		100	100	100	102	104	106	109	111
PUBS SUBS DUES FEES	63675-5508	Supplies		8,000	8,000	8,000	8,168	8,340	8,515	8,693	8,876
TRAVEL & TRAINING	63675-5509	Personnel		1,500	1,350	1,350	1,532	1,564	1,596	1,630	1,664
CHEMICALS	63675-5601	Supplies		65,000	65,000	65,000	66,365	67,759	69,182	70,634	72,118
EQUIPMENT	63675-5603	Maintenance and Equipment		35,000	35,000	35,000	35,735	36,485	37,252	38,034	38,833
FUEL	63675-5604	Supplies		7,500	7,500	7,500	7,658	7,818	7,982	8,150	8,321
GENERAL	63675-5605	Supplies		-	-	-	-	-	-	-	-
OFFICE	63675-5610	Supplies		1,800	1,800	1,800	1,838	1,876	1,916	1,956	1,997
OTHER	63675-5611	Supplies		-	-	-	-	-	-	-	-
UNIFORM (ALLOWANCES BOOT)	63675-5614	Supplies		8,000	8,000	8,000	8,168	8,340	8,515	8,693	8,876
GREASE INTERCEPTOR	63675-5905	Maintenance and Equipment		-	-	-	-	-	-	-	-
TRANSFERS OUT	63980-5975	Transfer to Fund 60 - Admin	2	291,386	297,352	303,500	302,900	315,200	328,200	342,200	357,000
Grand Total				**$ 1,226,003**	**$ 1,115,386**	**$ 1,121,533**	**$ 1,342,818**	**$ 1,395,330**	**$ 1,450,651**	**$ 1,709,073**	**$ 1,586,592**

Source: City FY 21 Budget Adopted on 5-26-2020

(1) Summary categories used in Wastewater Utility Cash Flows

(3) Transfer to Fund 60 for utility billing, utility administration and GF Central Svcs. Difference in FY 21 due to exclusion of depreciation and addition of carry-over admin capital (U1901 & 1902) to be spent this FY.

Appendix A4 – Electric Utility Capital Improvement Plan (Un-escalated)

Description	ID	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Equipment Forklift	E2012	$ 175,300	$ -	$ -	$ -	$ -	$ -
Feeder 63 to Substation 3 Tie	E1901	252,100	-	-	-	-	-
Feeder 53 Replacement	E1902	176,300	-	-	-	-	-
Feeder 64-Temple Rock Reroute	E1905	94,100	-	-	-	-	-
Substation Improvements	E1907	26,400	-	-	-	-	-
4kV Overhead Line Insulator, T	E1909	2,017,900	-	-	-	-	-
69KV Transmission Loop	E1911	1,278,200	-	-	-	-	-
BC Tap to Buchanan Overhead Line	E2001	9,592,400	-	-	-	-	-
Capital Equipment Purchase	E2009	438,000	-	-	-	-	-
Claremont Conversion	E2010	375,000	-	-	-	-	-
Substation 5 Reclosure Replace	E2011	5,100	-	-	-	-	-
San Felipe - Mendota Feeder	E2101	500,000	1,400,000	100,000	-	-	-
Circuit 45-61-62 Tie	E2102	1,100,000	-	-	-	-	-
Circuit 63-64 Tie	E2103	100,000	300,000	-	-	-	-
Underground Cable Replacements	E2104	750,000	-	-	-	-	-
Pole Replacement Program	E2105	450,000	450,000	-	-	-	-
BC Tap Transformer/Bkr	UE161	320,100	-	-	-	-	-
Feeder Arizona St	UE182	1,156,600	-	-	-	-	-
Meter Replacement	UE183	110,200	-	-	-	-	-
Red Mountain Distribution Line Rebuild	ELEC 20-103	-	1,200,000	-	-	-	-
Substation 3 Rebuild	ELEC 20-105	-	500,000	3,000,000	-	-	-
Substation 4 Rebuild	ELEC 20-106	-	-	-	2,500,000	-	-
Substation 5 Transformer and Foundation Replacement	ELEC 20-115	-	-	-	2,500,000	-	-
Substation 1 - Substation 4 Feeder Ties	ELEC 20-116	-	-	1,200,000	-	-	-
Feeder 14-24 Tie Replacement	ELEC 20-117	-	400,000	-	-	-	-
Substation 2 - Substation 3 Feeder Ties	ELEC 20-118	-	-	750,000	-	-	-
4-12kV Cutover, 4kV substation Removals	ELEC 20-119	-	-	-	1,500,000	-	-
Transmission Switches	ELEC 20-120	-	-	-	-	400,000	-
Grand Total		**$ 18,917,700**	**$ 4,250,000**	**$ 5,050,000**	**$ 6,500,000**	**$ 400,000**	**$ -**

Appendix A5 – Electric Utility Capital Improvement Plan (Escalated at 3%/yr)

Description	ID	FY 2021	FY 2022[(1)]	FY 2023[(1)]	FY 2024[(1)]	FY 2025[(1)]	FY 2026[(1)]
Equipment Forklift	E2012	$ 175,300	$ -	$ -	$ -	$ -	$ -
Feeder 63 to Substation 3 Tie	E1901	252,100	-	-	-	-	-
Feeder 53 Replacement	E1902	176,300	-	-	-	-	-
Feeder 64-Temple Rock Reroute	E1905	94,100	-	-	-	-	-
Substation Improvements	E1907	26,400	-	-	-	-	-
4kV Overhead Line Insulator, T	E1909	2,017,900	-	-	-	-	-
69KV Transmission Loop	E1911	1,278,200	-	-	-	-	-
BC Tap to Buchanan Overhead Line	E2001	9,592,400	-	-	-	-	-
Capital Equipment Purchase	E2009	438,000	-	-	-	-	-
Claremont Conversion	E2010	375,000	-	-	-	-	-
Substation 5 Reclosure Replace	E2011	5,100	-	-	-	-	-
San Felipe - Mendota Feeder	E2101	500,000	1,442,000	106,100	-	-	-
Circuit 45-61-62 Tie	E2102	1,100,000	-	-	-	-	-
Circuit 63-64 Tie	E2103	100,000	309,000	-	-	-	-
Underground Cable Replacements	E2104	750,000	-	-	-	-	-
Pole Replacement Program	E2105	450,000	463,500	-	-	-	-
BC Tap Transformer/Bkr	UE161	320,100	-	-	-	-	-
Feeder Arizona St	UE182	1,156,600	-	-	-	-	-
Meter Replacement	UE183	110,200	-	-	-	-	-
Red Mountain Distribution Line Rebuild	ELEC 20-103	-	1,236,000	-	-	-	-
Substation 3 Rebuild	ELEC 20-105	-	515,000	3,182,700	-	-	-
Substation 4 Rebuild	ELEC 20-106	-	-	-	2,731,800	-	-
Substation 5 Transformer and Foundation Replacement	ELEC 20-115	-	-	-	2,731,800	-	-
Substation 1 - Substation 4 Feeder Ties	ELEC 20-116	-	-	1,273,100	-	-	-
Feeder 14-24 Tie Replacement	ELEC 20-117	-	412,000	-	-	-	-
Substation 2 - Substation 3 Feeder Ties	ELEC 20-118	-	-	795,700	-	-	-
4-12kV Cutover, 4kV substation Removals	ELEC 20-119	-	-	-	1,639,100	-	-
Transmission Switches	ELEC 20-120	-	-	-	-	450,200	-
Grand Total		**$ 18,917,700**	**$ 4,377,500**	**$ 5,357,600**	**$ 7,102,700**	**$ 450,200**	**$ -**

Appendix A6 – Water Utility Capital Improvement Plan (Un-escalated)

Description	ID	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
BC Parkway - Water - RTC	E1703	$ 90,300	$ -	$ -	$ -	$ -	$ -
Water Line to El Dorado Valley	UW171	475,200	-	-	-	-	-
Copper Service Replacement	W2006	716,000	600,000	600,000	600,000	600,000	600,000
Eldorado Valley Line PRV Desig	W2008	250,000	-	-	-	-	-
Access and Security Improv Res	W2009	50,000	-	-	-	-	-
Rebuild Pressure Reducing Valve Stations	W2101	100,000	-	100,000	-	-	-
PRV on "A" Line to Service National Park Service	W2102	250,000	-	-	-	-	-
Reservoir Improvements	W2103	80,000	559,600	-	-	-	-
8" Butterfly Valve Replacement	W2104	80,000	200,000	200,000	200,000	200,000	-
Install PRV at Airport and at Lower End of Georgia	Water 20-102	-	-	-	250,000	-	-
ARV and Backflow Replacement	Water 21-103	-	-	10,000	50,000	-	-
Eldorado Valley Line PRV Stations	Water 21-102	-	50,000	250,000	-	-	-
Grand Total		**$ 2,091,500**	**$ 1,409,600**	**$ 1,160,000**	**$ 1,100,000**	**$ 800,000**	**$ 600,000**

Source: City Capital Improvement Program (CIP) approved on 5/26/2020. Ongoing projects per City staff.

Appendix A7 – Water Utility Capital Improvement Plan (Escalated at 3%/yr.)

Description	ID	FY 2021	FY 2022[(1)]	FY 2023[(1)]	FY 2024[(1)]	FY 2025[(1)]	FY 2026[(1)]
BC Parkway - Water - RTC	E1703	$ 90,300	$ -	$ -	$ -	$ -	$ -
Water Line to El Dorado Valley	UW171	475,200	-	-	-	-	-
Copper Service Replacement	W2006	716,000	618,000	636,500	655,600	675,300	695,600
Eldorado Valley Line PRV Desig	W2008	250,000	-	-	-	-	-
Access and Security Improv Res	W2009	50,000	-	-	-	-	-
Rebuild Pressure Reducing Valve Stations	W2101	100,000	-	106,100	-	-	-
PRV on "A" Line to Service National Park Service	W2102	250,000	-	-	-	-	-
Reservoir Improvements	W2103	80,000	576,400	-	-	-	-
8" Butterfly Valve Replacement	W2104	80,000	206,000	212,200	218,500	225,100	-
Install PRV at Airport and at Lower End of Georgia	Water 20-102	-	-	-	273,200	-	-
ARV and Backflow Replacement	Water 21-103	-	-	10,600	54,600	-	-
Eldorado Valley Line PRV Stations	Water 21-102	-	51,500	265,200	-	-	-
Grand Total		**$ 2,091,500**	**$ 1,451,900**	**$ 1,230,600**	**$ 1,201,900**	**$ 900,400**	**$ 695,600**

Source: City Capital Improvement Program (CIP) approved on 5/26/2020. Ongoing projects per City staff.

(1) Projects escalated 3% per year for construction cost inflation beginning in FY 22.

Appendix A8 – Wastewater Utility Capital Improvement Plan (Un-escalated)

Description	ID	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
BC Parkway - Wastewater - RTC	E1703	$ 4,400	$ -	$ -	$ -	$ -	$ -
Sanitary Sewer Rehabilitation	S1901	100,000	-	-	-	-	-
Sewer Main Abandonment	S1902	295,500	-	-	-	-	-
WWTP Headworks Upgrade	S2004	390,000	-	-	-	-	-
Evaluate Hemenway Valley Sewer System	S2101	100,000	-	-	-	-	-
Sewage Lift Station Mobile Emergency Backup Pump	S2102	120,000	-	-	-	-	-
Rehabiliate SS Manholes	S2103	120,000	750,000	360,000	-	-	-
Georgia Ave at Buchanan Relocation	Sewer 20-106	-	-	-	-	75,000	750,000
LS No 1 Improvements	Sewer 21-103	-	100,000	447,000	-	-	-
Redundant Chlorine Contact Chamber	Sewer 21-104	-	100,000	434,000	-	-	-
Concrete Line Aeration Basins	Sewer 21-105	-	200,000	200,000	200,000	200,000	-
LS No 3 Improvements	Sewer 21-106	-	-	80,000	178,500	-	-
Rehabiliate 18-inch SS Mains	Sewer 21-106	-	-	150,000	700,000	-	-
LS No 4 Improvements	Sewer 21-107	-	-	-	60,000	259,000	-
Effluent Splitter Box Improvements	Sewer 21-108	-	-	-	-	70,000	340,000
Grand Total		**$ 1,129,900**	**$ 1,150,000**	**$ 1,671,000**	**$ 1,138,500**	**$ 604,000**	**$ 1,090,000**

Source: City Capital Improvement Program (CIP) approved on 5/26/2020. Ongoing projects per City staff.

Appendix A9 – Wastewater Utility Capital Improvement Plan (Escalated at 3%/yr.)

Description	ID	FY 2021	FY 2022[1]	FY 2023[1]	FY 2024[1]	FY 2025[1]	FY 2026[1]
BC Parkway - Wastewater - RTC	E1703	$ 4,400	$ -	$ -	$ -	$ -	$ -
Sanitary Sewer Rehabilitation	S1901	100,000	-	-	-	-	-
Sewer Main Abandonment	S1902	295,500	-	-	-	-	-
WWTP Headworks Upgrade	S2004	390,000	-	-	-	-	-
Evaluate Hemenway Valley Sewer System	S2101	100,000	-	-	-	-	-
Sewage Lift Station Mobile Emergency Backup Pump	S2102	120,000	-	-	-	-	-
Rehabiliate SS Manholes	S2103	120,000	772,500	381,900	-	-	-
Georgia Ave at Buchanan Relocation	Sewer 20-106	-	-	-	-	84,400	869,500
LS No 1 Improvements	Sewer 21-103	-	103,000	474,200	-	-	-
Redundant Chlorine Contact Chamber	Sewer 21-104	-	103,000	460,400	-	-	-
Concrete Line Aeration Basins	Sewer 21-105	-	206,000	212,200	218,500	225,100	-
LS No 3 Improvements	Sewer 21-106	-	-	84,900	195,100	-	-
Rehabiliate 18-inch SS Mains	Sewer 21-106	-	-	159,100	764,900	-	-
LS No 4 Improvements	Sewer 21-107	-	-	-	65,600	291,500	-
Effluent Splitter Box Improvements	Sewer 21-108	-	-	-	-	78,800	394,200
Grand Total		**$ 1,129,900**	**$ 1,184,500**	**$ 1,772,700**	**$ 1,244,100**	**$ 679,800**	**$ 1,263,700**

Source: City Capital Improvement Program (CIP) approved on 5/26/2020. Ongoing projects per City staff.

(1) Projects escalated 3% per year for construction cost inflation beginning in FY 22.

Appendix B

Peaking Factor and Load Factor Calculations

Appendix B1 – Electric Load Factor Calculations

Class	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Annual Total	Annual Average	Max Month	System Adj	Peak Hour	Load Factor[1]
	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kW	kW		kW	
Residential																		
FY 2018	12,330,801	13,719,985	12,776,075	8,495,027	4,973,254	5,007,592	5,961,057	5,843,833	5,465,143	5,094,658	5,020,743	7,412,956	92,101,124	10,514	18,441	1.73	31,903	33.0%
FY 2019	10,906,640	13,324,976	13,633,332	10,137,973	5,748,269	4,894,148	6,352,604	6,602,149	6,498,613	5,233,987	4,775,479	5,601,458	93,709,628	10,697	18,935	1.73	32,758	32.7%
																		32.8%
Residential Electric Master Meter																		
FY 2018	352,440	443,520	390,960	361,800	163,080	190,440	199,800	216,720	190,440	222,120	174,240	241,920	3,147,480	359	596	1.73	1,031	34.8%
FY 2019	324,360	388,800	425,520	380,160	224,280	154,440	209,160	276,480	219,060	223,920	172,800	191,340	3,190,320	364	591	1.73	1,022	35.6%
																		35.2%
Commercial - <300 kW																		
FY 2018	3,287,195	3,876,849	3,522,445	3,415,687	2,227,457	2,271,966	2,179,853	2,171,297	2,079,771	2,194,215	2,269,410	2,612,085	32,108,230	3,665	n/a	n/a	10,628	34.5%
FY 2019	3,118,358	3,700,830	3,928,019	3,329,870	2,672,747	2,080,572	2,216,851	2,517,220	2,222,455	2,344,307	2,014,199	2,334,866	32,480,294	3,708	n/a	n/a	9,887	37.5%
																		36.0%
Commercial - >300 kW																		
FY 2018	795,680	904,960	975,440	797,120	707,200	619,960	604,200	583,720	557,560	618,960	591,800	767,120	8,523,720	973	n/a	n/a	2,281	42.7%
FY 2019	678,040	798,720	1,067,840	888,840	712,000	516,360	564,200	642,600	566,000	614,800	599,540	688,280	8,337,220	952	n/a	n/a	2,213	43.0%
																		42.8%
Time of Use - <600V																		
FY 2018	232,000	283,600	282,000	232,000	183,600	189,200	154,800	149,200	140,800	166,800	158,000	217,600	2,389,600	273	n/a	n/a	616	44.3%
FY 2019	189,200	222,000	285,600	286,800	223,200	177,600	175,200	206,400	177,600	190,800	193,200	198,000	2,525,600	288	n/a	n/a	804	35.9%
																		40.1%
Time of Use - >2,400V																		
FY 2018	372,600	324,000	325,800	235,800	338,400	288,000	185,400	205,200	230,400	293,400	316,800	372,600	3,488,400	398	n/a	n/a	991	40.2%
FY 2019	275,400	340,200	282,600	237,600	334,800	284,400	212,400	216,000	235,800	262,800	352,800	322,200	3,357,000	383	n/a	n/a	1,026	37.4%
																		38.8%
Boulder City Hospital																		
FY 2018	257,000	214,200	231,600	193,600	226,000	197,200	185,400	188,600	160,600	180,400	200,000	214,800	2,449,400	280	345	1.73	598	46.8%
FY 2019	240,400	214,800	255,000	207,000	216,000	179,200	169,400	160,200	189,000	174,200	192,200	226,400	2,423,800	277	354	1.73	613	45.2%
																		46.0%
City Electric																		
FY 2018	464,831	560,299	504,524	429,808	468,726	421,679	644,544	438,733	430,292	386,471	446,473	608,747	5,805,127	663	866	1.73	1,499	44.2%
FY 2019	583,259	653,447	566,106	503,141	492,886	486,401	486,370	439,010	508,387	471,025	471,798	461,524	6,123,354	699	878	1.73	1,519	46.0%
(1) Two-year average																		**45.1%**

Appendix B2 – Water Peaking Factor Calculations

Class	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Annual Total	Avg. Day in Max Month ADMM	Annual Avg. Day AAD	ADMM / AAD	System Adj	Max Day Peaking Factor[1]	Max Hour / Max Day	Max Hour Peaking Factor[1]
	1,000 gal	1,000 gal	1,000 gal	1,000 gal	1,000 gal	1,000 gal	1,000 gal	1,000 gal	1,000 gal	1,000 gal	1,000 gal	1,000 gal	1,000 gal	1,000 gpd	1,000 gpd					
Residential - Single Family																				
FY 2018	112,570	110,648	115,545	90,942	79,497	65,834	52,958	47,305	47,726	53,457	67,716	90,208	934,406	3,852	2,560	1.504	1.200	1.805	2.000	3.611
FY 2019	106,489	107,702	112,471	100,445	78,642	62,904	51,206	44,454	42,181	48,833	65,035	73,629	893,991	3,749	2,449	1.531	1.200	1.837	2.000	3.674
																		1.821		**3.642**
Residential - Multi-Family																				
FY 2018	19,644	22,393	21,416	19,993	13,697	12,763	9,817	9,241	11,700	9,240	10,358	15,045	175,307	722	480	1.504	1.200	1.805	2.000	3.610
FY 2019	18,201	19,803	19,891	19,081	16,476	12,705	10,726	8,670	8,772	9,050	11,921	14,131	169,427	663	464	1.428	1.200	1.714	2.000	3.428
																		1.759		**3.519**
Commercial - Potable																				
FY 2018	58,819	59,700	54,604	50,904	40,434	34,005	26,256	19,090	19,439	27,750	37,793	53,935	482,729	1,926	1,323	1.456	1.200	1.747	2.000	3.495
FY 2019	55,174	59,013	55,682	50,361	39,295	32,696	20,387	21,726	19,225	23,939	33,709	36,862	448,069	1,904	1,228	1.551	1.200	1.861	2.000	3.722
																		1.804		**3.608**
Cascata - Potable																				
FY 2018	155	94	81	34	88	77	50	52	50	95	67	124	967	5	3	1.887	1.200	2.265	2.000	4.529
FY 2019	192	157	105	85	113	80	60	90	74	-	-	-	956	6	3	2.365	1.200	2.838	2.000	5.675
																		2.265		**4.529**
City - Potable (Golf Course)																				
FY 2018	48,318	52,064	44,771	44,481	40,365	21,243	18,989	13,839	6,671	29,695	41,940	55,161	417,537	1,839	1,144	1.607	1.200	1.929	2.000	3.858
FY 2019	52,972	47,315	44,842	38,541	19,246	6,454	5,009	2,069	1,235	21,676	24,104	36,884	300,347	1,709	823	2.077	1.200	2.492	2.000	4.984
																		2.210		**4.421**
City - Potable (All Other)																				
FY 2018	17,810	19,137	18,512	13,386	11,285	6,210	7,735	5,080	5,082	7,645	12,077	18,689	142,648	617	391	1.580	1.200	1.895	2.000	3.791
FY 2019	17,621	21,065	18,752	13,512	8,322	6,280	4,450	4,244	4,386	7,525	14,144	15,444	135,745	680	372	1.827	1.200	2.193	2.000	4.385
(1) 2 Year average, except Cascata - Potable, which is based on FY 2018 only.																		**2.044**		**4.088**

Appendix C

Rate Recommendations

Appendix C1 – Electric Rate Phase-In

Description	Charge Per	Rates					
		FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Residential							
Customer Charge (AMR)	Month	$ 10.00	$ 10.00	$ 10.00	$ 10.00	$ 10.00	$ 10.00
Energy Charge (0 - 2k)	kWh	$ 0.0905	$ 0.0878	$ 0.0915	$ 0.0950	$ 0.0981	$ 0.1010
Energy Charge (2k - 4k)	kWh	$ 0.1192	$ 0.1157	$ 0.1205	$ 0.1251	$ 0.1292	$ 0.1331
Energy Charge (>4k)	kWh	$ 0.1315	$ 0.1276	$ 0.1329	$ 0.1380	$ 0.1425	$ 0.1468
Residential - Master Meter							
Customer Charge	Month	$ 50.00	$ 50.00	$ 50.00	$ 50.00	$ 50.00	$ 50.00
Energy Charge (All Usage)	kWh	$ 0.1110	$ 0.1077	$ 0.1057	$ 0.1031	$ 0.1001	$ 0.0964
Commercial - <300 kW							
Customer Charge (AMR)	Month	$ 15.00	$ 15.00	$ 15.00	$ 15.00	$ 15.00	$ 15.00
Demand Charge (0 - 10 kW)	kW/Month	$ -	$ -	$ -	$ -	$ -	$ -
Demand Charge (>10 kW)	kW/Month	$ 3.05	$ 3.05	$ 3.05	$ 3.05	$ 3.05	$ 3.05
Energy Charge (0 - 3k)	kWh	$ 0.1070	$ 0.1038	$ 0.0988	$ 0.0934	$ 0.0881	$ 0.0821
Energy Charge (>3k)	kWh	$ 0.1209	$ 0.1173	$ 0.1116	$ 0.1055	$ 0.0995	$ 0.0928
Commercial - >300 kW							
Customer Charge	Month	$ 50.00	$ 50.00	$ 50.00	$ 50.00	$ 50.00	$ 50.00
Demand Charge (All kW)	kW/Month	$ 3.05	$ 3.05	$ 3.05	$ 3.05	$ 3.05	$ 3.05
Energy Charge (All Usage)	kWh	$ 0.1358	$ 0.1318	$ 0.1162	$ 0.1018	$ 0.0890	$ 0.0771
Time of Use - <600V							
Customer Charge	Month	$ 200.00	$ 200.00	$ 200.00	$ 200.00	$ 200.00	$ 200.00
Demand Charge (Summer On-Peak)	kW/Month	$ 14.62	$ 14.62	$ 14.62	$ 14.62	$ 14.62	$ 14.62
Demand Charge (Summer Off-Peak)	kW/Month	$ 4.87	$ 4.87	$ 4.87	$ 4.87	$ 4.87	$ 4.87
Demand Charge (All Other Periods)	kW/Month	$ 3.05	$ 3.05	$ 3.05	$ 3.05	$ 3.05	$ 3.05
Energy Charge (Summer On-Peak)	kWh	$ 0.1703	$ 0.1652	$ 0.1406	$ 0.1186	$ 0.0998	$ 0.0827
Energy Charge (Summer Off-Peak)	kWh	$ 0.1209	$ 0.1173	$ 0.0999	$ 0.0843	$ 0.0709	$ 0.0588
Energy Charge (All Other Periods)	kWh	$ 0.1358	$ 0.1318	$ 0.1122	$ 0.0946	$ 0.0796	$ 0.0660

Appendix C1 – Electric Rate Phase-In

Description	Charge Per	Rates					
		FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Time of Use - >2,400V							
Customer Charge	Month	$ 200.00	$ 200.00	$ 200.00	$ 200.00	$ 200.00	$ 200.00
Demand Charge (Summer On-Peak)	kW/Month	$ 14.33	$ 14.33	$ 14.33	$ 14.33	$ 14.33	$ 14.33
Demand Charge (Summer Off-Peak)	kW/Month	$ 4.78	$ 4.78	$ 4.78	$ 4.78	$ 4.78	$ 4.78
Demand Charge (All Other Periods)	kW/Month	$ 3.05	$ 3.05	$ 3.05	$ 3.05	$ 3.05	$ 3.05
Energy Charge (Summer On-Peak)	kWh	$ 0.16720	$ 0.16220	$ 0.13650	$ 0.11430	$ 0.09550	$ 0.07900
Energy Charge (Summer Off-Peak)	kWh	$ 0.11880	$ 0.11530	$ 0.09700	$ 0.08120	$ 0.06790	$ 0.05620
Energy Charge (All Other Periods)	kWh	$ 0.13430	$ 0.13030	$ 0.10960	$ 0.09180	$ 0.07670	$ 0.06350
Boulder City Hospital							
Customer Charge	Month	$ 25.00	$ 25.00	$ 25.00	$ 25.00	$ 25.00	$ 25.00
Energy Charge (All Usage)	kWh	$ 0.0913	$ 0.0886	$ 0.0874	$ 0.0859	$ 0.0842	$ 0.0819
City							
Customer Charge	Month	$ 10.00	$ 10.00	$ 10.00	$ 10.00	$ 10.00	$ 10.00
Energy Charge (All Usage)	kWh	$ 0.03870	$ 0.03760	$ 0.04690	$ 0.05770	$ 0.07040	$ 0.08470
Area Lighting							
100-175 Watt	Month	$ 8.77	$ 8.77	$ 7.82	$ 6.93	$ 6.10	$ 5.36
176-399 Watt	Month	$ 10.24	$ 10.24	$ 9.13	$ 8.09	$ 7.12	$ 6.26
400 Watt and Greater	Month	$ 17.55	$ 17.55	$ 15.64	$ 13.85	$ 12.19	$ 10.73
Each Installed Pole	Month	$ 3.66	$ 3.66	$ 3.27	$ 2.90	$ 2.56	$ 2.24
Sportsfield Lighting							
Customer Charge	Month	$ 50.00	$ 50.00	$ 20.00	$ 20.00	$ 20.00	$ 20.00
Energy Charge (All Usage)	kWh	$ 0.1148	$ 0.1114	$ -	$ -	$ -	$ -
City Street Lights							
Customer Charge	Month	$ -	$ 1.00	$ 1.10	$ 2.00	$ 2.80	$ 4.40

Appendix C2 – Water Rate Phase-In

Description	Charge Per	Rates					
		FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Residential - Single Family							
5/8"	Month	$ 37.56	$ 27.56	$ 27.56	$ 27.56	$ 27.56	$ 27.56
3/4"	Month	$ 37.56	$ 27.56	$ 27.56	$ 27.56	$ 27.56	$ 27.56
1"	Month	$ 37.56	$ 27.56	$ 27.56	$ 27.56	$ 27.56	$ 27.56
1.5"	Month	$ 79.68	$ 55.15	$ 55.15	$ 55.15	$ 55.15	$ 55.15
2"	Month	$ 122.15	$ 88.21	$ 88.21	$ 88.21	$ 88.21	$ 88.21
Usage (0 - 8k)	1,000 gal	$ 2.39	$ 2.39	$ 2.20	$ 1.93	$ 1.61	$ 1.22
Usage (8k - 25k)	1,000 gal	$ 2.50	$ 2.50	$ 2.30	$ 2.01	$ 1.68	$ 1.28
Usage (25k - 60k)	1,000 gal	$ 2.79	$ 2.79	$ 2.57	$ 2.25	$ 1.88	$ 1.43
Usage (> 60k)	1,000 gal	$ 3.73	$ 3.73	$ 3.44	$ 3.01	$ 2.51	$ 1.91
Residential - Multi-Family							
5/8"	Month	$ 37.56	$ 27.56	$ 27.56	$ 27.56	$ 27.56	$ 27.56
3/4"	Month	$ 37.56	$ 27.56	$ 27.56	$ 27.56	$ 27.56	$ 27.56
1"	Month	$ 37.56	$ 27.56	$ 27.56	$ 27.56	$ 27.56	$ 27.56
1.5"	Month	$ 79.68	$ 55.15	$ 55.15	$ 55.15	$ 55.15	$ 55.15
2"	Month	$ 122.15	$ 88.21	$ 88.21	$ 88.21	$ 88.21	$ 88.21
Usage (0 - 8k)	1,000 gal	$ 2.39	$ 2.39	$ 2.20	$ 1.93	$ 1.61	$ 1.22
Usage (8k - 25k)	1,000 gal	$ 2.50	$ 2.50	$ 2.30	$ 2.01	$ 1.68	$ 1.28
Usage (25k - 60k)	1,000 gal	$ 2.79	$ 2.79	$ 2.57	$ 2.25	$ 1.88	$ 1.43
Usage (> 60k)	1,000 gal	$ 3.73	$ 3.73	$ 3.44	$ 3.01	$ 2.51	$ 1.91
Commercial - Potable							
5/8"	Month	$ 32.99	$ 27.56	$ 27.56	$ 27.56	$ 27.56	$ 27.56
3/4"	Month	$ 32.99	$ 27.56	$ 27.56	$ 27.56	$ 27.56	$ 27.56
1"	Month	$ 57.13	$ 27.56	$ 27.56	$ 27.56	$ 27.56	$ 27.56
1.5"	Month	$ 98.62	$ 55.15	$ 55.15	$ 55.15	$ 55.15	$ 55.15
2"	Month	$ 185.46	$ 88.21	$ 88.21	$ 88.21	$ 88.21	$ 88.21
3"	Month	$ 373.53	$ 170.37	$ 170.37	$ 170.37	$ 170.37	$ 170.37
4"	Month	$ 701.91	$ 275.64	$ 275.64	$ 275.64	$ 275.64	$ 275.64
6"	Month	$ 1,401.22	$ 551.28	$ 551.28	$ 551.28	$ 551.28	$ 551.28
8"	Month	$ 2,136.49	$ 882.08	$ 882.08	$ 882.08	$ 882.08	$ 882.08
10"	Month	$ 2,907.72	$ 1,267.97	$ 1,267.97	$ 1,267.97	$ 1,267.97	$ 1,267.97
12"	Month	$ 3,669.84	$ 1,362.60	$ 1,362.60	$ 1,362.60	$ 1,362.60	$ 1,362.60
Usage (0 - 60k)	1,000 gal	$ 2.79	$ 2.79	$ 2.59	$ 2.34	$ 2.03	$ 1.70
Usage (60k - 250k)	1,000 gal	$ 2.95	$ 2.95	$ 2.73	$ 2.46	$ 2.13	$ 1.80
Usage (250k - 550k)	1,000 gal	$ 3.14	$ 3.14	$ 2.91	$ 2.62	$ 2.27	$ 1.91
Usage (>550k)	1,000 gal	$ 3.83	$ 3.83	$ 3.55	$ 3.20	$ 2.77	$ 2.33
Cascata - Potable							
5/8"	Month	$ 32.99	$ 27.56	$ 27.56	$ 27.56	$ 27.56	$ 27.56
3/4"	Month	$ 32.99	$ 27.56	$ 27.56	$ 27.56	$ 27.56	$ 27.56
1"	Month	$ 57.13	$ 27.56	$ 27.56	$ 27.56	$ 27.56	$ 27.56
1.5"	Month	$ 98.62	$ 55.15	$ 55.15	$ 55.15	$ 55.15	$ 55.15
2"	Month	$ 185.46	$ 88.21	$ 88.21	$ 88.21	$ 88.21	$ 88.21
3"	Month	$ 373.53	$ 170.37	$ 170.37	$ 170.37	$ 170.37	$ 170.37
4"	Month	$ 701.91	$ 275.64	$ 275.64	$ 275.64	$ 275.64	$ 275.64
6"	Month	$ 1,401.22	$ 551.28	$ 551.28	$ 551.28	$ 551.28	$ 551.28
8"	Month	$ 2,136.49	$ 882.08	$ 882.08	$ 882.08	$ 882.08	$ 882.08
10"	Month	$ 2,907.72	$ 1,267.97	$ 1,267.97	$ 1,267.97	$ 1,267.97	$ 1,267.97
12"	Month	$ 3,669.84	$ 1,362.60	$ 1,362.60	$ 1,362.60	$ 1,362.60	$ 1,362.60
All Usage	1,000 gal	$ 3.59	$ 3.59	$ 3.13	$ 2.73	$ 2.38	$ 2.05

Appendix C2 – Water Rate Phase-In

Description	Charge Per	Rates					
		FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
City - Potable							
5/8"	Month	$ 32.99	$ 27.56	$ 27.56	$ 27.56	$ 27.56	$ 27.56
3/4"	Month	$ 32.99	$ 27.56	$ 27.56	$ 27.56	$ 27.56	$ 27.56
1"	Month	$ 57.13	$ 27.56	$ 27.56	$ 27.56	$ 27.56	$ 27.56
1.5"	Month	$ 98.62	$ 55.15	$ 55.15	$ 55.15	$ 55.15	$ 55.15
2"	Month	$ 185.46	$ 88.21	$ 88.21	$ 88.21	$ 88.21	$ 88.21
3"	Month	$ 373.53	$ 170.37	$ 170.37	$ 170.37	$ 170.37	$ 170.37
4"	Month	$ 701.91	$ 275.64	$ 275.64	$ 275.64	$ 275.64	$ 275.64
6"	Month	$ 1,401.22	$ 551.28	$ 551.28	$ 551.28	$ 551.28	$ 551.28
8"	Month	$ 2,136.49	$ 882.08	$ 882.08	$ 882.08	$ 882.08	$ 882.08
10"	Month	$ 2,907.72	$ 1,267.97	$ 1,267.97	$ 1,267.97	$ 1,267.97	$ 1,267.97
12"	Month	$ 3,669.84	$ 1,362.60	$ 1,362.60	$ 1,362.60	$ 1,362.60	$ 1,362.60
All Usage	1,000 gal	$ 0.99	$ 0.99	$ 1.30	$ 1.63	$ 1.97	$ 2.27
Commercial - Raw							
5/8"	Month	$ 32.99	$ 27.56	$ 27.56	$ 27.56	$ 27.56	$ 27.56
3/4"	Month	$ 32.99	$ 27.56	$ 27.56	$ 27.56	$ 27.56	$ 27.56
1"	Month	$ 57.13	$ 27.56	$ 27.56	$ 27.56	$ 27.56	$ 27.56
1.5"	Month	$ 98.62	$ 55.15	$ 55.15	$ 55.15	$ 55.15	$ 55.15
2"	Month	$ 185.46	$ 88.21	$ 88.21	$ 88.21	$ 88.21	$ 88.21
3"	Month	$ 373.53	$ 170.37	$ 170.37	$ 170.37	$ 170.37	$ 170.37
4"	Month	$ 701.91	$ 275.64	$ 275.64	$ 275.64	$ 275.64	$ 275.64
6"	Month	$ 1,401.22	$ 551.28	$ 551.28	$ 551.28	$ 551.28	$ 551.28
8"	Month	$ 2,136.49	$ 882.08	$ 882.08	$ 882.08	$ 882.08	$ 882.08
10"	Month	$ 2,907.72	$ 1,267.97	$ 1,267.97	$ 1,267.97	$ 1,267.97	$ 1,267.97
12"	Month	$ 3,669.84	$ 1,362.60	$ 1,362.60	$ 1,362.60	$ 1,362.60	$ 1,362.60
Usage (0 - 60k)	1,000 gal	$ 2.37	$ 2.37	$ 2.37	$ 2.37	$ 2.37	$ 2.37
Usage (60k - 250k)	1,000 gal	$ 2.71	$ 2.71	$ 2.71	$ 2.71	$ 2.71	$ 2.71
Usage (250k - 550k)	1,000 gal	$ 2.83	$ 2.83	$ 2.83	$ 2.83	$ 2.83	$ 2.83
Usage (>550k)	1,000 gal	$ 3.28	$ 3.28	$ 3.28	$ 3.28	$ 3.28	$ 3.28

Appendix C2 – Water Rate Phase-In

Description	Charge Per	Rates					
		FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Cascata - Raw							
5/8"	Month	$ 32.99	$ 27.56	$ 27.56	$ 27.56	$ 27.56	$ 27.56
3/4"	Month	$ 32.99	$ 27.56	$ 27.56	$ 27.56	$ 27.56	$ 27.56
1"	Month	$ 57.13	$ 27.56	$ 27.56	$ 27.56	$ 27.56	$ 27.56
1.5"	Month	$ 98.62	$ 55.15	$ 55.15	$ 55.15	$ 55.15	$ 55.15
2"	Month	$ 185.46	$ 88.21	$ 88.21	$ 88.21	$ 88.21	$ 88.21
3"	Month	$ 373.53	$ 170.37	$ 170.37	$ 170.37	$ 170.37	$ 170.37
4"	Month	$ 701.91	$ 275.64	$ 275.64	$ 275.64	$ 275.64	$ 275.64
6"	Month	$ 1,401.22	$ 551.28	$ 551.28	$ 551.28	$ 551.28	$ 551.28
8"	Month	$ 2,136.49	$ 882.08	$ 882.08	$ 882.08	$ 882.08	$ 882.08
10"	Month	$ 2,907.72	$ 1,267.97	$ 1,267.97	$ 1,267.97	$ 1,267.97	$ 1,267.97
12"	Month	$ 3,669.84	$ 1,362.60	$ 1,362.60	$ 1,362.60	$ 1,362.60	$ 1,362.60
All Usage	1,000 gal	$ 3.59	$ 3.59	$ 3.52	$ 3.45	$ 3.38	$ 3.30
City - Raw							
5/8"	Month	$ 32.99	$ 27.56	$ 27.56	$ 27.56	$ 27.56	$ 27.56
3/4"	Month	$ 32.99	$ 27.56	$ 27.56	$ 27.56	$ 27.56	$ 27.56
1"	Month	$ 57.13	$ 27.56	$ 27.56	$ 27.56	$ 27.56	$ 27.56
1.5"	Month	$ 98.62	$ 55.15	$ 55.15	$ 55.15	$ 55.15	$ 55.15
2"	Month	$ 185.46	$ 88.21	$ 88.21	$ 88.21	$ 88.21	$ 88.21
3"	Month	$ 373.53	$ 170.37	$ 170.37	$ 170.37	$ 170.37	$ 170.37
4"	Month	$ 701.91	$ 275.64	$ 275.64	$ 275.64	$ 275.64	$ 275.64
6"	Month	$ 1,401.22	$ 551.28	$ 551.28	$ 551.28	$ 551.28	$ 551.28
8"	Month	$ 2,136.49	$ 882.08	$ 882.08	$ 882.08	$ 882.08	$ 882.08
10"	Month	$ 2,907.72	$ 1,267.97	$ 1,267.97	$ 1,267.97	$ 1,267.97	$ 1,267.97
12"	Month	$ 3,669.84	$ 1,362.60	$ 1,362.60	$ 1,362.60	$ 1,362.60	$ 1,362.60
All Usage	1,000 gal	$ 0.75	$ 0.75	$ 1.15	$ 1.70	$ 2.41	$ 3.26

Appendix C3 – Wastewater Rate Phase-In

Description	Charge Per	Rates						
		FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Residential - Single Family								
Fixed Charge	Month	$ 23.46	$ 23.46	$ 23.46	$ 23.46	$ 23.46	$ 23.46	$ 23.46
All Usage	1,000 gal	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Residential - Multifamily								
Fixed Charge	Per Month	$ 23.46	$ 23.46	$ 23.46	$ 23.46	$ 23.46	$ 23.46	$ 23.46
All Usage	1,000 gal	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Commercial								
Fixed Charge	Per Month	$ 23.46	$ 23.46	$ 23.46	$ 23.46	$ 23.46	$ 23.46	$ 23.46
Usage (0 - 13k)	1,000 gal	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Usage (13k - 60k)	1,000 gal	$ 1.81	$ 1.81	$ 1.81	$ 1.85	$ 1.90	$ 1.94	$ 1.99
Usage (60k - 250k)	1,000 gal	$ 1.92	$ 1.92	$ 1.92	$ 1.94	$ 1.95	$ 1.97	$ 1.99
Usage (250k - 550k)	1,000 gal	$ 2.03	$ 2.03	$ 2.03	$ 2.02	$ 2.01	$ 2.00	$ 1.99
Usage (>550k)	1,000 gal	$ 2.48	$ 2.48	$ 2.48	$ 2.35	$ 2.22	$ 2.10	$ 1.99
City								
Fixed Charge	Month	$ 23.46	$ 23.46	$ 23.46	$ 23.46	$ 23.46	$ 23.46	$ 23.46
All Usage	1,000 gal	$ 0.60	$ 0.60	$ 0.60	$ 0.60	$ 0.60	$ 0.60	$ 0.60

Renewable energy and water conservation projects

SUBJECT:

Discussion of renewable energy and water conservation projects

ADDITIONAL INFORMATION:

ATTACHMENTS:

	Description	Type
🗋	Item 6 Staff Report	Cover Memo

City Council/Utility Advisory Committee Workshop
September 22, 2021
Item No. 6
Staff Report

TO: Mayor and City Council
Utility Advisory Committee

FROM: Tami McKay, City Clerk

DATE: September 16, 2021

SUBJECT: Discussion of renewable energy and water conservation projects

Business Impact Statement: This action will not have a significant economic impact on business and will not directly restrict the formation, operation, or expansion of a business.

Action Requested: That the City Council and Utility Advisory Committee discuss renewable energy and water conservation projects

Attachment:
None

Goals for the Utility Advisory Commission

SUBJECT:

Discussion of goals for the Utility Advisory Committee

ADDITIONAL INFORMATION:

ATTACHMENTS:

	Description	Type
🗋	Item 7 Staff Report	Cover Memo
🗋	R7126	Cover Memo
🗋	Excerpt of Minutes	Cover Memo

City Council/Utility Advisory Committee Workshop
September 22, 2021
Item No. 7
Staff Report

TO: Mayor and City Council
Utility Advisory Committee

FROM: Tami McKay, City Clerk

DATE: September 16, 2021

SUBJECT: Discussion of goals for the Utility Advisory Committee

Business Impact Statement: This action will not have a significant economic impact on business and will not directly restrict the formation, operation, or expansion of a business.

Action Requested: That the City Council and Utility Advisory Committee discuss goals of the Utility Advisory Committee

Attachment:
Resolution No. 7126, UAC Purpose
June 2, 2021 Excerpt of minutes establishing goals

RESOLUTION NO. 7126

RESOLUTION OF THE CITY COUNCIL OF BOULDER CITY, REPEALING AND REPLACING RESOLUTION NO. 6917 TO CHANGE THE TERMS OF SERVICE FOR THE UTILITY ADVISORY COMMITTEE

WHEREAS, the City Council of Boulder City created the Utility Advisory Committee on April 9, 2019 by adoption of Resolution No. 6917; and

WHEREAS, the City Council desires to change the terms of service for members of the Utility Advisory Committee from two years to three years; and

WHEREAS, all other language which established the Utility Advisory Committee remains the same as follows:

1. Purpose: The purpose of the Utility Advisory Committee is to advise the City Council, Utilities Director, and City Manager on matters concerning the operations of the Boulder City municipal utilities. Such matters will include, but not be limited to:

    A. Act as an official advisory body on utility capital improvement program planning and utility rates.
    B. Annually review the 5-year utility capital improvement plan.
    C. Review the revenue requirements of the utility and recommend to the City Council/City Manager rate adjustments.
    D. Review utility resource plans.
    E. Review utility conservation plans and programs.

2. Members and Term: The City Council shall appoint five or seven members to the Committee as follows:

    A. The Mayor and Council shall appoint five or seven members to the Committee. The members shall be appointed to **three-year terms.**
    B. Committee members shall be customers of Boulder City, as either a residential user or owning an enterprise or business using Boulder City utilities.
    C. Any Advisory Committee member vacancy shall be appointed by City Council for the remainder of the term.
    D. The Utilities Director shall serve as ex-officio, non-voting member providing staff support.

    It is preferred (but not required) that appointed members have professional or technical competence in one of the following areas:

A. Water, wastewater, electrical, or landfill utility operations
B. Water resource planning
C. Business management
D. Financial planning
E. Engineering

3. Duties: The Utility Advisory Committee shall hold regular meetings, but not less regularly than every three months, which meetings shall be open to the public and shall comply with the State of Nevada Open Meeting Law. Special meetings may be held on the call of the Chairman, three committee members, the City Manager or may be requested by a majority of the City Council.

    A. The Committee shall keep a written record of its proceedings, which record shall be open to public inspection. A copy of the minutes of each meeting shall be forwarded to the City Council, Utilities Director, City Manager, and City Clerk.
    B. A quorum of three members shall be present for a 5-member committee, or a quorum of five members shall be present for a 7-member committee in order to transact any business.
    C. At the first meeting of the Utility Advisory, the Committee shall elect a Chairman and Vice-Chairman from its appointed members for a term of one year, with eligibility for re-election. The Chairman shall preside at all Utility Advisory meetings and the Vice-Chairman shall perform the duties of the Chairman in his/her absence.
    D. All questions of parliamentary procedure shall be settled according to the latest edition of Robert's "Rules of Order".

4. Attendance Policy: The attendance policy shall comply with Title 3, Chapter 1, Section 6, of the Boulder City Code.

5. Compensation: The members of the Utility Advisory Committee shall serve as such without compensation.

6. Effective Date: This Resolution will become effective on July 14, 2020 and shall remain in effect unless repealed by City Council.

NOW, THEREFORE BE IT RESOLVED that Resolution No. 6917 is hereby repealed and replaced by Resolution No. 7126 which modifies the terms of the members of the Utility Advisory Committee to three years.

DATED and APPROVED this 14th day of July, 2020.

Kiernan McManus, Mayor

ATTEST:

Lorene Krumm, City Clerk

Committee member Todd stated the UAC member had completed a questionnaire to Raftelis, but the questions had not been answered.

In response to Chairman Karr, City Attorney Walker explained the purpose of the meeting minutes.

Committee member Todd stated the former City Manager had provided the questions to Raftelis.

Mayor McManus recommended a report be created by the UAC as they move forward.

Council member Hoskins suggested the UAC move forward and not be so focused on the report itself.

Council member Bridges stated the UAC should bring back relevant information to the Council with respect to the 10% reduction water availability.

Chairman Karr stated the Committee was working with Utilities Director Porter to create a timescale.

Mayor McManus noted the areas for the Committee to focus on should be:

- Needed resources
- Budget recommendations
- Capital recommendations
- Conservation efforts
- Prepare bi-annual report for the City Council

3. Public Comment

No comments were offered.

There being no further business to come before the Council and Utility Advisory Committee, Mayor McManus adjourned the workshop at 5:27 p.m.

Kiernan Mayor McManus, Mayor

ATTEST:

Tami McKay, Acting City Clerk

Future agenda items

SUBJECT:

Discussion of future agenda items

ADDITIONAL INFORMATION:

ATTACHMENTS:

	Description	Type
🗋	Item 8 Staff Report	Cover Memo

City Council/Utility Advisory Committee Workshop
September 22, 2021
Item No. 8
Staff Report

TO: Mayor and City Council
Utility Advisory Committee

FROM: Tami McKay, City Clerk

DATE: September 16, 2021

SUBJECT: Discussion of future agenda items

Business Impact Statement: This action will not have a significant economic impact on business and will not directly restrict the formation, operation, or expansion of a business.

Action Requested: That the City Council and Utility Advisory Committee discuss future agenda items

Attachment:
None