MONTE VISTA
Surrounded *by* Inspiration

# CITY OF MONTE VISTA

www.cityofmontevista.com

*95 1st Ave Monte Vista, CO 81144*
Main Phone: (719) 852-2692 ~ TDD: (719) 852-4575 ~ Main Fax: (719)852-6167

August 17, 2018

Mr. Kevin Reidy
Colorado Water Conservation Board
1313 Sherman Street, Room 718
Denver, CO 80203

Re: City of Monte Vista's Water Efficiency Plan

Dear Mr. Reidy,

In compliance with §37-60-126 C.R.S., the City of Monte Vista is submitting its Water Efficiency Plan to the Colorado Water Conservation Board (CWCB) Water Supply Planning Section for your review and approval. Our previous Water Conservation Plan was adopted by City Council and approved by CWCB in 2011. This Water Efficiency Plan (2018 Plan) serves as the update to our 2011 Water Conservation Plan. The 2018 Plan was approved and adopted by the Monte Vista City Council on Thursday, August 16, 2018. The signed resolution is attached to the 2018 Plan.

The City's 2018 Plan was prepared cooperatively between City staff and SGM, Inc., following the CWCB's guidelines. Our staff committed time and resources to provide data, guidance, and input throughout the development of the City's 2018 Plan. We lead the way during the selection of water efficiency activity and provided a critical review of the 2018 Plan during the final draft stages.

Since the 2018 Plan has been adopted by our City Council, as City Manager, I will authorize funds (as they are available) for dedication towards the ongoing implementation and monitoring of our selected water efficiency activities within the 2018 Plan. We appreciate your support of our 2018 Water Efficiency Plan.

Respectfully,

Forrest H. Neuerburg
Monte Vista City Manager

# WATER EFFICIENCY PLAN

# CITY OF MONTE VISTA
# WATER EFFICIENCY PLAN

August 2018

**Prepared by**

SGM

555 RiverGate Lane, Suite 250
Durango, CO 81301
970.385.2340
970.385.2341 fax

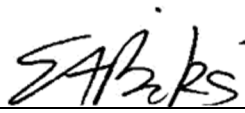
# WATER EFFICIENCY PLAN

## CITY OF MONTE VISTA


PREPARED BY

JORDAN DIMICK, PE

REVIEWED BY



ERIC BIKIS, PG



SGM Project # 136.09.05

P:\Project Files\136-09 City of Monte Vista\2018\Water Efficiency Plan\E-Reports\WaterEfficiencyPlan\FinalMV-WEP-20180817.docx

# TABLE OF CONTENTS

# Tables



# Figures



# Attachments

# 1.0 EXECUTIVE SUMMARY

The purpose of this Water Efficiency Plan is to guide Monte Vista through the identification and selection of practices, techniques, activities and/or projects to improve the efficiency of both its water supply system and municipal demands. Monte Vista has realized the value that both supply and demand water efficiency measures have in preserving its water supplies for future growth and drought protection.

City staff and SGM, Inc. prepared the Water Efficiency Plan as outlined by the Municipal Water Efficiency Plan Guidance Document prepared for the Colorado Water Conservation Board (CWCB) by AMEC in July 2012. This Water Efficiency Plan builds upon and serves as the update for the City's 2011 Water Conservation Plan.

The City of Monte Vista provides potable water supplies to its residents and businesses through an integrated water supply system, which consists of five wells completed in the confined aquifer below the City. The confined wells are located within the City's Service Area of approximately 1,706 acres. The City does not have any potable water storage capacity, but rather regulates the operation of its confined aquifer wells along with the individual well pumping rates to meet its instantaneous water demands. The City's water distribution system operates directly off the wells' pump discharge pressure. The City has approximately 32 miles of potable water system pipelines.

Monte Vista also has three wells completed within the alluvial aquifer of the Rio Grande and has utilized those supplies for the non-potable irrigation demands of its parks, landscaping, and golf course. The City does not have any raw water storage capacity, and similarly regulates the well pumping rates to meet the instantaneous raw water irrigation demands. The City operates is raw water distribution system off the wells' discharge pressure. There are 10 miles of non-potable water system pipelines and all wells are within the City's Service Area.

In general, Monte Vista's water supply system is very reliable from both a quantity and quality perspective. However, the City has identified multiple supply-side limitation and future infrastructure and capital projects needs that must be addressed to ensure Monte Vista continues to have a reliable water supply system. The City developed a strategy to reduce its non-revenue water through the selected foundational, technical assistance, ordinances and regulations, and educational activities described within this Water Efficiency Plan.

Historically, the population in Monte Vista has increased at an annual average rate of 0.24 percent. The estimated City population in 2016 was 4,242 persons, and the estimated population in 2027 was 5,070 persons. Based upon the City's population and types of residences, businesses, and municipal facilities, the City has divided its water users into the following five categories: Single Family Residential, Multi-family Residential, Commercial, Governmental (non-City facilities), and Zero Billing Users (City facilities).

The water demands in Monte Vista have varied greatly over the past few decades, primarily when a significant decrease in historical usage began in 2000 with the installation of individual water meters for the City's customers. Historical diversion records show the average annual water volume pumped between 1991 and 2001 of 2,023 AF/year, subsequently decreased by 51 percent a few years later.

Based upon the City's current population and historical metered water deliveries between 2012 and 2016, the City's system-wide daily capita usage has ranged between 169 and 182 gallons per day per capita (GPCD), while the residential specific daily usage ranged between 135 and 145 GPCD. The City's water usage shows a consistent decline in both the system-wide and residential GPCD values since 2012, which can be attributed to the City's demand management activities.

Based on the estimated population, average system-wide per capita daily demand, historical losses, anticipated passive water savings, and historical raw water irrigation of parks and open spaces, a baseline unmodified total water diversion demand forecast was developed for the City's planning period between 2018 and 2027. This projection showed an anticipated increase from the average 2012 through 2016 annual diversion amount of 1,108 AF to 1,237 AF by 2027. This unmodified demand represents a total diversion demand increase of 11.2 percent over the ten-year planning period.

SGM and City staff identified targeted objectives City staff felt reasonably confident could be accomplished and implemented and then developed the following specific goals for the City's 2018 Water Efficiency Plan.

1. Identify the City's significant water system losses, and work to reduce Non-Revenue water by 50 percent.

2. Reduce overall water consumption by 10 percent across all customer types.

3. Utilize existing communications activities and incorporate water efficiency information.

4. Install water meters for the few remaining flat rate customers to achieve a 100 percent metered customer percentage.

At the end of the 2018 through 2027 planning period the targeted water savings would result in an annual reduction of Non-Revenue water by 120 AF, a reduction of overall customer water use by 84 AF, and a reduction of the raw water irrigation use by 3 AF. The targeted total water savings equates to 207 AF and represents 16.7 percent of the total unmodified total water demand forecast.

SGM worked collaboratively with City staff to complete the CWCB recommended four-phase approach towards the ultimate selection of the water efficiency activities, including a review of Foundational Activities, Targeted Technical Assistance Activities, Ordinances and Regulations, and Educational Activities. City staff selected the activities they believed could be implemented by City staff with the available resources by 2027 and would directly address their Water Efficiency Plan goals. A summary of the selected water efficiency activities and the City's anticipated period of implementation are shown in Table ES-1.

## Table ES-1. Monte Vista's Selected Water Efficiency Activities

| Selected Water Efficiency Activities | Implementation Period of Historical Activities | Historical Total Water Savings | Implementation Period of New Activities | Projected Water Savings for Planning Period |
|---|---|---|---|---|
| **Foundational Activities** | | | | |
| Meter Testing and Replacement | 2005-2017 | Unknown | 2018 - 2027 | N/A |
| Meter Upgrades | 2015-2017 | Unknown | 2018 - 2027 | N/A |
| Identify Unmetered/Unbilled Treated Water Uses | N/A | N/A | 2019 - 2027 | 102 |
| Tracking Water Use by Customer Type | N/A | N/A | 2018 - 2027 | N/A |
| Tracking Water Use for Large Customers | N/A | N/A | 2019 - 2027 | 154 |
| Volumetric Billing | 2000-2005 | 770 af/yr | 2019 - 2027 | 102 |
| Water Rate Adjustments | 2014 | 62 af/yr | 2020 - 2027 | 179 |
| Inclining/Tiered Rates | 2016 | N/A | 2020 - 2027 | 137 |
| Tap Fees with Water Use Efficiency Incentives | N/A | N/A | 2020 - 2027 | 81 |
| System Wide Water Audits | N/A | N/A | 2019 - 2027 | 249 |
| Control of Apparent Losses (with Metering) | 2017 | N/A | 2022 - 2027 | 65 |
| Leak Detection and Repair | 2005-2017 | Unknown | 2021 - 2027 | 234 |
| Water Line Replacement Program | N/A | N/A | 2022 - 2027 | 341 |
| Capital Improvement Plans | N/A | N/A | 2019 - 2020 | 0 |
| **Targeted Technical Assistance and Incentives** | | | | |
| Toilet Retrofits | N/A | N/A | 2021 - 2027 | 2 |
| Showerhead Retrofits | N/A | N/A | 2021 - 2027 | 0 |
| Faucet Retrofits (e.g. aerator installation) | N/A | N/A | 2021 - 2027 | 3 |
| Xeriscape | N/A | N/A | 2025 - 2027 | 0 |
| Other Low Water Use Landscapes | N/A | N/A | 2025 - 2027 | 0 |
| Irrigation Equipment Retrofits | N/A | N/A | 2023 - 2027 | 18 |
| Outdoor Irrigation Controllers | N/A | N/A | 2023 - 2027 | 9 |
| Commercial Indoor Fixture and Appliance Rebates/Retrofits | N/A | N/A | 2024 - 2027 | 27 |
| Water Use Efficiency Incentives | 2012 | Unknown | 2018 - 2027 | 9 |
| Give-aways | N/A | N/A | 2019 - 2027 | 38 |
| **Ordinances and Regulations** | | | | |
| Water Waste Ordinance (BP 5) | 2009 | 4 af/yr | 2018 - 2027 | 85 |
| Time of Day Watering Restriction | 2009 | 0 af/yr | 2019 - 2027 | 76 |
| Day of Week Watering Restriction | 2009 | 0 af/yr | 2020 - 2027 | 68 |
| Raw Water Irrigation of Parks and Open Spaces | N/A | N/A | 2023 - 2027 | 0 |
| Green Building Construction (BP 12) | N/A | N/A | 2026 - 2027 | 9 |
| Indoor Plumbing Requirements (BP 12) | N/A | N/A | 2025 - 2027 | 13 |
| City Facility Requirements (BP 12) | N/A | N/A | 2019 - 2027 | 0 |
| Commercial Water Wise Use Regulations | N/A | N/A | 2025 - 2027 | 11 |
| **Education Activities** | | | | |
| Bill Stuffers | N/A | N/A | 2018 - 2027 | 4 |
| Newspaper Articles | N/A | N/A | 2018 - 2027 | 4 |
| Mass Mailings | 2010-2017 | Unknown | 2018 - 2027 | 4 |
| Web Pages | 2015-2017 | Unknown | 2018 - 2027 | 4 |
| Message Development/Campaign | N/A | N/A | 2021 - 2022 | 3 |
| Interactive Websites | N/A | N/A | 2020 - 2027 | 3 |
| Social Networking (e.g. Facebook) | 2015-2017 | Unknown | 2018 - 2027 | 4 |
| Customer Surveys | N/A | N/A | 2023 - 2027 | 2 |
| Customer Water Use Workshops | N/A | N/A | 2024 - 2027 | 2 |
| Xeriscape Demonstration Garden | N/A | N/A | 2025 - 2027 | 1 |

While the City's selected activities are numerous, most of the activities that will be implemented between 2018 and 2021 consist of existing programs that the City intends to further develop or refine to bolster efficient water use within the City's facilities and with all its customer types. City staff and SGM developed implementation and monitoring plans to guide the City of Monte Vista's ongoing actions to effectively incorporate the activities selected in its 2018 Water Efficiency Plan throughout the 2018 to 2027 planning period. Ultimately, the complete collection of data and subsequent analyses will be used by City staff and the City Manager to determine the effectiveness of its water efficiency activities in comparison to the City's Water Efficiency Plan goals. These data will provide a robust backdrop with technical veracity to regularly inform the City Council of its progress in meeting its Water Efficiency Plan goals going forward.

# 2.0 INTRODUCTION

The City of Monte Vista ("City" or "Monte Vista") is located in Rio Grande County, Colorado along the western side of the San Luis Valley. Monte Vista was incorporated in 1886 and currently has over 4,200 residents and has a projected buildout population of 6,250 people. The City has 2,055 water service connections (taps), including approximately 75 outside of the City limits.

Beginning in the early 2000s, Monte Vista began installing water meters for individual customers within its service area, and experienced a near-immediate reduction in overall water usage. The successful implementation of water meters provided water conservation benefits including: reduced peak potable demands and well pumping, and reduced operational costs. Since then Monte Vista has completed several water planning efforts, including:

- 2011 Water Conservation Plan – Clear Water Solutions, Inc. completed the City's first Water Conservation Plan to guide Monte Vista in water conservation planning and implementation.
- 2010 Water Rights Acquisition Feasibility Study – Bikis Water Consultants, LLC determined the City's augmentation demand and water rights acquisition alternatives (including storage) required to meet the augmentation demand.
- 2009 Comprehensive Plan – The City developed this document to guide future development as the City grows.
- 2008 Master Infrastructure Plan Update - Integra Engineering, Inc. completed the plan to identify and prioritize capital improvement projects for the City.

The previous water plans and reports have been considered and relied upon for the City's 2017 Water Efficiency Plan. In particular, the Water Efficiency Plan builds upon the City's 2011 Water Conservation Plan. The purpose of this Water Efficiency Plan is to guide Monte Vista through the identification and selection of practices, techniques, activities and/or projects to improve the efficiency of both its water supply system and municipal demands. Monte Vista has realized the value that both supply and demand water efficiency measures have in preserving its water supplies for future growth and drought protection.

Monte Vista's Water Efficiency Plan ten-year planning horizon is between 2018 through 2027. Table 1 summarizes the team members who contributed towards the Water Efficiency Plan and their role.

**Table 1. Team Summary**

| Name | Title/Role | Expected Contribution |
|---|---|---|
| *City of Monte Vista Team Members* | | |
| Forrest Neuerburg | City Manager | Project champion for the City's WEP; responsible for key project decisions and City Council engagement; and advised WEP development related to land use planning issues. |
| Robert Vance | Public Works Director | Supported City Manager during the development of the WEP; coordinated with City departments and personnel; reviewed plan document; ensured SGM received necessary resources from the City to complete the WEP; advised WEP development related to evaluation of water use inside/outside City limits; and attended project meetings, and reviewed plan documents. |
| Bob Abeyta | Utility Supervisor | Advised WEP development related to water production and treatment issues; collected relevant water system operations information. |
| Robert Vance | Distribution Crew Leader | Advised WEP development related to water meter update tasks; identified largest water users for each type of water user; and advised WEP development related to water meter update tasks. |
| Tony Felix (Lead Utility Operator)<br>Andrew Valenzuela<br>Mike Sanchez<br>Michael Ross | Meter Readers | |
| Jaime Hurtado | Recreation Coordinator | Advised WEP development related to park irrigation water use and lessons learned from previous water conservation implementation efforts. |
| Randy Kern (Rio Grande County Planning Department) | Building Inspector | Advised WEP development related to water efficiency inspection tasks. |
| Christy Fletcher | Utility Billing Clerk | Advised WEP development related to customer query tasks, and estimated level of effort to update meter reading software. |
| Karen Lintott, Esq. | Attorney (City Attorney) | Reviewed WEP document; gave input into municipal code revision or land use planning changes; and support liaison to City Council. |
| *Consultant Team Members* | | |
| Jordan Dimick, P.E. | Consultant/Project Manager (SGM) | Lead overall project, directed consultant team, and performed project work. Ultimately responsible for all managerial and technical facets of the project. |
| Eric Bikis, P.G. | Consultant / Senior Water Resources (SGM) | Provided QA/QC review; ensured SGM team had organizational resources needed to successfully and efficiently complete the project. |
| David Schiowitz<br>Ryan Mullen<br>Heather Ireland | Consultant/ Technician (SGM) | Completed significant portions of the WEP including profile of the City's system, profile of the historical water demands, and supported the Project Manager and City throughout the WEP project. |
| Kate Ryan, Esq.<br>Peter Nichols | Attorney (Berg Hill Greenleaf Ruscitti, LLP) | Reviewed WEP document; and advised WEP development related to water rights. |

For Monte Vista's Water Efficiency Plan SGM utilized the Municipal Water Efficiency Plan Guidance Document prepared for the Colorado Water Conservation Board (CWCB) by AMEC in July 2012. More specifically, SGM completed the following prescribed steps for Municipal Water Efficiency Planning and have developed the report accordingly.

- *Step 1: Profile of Existing Water Supply System* – Collection and development of supply-side information and historical supply-side water efficiency activities.
- *Step 2: Profile of Water Demands and Historical Demand Management* – Collection and development of demand data and historical demand management activities.
- *Step 3: Integrated Planning and Water Efficiency Benefits and Goals* – Identification of how water efficiency will be incorporated into future water supply planning efforts and development of water efficiency benefits and goals.
- *Step 4: Selection of Water Efficiency Activities* – Assessment, identification, screening, and evaluation process to select and fully evaluate a portfolio of water efficiency activities for implementation.
- *Step 5: Implementation and Monitoring Plans* – Development of an implementation and monitoring plan.

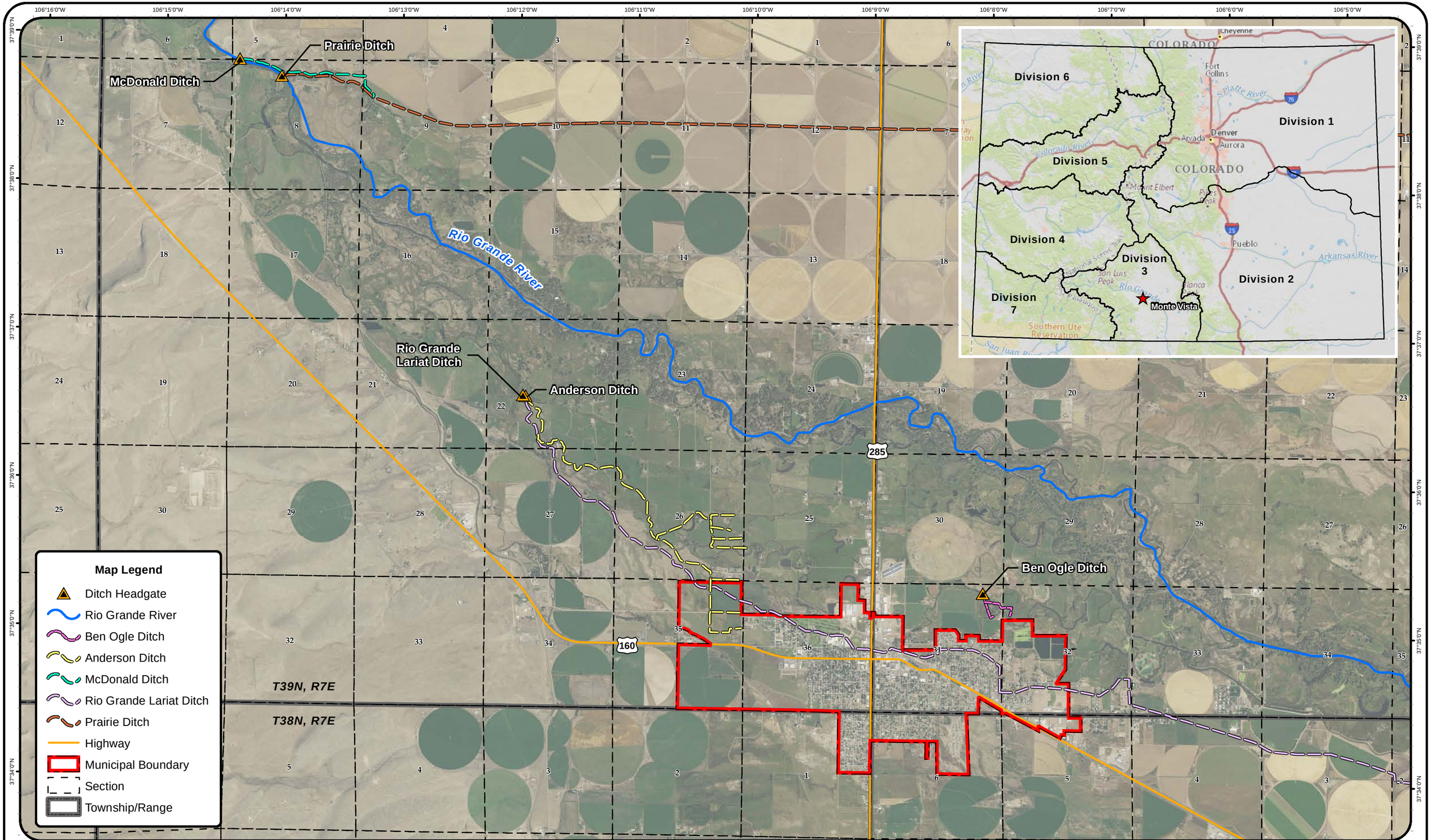
It should be noted that while the steps outlined above are completed sequentially steps 3 and 4 are completed iteratively as preliminary benefits and goals are screened and evaluated before being finalized and implemented. As described in Section 7.0, the adoption of the City's WEP included both a public review process and a CWCB review process with allowed for further refining of the City's selected water efficiency activities and additional iterations of steps 3 and 4 prior to the adoption of the City's Final Water Efficiency Plan. Finally, Information and references relied upon for the City of Monte Vista's Water Efficiency Plan are listed in Section 8.0.

# 3.0 PROFILE OF EXISTING WATER SUPPLY SYSTEM

Monte Vista is located within the eastern portion of Rio Grande County, approximately 30 miles downstream (southeast) from the confluence of the South Fork of the Rio Grande and the Rio Grande. The City is located on the south side of the Rio Grande and has a service area of approximately 1,706 acres, as shown on Figure 1.

## 3.1 OVERVIEW OF EXISTING WATER SUPPLY SYSTEM

The City provides potable water supplies to its residents and businesses through an integrated water supply system, which consists of five wells completed in the confined aquifer below the City. The confined wells are located within the City's Service Area and are shown on Figure 2. The City's confined wells were constructed between 1950 and 1979 and are screened between 335 and 875 feet deep. The City's water supply is chlorinated near each of the five wellheads and is immediately distributed to customers through Monte Vista's looped distribution system. The City does not have any potable water storage capacity, but rather regulates the operation of its confined aquifer wells along with the individual well pumping rates to meet its instantaneous water demands. The City's water distribution system operates directly off the wells' pump discharge pressure, which is set to approximately 65 pounds per square inch (psi). Construction of the existing potable water distribution system began in the




SGM
555 RiverGate Ln, Suite B4-82
Durango, CO 81301
970.385.2340
www.sgm-inc.com

Figure 1
**Location Map**
City of Monte Vista

| Date: 8/17/2018 | Job No. 136-09 | Map by: RZM | Checked by: NJD | Scale: 1:42,000 |
|---|---|---|---|---|

Data Sources: Aerial Photograph - Summer 2015, Roads - Colorado Department of Transportation, Rivers and Streams - Colorado Decision Support System, Township and Range - US Bureau of Land Management, Town Boundary - Deparment of Local Affairs.

File: P:\Project Files\136-09 City of Monte Vista\2018\Water Efficiency Plan\H-Dwgs\GIS\MXDs\Fig1-OverviewMap.mxd

The information displayed above is intended for general planning purposes. Refer to legal documentation/data sources for descriptions/locations.

0 3,500 7,000 10,500 Feet

1 inch = 3,500 feet

N W E S

1950s, and has been expanded, maintained, and replaced by the City over the years to reliably provide potable supplies to its users. The City has approximately 32 miles of potable water system pipelines ranging between 2-inch and 12-inch diameter.

Monte Vista has three wells completed within the alluvial aquifer of the Rio Grande and has utilized those supplies for the non-potable irrigation demands of its parks, landscaping, and golf course (parklands). The City's alluvial wells are located within the City's Service Area and are shown on Figure 2. The City's alluvial wells were constructed between 1949 and 1965, and are less than 60 feet in depth. The City does not have any raw water storage capacity, and similarly regulates the well pumping rates to meet the instantaneous raw water irrigation demands. The City operates is raw water distribution system off the wells' discharge pressure, which is operated around 65 psi. Construction of the existing raw water irrigation distribution system began around the 1950s and has been maintained and replaced by the City over the years to reliably meet raw water irrigation demands. The City has approximately 10 miles of raw water system pipelines ranging between 2-inch and 12-inch diameter.

106°10'30"W 106°10'0"W 106°9'30"W 106°9'0"W 106°8'30"W 106°8'0"W 106°7'30"W 106°7'0"W

37°35'30"N 37°35'0"N 37°34'30"N 37°34'0"N 37°33'30"N

26 25 30 29 35 36 31 32 1 6 5

285 160

Ben Ogle Ditch

Golf Course (32.08 acres)

High School Football Field (3.32 acres)

Chapman Park (9.45 acres)

High School & Baseball Fields (4.62 acres)

Montez Park (3.65 acres)

Marsh Park (1.94 acres)

Softball Fields/Ski Hi Picnic Area (4.34 acres)

Fullenweider Park (1.39 acres)

Sanchez Park (0.36 acres)

No.1 No.2 No.3 No.4 No.5 No.6 No.7 No.8

T39N, R7E

T38N, R7E

**Map Legend**

- Ditch Headgate
- CMV Well
- Park Irrigated Areas
- Ben Ogle Ditch
- Anderson Ditch
- Rio Grande Lariat Ditch
- Highway
- Municipal Boundary
- Section
- Township/Range

Well #1 = MV Batterson Well (ID 2006257)
Well #2 = Jackson St. Well (ID 2006258)
Well #3 = MV Broadway St. Well (ID 2006259)
Well #4 = MV Sherman St. Well (ID 2006260)
Well #5 = Chapman Park Well (ID 2006639)
Well #6 = Ball Park (ID 2009753)
Well #7 = Golf Course (ID 2009753)
Well #8 = Prospect (ID 2006261)

SGM
555 RiverGate Ln, Suite B4-82
Durango, CO 81301
970.385.2340
www.sgm-inc.com

Figure 2
**Water Supply Map**
City of Monte Vista

| Date: 8/17/2018 | Job No. 136-09 | Map by: RZM | Checked by: NJD | Scale: 1:14,400 |
|---|---|---|---|---|

Data Sources: Aerial Photograph - Summer 2015, Roads - Colorado Department of Transportation, Township and Range - US Bureau of Land Management, Town Boundary - Department of Local Affairs, Irrigated Acreage - Davis Engineering Report 2006.

File: P:\Project Files\136-09 City of Monte Vista\2018\Water Efficiency Plan\H-Dwgs\GIS\MXDs\Fig2-WtrManagement.mxd



0 1,200 2,400 Feet

1 inch = 1,200 feet

N W E S

In addition, Monte Vista owns senior water rights in four irrigation ditches near the City and has an agreement with the Rio Grande Reservoir Company for 240 acre-feet (AF) of storage capacity within Rio Grande Reservoir. Monte Vista's water rights are summarized in Table 2.

**Table 2. Water Rights Summary**

| Structure | Case Numbers | Diligence Decrees | Original Decree Date | Appropriation Date | Amount |
|---|---|---|---|---|---|
| ***Confined Aquifer Wells*** | | | | | |
| Well No. 1 (Batterson Well) | W-847 | N/A | 7/3/1975 | 09/30/1950 | 2.45 cfs absolute |
| Well No. 2 (Jackson Well) | W-847 | N/A | 7/3/1975 | 09/30/1950 | 4.01 cfs absolute |
| Well No. 3 (Broadway Well) | W-847 | N/A | 7/3/1975 | 04/30/1957 | 2.67 cfs absolute |
| Well No. 4 (Sherman Well) | W-847 | N/A | 7/3/1975 | 09/23/1968 | 5.12 cfs absolute |
| Well No. 8[1] (Prospect Well) | 88CW13 | N/A | 4/24/1989 | 09/30/1950; 04/30/1957; & 09/23/1968 | 4.46 cfs absolute |
| | | | | **Subtotal (absolute)** | 14.25 cfs |
| ***Unconfined Aquifer Wells*** | | | | | |
| Well No. 5 (Chapman Park Well) | W-847 | N/A | 7/3/1975 | 04/30/1965 | 1.34 cfs absolute |
| Well No. 6 (Ball Park Well) | W-847 | N/A | 7/3/1975 | 06/30/1949 | 0.423 cfs absolute |
| Well No. 7 (Golf Course Well) | W-847 | N/A | 7/3/1975 | 01/02/1954 | 4.23 cfs absolute |
| | | | | **Subtotal (absolute)** | 5.993 cfs |
| ***Senior Irrigation Water Rights[2]*** | | | | | |
| McDonald Ditch | 05/01/1896 | N/A | 05/01/1896 | 05/01/1872 | 1.40 cfs absolute |
| Anderson Ditch | 05/01/1896 | N/A | 05/01/1896 | 06/15/1874 05/31/1875 05/31/1877 | 4.23 cfs absolute |
| Rio Grande Lariat Ditch | 04/09/1903 | N/A | 04/09/1903 | Many between 10/13/1881 - 06/30/1899 | 2.51 cfs absolute |
| Ben Ogle Ditch | 04/09/1903 | N/A | 04/09/1903 | 04/01/1877 | 1.00 cfs absolute |
| | | | | **Subtotal (absolute)** | 9.14 cfs |
| | | | | **Total (absolute)** | **29.383 cfs** |

Notes:
cfs = cubic feet per second
Footnotes:
1. Well 8 is decreed as an alternate point of diversion for Well Nos. 1, 2, 3, and 4 and is therefore not included in the Confined Aquifer Wells subtotal.
2. Reported amount is the City of Monte Vista's portion of the decreed river headgate diversion rates

The City owns and operates two wastewater treatment plants (WWTP). The City's primary WWTP is the Henderson WWTP, which has a treatment capacity of 3.7 MGD. The City's secondary WWTP is the Veteran's WWTP, which has a design capacity of 1.9 MGD and is currently rated for 0.995 MGD of treatment capacity. The City has historically experienced significant amounts of infiltration and inflow (I/I) and is currently on a Colorado Department of Public Health and Environment (CDPHE) approved compliance schedule to reduce its I/I by

2019. The City has completed the first two phases of its I/I reduction project and has successfully eliminated more than 300,000 gallons per day (gpd) of inflow to its WWTPs.

The City's Henderson WWTP is in the northeastern portion of the Service Area and is a conventional lagoon treatment system that discharges its treated effluent to a nearby ditch which ultimately discharges into the Rio Grande. The City's Veteran's WWTP is located east of the City's Service Area, north of Sherman Avenue and is a conventional lagoon treatment system that discharges its treated effluent to a nearby ditch which ultimately discharges into the Rio Grande.

### 3.2 WATER SUPPLY RELIABILITY

The 2015 Rio Grande Basin Implementation Plan identified that the primary land use in the Rio Grande Basin is for agricultural operations and accounts for approximately 99 percent of all water use within the Basin. Across the Basin, agricultural users rely on both groundwater and surface water supplies almost equally. The use of groundwater supplies within the Rio Grande Basin has been identified as unsustainable. In 2015 the Colorado State Engineer and the Division 3 Engineer filed an application (Case No. 15CW3024) to promulgate Groundwater Rules for the Rio Grande Basin. The purpose of Case No. 15CW3024 is to administer groundwater usage in a way that is considered sustainable within the Rio Grande Basin.

The 2010 SWSI report identified that numerous interstate compacts and international treaties combined with sustained drought have made the objective of sustainable water use difficult. The 2010 SWSI report anticipated population growth within this basin to be 36 percent from 2008 to 2035. The total anticipated Municipal and Industrial (M&I) and Self-supplied Industrial (SSI) gaps in 2050 were estimated to be between 7,700 and 13,000 AF depending on the level of Identified Projects and Processes (IPP) success. Water conservation is one method the 2010 SWSI report identified for meeting the projected water supply gap for water users in the Rio Grande Basin, including municipalities.

Non-consumptive water needs within the Rio Grande Basin were also identified in the 2010 SWSI report. The Rio Grande Basin contains ample wetlands, critical habitat for six threatened or endangered (T&E) species of animals, has riparian areas with rare or imperiled plant communities, and has waters with CWCB instream flow rights and natural lake level water rights. Recreational uses within the Rio Grande Basin include boating, fishing, and waterfowl hunting. Non-consumptive needs applicable to the Rio Grande near the City of Monte Vista include boating, waterfowl hunting, critical habitat for T&E species, and wetlands.

The City's wells have historically provided an adequate supply of high quality water for all its water uses in dry, average, and wet years along with variable weather conditions, as groundwater supplies are relatively drought resistant. Monte Vista has historically been able to meet its peak instantaneous demands from its five existing confined aquifer wells, and has never had a water supply shortage. It is worth noting that the City's annual water demand prior to the installation of individual water meters in the early 2000s was approximately 1.9 times greater than the average annual demand over the previous 5 years. The City has not calculated its firm yield, nor modeled its water supply system. In general, the firm yield of the system is equal to the production capacity of its wells, which is more than 6,000 gallons per minute (gpm).

The City has variable frequency drives (VFDs) on two wells, and operates them in tandem, as municipal demands require. The remaining three wells are manually adjusted to meet any additional municipal demands, such as its peak hourly or irrigation demands. Given the wells' redundancy and historical operations, the City considers their municipal water supplies to be very reliable. Based on the nature of the City's confined aquifer groundwater supplies, any improvements in supply-side and demand-side efficiencies result in less groundwater pumping, which ultimately helps preserve the City's water supplies for later use.

The Division 3 Groundwater Rules require that all injurious depletions associated with groundwater pumping and usage be replaced to the Rio Grande and its tributaries. The Division 3 Groundwater Rules affect the legal and physical replacement requirements for Monte Vista to continue pumping its municipal wells. Since Monte Vista has historically relied on groundwater supplies for its municipal demands, the long-term sustainability of those rights is of paramount interest. As such, Monte Vista has filed a water rights application in Case No. 16CW3024 for a change of its senior irrigation water rights, appropriative rights of exchange, and a plan for augmentation. Monte Vista intends to use the senior irrigation water rights for raw water irrigation supplies within the City's service area, as physically and legally available, as well as to augment its depletions from the Rio Grande associated with well pumping, as required by the Division 3 Groundwater Rules in Case No. 15CW3024. To augment its depletions on various tributaries of the Rio Grande, the City intends to exchange its changed water rights into Rio Grande Reservoir, Santa Maria Reservoir, Continental Reservoir, Terrace Reservoir, and Platoro Reservoir, which can be released as necessary throughout the year to augment its depletions.

### 3.3 SUPPLY-SIDE LIMITATIONS AND FUTURE NEEDS

In general, Monte Vista's water supply system is very reliable from both a quantity and quality perspective. However, the City has identified multiple supply-side limitation and future infrastructure and capital projects needs that must be addressed to ensure Monte Vista continues to have a reliable water supply system. The following list is a summary of the information compiled in Worksheet A of the City's supply-side limitations and future project needs.

- The water system is in a designated critical water supply shortage area.
- The City's well pumping must be in compliance with the Division 3 Groundwater Rules promulgated in Case No. 15CW3024.
- The water system has substantial non-revenue water.
- The City does not have any potable water storage capacity, as it is able to meet all its instantaneous demands from its confined aquifer wells and looped distribution system.
- The Public Works staff desire multiple water system improvement projects, such as the addition of multiple water valves within the distribution system and a possible treated water storage facility. These projects would improve the City's water supply redundancy and would bolster the ability to meet fire flow requirements.
- The water system has aging infrastructure in need of repair including, transmission lines, valves, well pumps and motors, and ancillary well facilities.
- The City does not have an accurate inventory of its water system components or key attributes, nor does it have a GIS-based map of its water system and associated infrastructure.

The City is addressing its supply-side limitation and the legal requirements to continue to use the City's confined wells in the designated critical water supply shortage area through its water court application in Case No. 16CW3024. To address the City's aging water system infrastructure, the City hired Utility Services Associates to complete a system-wide leak detection investigation (excluding individual service connections) during the completion of the City's Water Efficiency Plan. The leak detection investigation did not locate any significant pipeline leaks; however, the following valves and hydrants within the City were determined to have the following leaks.

- Hydrant at 1331 Grande Avenue (approximately 0.25 gpm leak).
- Hydrant at 206 Adams Street (approximately 0.25 gpm leak).
- Hydrant at 418 Stallo Street (approximately 0.50 gpm leak).
- Valve at Darwin Street and Ulysses Boulevard (approximately 0.75 gpm leak).
- Additional valve at Darwin Street and Ulysses Boulevard (approximately 1.00 gpm leak).

The City will continue to monitor its water supply system and plan for necessary maintenance and infrastructure repair and replacement. Through the Water Efficiency Planning process, the City developed a strategy to reduce its non-revenue water through the selected foundational, technical assistance, ordinances and regulations, and educational activities described in this report.

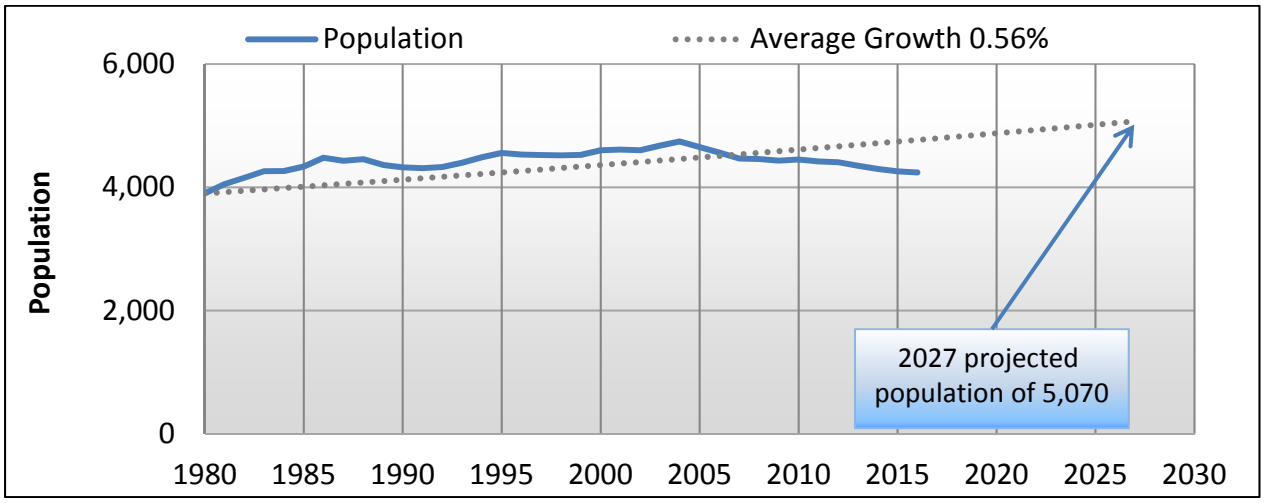
# 4.0 PROFILE OF WATER DEMANDS AND HISTORICAL DEMAND MANAGEMENT

The water demands in Monte Vista have varied significantly over the past few decades. A portion of the observed variation is related to the historical change in population (both increases and decreases). However, a significant decrease in historical water demands occurred because of the installation of individual water meters beginning in 2000. According to historical well records, the average annual water volume pumped between 1991 and 2001 was 2,023 AF/year. The total volume pumped in 2005 was 1,212 AF, which is representative of an immediate savings of approximately 40 percent. Since 2005, Monte Vista has observed consistent annual reductions in water consumption because of its historical demand management strategies.

## 4.1 DEMOGRAPHICS AND KEY CHARACTERISTICS OF THE SERVICE AREA

Historically, the population in Monte Vista has increased at an annual average rate of 0.24 percent. Individual annual growth rates have been as high as 3.65 percent in the 1980s and as low as –2.17 percent in the 2000s. Recently, annual rates have declined, but the City anticipates that population rates will increase over the next ten-year period at a rate of 1.6 percent. The projected population increase in the next ten-year period represents an average growth rate of 0.56 percent, since 1980, which is comparable to the average growth rate observed between 1980 and 2006. The population data presented in this document were collected from the Colorado Department of Local Affairs (DOLA) for 1980 to 2016. Figure 3 shows historical and projected population for the City. The estimated City population in 2016 was 4,242 persons.

**Figure 3. Historical and Projected Population for the City**




Based upon the City's population and types of residences, businesses, and municipal facilities, the City has divided its water users into the following five categories that are summarized in Figure 4.

- Single Family Residential – 1,700 taps.
  - Users consist of single family homes. Some residences have individual taps for indoor and outdoor uses.
- Multi-family Residential – 115 taps.
  - Typical users consist of duplexes, condominiums, apartments, public housing authority buildings, the Veteran Center, and mobile home parks.
- Commercial – 211 taps.
  - Typical users consist of restaurants, retail buildings, professional offices, hotels, and other commercial and business facilities.
- Governmental – 16 taps.
  - Typical users consist of the City's schools, U.S. Postal Service office, and the local U.S. Bureau of Land Management (BLM) office.
- Zero Billing – 13 taps.
  - Typical users consist of the City's facilities, library, fire department, information center, golf course, and parks.

Figure 4. City of Monte Vista Customer Tap Percentages

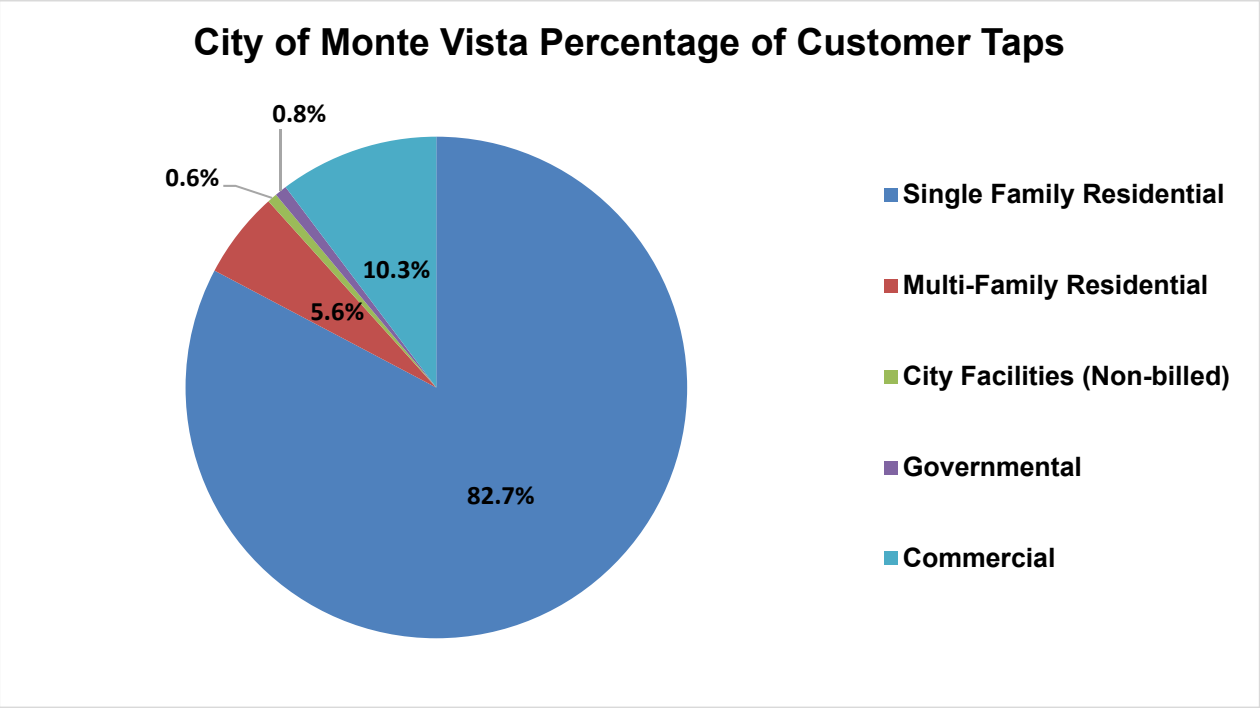



Figure 4 illustrates that bulk of the City's taps service single family residences (82.7 percent), followed by commercial customers (10.3 percent), multi-family residences (5.6 percent), government customers (0.8 percent), and finally City facilities (0.6%). Based on the 2010 U.S. Census, the average household size for Monte Vista is 2.5 persons, while the average family size in Monte Vista is 3.0 persons.

The bulk of the City's development occurred between 1950 and 1970, with a general population increase between 1980 and the early 2000s. As such, most of the buildings within the City are more than 45 years old. Given the relative ages of the houses, buildings, indoor appliances, plumbing and outdoor irrigation systems the City anticipates there will be increasing amounts of passive water savings that will decrease overall water consumption, as individuals within the City replace broken water fixtures (faucets, toilets, and showerheads) with newer low-flow indoor fixtures. Similarly, significant portions of the City's water system are more than 50 years old, and the City anticipates it can reduce its non-revenue water by repairing and replacing its aging water infrastructure.

### 4.2 Historical Water Demands

The City manually collects water meter readings between the 15th and 20th of each month and utilizes Caselle Clarity software for its water billing process. Almost all water users within the City's Service Area have water meters installed on their service lines, but approximately 53 customers are still unmetered, and include single family residential and commercial users along with several of the City's irrigated parks. Table 3 shows a comparison of the measured historical annual well production volumes and the metered retail water deliveries for water years 2012 through 2016 by customer type. Table 3 also includes the relative percentage of the total metered water deliveries used by each customer category.

Raw water deliveries were calculated based on the City's metered well pumping records for the irrigation of Chapman Park. The City's other parks, medians, and golf course are irrigated using potable water, of which most of the deliveries are metered.

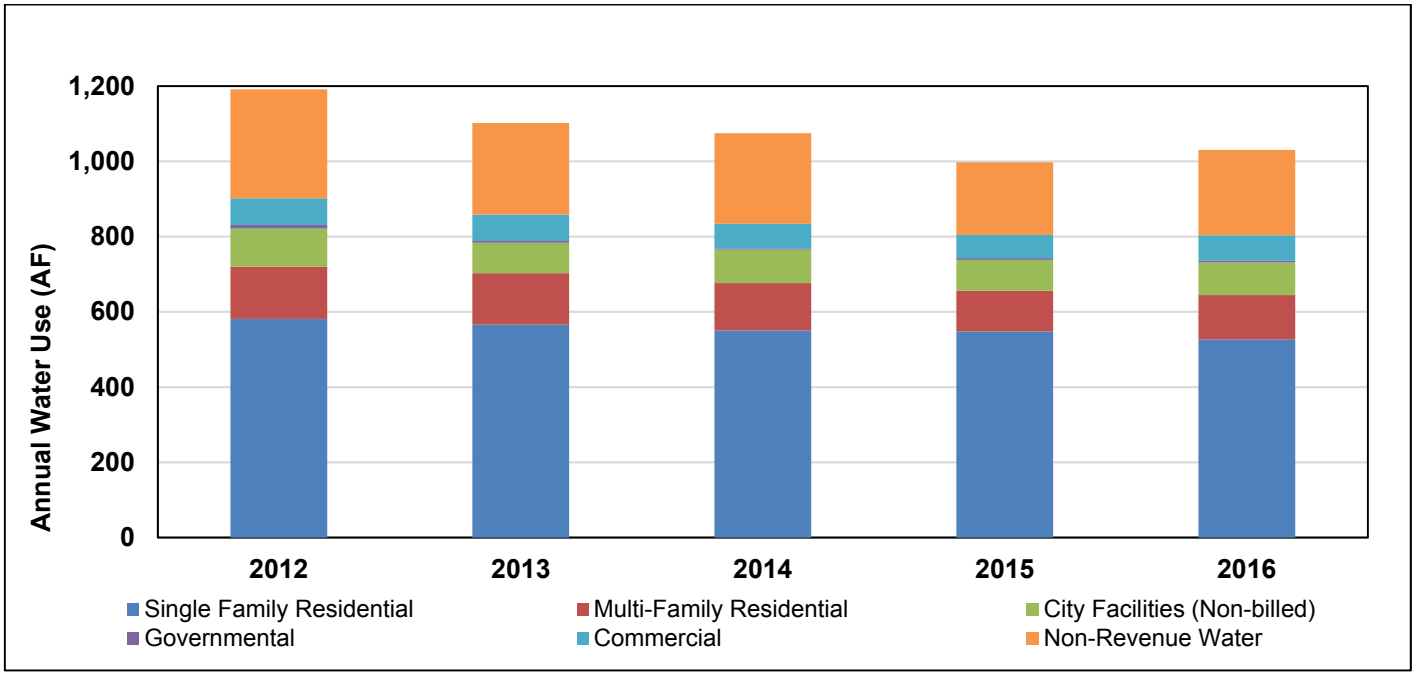
Figure 5 shows the annual difference between the measured diversions or produced water metered at each of the City's wells, along with the metered deliveries to each of the City's Customer Types. The difference between the produced water and the delivered water is considered Non-Revenue water and is comprised of real losses (including physical losses or leaks within the entire water system) and apparent losses (including unmetered customer usage, billing system errors, or unaccounted meter errors). The City's Non-Revenue portion of the produced potable supplies ranged between 19.4 percent and 24.3 percent with an average of 22.1 percent between 2012 and 2016.

**Table 3. Historical Water Delivery**

| Year | Annual Potable Water Production (AF) | | | | | | Unconfined Well Production for Water Irrigation (AF) | Total Annual Water Production (AF) | Metered Water Delivery | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | Potable Water Delivery Distribution by Customer Type (Percentage of Total Deliveries) | | | | | | | | | | | |
| | Well 1 (Batterson) | Well 2 (Jackson) | Well 3 (Broadway) | Well 4 (Sherman) | Well 8 (Prospect) | Total | | | Metered Water Delivery (AF) | Non-Revenue Water[1] (Percentage of Potable Production) | | Single Family Residential[2] | | Multi-Family Residential[3] | | Commercial[4] | | City Facilities (Non-billed)[5] | | Government[6] | |
| | | | | | | | | | | AF | % | AF | % | AF | % | AF | % | AF | % | AF | % |
| **2012** | 29.1 | 33.8 | 0.2 | 568.3 | 560.1 | 1,191.4 | 30.6 | 1,222 | 901.5 | 289.9 | 24.3% | 581.1 | 64.5% | 139.0 | 15.4% | 70.8 | 7.8% | 101.2 | 11.2% | 9.5 | 1.1% |
| **2013** | 0.6 | 84.6 | 0.4 | 416.4 | 599.4 | 1,101.4 | 38.3 | 1,140 | 858.4 | 243.0 | 22.1% | 565.6 | 65.9% | 137.1 | 16.0% | 70.4 | 8.2% | 80.7 | 9.4% | 4.6 | 0.5% |
| **2014** | 83.4 | 122.5 | 0.1 | 287.9 | 581.1 | 1,074.9 | 23.1 | 1,098 | 834.1 | 240.8 | 22.4% | 549.8 | 65.9% | 126.4 | 15.2% | 65.5 | 7.8% | 88.9 | 10.7% | 3.5 | 0.4% |
| **2015** | 0.0 | 19.0 | 0.0 | 388.5 | 589.8 | 997.3 | 31.7 | 1,029 | 804.3 | 193.0 | 19.4% | 547.3 | 68.0% | 108.7 | 13.5% | 61.9 | 7.7% | 82.1 | 10.2% | 4.4 | 0.5% |
| **2016** | 0.1 | 16.0 | 0.1 | 364.5 | 649.6 | 1,030.3 | 23.1 | 1,053 | 803.4 | 226.9 | 22.0% | 526.6 | 65.5% | 117.8 | 14.7% | 68.2 | 8.5% | 86.5 | 10.8% | 4.3 | 0.5% |

1. Includes: System losses and unmetered water deliveries
2. Includes: Single family residences
3. Includes: Duplexes, condominiums, apartments, public housing authority buildings, the Veteran Center, and mobile home parks
4. Includes: restaurants, retail buildings, professional offices, hotels, and other commercial and business facilities
5. Includes: City's facilities, library, fire department, information center, golf course, and parks
6. Includes: City's schools, U.S. Postal Service office, and the U.S. Bureau of Land Management office

Figure 5. Total Annual Produced Water Versus Metered Deliveries



Between 2012 and 2016, the City's greatest annual water delivery of 901.5 AF occurred in 2012, and the overall water demand has successively decreased over the past five years. The City's 2011 Water Conservation Plan noted that the average system loss was approximately 20 percent. The Non-Revenue water accounts for 22.1 percent of the potable produced water supply between 2012 and 2016 and is considerably more than the standard municipal goal of total losses between 7 and 10 percent. Therefore, the recent observed system losses are greater than the losses identified in the City's 2011 Water Conservation Plan and are likely due to increased water losses associated with the City's aging water system infrastructure.

In comparing the percentage of total usage by customer type, shown in Table 3 to the percentage of taps shown in Figure 4 the following observations can be made:

- Single Family Residences consist of 82.7 percent of the taps and accounted for 66.0 percent of the delivered water on average between 2012 and 2016.
- Multi-Family Residences consist of 5.6 percent of the taps and accounted for 14.9 percent of the delivered water on average between 2012 and 2016.
- Commercial Facilities consist of 10.3 percent of the taps and accounted for 8.0 percent of the delivered water on average between 2012 and 2016.
- Government Facilities consist of 0.8 percent of the taps and accounted for 0.6 percent of the delivered water on average between 2012 and 2016.
- The City's Non-billed Facilities consist of 0.6 percent of the taps and accounted for 10.5 percent of the delivered water on average between 2012 and 2016.

In order to understand the seasonal variability and differences in water use by customer type, the City's metered data was analyzed in multiple ways. Figure 6, shows the City's average monthly water production in AF between 2012 and 2016. Of the average monthly water production between 2012 and 2016, Figure 7 illustrates the estimated indoor and outdoor demands. Finally, Figure 8 shows the City's average monthly deliveries by Customer Type and Non-Revenue water. The City has historically recorded the pumped amount of raw water supplies used to irrigate Chapman Park at the end of each year. Therefore, it was not possible to determine the monthly amounts of raw water irrigation that occurs within the City.

Figure 6. Monte Vista Monthly Water Production (Average between 2012-2016)

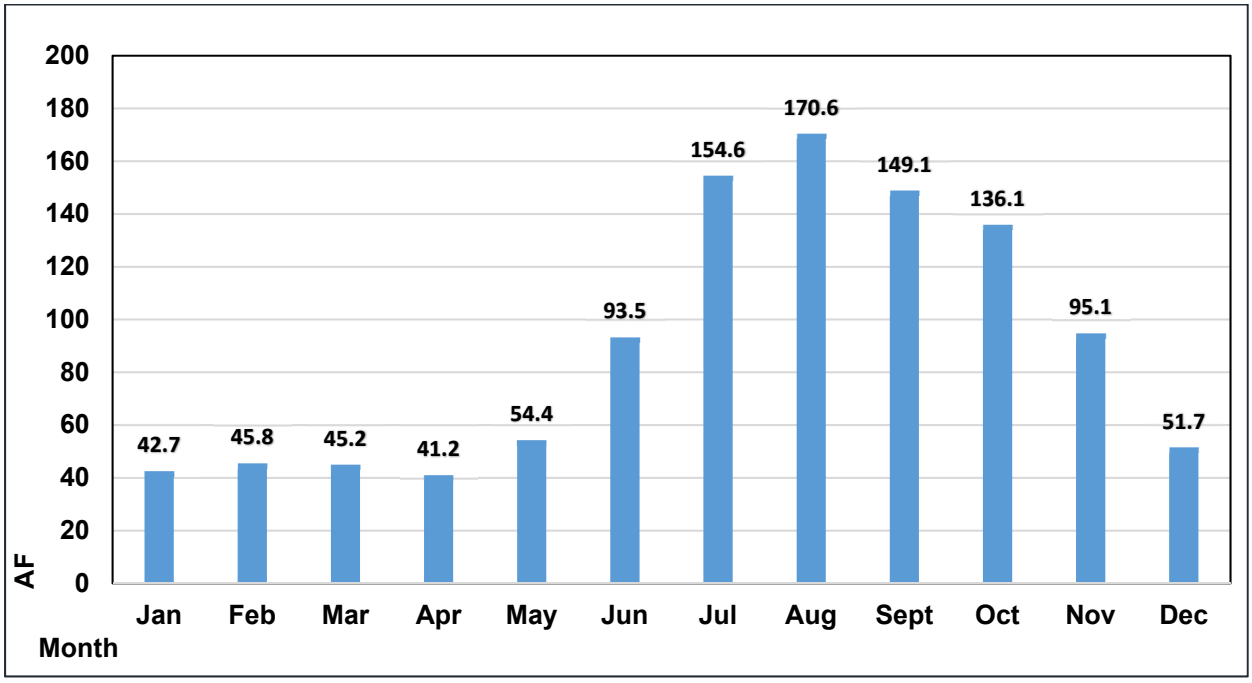



Figure 7. Monte Vista Estimated Indoor and Outdoor Demands (Average between 2012-2016)

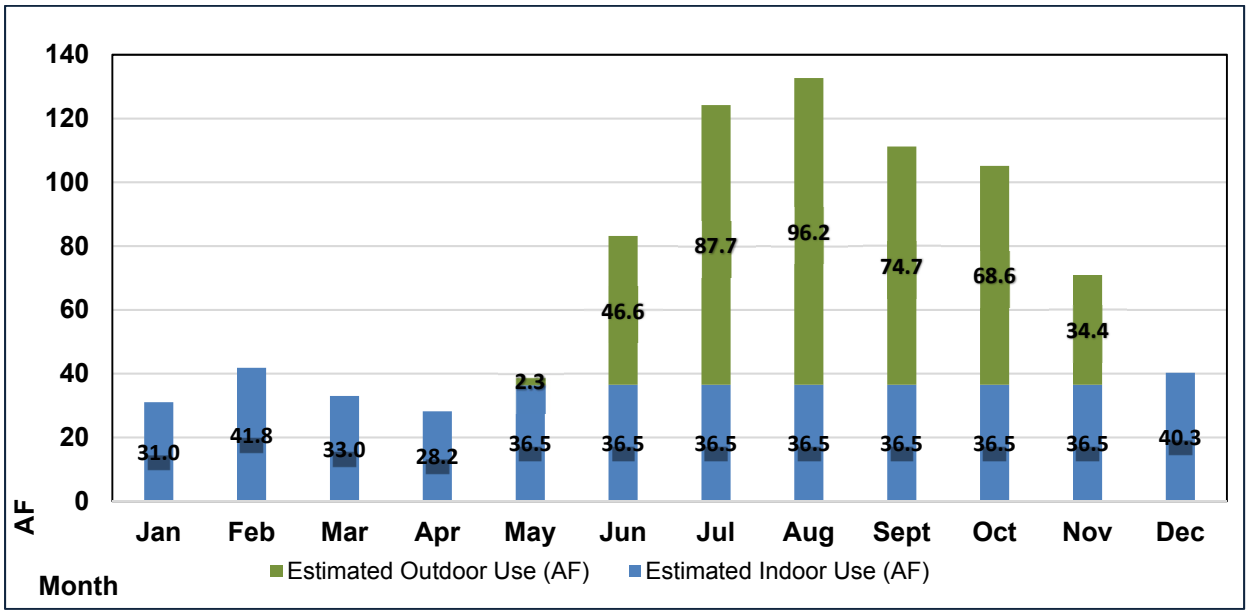
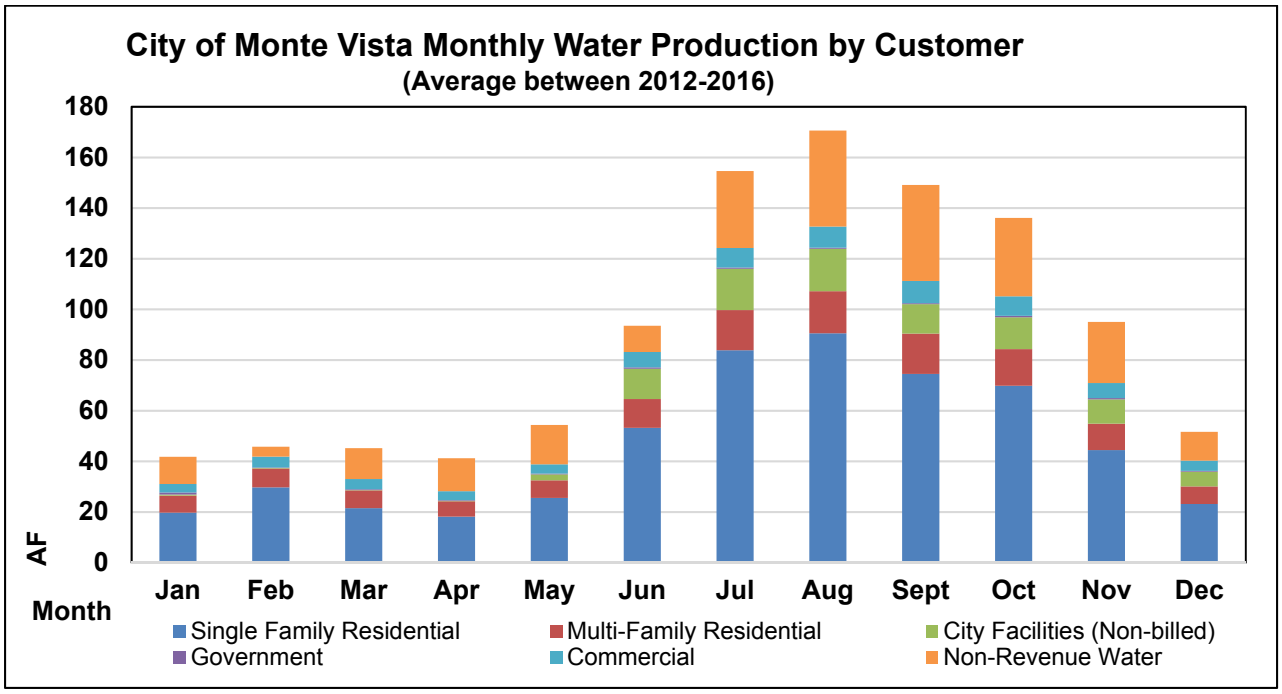


Figure 8. Monte Vista Non-Revenue Water and Delivery by Customer Type (Average between 2012-2016)




Based upon the City's water billing and well production data the following observations have been made:

- The City's total average indoor demand was estimated to be 36.5 AF, based upon the metered usage during the months of December through March.
- Variability in the City's winter indoor demands is likely a function of the extremely cold temperatures experienced during the winter in Monte Vista, and the City's policy to allow dripping pipes in the winter to prevent frozen pipes from bursting.
- The City's typical irrigation season begins in May and extends into November.
- During the peak irrigation season the outdoor monthly demand is approximately 2.6 times greater than the indoor monthly demand.
- The relative percentage of Non-Revenue Water varies monthly between 8.7 and 31.7 percent of the total Produced Water amount.
- Based upon the wells' historical pumping between 2012 and 2016, the City's average daily demand between ranged 0.89 and 1.06 million gallons per day (MGD) with a five-year average daily demand of 0.96 MGD.
- Based upon the wells' historical pumping between 2012 and 2016, the City's peak daily demand ranged between 2.84 and 3.84 MGD.

The individual Customer Type and Non-Revenue Water monthly volumes and percentages of the Total Delivered Water are shown in Table 4 The monthly percentages of the Total Delivered Water for Single Family, Multi-Family, and Government customers remains relatively constant throughout the year. However, the Commercial customer's monthly percentages of the Total Delivered Water decrease during the summer by nearly a factor of two, indicating less of a need for outdoor irrigation supplies, as compared to the residential users.

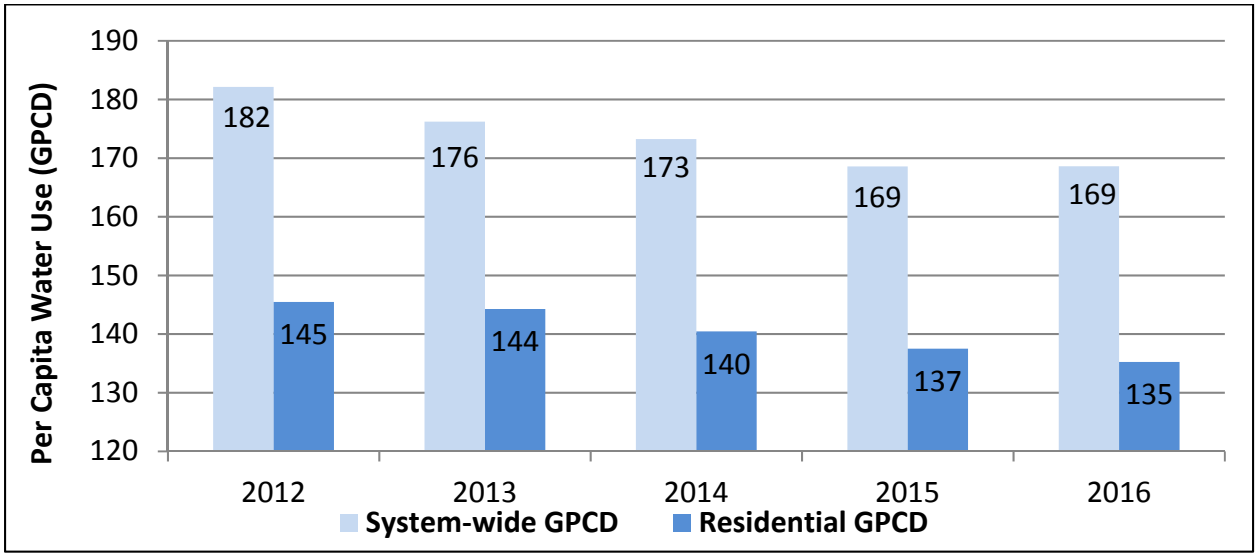
However, the City's Non-Billed Facilities monthly percentages increased by two orders of magnitude during the irrigation season. This relative increase in the City's Non-Billed Facilities monthly percentage is a function of the relatively small amount of indoor usage throughout the year, compared to the large supply of outdoor irrigation water needed for the City's parks and golf course.

**Table 4. Comparison of Monte Vista's Monthly Water Production and Water Delivery**

| Month | Average Monthly Water Production (AF) | Average Monthly Water Delivery (AF) | Average Monthly Water Use | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Single Family Residential (AF) | Single Family Residential (% of Delivery) | Multi-Family Residential (AF) | Multi-Family Residential (% of Deliver) | City Facilities (Non-billed) (AF) | City Facilities (Non-billed) (% of Delivery) | Government (AF) | Government (% of Delivery) | Commercial (AF) | Commercial (% of Delivery) | Non-Revenue Water (AF) | Non-Revenue Water (% of Production) |
| Jan | 42.7 | 31.0 | 19.7 | 63.6% | 6.7 | 21.6% | 0.4 | 1.3% | 0.9 | 2.7% | 3.3 | 10.7% | 10.8 | 25.2% |
| Feb | 45.8 | 41.8 | 29.7 | 71.0% | 7.5 | 17.9% | 0.2 | 0.4% | 0.2 | 0.5% | 4.2 | 10.1% | 4.0 | 8.7% |
| Mar | 45.2 | 33.0 | 21.5 | 65.1% | 7.0 | 21.3% | 0.1 | 0.4% | 0.3 | 0.9% | 4.0 | 12.3% | 12.2 | 27.1% |
| Apr | 41.2 | 28.2 | 18.2 | 64.5% | 6.1 | 21.5% | 0.1 | 0.5% | 0.3 | 1.1% | 3.5 | 12.5% | 13.1 | 31.7% |
| May | 54.4 | 38.8 | 25.5 | 65.8% | 7.0 | 18.0% | 2.3 | 6.0% | 0.3 | 0.8% | 3.6 | 9.4% | 15.6 | 28.7% |
| Jun | 93.5 | 83.1 | 53.2 | 64.0% | 11.4 | 13.7% | 12.0 | 14.4% | 0.5 | 0.6% | 6.1 | 7.3% | 10.4 | 11.1% |
| Jul | 154.6 | 124.2 | 83.9 | 67.5% | 15.9 | 12.8% | 16.3 | 13.1% | 0.5 | 0.4% | 7.7 | 6.2% | 30.4 | 19.7% |
| Aug | 170.6 | 132.7 | 90.6 | 68.2% | 16.6 | 12.5% | 16.7 | 12.6% | 0.4 | 0.3% | 8.4 | 6.3% | 37.9 | 22.2% |
| Sept | 149.1 | 111.2 | 74.5 | 67.0% | 15.9 | 14.3% | 11.6 | 10.5% | 0.4 | 0.4% | 8.8 | 7.9% | 37.9 | 25.4% |
| Oct | 136.1 | 105.1 | 69.8 | 66.4% | 14.4 | 13.7% | 12.6 | 12.0% | 0.6 | 0.5% | 7.7 | 7.3% | 31.0 | 22.8% |
| Nov | 95.1 | 70.9 | 44.4 | 62.6% | 10.4 | 14.7% | 9.6 | 13.5% | 0.5 | 0.7% | 6.0 | 8.4% | 24.1 | 25.4% |
| Dec | 51.7 | 40.3 | 23.1 | 57.4% | 6.9 | 17.2% | 5.8 | 14.5% | 0.3 | 0.7% | 4.1 | 10.1% | 11.4 | 22.1% |

Based upon the City's population (shown in Figure 3) and the annual total water deliveries and the total residential deliveries between 2012 and 2016, the historical system-wide daily usage ranged between 169 and 182 gallons per day per capita (GPCD), while the residential specific daily usage ranged between 135 and 145 GPCD. The system-wide and residential GPCD values are shown in Figure 9. Since 2012 the City's water usage shows a consistent decline in both the system-wide and residential GPCD values. The system-wide GPCD has decreased 7.1 percent over five years, an average of 1.43 percent per year. Similarly, the residential GPCD has decreased 6.9 percent over five years, an average of 1.38 percent per year. This reduction is attributed to the City's demand management activities, summarized in Section 4.3.

Figure 9. Monte Vista Per Capita Water Use Values




In summary, the City's metered water delivery data indicates a consistent reduction in the overall water use has occurred over the past five years. Except for 2016, the City's Non-Revenue water has also decreased in each subsequent year. However, in comparison to the reported values in the City's 2011 Water Conservation Plan, the past five years have a larger amount of total Non-Revenue water and the average system-wide GPCD has increased from 170 GPCD to 174 GPCD. The residential GPCD slightly decreased from the 2011 Water Conservation Plan reported average of 142 GPCD to 140.6 GPCD as observed between 2012 and 2016.

The City's largest overall water demand is for Single Family residences, followed by Multi-Family residences, the City's Non-Billed facilities (primarily outdoor park and golf course irrigation), Commercial facilities, and finally Government facilities. Within each Customer Type, the City's billing software allowed for the identification of the largest users. As such, the City considered the large amount of Non-Revenue water, total demand per Customer Type, and largest water users within each category to develop the Water Efficiency Plan goals and subsequent selected activities described in Sections 4 and 5.

### 4.3 Past and Current Demand Management Activities and Impact to Demands

In the City's 2011 Water Conservation Plan, the City established a goal of reducing its total water demand by 10 percent between 2011 and 2020 and was distributed between its water use categories, including Non-Revenue water. The goal of a 10 percent reduction in its total water demand was projected to result in approximately 927 AF of saved water over a ten-year period. The City was not able to fully implement the elements of its Water Conservation Plan, but did accomplish the following activities:

- Approved a water rate increase in 2014.
- Implemented a tiered water rate billing structure in 2016.
- Installed various indoor water efficient fixtures within some of the City's buildings beginning in 2012.

- Public Works staff had a booth at the annual City of Monte Vista Open House, beginning in 2014, to discuss water use and ways to increase water efficiency with the public.
- Added water savings information to the City's Public Works website in 2016.
- The City continues to send its users the required annual drinking water quality report – Customer Confidence Rule (CCR).

SGM analyzed the City's water billing data, anticipated savings in the 2011 Water Conservation Plan, and reviewed various water use and conservation literature (listed in Section 8.0) to estimate the average annual savings of the above activities, as well as the savings over the past five years. The estimated annual savings for the City's past and current demand management activities is approximately 75 AF per year, with a total five-year savings of 245 AF between 2012 and 2016. Therefore, SGM estimates the City has achieved approximately 26% of its 2011 Water Conservation Plan goal through five years of the projected ten-year planning period. The attached Worksheet B summarizes the City's annual water savings for its specific demand management activities between 2012 and 2016.

In addition, the City has continued to install and replace (as needed) individual meters to its water users. The City's historical pumping data show an estimated 40 percent savings associated with the completion of individual meter installations for its customers after 2005. Metered usage as a demand management activity alone accounts for an estimated annual savings of 770 AF, with a total five-year savings of 3,851 AF between 2012 and 2016. However, the installation of water meters occurred prior to the 2011 Water Conservation Plan. Therefore, that water savings was not considered towards the 2011 Water Conservation Plan goal of 927 AF.

The City had diligently implemented demand management activities as staff and financial resources have allowed since the development of the 2011 Water Conservation Plan. Aside from metering, the most effective demand management activity was the decline in per capita usage after the implementation of the 2014 water rate increase, which resulted in an estimated savings of 62 AF per year. Based on our review of water conservation case studies, SGM anticipates the City will realize a comparable amount of annual savings from the tiered water rate structure implemented in the summer of 2016; however, there were not sufficient data available during the development of the City's 2018 Water Efficiency Plan to estimate the associated water savings.

Most of the housing stock within the City was constructed between 1950 and the 1970s. Given the relatively old age of the homes, the City anticipates increased amounts of passive savings through the replacement of older residential and commercial fixtures and appliances with new higher efficiency fixtures and appliances. The City of Monte Vista's economy is generally considered to be less vibrant that larger Colorado metropolitan areas, and likely less than the average Colorado economy. The City staff do not believe that historical passive demand savings have been significant, as many households would not likely prioritize the replacement of functioning water fixtures and appliances simply to use less water. Therefore, SGM and City staff estimated that reduction in total water usage and per capita usage observed between 2012 and 2016 was primarily a function of its active water demand management activities.

While the City currently has ordinances against the wasting of water, the City has not adopted formal watering restrictions during periods of drought. This is primarily a function

of the City's groundwater supply being fairly drought resistant. In 2012, Colorado experienced a severely dry single year drought across most of the state. Not surprisingly, the City's water delivery amount during the irrigation season in 2012 was larger than all other years reviewed; however, a consistent decrease in the amount of delivered water between May and November was observed in most subsequent years ranging between 17 and 39 AF. Given the consistent annual decrease in delivered water during the five-year period between 2012 and 2017 indicates that the City's demand management activities are effective given variable hydrologic cycles and changes in population.

The City staff understand the best resource they have for understanding the impacts of their demand management activities exists in the collection and storage of historical monthly water delivery data for all its customer types and specific customers. City staff believe a more regular review of the water delivery data should be incorporated into the future demand management activities to validate successes and identify the most effective areas to implement future activities.

### 4.4 Demand Forecasts

The City began working on the Water Efficiency Plan during the middle of 2017 and finalized the Water Efficiency Plan in the beginning of 2018. Therefore, the City's planning horizon for this project is ten years starting in 2018 and continuing through 2027. As shown in Figure 3 and described in Section 3.1, SGM and the City developed an annual population estimate between 2018 and 2027 of 1.6 percent annually over the next 10 years. The Colorado DOLA population estimate for Monte Vista in 2016 was 4,242 persons and given the City's estimated growth results in population of 5,070 persons by 2027.

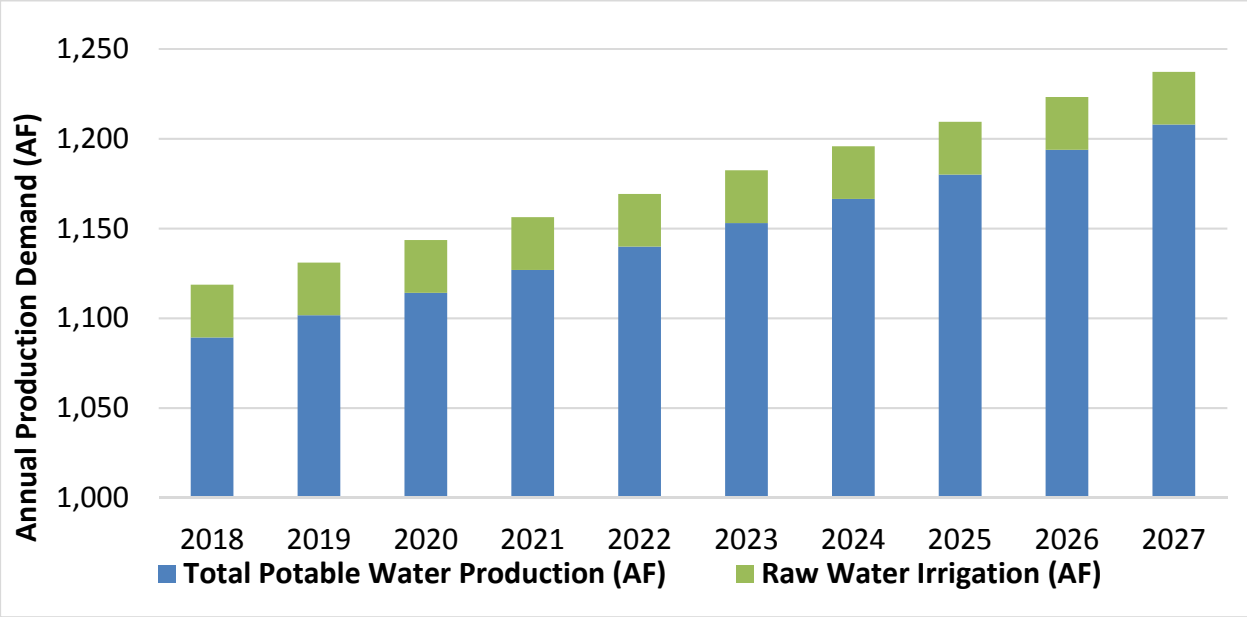
The City's average system-wide per capita daily demand between 2012 and 2016 was calculated to be 173.8 GPCD. As described in Section 3.2, this value represents the total metered deliveries to all customers divided by the City's population and does not include system losses or other types of non-metered Non-Revenue water. As detailed in Section 3.2 the City's total Non-Revenue supplies (the difference between the pumped water supplies and the metered delivered water) averaged 22.1 percent between 2012 and 2016.

City staff estimate that approximately three percent of residents will replace a broken water fixture within their home each year (approximately 54 single family residential customers/taps). Based on the available literature, the total annual passive water savings could be as much as 4.2 AF, which is approximately 0.5 percent of the total delivered supplies. Therefore, SGM estimate an annual passive savings of 0.5 percent.

The City also uses untreated raw alluvial well water to irrigate a few open space and park areas, including Chapman Park. The average annual raw water deliveries between 2012 and 2016 was 29.37 AF, which was included in the City's 2018 through 2027 planning period demand forecast.

Based on the estimated population, average system-wide per capita daily demand, historical losses, anticipated passive water savings, and historical raw water irrigation of parks and open spaces, SGM developed the baseline unmodified total water demand forecast for the City's planning period between 2018 and 2027 shown in Figure 10.

Figure 10. Monte Vista's Unmodified Total Annual Water Demand Forecast




The City's unmodified total annual water demand forecast is projected to increase from the average 2012 through 2016 annual amount of 1,108 AF to 1,237 AF by 2027. This unmodified demand represents a total increase of 11.2 percent over the ten-year planning period.

# 5.0 INTERGRATED PLANNING AND WATER EFFICIENCY BENEFITS AND GOALS

The City of Monte Vista's wells have always provided a reliable and high-quality water supply to meet its municipal demands, including periods of drought and when annual pumping was more than twice its current average total annual water production of 1,108 AF. The purpose of the City's ongoing water efficiency planning and water demand management activities is two-fold. The primary reason is the City values their water supply, and while drought resistant, understand that efficient water use will prolong the long-term sustainability of City's groundwater supply. The second reason it that the City is required to replace its groundwater depletions associated with its confined aquifer pumping as specified in the Division 3 Groundwater Rules. Continued increases in water efficiency will allow the City to grow while utilizing its groundwater accretion credits and changed senior surface water irrigation rights to replace its depletions, as outlined in the City's Division 3 Water Court Application in Case No. 16CW3024.

## 5.1 WATER EFFICIENCY AND WATER SUPPLY PLANNING

The City has a sufficient physical water supply to meet projected demands through 2040, with a projected population of 6,250 persons based upon:

- The City's previous planning efforts.
- The City's existing water rights.

- The City's current understanding of the Division 3 Groundwater Rules requirements to offset depletions associated with its confined aquifer pumping.
- The City's pending change of water rights, exchange, and plan for augmentation application in Case No. 16CW3024.
- The City's current municipal demands.

However, the future decree is critical for the City to obtain, as it will allow for the continued pumping of its confined aquifer wells and provide several mechanisms for the City to augment its depletions as required in the Division 3 Groundwater Rules.

Currently, the anticipated effort to obtain a decree in Case No. 16CW3024 is not known given the large amount objectors, the still pending final Division 3 Groundwater Rules, and the fact the City's application is one of the first seeking augmentation of high capacity wells under the Division 3 Groundwater Rules. A final decree in the City's Case No. 16CW3034 may not be issued until 2019 or 2020 and could go potentially go to trial. Given the importance of the City's need for a physical supply and legal mechanism to offset its confined aquifer depletions it will continue to support the application, which will incur future engineering and legal fees. The City will continue to monitor the underlying analyses and verify that the assumptions remain valid through its on-going long-term water supply planning efforts. Future long-term water savings will result in less confined aquifer depletions, which will ultimately make the City's water supply and existing replacement sources more sustainable, provide more surety during droughts, and will push back any need for additional physical or replacement water sources.

The City's primary water supply system challenges consist of aging infrastructure and significant amounts of system losses resulting in excessive amounts of Non-Revenue water. The water supply system challenges were generally described in Section 2.3 and are more fully described in the attached Worksheet C, along with the projects' associated costs. Aside from supporting the application in the City's Case No. 16CW3024, the primary focus for the City's capital improvement projects is to identify and install, repair, or replace failing infrastructure (as funding is available) that contribute to Non-Revenue water. This includes regular leak detection inspections to identify new or worsening leaks, along with the development of a GIS-based mapping platform for its entire water system. The GIS-based mapping platform will not directly result in a water savings, but will allow for the City to develop a working platform to store water system data, spatially locate physical water system components, leak detection information, construction drawings, and will greatly reduce the effort required to locate faulty water system components. Ultimately, the GIS-based map will allow for the development of a Capital Improvement Plan, which will eliminate existing losses, and prevent future losses through the identification and prioritization of regular system maintenance. The repair and replacement of failing infrastructure will result in less system losses and will decrease the overall amount of water production.

The City also identified the following mid-term capital improvement projects:

- Construct two to three above ground water storage tanks and operate the water system from the tanks rather than the confined wells.
- Necessary infrastructure maintenance items, such as regular well inspections and mechanical and chemical cleanings.
- Install variable-frequency drives (VFDs) and more efficient motors at the City's wells.

- Convert more of its parks, open spaces, and the City Golf Course to a raw water irrigation system utilizing the City's senior surface water irrigation rights and decreed alluvial wells.

The long-term water savings garnered through water efficiency activities will be used by the City in its future planning efforts to:

- Reduce its required confined aquifer depletion requirements.
- Determine if and when additional water rights are required to meet future physical and legal requirements.
- Identify and prioritize its capital improvement projects.
- Develop optimized well operations; determine if the future above ground storage requirements can be reduced to sufficiently meet the City's more efficient water demands.
- Defer future capital costs associated with necessary capacity increases for its water system and waste water system.

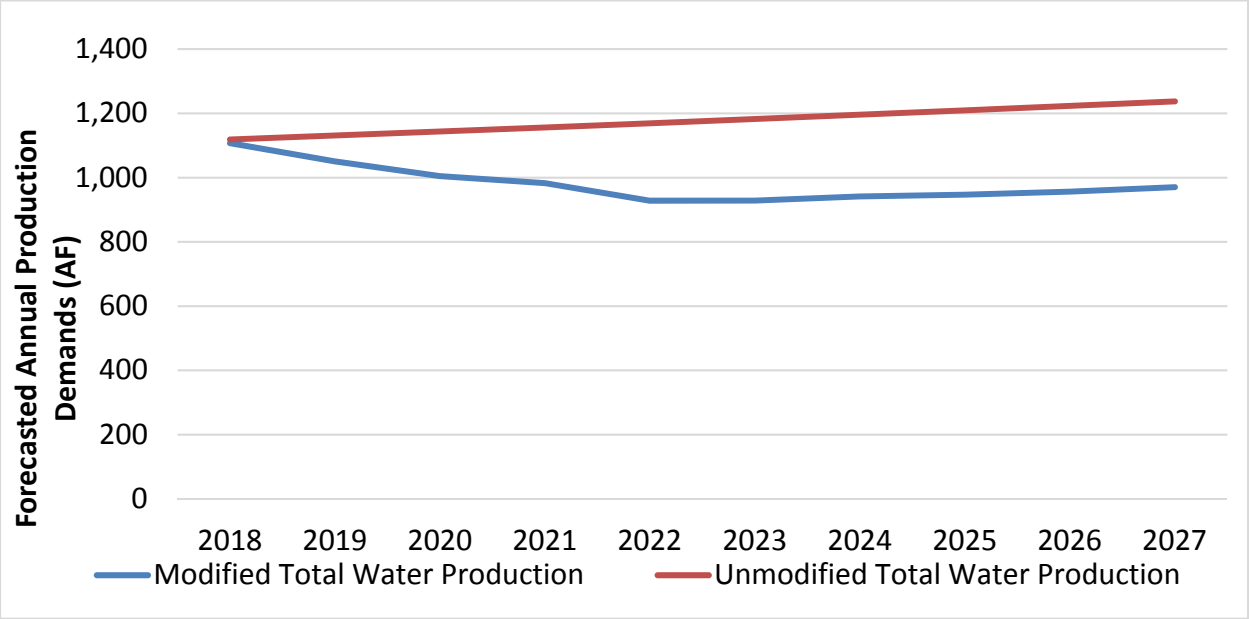
As described in Section 6, the City has developed implementation and monitoring plans associated with this Water Efficiency Plan. These plans will allow for data to be collected supporting the effectiveness of long-term water efficiency activities and allowing those savings to be directly incorporated into the City's future planning efforts.

In addition, the following societal and environmental benefits are likely to occur:

- Reduction of customers' water bills.
- Reduction of treated wastewater effluent and discharge to the Rio Grande
- Reduction of surface water runoff during outdoor irrigation cycles.
- Demonstrating a commitment to the community regarding the importance of sustainability and leadership in proper stewardship of a public resource.

Based upon the City's water efficiency goals and selected water efficiency activities, detailed in Section 4.2 and Section 5 respectively, SGM and the City developed the following modified forecasted water demands through the planning period shown in Figure 11.

Figure 11. Monte Vista's Modified Total Annual Water Demand Forecast




SGM and City staff anticipate the total water savings that can be achieved during the 2018 through 2027 planning period is approximately 1,950 AF. This savings is visually shown as the difference between the modified total water production line and the unmodified total water production line in Figure 11, and consists of a reduction in Non-Revenue water, as well as active savings activities explained in subsequent sections.

### 5.2 Water Efficiency Goals

SGM and City staff reviewed the City's 2011 Water Conservation Plan (including its goals), the achieved water savings, and the City's water customer metered usage data between 2012 and 2016 to collectively develop water efficiency goals for the City's Water Efficiency Plan. The breakdown of water usage by customer types (along with seasonal demand variation) helped facilitate the creation of water efficiency goals, and subsequently the selection of water efficiency activities. SGM and City staff identified targeted objectives City staff felt reasonably confident could be accomplished and implemented when developing the following specific goals:

1. Identify the City's significant water system losses, and work to reduce Non-Revenue water by 50 percent.
    a. The success of this goal will be quantitatively measured by comparing future water pumping production numbers to metered deliveries, and then calculating the total system losses and Non-Revenue water. The 2012 through 2016 Non-Revenue water averaged 22.1 percent, and the goal would be to reduce the total Non-Revenue water to approximately 11 percent.
2. Reduce overall water consumption by 10 percent across all customer types.
    a. The success of this goal will be quantitatively measured by comparing the average system-wide GPCD and residential GPCD values during the 2018 through 2027 planning period to those detailed in this report between 2012 through 2016. In addition, total metered water usage by customer types will be compared for the same periods.

3. Utilize existing communications activities and incorporate water efficiency information.
    a. The success of this goal will be qualitatively measured by reviewing future water bills, annual Customer Confidence Reports, and the City's Public Works website to see what water efficiency information was available to all water users.
4. Install water meters for the few remaining flat rate customers to achieve a 100 percent metered customer percentage.
    a. The success of this goal will be quantitatively measured by reviewing the City's metered data and verifying that all water customer accounts are metered rather than the few remaining flat billing designation.

At the end of the 2018 through 2027 planning period the targeted water savings would result in an annual reduction of Non-Revenue water by 120 AF, a reduction of overall customer water use by 84 AF and a reduction of the raw water irrigation use by 3 AF. The targeted total water savings equates to 207 AF and represents 16.7 percent of the unmodified total water demand forecast (Figure 10) as shown in Figure 11.

The 2018 Water Efficiency Plan goals are similar, but generally more ambitious than the 2011 Water Conservation Plan Goals, which included:

1. Reduce the Non-Revenue water from an average of 20 percent to 17.5 percent.
2. Reduce water uses for the City's various customers between 5.0 and 10.0 percent.
3. Achieve a total demand reduction of 10 percent.

City staff felt the 2018 Water Conservation Plan goals were consistent with the 2011 Water Conservation Plan goals regarding the overall direction the City was looking to improve its water efficiency; however, that more significant savings could be achieved over the 2018 through 2027 planning period.

# 6.0 SELECTION OF WATER EFFICIENCY ACTIVITIES

During the development of water efficiency goals City staff discussed that only a portion of the City's 2011 Water Conservation Plan activities had been implemented, and that the projected water savings over the past five years totaled approximately 26 percent of the 2011 Water Conservation Plan's goal. Therefore, City staff determined that an overarching goal for the 2018 Water Conservation Plan was that selected activities should consist of actions that are likely to and can be implemented over the ten-year planning period (2018 through 2027).

## 6.1 SUMMARY OF SELECTION PROCESS

SGM worked collaboratively with City staff to complete the CWCB recommended four-phase approach towards the ultimate selection of the water efficiency activities. The first phase included an assessment of the City's previous water efficiency activities and other key aspects of their water supply system and service area, which are described in Sections 2, 3, and 4 of this report, as well as the attached Worksheets A and B.

The second phase included a general identification of water efficiency activities that are compatible with the provider's system and needs. City staff further identified water efficiency activities based on the success of historical activities, along with desired activities from City staff, and the City's desired capital improvement projects tabulated in the attached Worksheet C.

The third phase of the City's selection process included the qualitative screening of foundational, incentive, ordinance, and educational water efficiency activities. SGM summarized this process completed with the City in the attached Worksheets D, E, F, and G. As appropriate, City staff added additional activities discussed during phase two of the screening process. These worksheets document the City's preliminary qualitative screening process. To meet the City's Water Efficiency Plan goals and the staff's desire that all selected water activities can be implemented during the planning period, SGM worked with City Staff to develop qualitative screening criteria that would address these concerns. As a result, these four qualitative screening criteria were developed and used during the qualitative screening process:

1. Is the water efficiency activity acceptable to the public?
2. Can the water efficiency activity be implemented or championed at the City staff level?
3. Can the water efficiency activity be implemented within the 2018 through 2027 planning period?
4. Is the water efficiency activity economically viable and cost effective?

The fourth phase included the evaluation and selection process by the City of its final water efficiency activities. City staff's screening process is summarized in the attached Worksheet H, which included the final quantitative screening, estimated water savings, and projected implementation costs. The previously considered qualitative screening criteria were reviewed and the City developed the following qualitative goals in concert with their 2018 Water Efficiency Plan goals:

1. Does the water efficiency activity contribute towards the reduction of non-revenue water by 50 percent?
2. Does the water efficiency activity contribute towards the reduction of water use for various customer types by 10 percent?
3. Does the water efficiency activity contribute towards the goal of 100 percent metered water service?

SGM and City staff utilized CWCB's SWSI Levels Framework of demand management activities as that basis for water conservation activities for consideration within the City's 2018 Water Efficiency Plan. Based upon the described process, summarized in the attached Worksheets D through H, the City selected the following water efficiency activities for their 2018 through 2027 planning period, summarized in Table 5.

Table 5. Summary of Monte Vista's Selected Water Efficiency Activities

| Selected Water Efficiency Activities | Implementation Period of Historical Activities | Historical Total Water Savings | Implementation Period of New Activities | Projected Water Savings for Planning Period |
|---|---|---|---|---|
| **Foundational Activities** | | | | |
| Meter Testing and Replacement | 2005-2017 | Unknown | 2018 - 2027 | N/A |
| Meter Upgrades | 2015-2017 | Unknown | 2018 - 2027 | N/A |
| Identify Unmetered/Unbilled Treated Water Uses | N/A | N/A | 2019 - 2027 | 102 |
| Tracking Water Use by Customer Type | N/A | N/A | 2018 - 2027 | N/A |
| Tracking Water Use for Large Customers | N/A | N/A | 2019 - 2027 | 154 |
| Volumetric Billing | 2000-2005 | 770 af/yr | 2019 - 2027 | 102 |
| Water Rate Adjustments | 2014 | 62 af/yr | 2020 - 2027 | 179 |
| Inclining/Tiered Rates | 2016 | N/A | 2020 - 2027 | 137 |
| Tap Fees with Water Use Efficiency Incentives | N/A | N/A | 2020 - 2027 | 81 |
| System Wide Water Audits | N/A | N/A | 2019 - 2027 | 249 |
| Control of Apparent Losses (with Metering) | 2017 | N/A | 2022 - 2027 | 65 |
| Leak Detection and Repair | 2005-2017 | Unknown | 2021 - 2027 | 234 |
| Water Line Replacement Program | N/A | N/A | 2022 - 2027 | 341 |
| Capital Improvement Plans | N/A | N/A | 2019 - 2020 | 0 |
| **Targeted Technical Assistance and Incentives** | | | | |
| Toilet Retrofits | N/A | N/A | 2021 - 2027 | 2 |
| Showerhead Retrofits | N/A | N/A | 2021 - 2027 | 0 |
| Faucet Retrofits (e.g. aerator installation) | N/A | N/A | 2021 - 2027 | 3 |
| Xeriscape | N/A | N/A | 2025 - 2027 | 0 |
| Other Low Water Use Landscapes | N/A | N/A | 2025 - 2027 | 0 |
| Irrigation Equipment Retrofits | N/A | N/A | 2023 - 2027 | 18 |
| Outdoor Irrigation Controllers | N/A | N/A | 2023 - 2027 | 9 |
| Commercial Indoor Fixture and Appliance Rebates/Retrofits | N/A | N/A | 2024 - 2027 | 27 |
| Water Use Efficiency Incentives | 2012 | Unknown | 2018 - 2027 | 9 |
| Give-aways | N/A | N/A | 2019 - 2027 | 38 |
| **Ordinances and Regulations** | | | | |
| Water Waste Ordinance (BP 5) | 2009 | 4 af/yr | 2018 - 2027 | 85 |
| Time of Day Watering Restriction | 2009 | 0 af/yr | 2019 - 2027 | 76 |
| Day of Week Watering Restriction | 2009 | 0 af/yr | 2020 - 2027 | 68 |
| Raw Water Irrigation of Parks and Open Spaces | N/A | N/A | 2023 - 2027 | 0 |
| Green Building Construction (BP 12) | N/A | N/A | 2026 - 2027 | 9 |
| Indoor Plumbing Requirements (BP 12) | N/A | N/A | 2025 - 2027 | 13 |
| City Facility Requirements (BP 12) | N/A | N/A | 2019 - 2027 | 0 |
| Commercial Water Wise Use Regulations | N/A | N/A | 2025 - 2027 | 11 |
| **Education Activities** | | | | |
| Bill Stuffers | N/A | N/A | 2018 - 2027 | 4 |
| Newspaper Articles | N/A | N/A | 2018 - 2027 | 4 |
| Mass Mailings | 2010-2017 | Unknown | 2018 - 2027 | 4 |
| Web Pages | 2015-2017 | Unknown | 2018 - 2027 | 4 |
| Message Development/Campaign | N/A | N/A | 2021 - 2022 | 3 |
| Interactive Websites | N/A | N/A | 2020 - 2027 | 3 |
| Social Networking (e.g. Facebook) | 2015-2017 | Unknown | 2018 - 2027 | 4 |
| Customer Surveys | N/A | N/A | 2023 - 2027 | 2 |
| Customer Water Use Workshops | N/A | N/A | 2024 - 2027 | 2 |
| Xeriscape Demonstration Garden | N/A | N/A | 2025 - 2027 | 1 |

## 6.2 DEMAND MANAGEMENT ACTIVITIES

In summary, the SWSI Level Framework for demand management activities is built upon foundational activities, which include the water efficiency activities that are common for most effective plans. Implemented atop foundational activities are targeted technical assistance and incentives activities, ordinances and regulations activities, and education activities. Each of these three categories of water efficiency activities are organized into three levels which focus on a logical sequencing of implementation to maximize their effectiveness, including making sense from a business perspective to municipalities and water providers. Sections 5.2.1, 5.2.2, 5.2.3, and 5.2.3 describe in more detail the results of the City's screening and evaluation process for each water efficiency activity.

### 6.2.1 Foundational Activities

The City of Monte Vista has previously implemented the majority of the SWSI Level Framework's foundational activities. During the screening and evaluation process, the focus for City Staff was on how existing processes, programs, and activities could be improved upon to bolster the City's water savings for the 2018 through 2027 planning period. City staff considered a wide-array of foundational activities to implement within the 2018 through 2027 planning period, which are summarized in the attached Worksheets D and H. SGM and City Staff estimate the City will achieve a total savings of 1,950 AF through the selected foundational activities over the ten-year planning period. These activities are tabulated in Table 5 and described in detail in the following sections.

#### 6.2.1.1 Metering

The City of Monte Vista has installed water meters for nearly all individual water users. However, there are approximately 50 single family residential customers and three commercial customers that have requested the City not install water meters and are consequentially billed on a flat-rate basis. In addition, the City does not meter its outdoor irrigation at four of its Parks. The City's existing metering program consist of manual-read Sensus water meters that were predominantly installed between 2001 and 2005. City staff do not regularly test meters unless requested by the customers, or if metered water use appears abnormally low over several months, indicative of a meter failure. The City does install secondary meters for outdoor irrigation uses, if requested by a customer; however, the vast majority of water users only have one metered connected to the City's water system. Most of the customers who are sub-metered include residential users who desire to reduce their monthly sewer charges by separating indoor and outdoor usage, as well as several of the City's facilities that have separate indoor and outdoor meters.

Over the past five years, the City has installed or replaced approximately 8 water meters per year. The City is currently migrating to the Sensus SR-II water meter, and anticipates installing this model of meter for the foreseeable future. The 2017 cost was approximately $150.00 per meter. The City is responsible for the cost of the meter, but invoices the customer for the time and materials to install the water meter. City staff anticipate their existing replacement program of approximately 8 meters per year will continue through the 2018 through 2027 planning period.

As meters fail, they typically record less than (or zero) of the actual use. Thus, the City's existing and continued meter replacement program will likely not result in new water savings, but will reduce the amount of Non-Revenue water calculated by the City, as meters fail and are subsequently replaced. The annual meter testing and replacement cost is estimated to be $1,200 per year for a ten-year total of $12,000.

Directly resulting from the 2018 Water Efficiency Plan, City staff determined they would set the goal to install meters for the remaining unmetered 50 residential customers, 3 commercial customers, and four City parks. Based upon the City's historical data, individual water use decreased by approximately 40 percent across all water users once water meters were installed. Therefore, based on the average metered residential and commercial user, an estimated annual reduction of 11.3 AF of Non-Revenue water will occur once the remaining 53 unmetered customers are subject to water use metering and billing. The estimated cost for the 53 meters is $8,850. Metering of the City's parks will

cost approximately $5,000 and will result in a further reduction of 2.5 AF of Non-Revenue water.

City staff would eventually like to migrate the entire meter system to an Automatic Meter Reading (AMR) or AMR with telemetry system; however, City staff do not anticipate having the necessary funding within the 2018 to 2027 planning period to begin upgrading the City's water meters. SGM and City staff do not anticipate that an AMR installation would result in additional water savings, but would certainly reduce the amount of staff time necessary to collect the manual-read meter readings. Any future savings of City staff's time would provide more opportunities for staff to analyze water customers' monthly and seasonal water uses as well as implement water efficiency activities.

City staff recognize the historical water savings that have occurred due to the installation of water meters, along with monthly water bills that are proportional to metered usage. The Public Works staff desire that all its water customers are metered within the Water Efficiency Plan planning period.

#### 6.2.1.2 Demand Data Collection and Billing Systems

Between the 15th and 20th of each month four Public Works staff manually collect meter readings for all the City's water users throughout the City. The data collection process occurs over a four-day period. The City of Monte Vista sends water bills to its customers monthly and uses the Caselle *Clarity* software to manage its water usage data and create its monthly bills for metered customers. Generally, the City is satisfied with its billing system, but will look for opportunities to upgrade its software during the 2018 through 2027 planning period. Overall, the Caselle *Clarity* software is flexible and allows for the City to add various water users for future tracking. Given the City's size and types of users, SGM and City staff believe the City's existing customer categories are appropriate and reasonable and did not foresee the need to create additional customer categories. In reviewing the City's metered customer data, SGM noted some minor discrepancies where a few specific customers were located within the wrong customer category. As a result, City staff revised the customer category designation. Going forward, the City will continue to monitor water usage of individual customers within the City's existing five customer categories (Single Family, Multi-Family, Commercial, City Facilities, and Government) through the 2018 through 2027 planning period. Given the significant amount of staff time required each month to collect the City's customer water usage data, the City does not anticipate increasing the frequency of its monthly meter readings.

While the City does not intend to modify its data collection procedures or billing system as a result of the 2018 Water Efficiency Plan, City staff were reminded of the importance of having the individual water user data from 2012 to the present to understand individual users' consumption and overall customer categories' water usage trends both seasonally and over longer periods of time. As such, City staff will more regularly review and consider the monthly water usage data to monitor and guide the City's water efficiency activities throughout the 2018 to 2027 planning period, as described in Section 6. City staff will specifically focus on using the water usage data for its large customers within each customer category to track trends in water usage, and monitor savings of its various water efficiency activities.

SGM and City staff collaborated to calculate the acreages of the irrigated portions of the City's open spaces, parks, and golf course, as shown on Figure 2. The City will monitor its future irrigation water usage at its outdoor facilities and will compare irrigation rates

(volume per area) to determine where they should focus their targeted technical assistance activities. At this point in time, the City does not intend to determine the amount of irrigated area for any of its non-City water users. The reason for not determining non-City customers' irrigated areas is based on the desire to prioritize Staff's time and the City's financial resources into more immediately needed water efficiency activities.

An important note for the City's future ongoing water planning effort and water efficiency monitoring is the difference in timing between the collection of the City's meter readings and the City's well pumping records. For instance, the City's June water bill for a given year represents the metered usage between the April 15th and May 20th of that year and is not comparable to the June well pumping records between June 1st and the 30th. SGM shifted the calculated sum of well pumping records to coincide with the period of metered usage. Neglecting to shift the sum of pumping data to will result in nonmeaningful Non-Revenue volumes for a given billing period.

#### 6.2.1.3 Water Efficiency Oriented Rates and Tap Fees

Monte Vista has historically billed its customers on a volumetric basis since most customers were fully metered in 2005. The City implemented a rate increase in 2014 and then additionally incorporated an inclining block rate structure for all customer categories in 2016 to encourage water efficiency in a fiscally responsible manner. The City of Monte Vista has a dual summer and winter monthly base usage of 5,000 gallons per month and 15,000 gallons per month respectively. The reason for the winter increase of the base amount to 15,000 gallons, is to allow customers to mitigate potential freezing and bursting of water lines during the City's frigid winter temperatures by permitting all customers to let water fixtures drip. The City's "drip policy" is generally in affect from mid-December through mid-March. The City's monthly base fee varies for the size of the water service line and tap and if the customer is within our outside of the City. All water customers are billed according to their monthly volumetric usage based upon the four tiers of the inclining block rate structure, as summarized in Table 6.

Table 6. Monte Vista's Existing Monthly Inclining Block Water Use Rates

| Tier | Tap Size | Inside City Customers | Outside City Customers |
|---|---|---|---|
| Base Rate | Non-Metered Flat Rate | $46.00 per month | N/A |
| | Res. 3/4" - 1" | $28.00 per month | $56.00 per month |
| | Non-Res. 3/4" | $28.00 per month | N/A |
| | Non-Res 1" | $31.00 per month | $62.00 per month |
| | Non-Res 1 1/4" - 1 1/2" | $48.00 per month | N/A |
| | Non-Res 2" | $60.00 per month | $120.00 per month |
| | Non-Res 3" | $93.00 per month | N/A |
| | Non-Res 4" | $160.00 per month | N/A |
| | Non-Res 6" | N/A | $460.00 per month |
| | Non-Res 8" | $285.00 per month | N/A |
| Tier 1* | All | First 5,000 gallons included in base | First 5,000 gallons included in base |
| Tier 2 | All | $1.50 per thousand, 5,001 - 15,000 gallons | $3.00 per thousand, 5,001 - 15,000 gallons |
| Tier 3 | All | $2.00 per thousand, 15,001 - 30,000 gallons | $4.00 per thousand, 15,001 - 30,000 gallons |
| Tier 4 | All | $2.50 per thousand, 30,001 gallons plus | $5.00 per thousand, 30,001 gallons plus |

* The City has a "Drip Policy" from mid-December through mid-March to prevent pipe freezing and busting. During this period, the base rate increases to 15,000 gallons per month.

As summarized in Section 3.3, the City has observed a savings of 62 AF per year after it raised water rates in 2014. The implementation of the City's existing inclining block rate structure occurred in 2016, and there was not sufficient data to evaluate its impact in water savings; however, the City anticipates a similar amount of savings has occurred with the increased water rates. During the 2018 through 2027 planning period, City staff would like to complete a citywide Capital Improvement Plan including a water rate study. Once the study is completed, the City would like to implement the recommended changes to the City's water rates and inclining block rate structure. City staff anticipate the water rates will increase in response to the capital projects identified within the Water Efficiency Plan. However, staff also acknowledge that the rate increases may need to be gradually phased over time to help the City's customers prepare and adjust for the future changes. Ideally, City staff would like to revisit the City's water rates every five years and modify as necessary. City staff do not plan to increase the billing frequency more than monthly, given the lack of AMR meters and the significant amount of staff time required to collect the meter data.

The City's existing water tap fees were last revised in June 2003 and vary for customers within and outside the city limits as well as by tap size. The total tap fee is composed of a water rights acquisition fee and a basic tap fee. City staff would like to revisit the water tap fees during the 2018 through 2027 planning period during the future Capital Improvement Plan. Once the future Capital Improvement Plan is complete, the City would

like to implement the recommended changes to the City's water tap fees. Table 7 shows a summary of the City's existing water tap fees.

Table 7. Monte Vista's Existing Water Tap Fees

| Tap Size | Inside City Limits | | | Outside City Limits | | |
|---|---|---|---|---|---|---|
| Water Tap Rates | Allocation of Tap Fee for Acquisition of Water Rights | Basic Tap Fee | Total Tap Fee | Allocation of Tap Fee for Acquisition of Water Rights | Basic Tap Fee | Total Tap Fee |
| 3/4 - 1 Inch (Residential) | $1,700 | $800 | $2,500 | $3,400 | $1,600 | $5,000 |
| 1 Inch (Commercial) | $1,700 | $1,500 | $3,200 | $3,400 | $3,000 | $6,400 |
| 1 1/2 Inch | $2,400 | $2,000 | $4,400 | $4,800 | $4,000 | $8,800 |
| 2 Inch | $3,200 | $2,500 | $5,700 | $6,400 | $5,000 | $11,400 |
| 3 Inch | $4,200 | $3,400 | $7,600 | $8,400 | $6,800 | $15,200 |
| 4 Inch | $5,400 | $4,300 | $9,700 | $10,800 | $8,600 | $19,400 |

In summary, City staff believe their existing water rates and tap fees have been developed to encourage water efficiency in a fiscally responsible manner. In addition, City staff recognize that during the 2018 through 2027 planning period both the water rates and tap fees should be revisited during a future rate study and will likely be revised. The City's future rate study will be critical for the City as reductions in water use result in lower total income for the City. The reduction in income, ultimately results in less money available for the City's Water Fund to finance the cost of service and water system improvements. The City's future rate study will be used to set water use rates and tap fees to offset future reductions in income, while meeting the capital needs for future water system improvements.

#### 6.2.1.4 System Water Loss Management and Control

For the City's 2018 Water Efficiency Plan, City staff focused their attention directly to reducing the amount of Non-Revenue water by 50 percent. Their ambitious (and achievable goal) will require the City to critically look inwards to reduce its real and apparent system water losses. To date, the City believes most of its Non-Revenue water can be attributed to real losses, but understands that apparent losses will also need to be further investigated and addressed within the 2018-2027 planning period.

Regarding apparent losses, one item previously discussed in Section 6.2.1.1that will reduce the amount of apparent losses is the anticipated metering of the remaining 50 residential customers, 3 commercial customers, and four number of parks that are not metered. Other than those specific customers, the City is fully metered. City staff are not aware of any unauthorized consumption by its customers or potential customers. Each year the City tests its wells' meters to ensure they are correctly reporting the City's water production amounts. Similarly, as required by individual customers, the Public Works Department will test water specific service meters, or if staff determined a customer's meter is not operating correctly. The City intends to continue testing and replacing its

meters throughout the 2018 through 2027 planning period. Finally, the City's last potential source of apparent losses could be a result of errors that occur during the City's readings of the individual water meters, including transcription errors, or data entry of the meter readings into the City's billing software. City staff do not believe there are significant errors in either data collection or entry, but believe future monitoring of water use data, further described in Section 6.2 will verify the assumption and may lead to a reduction of apparent losses.

The Public Works Department staff believe most of its water losses are real and are a result of its aging water infrastructure. The City contracted an independent leak detection firm to complete to complete a system-wide leak detection audit in October 2017, which resulted in the discovery of four leaking hydrants, two leaking valves, and two suspected leaks on the affected customers' side of the service meter. The City has identified the specific projects identified within the leak detection survey as selected activities to help reduce its real losses.

Surprisingly, the leak detection survey did not result in the detection of significant water losses. However, the survey did note that many valve cans had dirt and root intrusion, indicating service valve replacement should be a component of the future water system replacement program. The leak detection survey's recommendations included: testing larger water meters (2-inches and larger) as well as spot sampling its residential customers (smaller meters). SGM notes, the leak detection survey was not able to investigate the Sherman Well check valve, as the well was running during the duration of the survey. The report indicates ideal weather and moderate traffic were present during the leak detection field work. Despite the findings, City Staff believe continued and regular leak detection surveys are important for its long-term reduction of real losses. The City plans to conduct two additional leak detection surveys during the 2018 through 2027 planning period, on five-year intervals, unless additional funding becomes available.

To supplement and guide additional leak detection surveys, City staff anticipate utilizing the American Water Works Association (AWWA) Free Water Audit Software (v5.0 is currently the latest edition available) to complete annual system-wide audits. City staff have not historically completed a system-wide water audit, but acknowledge the clarity the process and results can provide for their water system. For instance, the AWWA software will estimate apparent and real losses, while assigning an estimated annual cost for those losses. The financial aspect of the system-wide water audits can provide relevant information for City staff and City Council in estimating future avoided costs, by reinvesting in the City's water system to reduce the amount of Non-Revenue water. City staff's goal is to complete the system-wide audit annually. They will input the relevant and required data (e.g. annual water production and metered water usage) on a calendar year basis into the AWWA Free Water Audit Software to estimate their system performance indicators, as well as key areas of focus for the subsequent year.

As described in Section 5.2.1.3, the City intends to pursue a Capital Improvement Plan project during the 2018 through 2027 planning period. This plan will consider the City's future system-wide audits and will prioritize water system repairs and replacements, including the development of a water line replacement program. Additionally, the Capital Improvement Plan will consider information obtained through future leak detection surveys.

City staff have and will continue to test customers' water meters and will work to identify ways to increase the number of meter tests each year, given its staff existing workload. Based upon the City's selected water loss management and control activities and planning activities to address apparent and real losses, SGM and City staff believe the City will achieve a total water savings of 991 AF during the 2018 through 2027 planning period. Further these activities comprise a sizable portion of the City's anticipate Water Efficiency Plan annual and planning period budget, as shown in Table 5.

### 6.2.2 Targeted Technical Assistance and Incentives

Monte Vista's implementation of the targeted technical assistance and incentive activities identified within its 2011 Water Conservation Plan have been limited to the installation of various high efficiency water fixtures at some of the City's facilities and the economic development incentives for new businesses to use water more efficiently. During the screening and evaluation process, the focus for City staff was how to leverage the limited time and budget available to City staff to maximize the impact of selected targeted technical assistance and incentive activities during the 2018 through 2027 planning period. City staff considered a wide-array of technical assistance and incentive activities to implement within the 2018 through 2027 planning period, which are summarized in the attached Worksheets E and H. SGM and City Staff estimate the City will achieve a total savings of 107 AF through the selected Targeted Technical Assistance and Incentive activities over the ten-year planning period. These activities are tabulated in Table 5 and described in detail in the following sections.

#### 6.2.2.1 Level 1 Utility/Municipal Facility Water Efficiency

The Level 1 technical assistance and incentive activities include those that can be directly controlled and implemented by the City within its facilities or those it directly manages. As a result of the City's 2011 Water Conservation Plan, staff did install an assortment of efficient water fixtures at some of its facilities, which resulted in an estimated annual water savings of 5.0 AF based on the historical metered water usage data. However, not all the fixtures at each facility were replaced.

Therefore, the selected Level 1 technical assistance and incentive activities primarily included the replacement of toilets, showerheads, and faucets in all the City's various facilities to encourage indoor water conservation. The City's targeted facilities include: the Monte Vista Ambulance Service, City Airport, City Shop, City Administration Building, Fire Department, City's Information Center, Transportation of the West Museum, Kids Connection Facility, Carnegie Library, City Parks, and the Golf Course, including the clubhouse. To implement the above activities, City Staff will complete the following actions during the 2018 through 2027 planning period:

1. Prioritize the order to replace and retrofit the indoor water fixtures at the City's facilities based on the metered annual water usage (largest first).
2. City staff will visit each facility and determine the number of high water-use toilets, showers, and faucets that need to be replaced and/or retrofitted with water savings devices.
3. City staff will purchase the appropriate number of replacement toilets, showerheads, and/or faucet aerators for each facility, and install the appropriate water efficient fixtures.

City staff anticipate completing one to three facility retrofits per year and have the goal to retrofit all City's facilities indoor fixtures within the 2018-2027 planning period to reduce indoor water usage by a total of 0.75 AF per year. The estimated annual budget is approximately $290.00. If City staff decided to replace multiple toilets at a facility, the annual budgeted amount would need to significantly increase.

Additionally, City staff selected to install new irrigation controllers at all City facilities that use water supplies for outdoor irrigation. As with the indoor fixture replacement and retrofit process, City staff will prioritize the completion of the irrigation controller replacement program based upon the facilities' metered annual water usage, which will begin with the City's golf course and then its individual parks. City staff will install the new water efficient irrigation controllers to optimize future watering of the City's outdoor landscapes. City staff estimate they can complete the irrigation controller replacement program within the 2018-2027 planning period to reduce outdoor water usage by a total of 3.68 AF per year (approximately 24 controllers will be installed throughout the City's facilities, which is estimated to cost $4,800).

Finally, during the 2018 through 2027 planning period City staff would like to see approximately 2,000 square feet of the existing Chapman Park irrigate turf be turned into a xeriscape and low water use landscape demonstration garden. Chapman Park is one of the City's most frequently visited park and will also serve as an educational activity further described in Section 5.2.4. In addition, the reduction of turf at the park will save approximately 0.14 AF of water per year, at a cost of approximately $4,000 to complete the xeriscape and low water use landscape demonstration garden.

In addition to the anticipated water demand reduction, City staff believe the selected activities will be visible to the public (low-water fixtures and the demonstration garden), which will further demonstrate the City's dedication to conservation of the City's water supplies. City Facilities are metered, but not billed for their water usage, so no direct economic implications to the City are anticipated aside from the capital cost to purchase and install the fixtures and irrigation equipment. Finally, City staff time dedicated to investigating and replacing water fixtures, irrigation controllers, and overseeing the installation and maintenance of the demonstration garden will provide direct water efficiency activity implementation experience that can be passed down to the City's residents and water customers through future educational opportunities.

#### 6.2.2.2 Level 2 Management of Largest Customer Demands

The Level 2 technical assistance and incentive activities include those that can be directly focused toward the large water users within the City. As a part of the City's 2018 Water Efficiency Plan, City staff calculated the total water use by individual customers between January 2012 through August 2017 to capture the largest water users over the a five-and-a-half-year span. City staff then sorted each water user within all customer categories (from highest to lowest) and selected the top 10 percent of water users within each customer category for the metered period. From that data, SGM compiled the overall largest 10 individual water users, as well as the largest water users within each customer category.

In summary, the largest water users within the City include facilities with significant amounts of outdoor irrigation, such as the golf course, parks, and schools. The next largest water users consisted of motels and multi-family housing units. To provide their individual customers with a level of privacy, City staff have elected not to specifically list

the top ten largest water users, or largest water users within each category within the Water Efficiency Plan. However, City staff will use the tabulated information to guide their Level 2 technical assistance and incentive activities. As a result, City staff selected two primary Level 2 activities, including a commercial and multi-family residential indoor fixture rebate and/or retrofit program along with an irrigation controller rebate and/or retrofit program. As a result, of the two activities, the City estimates an annual water savings of 8.60 AF for an estimated total cost of $5,240.

During the 2018 through 2027 planning period, City Staff will begin discussions with the largest seven non-City indoor water users to develop a replacement plan for their non-efficient existing indoor fixtures. City staff will work with their water users to either rebate a portion of their purchase of certified efficient water fixtures, or provide a set number of toilet, shower, and/or faucet replacement/retrofit devices.

Similarly, during the 2018 through 2027 planning period, City staff will identify the top twelve non-City outdoor irrigators to develop a replacement plan for their old irrigation controllers. City staff will work with those water users to either rebate a portion of their purchase of certified efficient water controllers or will purchase a specific irrigation controller for them.

In addition to the anticipated water demand reduction, City staff believe the selected activities will positively reinforce the benefits of water efficient upgrades to its largest water users, primarily in the form of reduced water bills. Ultimately, the water savings will result in less income generated for the City, which will need to be addressed in the City's future water rate study that is contemplated within the 2018 through 2027 planning period. Staff also believe the selected activities will reinforce within the commercial and multi-family residential customers, the City's dedication to conservation of the City's water supplies.

#### 6.2.2.3 Level 3 Management of Remaining Customer Demands

The Level 3 technical assistance and incentive activities include those targeted towards the remaining customers' water demands. Since the City has not previously implemented many technical assistance and incentive activities, the focus for its 2018 Water Efficiency Plan was on key Level 1 and Level 2 activities. However, City staff did not want to discount the importance of technical assistance and incentive activities for its remaining customer demands, particularly its single family residential customers. As previously discussed, there are more single family residential customers than all the other customers combined (82.7 percent of taps), and those users account for approximately half of the total water produced within the City. Therefore, City staff wanted to select a cost-effective technical assistance and incentive activity that could be implemented at the staff level to further demonstrate the City's commitment to efficient use of the City's water supplies.

City staff evaluated numerous Level 3 activities and ultimately selected giveaways as a cost effective and viable way to reach its remaining customer demands. City staff selected to allocate approximately $500 per year for the purchase of water efficient fixtures or fixture retrofits, primarily through the purchase of replacement toilets, water efficient faucet aerators, and water efficient showerheads. Based upon the available research, leaking and/or high-water use toilets along with high-volume shower and faucets can account for over 70 percent of indoor water usage, and are strategic places to foster increased indoor water efficiency practices within individual homes. The projected giveaway budget would allow for the City to purchase between 25 and 75 water efficient replacement fixtures or two to three replacement toilets each year, which over the anticipated implementation

period of nine years will result in between 225 and 675 individual fixtures being installed. It was estimated the final annual savings amount of 4.2 AF could be achieved through the City's giveaway program by 2027.

During the public review process of the City's 2018 Water Efficiency Plan, City staff requested its water users provide feedback on the types of giveaways of most interest to them, along with the giveaways most likely to be installed within individual user's home, business, or facility. The public indicated they were most interested in receiving information through the City's social media feeds, newspaper, and monthly water bill. The information obtained will be used going forward, along with additional research by City staff, to guide the types and amounts of giveaways it uses throughout the planning period.

As explained in Sections 6.2.4 and 7.1, the City has developed mechanisms to educate its customers and implement the City's future giveaway program. In addition to the anticipated water demand reduction, City staff believe the selected activities will positively reinforce the benefits of water efficient upgrades to its remaining water users, primarily in the form of reduced water bills and education of each user who installs the giveaways. Ultimately, the water savings will result in less income generated for the City, which will need to be addressed in the City's future water rate study that is contemplated within the 2018 through 2027 planning period. Staff also believe the selected activities will reinforce to its water users, the City's dedication to conservation of the City's water supplies. City staff anticipate that individual users will see the direct benefits of replacing high-volume indoor fixtures, which may result in the voluntary replacement of other fixtures within individual homes, businesses, and facilities.

In addition, the City has an existing Economic Development Assistance Policy to encourage new business development within the community. The City's existing Economic Development Assistance Policy (EDAP) allows for applicants to apply for waived or reduced City fees, including: water and sewer tap fees, water acquisition fees, and up to 50 percent rebate on its monthly water and sewer rates for as many as three years. City staff would like to further develop the City's EDAP to encourage economic development and water conservation by incentivizing various water efficiency activities. City staff anticipate that through further refinement and increased public notice the EDAP will promote additional water savings, up to 0.9 AF per year, by incentivizing new businesses to incorporate technical assistance and incentive activities within their building or facility.

In addition to the anticipated water demand reduction, City staff anticipate the selected activities will positively reinforce the benefits of water efficient upgrades to a broader array of its water users, primarily in the form of reduced water bills, as compared to similar non-efficient water users. Ultimately, the water savings will reduce the amount of income generated by new businesses, which can be addressed in the City's future water rate study that is contemplated within the 2018 through 2027 planning period. City staff also hope customers who receive EDAP incentives see the direct benefits of installing efficient indoor fixtures and outdoor irrigation devices, which may result in the voluntary replacement of other fixtures within individual homes, and other businesses and facilities.

### 6.2.3 Ordinances and Regulations

The City has several existing ordinances intended to encourage water efficiency. Those ordinances include prohibiting the wasting of water; selling, planting, or importing nuisance trees (such as the box-elder or cottonwood trees, which are considered phreatophytes); water meter requirements; the ability for City Council to establish necessary water service charges; and the ability for City Council to impose sprinkler restrictions. Since the completion of the City's 2011 Water Conservation Plan, the City has utilized its existing ordinances to increase water rates and establish a volumetric inclining-tier water rate billing structure.

During the screening and evaluation process, the focus for City Staff was how to use the City's existing municipal code to further encourage water efficient use, and to prioritize future ordinances and regulations that would likely be acceptable both politically and publicly. Staff considered numerous types of ordinances and regulations to bolster and/or implement within the 2018 through 2027 planning period, which are summarized in the attached Worksheets F and H. SGM and City staff estimate the City will achieve a total savings of 261 AF through the selected ordinance and regulation activities over the ten-year planning period. These activities are tabulated in Table 5 and described in detail in subsequent sections.

It is important to note that the selected ordinance and regulation activities will need to be further developed and vetted with key stakeholders, including: water users from each customer category, City staff, City legal counsel, and the City Council. The specific requirements of the future ordinances and regulations; their implementation; and their ultimate success will require ongoing work, coordination, education, public notice, and future enforcement. Therefore, City staff developed an implementation plan to gradually incorporate the ordinance and regulation activities within the 2018 through 2027 planning period, while starting with bolstering the City's existing policies.

#### 6.2.3.1 Level 1 Existing Service Area

The Level 1 ordinance and regulations activities include those that apply to the existing service area. As described in Section 6.2.3., Monte Vista's most recent publishing of its Municipal Code (2009) has existing ordinances and regulations promoting the efficient use of water, along with the ability for City Council to impose additional water service charges and sprinkler restrictions. The intent of City staff's selected activities within the 2018 through 2027 planning period is to bolster the City's existing regulations and develop reasonable new regulations that would generally be accepted by the public, be enforceable from a City staff level, and would have a high likelihood of success in promoting efficient water use.

More specifically, City staff selected the following Level 1 ordinance and regulations activities to pursue:

- Water Waste Ordinance
- Time of Day Watering Restrictions
- City Facility Requirements
- Day of Week Water Restrictions
- Raw Water Irrigation of Parks and Open Spaces
- Commercial Water Wise Use Regulations

The first Level 1 ordinance City staff would like to bolster is the City's existing water waste ordinance (Municipal Code Section 10-3-90). The existing water waste ordinance applies to all water users and focuses on eliminating all wasting of water (either blatantly or through neglect), and states:

"It is unlawful for any person to use or permit the use of City water in a wasteful manner, or to allow water to run to waste upon his or her premises, buildings, houses or lots in, through or out of any water closet, lavatory, bathtub, hose, hydrant, faucet or other fixture, or in any manner through neglect or by reason of faulty or imperfect plumbing or fixtures. Allowing water to continually run down a gutter or drain shall be prima facie evidence of wasting water."

City staff believe their existing water waste ordinance is appropriate, but historically have had limited ability to enforce the code, primarily due to limited staff. Within the City of Monte Vista, Municipal Code enforcement falls under the responsibility the Code Enforcement Officer, who is a part of the City's Police Department. Earlier in 2018, the City's Police Department filled the position of the Code Enforcement Officer, which will bolster the City's ability to enforce its Municipal Code. More specifically, under the City's Municipal Code, the Public Works Department cannot enforce the code, but can support the Code Enforcement Officer.

Historically, if City staff saw the wasting of water during their normal field operations, they would attempt to contact the owner (if on the premises) to remind them of the ordinance and give them a verbal warning. City staff would also contact the Code Enforcement Officer to follow up with the property owner. If a second violation of the ordinance was observed, the Code Enforcement Officer would prepare a written warning letter for the property owner, citing the specific ordinance and how the ordinance was broken. After a third violation of the ordinance was observed, the Code Enforcement Officer could issue a citation with a fine to the property owner, which would require the offender to appear in the City's Municipal Court.

Going forward, starting in 2018 City staff will use the available space on the monthly water bill postcard to remind water users of the existing and future ordinances. During the period of the year with outdoor irrigation, City staff will note the specific addresses of water users who are wasting water while completing their daily tasks, such as during meter reads, and will initiate verbal warnings with the property owners who are violating the City's ordinances, when possible, and will coordinate with the Code Enforcement Officer.

The second Level 1 ordinance City staff would like to pursue is a time of day watering restriction ordinance. Staff believe the ordinance will be supported politically and accepted publicly within Monte Vista. The exact restrictions will be fully vetted by key stakeholders later, but in principle, City staff would like to prohibit all sprinkler irrigation between the hours of 11 a.m. and 6 p.m. for all customer types. The purpose of the regulation is to ultimately eliminate the unnecessary evaporation of applied water due to the increased heat and wind during the mid-day hours. The elimination of sprinkler irrigation during the mid-day hours will result in a more efficient application of irrigation water and will reduce the amount of water needed for customers who previously irrigated during the middle of the day. City staff foresee allowing its customers to hand-water (with a handheld hose or watering can) outdoor gardens or landscaping during the restricted hours, as needed.

City staff would like to adopt the time of day watering restriction ordinance by the end of 2019, which would likely be enforced in 2020. For the ordinance to be enacted, it will need to be approved by City Council. As with the water waste ordinance, City staff can coordinate with the Code Enforcement Officer regarding future compliance with the ordinance. City staff's ability to observe violators of the ordinance will be limited to times when they are out doing regularly appointed job duties between 11 a.m. and 6 p.m. and will be most concentrated during the four days per month when the four staff members collect the City's water meter readings.

The third Level 1 ordinance City staff selected to implement is a city facility requirement ordinance, and they believe it will have wide-spread support both politically and publicly within Monte Vista. The purpose of the future ordinance will be to codify the City's plans to install water efficient indoor fixtures throughout all City facilities, as well as to install water efficient outdoor irrigation controllers and sprinkler heads at its parks, open spaces, golf course, and other facilities. City staff would like to pursue this ordinance in 2019 and anticipate the ordinance will require that as any indoor water fixture or irrigation system component within a City facility is replaced (either proactively or once a device is found faulty), that City staff will install a replacement fixture or irrigation component that is compliant with the most current EPA WaterSense criteria. The regulation will only affect City facilities and will further focus on both indoor and outdoor efficient water use. Adherence to future ordinance will be coordinated with the City's Public Works Department and will need to be approved by City Council.

The fourth Level 1 ordinance City staff selected to implement is a day of the week watering restriction for all water customer categories. In general terms, the ordinance would be to allow half of the City to irrigate on odd numbered days, with the other half of the City irrigating on even numbered days (possibly determined by an odd or even street address). The future ordinance will help to reduce the daily well production amounts and peak demand, will result in a reduced water usage, and would have minimal negative impacts to lawns and landscaping. Like the time of day watering restriction, City staff anticipate allowing all customers to hand-water (with a hand-held hose or watering can) lawns, gardens, and landscaping, as needed.

City staff would like to pursue this ordinance in 2020 and believe the ordinance will be acceptable politically but may not garner wide-spread public support. City staff will use the selected educational and outreach activities described in Section 6.2.4 to communicate with all water users the reasons for the City's pursuit of a day of the week watering restriction ordinance, along with the benefits. As with the water waste ordinance, City staff can coordinate with the Code Enforcement Officer regarding future compliance with the ordinance. City staff's ability to observe violators of the ordinance will be limited to times when they are out doing regularly appointed job and will be most concentrated during the four days per month when the four staff members collect the City's water meter readings.

The fifth Level 1 ordinance City staff selected to implement is a raw water irrigation of parks and open spaces ordinance. The purpose behind the future ordinance will be to encourage, not mandate, that the City's parks and open spaces be irrigated with untreated raw irrigation water supplies from its unconfined wells (Well Nos. 5, 6, and 7) or from its current and/or future surface water irrigation water rights. The City's current decrees do not allow for reuse of the City's water supplies, so indirect potable reuse supplies will not be considered as an irrigation supply. Rather all raw water supplies will consist of alluvial

groundwater and/or surface water irrigation supplies. As previously described, the City has numerous surface water irrigation rights, which are near or adjacent to its existing parks and golf course. City staff intend to complete a raw water irrigation master plan within the 2018 through 2027 planning period and will use the study's recommendations and conclusions to develop an ordinance to promote additional raw water irrigation within the City.

A raw water irrigation system will significantly reduce the daily well production amounts and peak demand, reduce the City's treatment costs, and will result in less real and apparent losses within the City's existing distribution system. Further, the City's reduction of its confined aquifer wells will result in fewer groundwater depletions that are required to be offset based upon the Division 3 Groundwater Rules. City staff would like to pursue the adoption of the raw water irrigation of parks and open spaces ordinance in 2023. City staff believe raw water irrigation will be supported politically and publicly, which can be enhanced with future educational activities and coordination with the City's water customers and key stakeholders.

Likely the biggest hurdle for the City's future expansion of its raw water irrigation system, will be the capital cost required to build the system. The future raw water irrigation master plan should include a sequencing of the City's raw water irrigation system that will allow for the expanded irrigation system to be built over time in phases, along with potential grant and funding opportunities available to the City. The resulting future ordinance will need to encourage the further development of the City's raw water irrigation system, while allowing for the continued use of treated potable supplies during the development process, times of drought, and as a redundant back-up supply. Enactment of the future ordinance will be dependent upon City Council and staff.

The sixth and final ordinance the City selected to pursue during the 2018 through 2027 planning period is to enact commercial water wise use regulations, beginning in 2025. The purpose of the future ordinance will be to require that all commercial customers install water efficient indoor fixtures, water efficient appliances, and water efficient outdoor irrigation controllers and sprinkler heads at all commercial buildings and facilities. City staff anticipate the ordinance will require that as any indoor water fixture, appliance, or irrigation system component within a commercial building or facility is replaced (either proactively or once a device is found faulty), that commercial customers will install a replacement fixture, appliance, or irrigation component that is compliant with the most current EPA WaterSense criteria. The ordinance will not require a proactive replacement program for commercial customers, but rather will specify that all future commercial facility upgrades will incorporate water efficient practices, such as recycling systems at carwashes, efficient dishwashers at restaurants, or efficient washers at hotels. The ordinance will be enforced by the City's Public Works Department, Code Enforcement Officer, and the Rio Grande County Building Inspection Department, and ultimately will need to be approved by City Council. City staff believe the ordinance will be acceptable politically, but may encounter resistance publicly. City staff will use the selected educational and outreach activities described in 6.2.4 to communicate with all water users the reasons and benefits for the City's pursuit of a commercial water wise use ordinance.

For most of the selected ordinances, City staff believe the biggest challenge will be the future enforcement of approved ordinances. However, staff believe that the majority its customers will voluntarily comply with the future ordinances, which will minimize the need for additional enforcement, above and beyond when staff or the Code Enforcement Officer

provide verbal warnings to the City's customers. Staff do not anticipate significant costs for enforcement. Public Works staff will have additional responsibilities in reporting violations of the City's ordinances to the Code Enforcement Officer and will need to spend additional time working with City Council to consider, revise, and approve future ordinances.

In addition to the anticipated water demand reduction, City staff believe the selected activities will positively reinforce the benefits of not wasting water and completing water efficient upgrades for all users, primarily in the form of reduced water bills. Ultimately, the water savings will result in less income generated for the City, which will need to be addressed in the City's future water rate study contemplated within the 2018 through 2027 planning period. Staff also believe the selected activities will reinforce within the community, the City's dedication to conservation of the City's water supplies.

#### 6.2.3.2 Level 2 New Construction Regulations

The Level 2 ordinance and regulations activities include those that apply to new construction within the service area. As described in Section 5.2.2.3., Monte Vista has an existing EDAP, which the City intends to incorporate with more water efficient guidelines. The 2009 published Monte Vista Municipal Code does not directly contain any new construction ordinances to require the selection and installation of water efficient fixtures, appliances, or outdoor irrigation system components. During the 2018 Water Efficiency Plan, City staff selected the following two Construction Regulations they believed would generally be accepted by the public, be enforceable from a City staff level, and would have a high likelihood of success in promoting efficient water use.

- Indoor Plumbing Requirements
- Green Building Construction Ordinance

For the first Level 2 ordinance, City staff anticipate working with stakeholders from its customer types and City Council to adopt relatively flexible indoor plumbing requirements into the Municipal Code towards the end of the planning period in 2025. The purpose of the future ordinance will be to require that all future construction, regardless of customer type, install water efficient indoor fixtures and water efficient appliances. City staff anticipate the ordinance will require that all indoor water fixture and appliance installed in any new construction be compliant with the most current EPA WaterSense criteria. The ordinance will be enforced by the City's Code Enforcement Officer, Public Works Department, and the Rio Grande County Building Inspection Department, and will require an approval and adoption of the ordinance by City Council. City staff believe the ordinance will be acceptable politically, but may encounter resistance publicly. City staff will use the selected educational and outreach activities described in Section 6.2.4 to communicate with all water users as to the benefits and reasons for the City to pursue the inclusion of indoor plumbing requirements into the Municipal Code.

City staff will pursue the second selected Level 2 ordinance (green building construction guidelines) in 2026 after the indoor plumbing requirements ordinance is approved by City Council. The purpose of the future ordinance will be to require that all future construction, regardless of customer type, install water efficient outdoor irrigation system components, including but not limited to, controllers, sprinkler heads, and/or drip irrigation systems and xeriscaping. As with the indoor plumbing code, the intent of the future ordinance is to provide a flexible framework for future growth, while fostering efficient outdoor irrigation

water use by requiring that all outdoor irrigation components be compliant with the most current EPA WaterSense criteria. The ordinance will be enforced by the City's Code Enforcement Officer, Public Works Department, and the Rio Grande County Building Inspection Department, and will need to be initially approved and adopted by City Council. City staff believe the ordinance will be acceptable politically, but may encounter resistance publicly. City staff will use the selected educational and outreach activities described in Section 6.2.4 to communicate with all water users the benefits and reasons for the City's pursuit of green building construction guidelines into the Municipal Code.

In addition to the anticipated water demand reduction, City staff believe the selected activities will positively reinforce the benefits of installing water efficient fixtures and outdoor irrigation devices across all user types, primarily in the form of reduced water and sewer bills in comparison to similar customers without water efficient plumbing and green building construction within the City. New construction will result in new income generated for the City, which will help offset a loss of income through existing water users' reduced water demands contemplated within the 2018 through 2027 planning period. Staff also believe the selected activities will reinforce within the community, the City's dedication to conservation of the City's water supplies.

#### 6.2.3.3 Level 3 Point of Sales Ordinances on Existing Building Stock

Through the screening process, City staff did not select any Level 3 point of sales ordinances on the existing building stock for implementation. However, the City's has an existing ordinance (Section 10-3-60) that requires that when a change in ownership of a property that has City water services, but does not have an installed water meter (regardless of the type of property or method of transfer), occurs, the transfer requires a water meter to be installed within 30 days. City staff intend to continue the enforce of the ordinance throughout the 2018 through 2027 planning period. The primary benefit to the City includes the potential increase in the generated income from a customer's usage, rather than a set flat rate. Further the ordinance helps reduces the number of non-metered water service accounts and ultimately helps reduce the City's Non-Revenue water through a reduction of apparent losses.

#### 6.2.3.4 Land Use Planning

The Rio Grande County's Land Use Office is responsible for overseeing land use planning, along with the enforcement of existing zoning restrictions within the entire county, including Monte Vista. The Rio Grande County's existing Land Development Code, last amended in August 2011, does not require the installation of water efficient fixtures nor state that specific water efficient practices be implemented. However, the Land Development Code lists that a purpose and objective of Planned Unit Development is to utilize land and public services more efficiently (Article XIX.A.2.). Further, the Land Development Code does require the assurance (proof) that new developments have an adequate and suitable water supply for the intended use.

In 2016, Rio Grande County adopted a Joint Master Plan in conjunction with Monte Vista and the towns of Del Norte and South Fork. Page 1-2 of the Joint Master Plan states, the "Master Plan is a public tool for guiding decisions regarding land use and future growth. The goals, policies and recommended actions within this Plan are to be used to guide future growth and change within Rio Grande County, the City of Monte Vista, The Town

of Del Norte and the Town of South Fork." Some of the key objectives related to water within the Joint Master Plan include:

- Mandate that development "pay its own way" with respect to the provision of infrastructure and public services (pg. 6-24).
- Acknowledge strategies for the conservation of water in a semi-arid environment (pg. 6-26).
  - Support ongoing development of a local water basin plan and water management plan.
  - Acknowledge the NRCS efforts to educate farmers on BMPs for water usage.
- Within Monte Vista, update subdivision regulations to require new development to provide water rights or cash in-lieu (pg. 7-17).

Going forward, City staff envision working collaboratively with staff from Rio Grande County and nearby municipalities to further develop and define how land use planning and growth within the county can incorporate more defined water efficiency practices and objectives.

### 6.2.4 Educational Activities

City staff have provided customers an increased amount of water efficiency education opportunities since the completion the 2011 Water Conservation Plan. Specific activities include:

- Hosting a Public Works booth at the Monte Vista Open House Festival (held annually at Chapman Park).
- Providing its customers an Annual Drinking Water Quality Report – Consumer Confidence Rule (CCR).
- Adding water efficiency tips to the water rates portion of the City's Public Works website (www.cityofmontevista.com/2161/Water-Rates).

Like other water efficiency activities screening, City staff focused on those activities they believed would maximize the limited time and budget available to City staff and would be most impactful during the 2018 through 2027 planning period. City staff reviewed and selected from the CWCB recommended education activities (summarized in the attached Worksheets F and H) for implementation during the 2018 through 2027 planning period. SGM and City Staff estimate the City will achieve a total savings of 33 AF through the selected educational activities over the ten-year planning period. These activities are tabulated in Table 5 and further described in detail in the following sections. City staff understand the initial water savings associated with its future educational activities may be limited, but will continue to grow each year when its customers experience consistent messaging, see the financial benefit of implementing water efficient fixtures and practices, and are continually exposed to the importance of water efficient practices and the City's ongoing activities.

#### 6.2.4.1 Level 1 One-Way Educational Activities

The Level 1 one-way educational activities include those actions where information is conveyed from a water provider to its customers without tracking or requesting specific follow-up. During the water efficiency selection process, City staff saw multiple opportunities to use their existing forms of communication to educate its water customers

regarding water efficient practices. The focus for the City staff's selected activities within the 2018 through 2027 planning period is to build upon the City's regular communications, develop effective new forms of communication, increase the water customers' exposure and awareness of the best management practices for water efficiency activities, and communicate future technical assistance and incentive activities along with future ordinance and regulations activities. Further, staff wanted to ensure the City's selected educational activities would be acknowledged by the public, could be relatively easily implemented by City staff, and would have a high likelihood of success in promoting efficient water use.

More specifically, City staff selected five Level 1 educational activities to pursue, including:

- Bill Stuffers
- Newspaper Articles
- Mass Mailings
- Webpages
- Xeriscape and Low Water Use Landscape Demonstration Garden

The first Level 1 Educational activity City staff plan to implement (beginning in 2018) is the inclusion of water efficiency information, tips, or relevant websites with its monthly water bill. The City mails a monthly postcard water and sewer bill, which has approximately three lines available for the City to providing additional information to its customers on the bill. During the public review process, the City used its water bill to notify its customers of the Draft Water Efficiency Plan and requested feedback regarding the plan and what types of water efficiency information would be most relevant to its customers. The public input included additional information pertaining to outdoor irrigation, bathroom fixtures including low-flow faucets, showerheads, and toilets, laundry room facilities including high-efficiency washing machines, and kitchen low-flow faucets.

City staff envision giving seasonal tips, sharing links to useful resources (such as the EPA's WaterSense website - www.epa.gov/watersense), and can provide public notices of future activities, meetings, and giveaways. City staff anticipate updating the water efficiency/savings information regularly through the end of the planning period (2027).

Since the City already mails its customers monthly bills, no significant cost increases are anticipated for this activity. City staff will directly reach all customer types through the water bill educational activity. Other anticipated benefits of this activity include, an increased exposure and awareness for its water customers to best management practices and resources for water efficiency activities. For water customers who use the information to implement water efficient devices, and practices, they will see a decrease in their water use, which can result in lower water bills. Staff also believe the selected activities will reinforce within the community, the City's dedication to conservation of the City's water supplies.

The second Level 1 educational activity City staff plan to implement (beginning in 2018) is the inclusion of water efficiency articles within the editorial section of the local paper (The Monte Vista Journal). Initially, the Monte Vista Journal was used to notify City residents about the City's Water Efficiency Plan and the public review process. City staff have a goal of writing a short, yet informative bi-annual article to inform City residents of seasonal water efficiency tips, sharing links to useful resources, such as the EPA's

WaterSense website (www.epa.gov/watersense), or will provide public notices of activities, meetings, future ordinances, and the City's various water efficiency fixture giveaways. The future editorial letters will allow for City staff to expound upon the information contained in the monthly water bills, the implementation of various activities listed in the City' Water Efficiency Plan and will be tailored by City staff based upon the ongoing monitoring of its water efficiency activities.

The City does not anticipate any costs associated with future newspaper articles. Staff believe all customer types can be reached through the newspaper article educational activity. Similar benefits to mass mailings are anticipated, and the articles may lead to additional feedback from the Monte Vista residents.

The third Level 1 educational activity City staff plan to implement (beginning in 2018) is the use of its existing mass mailings to include water efficiency information relevant for its various customer types. Each year the City is required to send its annual drinking water quality report – Customer Confidence Rule (CCR) to all water customers. In previous years' reports there has been approximately one-half of a page available for the City to incorporate additional information, at the City's discretion, to its water customers. City staff plan to use available space in future CCR communications in similar ways to the billings and newspaper articles, by providing resources, information, activities regarding water efficient best management practices, and can invite residents and customers within the City to contact City staff with questions. The future CCR communications could also prove to be a tool to reduce real or apparent losses, if the City requests that its customers contact them with concerned about, a potential leak in their service connection or faulty meter.

The City does not anticipate any costs associated with the additional information, as it sends the CCR communications each year to its customers. Staff believe all customer types will be reached through the inclusion of water efficiency information within their CCR communications and anticipate similar benefits to monthly billings mailings and newspaper articles.

The fourth Level 1 educational activity City staff have previously implemented and plan to enhance is the prominence, and use, of the City's website to convey tips on lowering monthly charges through water savings practices and water efficiency activities. The City's existing taps are located below the City's water rates table (www.cityofmontevista.com/2161/Water-Rates). The near-term focus of enhancement for the City's existing website, beginning in 2018, would be to provide specific information related to Monte Vista's water efficiency activities, along with links to the City's final, approved Water Efficiency Plan and key resources, such as:

- EPA's WaterSense (www.epa.gov/watersense).
- The U.S. Department of Energy's best management practices for water efficiency (https://energy.gov/eere/femp/best-management-practices-water-efficiency).
- The CWCB's Water Conservation and Drought Mitigation Education site (http://cwcb.state.co.us/public-information/education-outreach/Pages/WaterConservationDroughtMitigationEducation.aspx).

The success of the City's updated website to educate and inform its customers will be dependent upon the City's ability to clearly communicate the availability and importance of the resources tabulated on its website. Therefore, City staff will rely on the other

selected Level 1 educational activities to inform its customers of the future resources available to all customers on its website.

The City does not anticipate any significant costs associated with the compilation of additional information on its website and believe all customer types will be reached through its future website. The Public Works Department will work with the City's Information and Technology (IT) Department to update the Public Works website.

The fifth and final Level 1 educational activity City staff have selected to implement within the 2018 through 2027 planning period is the creation of a xeriscape and low water use landscape demonstration garden. As described in Section 6.2.2.1, City staff would like to see approximately 2,000 square feet of the existing Chapman Park irrigate turf be turned into a xeriscape and low water use landscape demonstration garden. City staff anticipate a cost of approximately $4,000 to complete the xeriscape and low water use landscape demonstration garden. City staff will install signage at the park that will include items such as: planning, selecting, and installing xeriscape and low water use landscaping; estimated water savings; plant names and annual irrigation requirements; relative cost information; and general irrigation water saving tips.

City staff plan to install the demonstration garden towards the end of the planning period in 2025, and will use the other selected Level 1, 2, and 3 educational activities to inform its customers of the demonstration garden. Given the popularity of Chapman Park within the City, staff believe this specific educational activity will be widely observed. City staff will work with local landscaping experts to design an attractive garden, that will demonstrate to City residents and its guests that xeric and low-water landscaping does not solely need to include rock and wood landscaping materials, but can consist of low-water use plants that thrive in the native Monte Vista climate. City staff believe a well-planned and attractive demonstration garden will both educate the public and change perceptions about water use for many years. The anticipated long-term benefit to the City will be a slow transition to xeric and low-water use landscaping, which will continue to decrease the City's total water use throughout the irrigation season.

From the City's previous educations efforts, staff have embraced traditional outreach methods, as well as additional resources such as social media, and created a City-wide Public Information Officer position in January 2018. The significant responsibility for the Public Information Officer is to facility the transferal of information from City staff to its customers and residents in a consistent and wide-spread fashion.

#### 6.2.4.2 Level 2 One-Way Educational Feedback

The Level 2 education with feedback activities include the conveyance of information to the public, with the intent to receive feedback on the effectiveness and applicability of its water efficiency activities. City staff currently use several forms of Level 2 educational activities and anticipate building upon those techniques during the 2018 through 2027 planning period, as well as adding new activities. As with Level 1 educational activities, the purpose behind the selected Level 2 educational activities will be to increase the water customers' exposure and awareness of the best management practices for water efficiency activities, communicate future technical assistance and incentive activities along with future ordinance and regulations activities, while receiving feedback from its customers on how the City's various actions are being implemented and their overall effectiveness. Staff wanted to ensure the City's selected Level 2 educational activities would be acknowledged by the public, could be relatively easily implemented by City staff,

and would have a high likelihood of success in promoting efficient water use, while obtaining useful feedback from its customers.

More specifically, City staff selected four Level 2 educational activities to pursue, including:

- Social Networking.
- Interactive Websites.
- Customer Surveys.
- Customer Water Use Workshops.

The first Level 2 educational activity City staff plan to incorporate (beginning in 2018) is the inclusion of water efficiency information, tips, or relevant websites through the City's existing social media platforms. The City currently uses the following social media platforms to regularly communicate with its residents about upcoming activities and meetings, City maintenance projects, and other relevant community information.

- Facebook (https://www.facebook.com/cityofmontevista).
- YouTube (https://www.youtube.com/channel/UCAnJt6rIYEalq3OGsCUS6PQ).
- Instagram (https://www.instagram.com/cityofmontevista/).

During the public review process of the 2018 Water Efficiency Plan, City staff used its social networking platforms to inform the City's water customers about its Draft Water Efficiency Plan, along with the desire for public review and comment. Through its social networking platforms, the City did not receive any public comments.

City staff anticipate posting relevant water efficiency information on its various social media platforms approximately quarterly throughout the 2018 through 2027 planning period. The use of social media will not require any additional costs for implementation and will provide a real-time opportunity for staff to relay upcoming activities and events to its customers, with the opportunity for feedback via the various social media platforms. Staff believe all customer types will be reached through its ongoing postings and that the use of social media will result in similar benefits to its selected Level 1 educational activities, such as: an increased awareness of the City's dedication to conservation of the City's water supplies, best management practices, and resources for water efficiency activities; and the potential for customers who implement water efficient devices and practices to realize reduce water bills. In addition, City staff anticipate additional benefits above the Level 1 educational activities, such as: a more widespread and rapid dissemination of upcoming water efficiency activities and practices; greater public awareness and potential involvement with the City's water efficiency activities, and opportunities for feedback from its customers regarding the implementation of its activities.

The second Level 2 educational activity City staff plan to incorporate (beginning in 2020) is the development of an interactive website. During the screening process of the City's Water Efficiency Plan staff discussed options for a budget-friendly and useful resource for its customers. City staff believe the future website will be built upon the City's existing website and will have links to educational resources such as:

- The EPA's WaterSense website (https://www.epa.gov/watersense).
- Water savings calculators (https://www.americanstandard-us.com/about/sustainability/water-savings-calculator).

- Online tests/quizzes/games for kids (https://www.epa.gov/watersense/watersense-kids#tab-3).

City staff requested feedback from its customers during the public review process of its Water Efficiency Plan, as to what resources its customers would like to learn more about, or wished they had more readily available. Through the public review process, the City received the following feedback: outdoor irrigation, bathroom fixtures, laundry room appliances, and kitchen faucets.

City staff will continue to engage with its customers over the next two years to develop an informative and informational interactive website built within the City's existing website. City staff believe they will be able to allocate $500 per year for the development and maintenance of the future interactive website. The City will use the City's IT Department along with free and cost-effective online resources. Going forward City staff will facilitate feedback, by integrating a feedback form into the website, so that the City's customers can relay information or ask questions about the City's water efficiency activities. City staff anticipate similar benefits to its Level 1 educational activities, with the added benefit of its water customers feedback.

The third Level 2 educational activity City staff selected to implement (beginning in 2023) is the development of a customer survey. The purpose of the future survey will be to engage with the City's water customers regarding their awareness of the City's water efficiency activities and to establish a baseline of its users' interests in and use of the City's available water efficiency activities. Future questions in the survey may include:

- Customer type.
- Number and relative age of water fixtures within the home or business.
- Type and age of the existing irrigation system.
- Awareness of the City's existing water efficiency activities.
- Desired water efficiency technical assistance and incentives and educational activities.
- Various dialogue boxes for customers to provide open-ended feedback.

City staff anticipate using an online survey program, such as Survey Gizmo (https://www.surveygizmo.com), which has both free and paid subscription options. By using an online software, City staff can better design objective surveys, focus on the questions and content by using existing forms, minimize printing and postage cost, reach a wide array of customers, and extract key data in a useful and informative way. Staff will use the baseline information from the initial survey to monitor the use and impact of its available water efficiency activities, as well as to guide or modify the implementation of future activities completed within the second half of the 2018 through 2027 planning period. City staff anticipate completing a survey every other year and will advertise the survey using its other Level 1 and Level 2 educational activities.

Further, City staff anticipate spending approximately $500 each year that a survey is completed and will work with its customers to obtain information from all customer types. The primary benefit will be direct communication with City staff regarding its users' familiarity with and use of the City's water efficiency activities, along with the potential opportunities to achieve greater savings and refocus efforts within the 2018 through 2027 planning period. A secondary benefit may be an additional awareness and exposure to the City's water efficiency activities by previously unengaged customers.

The fourth and final Level 2 education activity City staff selected to implement (beginning in 2024) is the development a customer water use workshop. As previously described, Public Works staff have historically participated in the City of Monte Vista Open House. City staff would like to build upon their previous public education opportunities, and develop a semi-annual public water use workshop. The purpose behind the workshops would be to provide its customers with focused educational opportunities on water efficiency topics such as: how to find and fix leaks, cost-effective and easily implemented water saving fixtures, lawn care, or landscape watering. The workshops would also provide an opportunity to inform the public of ongoing water efficiency activities, upcoming ordinances, and provide giveaways.

City staff will rotate the locations of workshops to locations that would encourage participation from all its customer types, and may include: the Carnegie Library, City Hall, parks, or specific types of businesses. City staff anticipate allocating an additional $500 per year for various resources and will encourage participation by all users through its selected educational activities. The primary benefit would be the opportunity to dialog with and answer questions for customers who have an interest in the presented topic, which may lead to individuals implementing water efficient practices and devices in their homes and businesses. A secondary benefit would be the continued and consistent awareness and exposure to the City's water efficiency activities by its customers.

#### 6.2.4.3 Level 3 Two-Way Education

The Level 3 two-way education include activities with active engagement between a water provider and its customers in the development and/or implementation of its water efficiency plan. As described throughout Section 6.2.3 City staff used several techniques to engage and notify its customers of the opportunity to provide input on its Water Efficiency Plan during the public review period.

Going forward, City staff selected one Level 3 educational activity to implement during the 2018 through 2027 planning period in the form of a message development campaign. City staff understand the future success of their Water Efficiency Plan can be greatly enhanced through the input, personalization, and support of the local community. Therefore, City staff anticipate initiating a message development campaign in 2021. The purpose behind the message development campaign will be to assemble a diverse group of stakeholders from all its customer types, City staff, and City government to develop a locally-focused water efficiency message and brand that will resound with Monte Vista's customers. Future activities of the message development campaign may include: regular (monthly or quarterly) meetings, developing a logo and/or a slogan, being a sounding board the City's implementation of relevant water efficiency activities, and guiding the implementation of the City's educational activities. City staff do not anticipate this education activity will require additional funds.

City staff primarily see the benefit of the future message development campaign being the two-way input from its citizens and water customers to personalize and guide the City's continued implementation of its water efficiency activities, while garnering public support. City staff also anticipate that stakeholders on the future message development campaign will become champions for the City and its ongoing water efficiency activities and programs, which will further foster the 2018 Water Efficiency Plan's acceptance, implementation, and success.

# 7.0 IMPLEMENTATION AND MONITORING PLAN

City staff worked with SGM to develop implementation and monitoring plans to guide the City of Monte Vista's ongoing actions to effectively incorporate the activities selected in its 2018 Water Efficiency Plan throughout the 2018 to 2027 planning period. By documenting the necessary actions, annual costs, entities and staff responsible, and needs to secure additional funding, the City staff have an action-plan to effectively implement its activities over the next ten years. Further, by detailing the types of data needed, along with who is responsible to collect, process, and analyze the data, City staff understand the key pieces of information needed to monitor the future success of its specific water efficiency activities.

## 7.1 IMPLEMENTATION PLAN

The degree to which the City's on-going and future water efficiency activities are successful hinges upon how and when those activities are implemented over the next ten-year planning period. City staff felt its implementation plan should leverage is current activities, initiate activities in the short-term that have a high likelihood of success, and then build upon those activities with its more ambitious goals for the 2018 through 2027 planning period. The sequencing of the City's future water efficiency activities, along with necessary actions and responsible entities are tabulated in Table 8 while the attached Worksheet J contains additional information regarding the milestone deadlines, and additional coordination and comments.

## Table 8. Summary of Monte Vista's Implementation Plan

| Initial Year of Implementation | Selected Water Efficiency Activities | Implementation Actions | Entity/Staff Responsible for Implementation |
|---|---|---|---|
| 2018 | Meter Testing and Replacement | -Train staff to complete regular reviews of water usage<br>-Respond to customers' calls for meter testing | Public Works Department |
| | Meter Upgrades | -Train staff to complete regular reviews of water usage<br>-Respond to customers' calls for meter testing | Public Works Department |
| | Tracking Water Use by Customer Type | -Train staff to complete regular reviews of water usage | Public Works Department |
| | Update City's Economic Development Assistance Program website: (http://www.cityofmontevista.com/2156/Economic-Development) | -Rely on CIP Project rate study information from CIP<br>-Work with City Council to develop water use efficiency quantification incentives into the existing Economic Development Assistance Program | Public Works Director, City Manager, City Council, I.T. Department |
| | Water Waste Ordinance (BP 5) | -City hire a Code Enforcement Officer<br>-Increased observance of ordinance violations when City staff are collecting meter reads and traveling through City | Code Enforcement Officer, Public Works Department |
| | Bill Stuffers | -Include water efficiency tips and resources on its monthly water bills | Public Works Department |
| | Newspaper Articles | -Prepare a bi-annual water efficiency article for the Monte Vista Journal's editorial section of the paper | Public Works Department, City Manager |
| | Mass Mailings | -Include water efficiency tips and resources on its annual CCR Report | Public Works Department, City Manager |
| | Social Networking (e.g. Facebook) | -Regularly engage and inform the Public of water efficiency activities, tips, resources, and public involvement opportunities through existing social media platforms | Public Works Department, City Manager |
| | Update City's Water Efficiency Website (www.cityofmontevista.com/2161/Water-Rates) | -Add water efficiency resources, links, and tips to a more prominent portion of the City's website | Public Works Director, City Manager, I.T. Department |
| 2019 | Identify Unmetered/Unbilled Treated Water Uses | -Identify flat rate customers & unmetered parks<br>-Secure additional funding<br>-Work with customers to install meters | Public Works Department |
| | Tracking Water Use for Large Customers | -Train staff to complete regular reviews of water usage | Public Works Department |
| | Volumetric Billing of Previously Unmetered Customers | -Train staff to complete regular reviews of water usage<br>-Work with unmetered customers to install meters | Public Works Department |
| | Capital Improvement Plan | -Apply for funding | City Manager |
| | System Wide Water Audit | -Download and use the free AWWA system-wide audit software | Public Works Director |
| | Give-aways | -Secure funding<br>-City staff will research and purchase cost-effective and simple to install fixture retrofits | Public Works Department |
| | Time of Day Watering Restriction | -Work with City Council to approve ordinance<br>-Educate and inform customers<br>-City hire a Code Enforcement Officer | Code Enforcement Officer, Public Works Director, City Manager, City Council |
| | City Facility Requirements (BP 12) | -Work with City Council to approve ordinance<br>-Educate and inform customers<br>-City staff begin enactment of ordinance | Code Enforcement Officer, Public Works Director, City Manager, City Council |
| 2020 | Water Rate Adjustments | -Rely on CIP Project rate study information from CIP<br>-Work with City Council to approve water rate adjustments | Public Works Director, City Manager, City Council |
| | Inclining/Tiered Rates | -Rely on CIP Project rate study information from CIP<br>-Work with City Council to approve tiered rate adjustments | Public Works Director, City Manager, City Council |
| | Tap Fees with Water Use Efficiency Incentives (http://www.cityofmontevista.com/2156/Economic-Development) | -Rely on CIP Project rate study information from CIP<br>-Work with City Council to approve tap fee changes<br>-Work with City Council to approve water use efficiency incentives | Public Works Director, City Manager, City Council |
| | Day of Week Watering Restriction | -Work with City Council to approve ordinance<br>-Educate and inform customers<br>-City hire a Code Enforcement Officer | Code Enforcement Officer, Public Works Director, City Manager, City Council |
| | Interactive Websites | -Secure funding<br>-Add interactive water efficiency resources to the City's website | Public Works Director, City Manager, I.T. Department |
| 2021 | Leak Detection and Repair | -Rely on CIP Project to focus leak repair program<br>-Secure funding | Public Works Department, City Manager |
| | Faucet Retrofits (e.g. aerator installation) | -Secure funding<br>-City staff will prioritize City facilities that would most benefit from faucet retrofits<br>-City staff will purchase and install fixtures | Public Works Department |
| | Toilet Retrofits | -Secure funding<br>-City staff will prioritize City facilities that would most benefit from toilet retrofits<br>-City staff will purchase and install fixtures | Public Works Department |
| | Showerhead Retrofits | -Secure funding<br>-City staff will prioritize City facilities that would most benefit from showerhead retrofits<br>-City staff will purchase and install fixtures | Public Works Department |
| | Message Development/Campaign | -Identify key stakeholders<br>-Advertise message development campaign with customers<br>-Develop an effective and positive water efficiency message development campaign | Public Works Director, City Manager, City Council |
| 2022 | Water Line Replacement Program | -Rely on CIP Project to focus water line replacement program<br>-Secure funding | Public Works Department, City Manager |
| | Control of Apparent Losses (with Metering) | -Rely on CIP Project to focus water meter replacement/installation program<br>-Secure funding | Public Works Department |
| 2023 | Irrigation Equipment Retrofits | -Secure funding<br>-City staff will prioritize City facilities that would most benefit from irrigation controller/equipment retrofits<br>-City staff will purchase and install devices | Public Works Department |
| | Outdoor Irrigation Controllers | -Secure funding<br>-Identify and work with largest non-City irrigation users<br>-Staff will purchase replacement outdoor irrigation controllers and install devices | Public Works Department |
| | Commercial Indoor Fixture and Appliance Rebates/Retrofits | -Secure funding<br>-Identify and work with largest non-City indoor users<br>-Staff will purchase replacement fixtures and install devices | Public Works Department |
| | Raw Water Irrigation of Parks and Open Spaces | -Secure funding<br>-Work with City Council to approve ordinance<br>-Educate and inform customers<br>-Initiate a Raw Water Irrigation Master Plan and Preliminary Design Project | Code Enforcement Officer, Public Works Director, City Manager, City Council |
| | Customer Surveys | -Secure funding<br>-Develop water efficiency baseline questions<br>-Select electronic platform<br>-Advertise educational activity | Public Works Director, City Manager |
| 2024 | Customer Water Use Workshops | -Secure funding<br>-Develop water efficiency curriculum/handouts<br>-Research desirable times and locations<br>-Advertise educational activity | Public Works Director, City Manager |
| 2025 | Xeriscape | -Secure funding<br>-City staff will research effective Colorado xeriscape demonstration gardens<br>-City staff will work with local landscapers & nurseries to design and install garden in Chapman Park | Public Works Department |
| | Other Low Water Use Landscapes | -Secure funding<br>-City staff will research effective Colorado low water use landscape demonstration gardens<br>-City staff will work with local landscapers & nurseries to design and install garden in Chapman Park | Public Works Department |
| | Indoor Plumbing Requirements (BP 12) | -Work with City Council to approve ordinance<br>-Educate and inform customers<br>-City hire a Code Enforcement Officer | Code Enforcement Officer, Public Works Director, City Manager, City Council, Rio Grande County Building Inspector |
| | Commercial Water Wise Use Regulations (Car Washes, Restaurants, etc.) | -Work with City Council to approve ordinance<br>-Educate and inform customers<br>-City hire a Code Enforcement Officer | Code Enforcement Officer, Public Works Director, City Manager, City Council, Rio Grande County Building Inspector |
| | Xeriscape Demonstration Garden | -Secure funding<br>-City staff will research effective Colorado xeriscape/low water landscaping demonstration gardens<br>-City staff will work with local landscapers & nurseries to design and install garden in Chapman Park | Public Works Department |
| 2026 | Green Building Construction (BP 12) | -Work with City Council to approve ordinance<br>-Educate and inform customers<br>-City hire a Code Enforcement Officer | Code Enforcement Officer, Public Works Director, City Manager, City Council, Rio Grande County Building Inspector |

While the City's selected activities are numerous, most of the activities that will be implemented between 2018 and 2021 consist of existing programs that the City intends to further develop or refine to bolster efficient water use within the City's facilities and with all its customer types. The anticipated annual costs to complete the activities are detailed in the attached Worksheet J.

City staff believe the greatest challenges to implement the City's selected 2018 Water Efficiency Plan activities, which they are confident will be overcome, will be the additional responsibilities assigned to the Public Works Department staff, and the additional costs for future programs. As described in Section 6.2.1, the City intends to seek outside funding from DOLA to complete a water and wastewater systems Capital Improvement Plan in 2019, which will include a detailed rate-study. Building atop the future rate-study, City staff anticipate working with City Council to implement a five-year ramping up of water and sewer rates (and possibly changing the volumes associated with the tiered block rate structure) to help fund the necessary capital improvement and water efficiency activities over the 2018 through 2027 planning period.

The future rate-study and subsequent approval of rate changes will be crucial for the City, as many of selected water efficiency activities will ultimately result in a revenue reduction. The City's goal of metering its few remaining unmetered customers will be help generate additional revenue, as will future growth. However, as shown in the City's modified demand forecast Figure 11 its anticipated annual water production will decrease as its customers implement water efficient activities. City staff also acknowledge that its desired reduction in Non-Revenue water will reduce its annual treatment and electrical pumping costs, which will help to offset the future reduction in revenue generation.

City staff will explore additional outside funding sources, such as CWCB, for its future Raw Water Irrigation Master Plan project, along with its ultimate construction. City staff will work with City Council and the Finance Department throughout the ten-year planning period to balance system improvements, water efficiency activities, and rate-increases to ensure Monte Vista remains a desirable community and is poised for future growth.

Regarding City staff's work load, SGM transferred the knowledge obtained and processes develop during the water usage calculations and completed analyses within the Water Efficiency Plan to train staff for its near-term activities. The sequencing of the activities, as detailed in the implementation plan was specifically developed to allow City staff to learn the data collection, processing, and interpretation processes necessary to implement the near-term activities, such as tracking largest water users, completing system-wide audits, researching and purchasing water-efficient indoor fixture giveaways, and then using existing educational activities to inform the public of its activities. City staff believe they are equipped with the tools necessary to complete the additional water efficiency tasks and will be ready to implement the new activities detailed in the second half of the 2018 through 2027 planning period.

City staff recognize the implementation of its 2018 Water Efficiency Plan will be an on-going process throughout the ten-year planning period. The future implementation will need to be flexible to adjust to changes in population, revenue, public input and involvement, acceptance by City Council, compliance with the Division 3 Groundwater Rules, the City's pending 2016 water court case for a plan of augmentation, and other unforeseen variables. City staff believe the developed implementation and monitoring plans are flexible and build upon a logical sequence that will help facilitate subsequent water efficiency activities. Over the ten-year planning period, City staff understand the

proposed activities may need to be accelerated or delayed, or the amount of a specific activity may need to be increased or decreased in accordance with the City's continued water resources planning and future needs. The ability for City staff to adjust its 2018 Water Efficiency Plan activities based upon those dynamic variables will be greatly enhanced based upon regular monitoring of its activities' effectiveness, public and political acceptance, and fiscal impacts and the availability of additional funding.

## 7.2 MONITORING PLAN

To help Monte Vista staff collect, process, and interpret the necessary data, as well as to monitor the City's overall progress in implementing its selected activities during the ten-year planning period a streamlined yet comprehensive monitoring plan was developed. The attached Worksheet L shows in detail the specifics of the City's monitoring plan, while Worksheet K and M, respectively, document the essential data demand and demand tracking needed to guide the City's future water efficiency activities.

Fundamental monitoring data for the City's Water Efficiency Plan include:

- Daily metered records of the City's confined aquifer wells used for its potable water supplies (which can be aggregated for monthly production volumes).
- Monthly treated water deliveries for all metered customers (which can be aggregated by customer types).
- Monthly metered records of the City's unconfined aquifer wells used for raw water irrigation.
- Annual population estimates.
- Number of taps by customer category.

From the above data, City staff will be able to calculate:

- The City's annual growth rate.
- System-wide and residential per capita water use.
- Indoor and outdoor water consumption.
- Treated water peak day production.
- Non-Revenue water.
- Unit irrigation of all the City's parks, open space, and golf course.
- Water usage of its large users (both total and by customer category).

The City currently collects the fundamental monitoring data, except for its monthly raw water irrigation production (which it tracks annually). City staff are integrally aware of how its water usage statistics and trends shown in Section 4.2 were developed and will use the attached demand tracking table (Worksheet M) to record its ongoing data monitoring in a similar fashion. The attached Monitoring Plan (Worksheet L) clarifies the frequency City staff review the data and how the types of data will be used to monitor the effectiveness of the City's water efficiency activities.

In general, City staff plan to collect data on a daily and/or monthly basis and will compile and interpret the data on a semi-annual basis, when applicable (e.g. per capita usage and system-wide audits will be done annually). Ideally staff would like to process and interpret data in the early spring before irrigation begins (March/April) to assess changes in indoor usage, and again in the late fall once the irrigation season has ended (October/November) to assess changes in outdoor usage. Seasonally the new water production and use data will be compared to subsequent years' seasonal and annual tabulated production,

demands, and usage. During the comparison of annual and seasonal data, staff will document short-term and long-term observed volumetric and percent changes to assess trends of usage increases or decreases, such as: per-capita usage, Non-Revenue water, large water users' consumption, outdoor irrigation, peak daily demands, and usage by customer type. City staff will also record the average monthly temperature and total precipitation to help interpret water usage trends during warmer/drier and cooler/wetter years, as climatic variability can greatly affect outdoor irrigation demands. The Western Regional Climate Center (http://wrcc.dri.edu/coopmap) shows the existence of the nearby longstanding Monte Vista 2W climate station (Station ID No. 055706). The Monte Vista 2W climate station is within two miles of the City and has climatic data available from February 1893 through present.

The attached Monitoring Plan (Worksheet L) also documents for each of the selected water efficiency activities the other types of data necessary to assess the impacts of the City's implemented actions. Those data include:

- Annual costs.
- Lessons learned.
- Water savings estimates.
- Administration data, such as:
    - Water meter make, model, installation date, and identification number.
    - Upgraded City facilities.
    - Number of fixtures purchased and given away.
    - Customer address and customer type that receive a giveaway.
    - Names and addresses of participants at educational activities.
    - Research, water savings estimates, and/or other relevant calculations.
- Relevant public feedback.
- Records of notable change.

Ultimately, the complete collection of data and subsequent analyses will be used by City staff and the City Manager to determine the effectiveness of its water efficiency activities in comparison to the City's Water Efficiency Plan goals. These data will provide a robust backdrop with technical veracity to regularly inform the City Council of its progress in meeting its Water Efficiency Plan goals. During the development of the Water Efficiency Plan, City staff recommended the City Manager report on the City's water efficiency review and findings to City Council annually after the springtime semi-annual data processing and interpretation. A mid to late spring City Council meeting update will allow for the City Council to consider the progress towards continued supply-side and demand-side water efficiency activities, while considering the current year's snowpack levels and climate projections, which may affect the timing and/or magnitude of implementation of that current year's water efficiency activity planning. Further, these data will provide a basis for the City's Finance Department and City Council Members during the City's annual budget development and review and can be used to identify the need for additional funds, future water resources and planning studies, as well as in guiding the development of the selected ordinances and regulations.

## 8.0 PUBLIC REVIEW AND FORMAL APPROVAL

City staff and SGM worked closely throughout the initiation, development, screening, and finalization of the City's Water Efficiency Plan. In particular, SGM relied on City staff during the screening and selection of the water efficiency activities based upon the anticipated

public and political acceptance within Monte Vista. Once the initial drafting of the report was completed in concert with City staff the public review process began.

### 8.1 PUBLIC REVIEW PROCESS

City staff initially provided a copy of the City's 2018 Draft Water Efficiency Plan to the CWCB Water Conservation Technical Specialist and Conservation Coordinator (Kevin Reidy and Ben Wade respectively) for their preliminary review in April 2018. CWCB staff provided administrative comments, along with the recommendation to focus toilet retrofit efforts with toilet replacement efforts, and to include a section devoted to water efficiency and land use planning. CWCB staff comments were addressed. The revised Monte Vista Draft Water Efficiency Plan was then presented to City Council on May 17, 2018. See page two of the attached Monte Vista Journal article, *City Council Swears in New Member*, which summarizes the presentation to City Council.

During the May 17, 2018 City Council Meeting, City and SGM staff provided an overview presentation on the City's Draft Water Efficiency Plan; provided paper copies to each of the five City Council members (electronic copies were provided to the City Council on May 11, 2018), and addressed questions from City Council and the public. City staff asked the City Council to approve the Draft Water Efficiency Report for formal review by the public, which was approved. The City's formal public review process included the following components

- City Council initiated the beginning of the public review process to begin on May 17, 2018, and in complying with CWCB requirements indicated the public review process would cease after July 18, 2018.
- City staff had a total of five paper copies available for review at City Hall.
- City staff posted an electronic PDF version of the Draft Water Efficiency Plan on its website which could be downloaded. (www.cityofmontevista.com).
- City staff electronically posted on its website that typed feedback received by July 18, 2018 on the City's Draft Water Efficiency Plan could be personally delivered to City Hall or emailed to the City Manager (CityMgr@ci.monte-vista.co.us).
- City staff used its Facebook and Twitter accounts to provide links to the City's website where the Draft Water Efficiency Plan could be downloaded, reviewed, and commented on.
- City staff posted a notice of the public review process on its Draft Water Efficiency Plan in the Monte Vista Journal and posted a paper notice at City Hall on May 18, 2018. (See the attached Monte Vista Journal article, *Do Your Part To Conserve Water*.
- Finally, City staff added a brief description and provided the City's website to view the City's Draft Water Efficiency Plan on its June 2018 water bill to all its customers.

Once the public review process ended on July 18, 2018, the City had received a total of 14 responses to its online survey. No additional public review comments were received by City staff in person or by email. Comments were primarily received from single family residential customers (91 percent) and secondarily by multi-family residential customers (9 percent). A summary of the survey results included:

- One customer was interested in having a water meter installed.
- All respondents were aware the water supply outlook for 2018 in the Rio Grande Basin was well below normal, and that the City's water supply is derived from pumped groundwater.

- 50 percent of respondents knew about the City's Water Efficiency Plan.
- Interest in water savings tips, practices and/or devices were ranked from most interest to least for the following home water usage areas (outdoor irrigation, bathroom, laundry room, kitchen).
- 50 percent of respondents when asked if they would install a new water-efficient device within the next three months stated possibly; 37.5 percent were very likely; and 12.5 percent were not likely.
- The most favorable way to learn about water efficiency practices when ranked from most interest to least interest were: social media; tie between monthly-water bill and newspaper; and a tie between public meetings, public events, and email.
- 78 percent of respondents wanted to learn more about water efficiency tips, future educational opportunities, and/or giveaways.
- A summary of specific comments from survey respondents included:
  - We are willing to pay more to update the City's antiquated system.
  - A lot of residents don't know about the watering plan, and not everyone has facebook.
  - I believe we have great drinking water and need to protect it. We also need a storage system for emergencies.

Once the public's comments were incorporated into this report, SGM prepared the City's Final Draft of its 2018 Water Efficiency Plan, which as presented to the City Council at its August 16, 2018 Council Meeting. During the August 16, 2018 City Council Meeting Resolution 10-2018 was passed by City Council to formally adopt the City's 2018 Water Efficiency Plan (attached). The City's Final Water Efficiency Plan was submitted to the CWCB for formal approval on August 17, 2018.

### 8.2 Periodic Review and Update

City staff within the Public Works Department will use the Monitoring Plan and Demand Tracking table (Worksheet M) developed for the City's 2018 Water Efficiency Plan as described in Section 7.2 to semi-annually tabulate the City's progress in implementing its selected water efficiency activities, estimate its water savings, and compare the progress made towards meeting its Water Efficiency Plan goals. These biannual reviews will be used to inform the City Manager and City Council, at a minimum, on an annual basis.

In addition, City staff will also record relevant lessons learned and received public feedback regarding the implementation, success, or concerns towards its water efficiency activities. For instance, if a specific replacement water fixture does not properly work or is difficult to install, the City could elect to purchase different giveaway fixtures the following year. Another scenario might be that a specific educational activity is extremely well received and results in a greater amount of implementation across multiple customer categories than originally estimated. The received feedback and estimated water savings could be documented by the City staff, which would guide them to look for other ways to revise the implementation of other educational activities similarly to increase the water savings potential. Finally, City staff will record significant changes in water use observed and will use that information to refine and update its later activities within the 2018 through 2027 planning period.

City staff acknowledge their role in completing an ongoing review the City's progress in implementing their 2018 Water Efficiency Plan. These ongoing reviews and ability to update its approach to implement selected activities will result in a dynamic and flexible

process that will better serve the City's water supply needs. Finally, City staff will formally incorporate the future findings of its ongoing monitoring by initiating the development of an updated Water Efficiency Plan project by no later than July 2025.

## 9.0 REFERENCES

Chastain-Howley, A., Lalonde, A., Kunkel, G., Sayers, D., *AWWA Water Audit Software*. 11 April 2004. Microsoft Excel file. Web.

Guerra, Lucy, *2017 Esri Demographic and Business Data List*. Esri. Microsoft Excel file. Web.

Colorado Water Conservation Board [CWCB], Colorado Department of Natural Resources, *Municipal Water Efficiency Plan Guidance Document - Guidance Document Worksheet.* 21 August 2012. Colorado Department of Natural Resources – Colorado Water Conservation Board. Microsoft Excel file. Web.

Fletcher, Cristy, *2011-2016 Water Usage.* City of Monte Vista. Microsoft Excel file.

*Water Pump Readings.* City of Monte Vista. Microsoft Excel file.

Fletcher, Cristy, *High Consumption Report January 2012 through August 2017.* City of Monte Vista. Microsoft Excel file.

Fletcher, Cristy, *Meter Count.* City of Monte Vista. Microsoft Excel file.

Heyward, M, *EPA WaterSense Labeled Products.* EPA. Microsoft Excel file. Web.

Committee on Legal Services of the Colorado General Assembly. Colorado Revised Statutes [C.R.S] (37-60-126. Water conservation and drought mitigation planning – programs – relationship to state assistance for water facilities – guidelines – water efficiency grant program – repeal). LexisNexis®.

AMEC Environmental and Infrastructure. 2012. *Municipal Water Efficiency Plan Guidance Document.* Prepared for: Colorado Water Conservation Board [CWCB], Colorado Department of Natural Resources.

The Little Thompson Water District. 2015. *Water Conservation Implementation Grant Application.* Prepared for: Colorado Water Conservation Board [CWCB] – Office of Water Conservation and Drought Planning, Colorado Department of Natural Resources.

Security Water and Sanitation District. 2013. *Water Conservation Implementation Grant Application.* Prepared for: Colorado Water Conservation Board [CWCB] – Office of Water Conservation and Drought Planning, Colorado Department of Natural Resources

Aquacraft, Inc and Headwater Corp. 2011. *SWSI 2010 Municipal and Industrial Water Conservation Strategies.* Prepared for: Colorado Water Conservation Board [CWCB], Colorado Department of Natural Resources.

Integra Engineering. 2008. *2008 Master Infrastructure Plan.* Prepared for: City of Monte Vista.

Clear Water Solutions, Inc. 2011. *2011 Water Conservation Plan.* Prepared for: City of Monte Vista.

Davis Engineering Service, Inc. 2006. *Engineering Report Summarizing Information Needed for Proposed City of Monte Vista Augmentation Plan.* Prepared for: City of Monte Vista.

Utility Services Associates. 2017. *Water Line Leak Detection Project.* Prepared for: City of Monte Vista.

Robinson, T.W., 1958. Phreatophytes: U.S. Geological Survey Water-Supply Paper 1423.

Colorado Water Conservation Board [CWCB], Colorado Department of Natural Resources. Water Conservation Planning Grants, Guidelines for Water Conservation Planning Projects, 20 November 2008.

Colorado Water Conservation Board [CWCB], Colorado Department of Natural Resources. Guidelines Regarding the Reporting of Water Use and Conservation data by Covered Entities, 16 November 2011.

City of Monte Vista, Municipal Code (2009)

City of Monte Vista, Economic Development Assistance Policy

City of Monte Vista, Fee Schedule, Updated 28 October 2013.

City of Monte Vista, Policy Regarding Water Tap Fees, Resolution No: 11-2003

Davis Engineering Service, Inc. Location of Water Rights in Which the City of Monte Vista Have Ownership. 23 March 2009.

Reynolds Engineering Company. Colorado Imperial Annexation to the City of Monte Vista. 1:1,200. August 2014.

Davis Engineering Service, Inc. Water Distribution System, 1:4,800. April 1978.

Water Conservation Programs – A Planning Manual, First Edition., America Water Works Association [AWWA manual M52]., Denver, CO, 2006.

Water Conservation Programs – A Planning Manual, Second Edition., AWWA manual M52., Denver, CO, 2011.

Environmental Protection Agency. (2012). *WaterSense at Work: Best Management Practices for Commercial and Institutional Facilities* (EPA Publication No. 832-F-12-034). U.S. Environmental Protection Agency.

Colorado WaterWise and Aquacraft, Inc. 2010. *Guidebook of Best Practices for Municipal Water Conservation in Colorado.* Colorado WaterWise. Denver, CO.

East Bay Municipal Utility District. 2008. *Water Smart Guidebook – A Water-Use Efficiency Plan-Review Guide for New Businesses.* Oakland, CA.

Vickers, A. 2001. Handbook of Water Use and Conservation. Water Plow Press. Amherst, MA.

Western Regional Climate Center. (2018). *Cooperative Climatological Data Summaries.* Retrieved from http://wrcc.dri.edu/coopmap

# ATTACHMENTS

Worksheets A through M

# WORKSHEET A - WATER SUPPLY LIMITATIONS AND FUTURE NEEDS

| Limitation and/or Future Need [1] | [2] Yes | [2] No | Comments on Limitation or Future Need [3] | How is Limitation or Future Need Being Addressed [4] |
|---|---|---|---|---|
| System is in a designated critical water supply shortage area | X | | The City's use of its confined aquifer wells is being administered under the Division 3 Groundwater Rules, and there are limited water supplies to develop for future growth. | The City is completing the 2017 Water Efficiency Plan, and has filed a plan for augmentation, change of use, and appropriative rights of exchange to comply with the Division 3 Ground Water Rules |
| System experiences frequent water supply shortages and/or emergencies | | X | N/A | N/A |
| System has substantial non-revenue water | X | | Parks, golf course, water distribution system leakage | The City is completing the 2017 Water Efficiency Plan to address this concern. |
| Experiencing high rates of population and demand growth | | X | N/A | N/A |
| Planning substantial improvements or additions | X | | Replacement of aging pipelines, installation of additional water valves, future water system mapping, and desire for potable water storage. | The City is completing the 2017 Water Efficiency Plan to address this concern. |
| Increases to wastewater system capacity anticipated | | X | The City has a CDPHE approved compliance schedule to reduce its I & I. | The City is working to reduce I & I within its wastewater system and will have capacity for future growth. |
| Need additional drought reserves | X | | The City's use of its confined aquifer wells is being administered under the Division 3 Groundwater Rules, and there are limited water supplies to develop for future growth. | The City is completing the 2017 Water Efficiency Plan, and has filed a plan for augmentation, change of use, and appropriative rights of exchange to comply with the Division 3 Ground Water Rules |
| Drinking water quality issues | | X | N/A | N/A |
| Aging infrastructure in need of repair | X | | A significant portion of the City's water distribution system needs to replaced including: water lines, valves, wells, well pumps and motors, and raw water transmission lines. | The City is completing the 2017 Water Efficiency Plan to address this concern. |
| Issues with water pressure in portions of distribution system | | X | N/A | The water distribution system pressure is set on the pumping from its wells. |
| The City does not have any potable water storage capacity | X | | The City currently is able to meet all of its demands instantaneously from its confined aquifer wells and looped distribution system. | The City is completing the 2017 Water Efficiency Plan to address this concern. |

Instructions:
[1] This column provides a list of limitations/future needs related to planning and operating the water supply system.
[2] Enter an "X" to show whether or not the system exhibits the limitations/future needs.
[3] Include any comments regarding the limitations/future needs that may be useful to consider in the planning process.
[4] If applicable, include how the limitation/future need is being addressed.

# WORKSHEET B - HISTORICAL AND CURRENT WATER EFFICIENCY ACTIVITIES

| Historical and Current Water Efficiency Activities [1] | Period of Implementation [2] | Annual Water Savings for Past Five Years (AF or %) [3] | | | | | Total Five-Year Water Savings (AF) [4] | Average Annual Savings (AF) [5] |
|---|---|---|---|---|---|---|---|---|
| | | 2012 | 2013 | 2014 | 2015 | 2016 | | |
| **Foundational Activities** | | | | | | | | |
| Installation of Individual Water Meters | 2000 - 2005 | 40.0% | 40.0% | 40.0% | 40.0% | 40.0% | 3,851 | 770 |
| Water Rate Increase | 2014 | N/A | N/A | 3.6% | 6.1% | 6.1% | 186 | 62 |
| Tiered Water Rate Structure | 2016 | N/A | N/A | N/A | N/A | 0.0% | 0 | 0 |
| ***Subtotal*** | | ***40.0%*** | ***40.0%*** | ***43.6%*** | ***46.1%*** | ***46.1%*** | ***4,037*** | ***832*** |
| **Targeted Technical Assistance and Incentives** | | | | | | | | |
| Indoor Water Conservation Upgrades for Indoor City Facilities | 2012 | 0.0% | 0.5% | 0.5% | 0.5% | 0.5% | 21 | 5 |
| ***Subtotal*** | | ***0.0%*** | ***0.5%*** | ***0.5%*** | ***0.5%*** | ***0.5%*** | ***21*** | ***5*** |
| **Ordinances and Regulations** | | | | | | | | |
| Wasting of Water Prohibited (Ordinance Section 10-3-90) | 2009 | 0.3% | 0.3% | 0.3% | 0.4% | 0.4% | 19 | 4 |
| Prohibition of Trees (Ordinance Sections 9-3-20 & 12-16-130) | 1964 | 0.3% | 0.3% | 0.3% | 0.4% | 0.4% | 19 | 4 |
| Ability to Impose Sprinkler Restrictions (Ordinance Section 10-3-140) | 2009 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0 | 0 |
| Water Meter Requirements (Ordinance Sections 10-3-50 & 10-3-60) | 2008 | See Above | See Above | See Above | See Above | See Above | See Above | See Above |
| Tiered Water Rate Structure (Ordinance Sections 10-2-10 & 10-2-20) | 2016 | See Above | See Above | See Above | See Above | See Above | See Above | See Above |
| ***Subtotal*** | | ***0.6%*** | ***0.7%*** | ***0.7%*** | ***0.7%*** | ***0.7%*** | ***38*** | ***8*** |
| **Education Activities** | | | | | | | | |
| Public Works Booth at the City of Monte Vista Open House | 2014 | N/A | N/A | Unknown | Unknown | Unknown | Unknown | Unknown |
| City of Monte Vista - Online City Water Savings Information - https://www.cityofmontevista.com/2161/Water-Rates | 2016 | N/A | N/A | N/A | N/A | Unknown | Unknown | Unknown |
| Annual Drinking Water Quality Report - Consumer Confidence Rule (CCR) | 2010 | Unknown | Unknown | Unknown | Unknown | Unknown | Unknown | Unknown |
| ***Subtotal*** | | ***0.0%*** | ***0.0%*** | ***0.0%*** | ***0.0%*** | ***0.0%*** | ***0*** | ***0*** |
| **Total Savings** | | 40.6% | 41.1% | 44.8% | 47.4% | 47.3% | 4,096 | 845 |

Instructions:
[1] List the current/historical water efficiency activities previously implemented according to the SWSI Levels Framework.
[2] Enter the dates/years the activities have been/were implemented.
[3] Enter annual estimated savings for each activity. If water savings are not measurable enter n/a.
[4] Include total water savings since the activities have been implemented.
[5] Include average annual savings.

# WORKSHEET C - MODIFICATIONS TO CAPITAL IMPROVEMENT PROJECTS AND WATER ACQUISITIONS

| Capital Improvement Projects and Water Acquisitions [1] | Estimated Cost [2] | Action as a Result of Reduced Demands [3] | | | | Comments [4] | Potential Cost Savings [5] |
|---|---|---|---|---|---|---|---|
| | | Carried Forward | Eliminated | Postponed | Downsized | | |
| Construction of Potable Water Storage Tank(s) | $2,900,000 - $5,650,000 (total) | | | X | | Assumed the City would have 2 to 3 above ground water storage tanks built with a combined storage capacity of 2.9 - 3.75 million gallons [welded steel storage tanks have a unit cost $1.00 per gallon and concrete storage tanks have a unit cost of $1.50 per gallon]. | $4,000,000 (Construction of water storage tanks likely to occur after WEP implementation period. Assume a total of $4,000,000) |
| Locate and utilize a GIS-based platform to map all key water system component locations | $5,000 - $20,000 (total) | X | | | | Base cost of $5,000 assumes City purchases two field tablets with data plans, two online ESRI ArcGIS licenses, an external GPS receiver, and that City staff collect field locations with equipment. Upper cost of $20,000 assumes the City purchases two field tablets with data plans, two online ESRI ArcGIS licenses, and hires a contractor to collect the field measurements. | |
| Develop a GIS-based online water system map and asset management platform | $5,000 - $10,000 (total) | X | | | | Development of base maps, editing of field data, creation of field inspection reports, connect construction drawing line work and CAD drawings to the field collected point measurements, ensure topological correctness for the entire water system, and enable attachments (PDFs, O&M manuals, field photos, work orders, inspection, and historical testing documents) | |
| Develop a GIS-based hydraulic model of the City's water distribution system, and develop an online water system planning tool in conjunction with the existing online map | $15,000 - $30,000 (total) | X | | | | Conditioning of the GIS-based water system map to develop an InfoWater hydraulic model, editing of key water system features (pump depth, known pressures, and demand distributions), model calibration with existing data, and steady-state model runs. | |
| Complete a water system leak detection inspection for the key water system components | $8,000 - $12,000 (total) | X | | | | Cost for an independent contractor to complete a system wide leak detection investigation. | |
| Replacement of leaking water system lines and valves (As funding is available) | $120 - $150 (cost per linear foot) | X | | X | | This price range estimates the total cost per linear foot to replace water lines with 8-inch, C-900 pipe. Replacement distances less than 100 feet will have a larger liner foot cost, and distances over 1,000 feet will have a smaller liner foot cost. | Unknown |
| Hydrant replacement (1331 Grande Ave.) | $5,000 - $10,000 (total) | X | | | | A 0.25 gpm leak was detected during the City's October 2017 leak detection survey. | |
| Valve replacement (Darwin St. & Ulysses Blvd.) | $2,500 - $3,500 (total) | X | | | | A 0.75 gpm leak was detected during the City's October 2017 leak detection survey. | |
| Additional valve replacement (Darwin St. & Ulysses Blvd.) | $2,500 - $3,500 (total) | X | | | | A 1.0 gpm leak was detected during the City's October 2017 leak detection survey. | |
| Hydrant replacement (206 Adams St.) | $5,000 - $10,000 (total) | X | | | | A 0.25 gpm leak was detected during the City's October 2017 leak detection survey. | |
| Hydrant replacement (418 Stallo St.) | $5,000 - $10,000 (total) | X | | | | A 0.50 gpm leak was detected during the City's October 2017 leak detection survey. | |
| Install additional water valves within the City's distribution system to minimize the impacts of water system outages during maintenance (As funding is available) | $2,500 - $3,500 (each) | X | | X | | This price range estimates the total cost to install an 8-inch water valve. Intersections with single valves will have a higher unit cost than intersections with multiple valves. | Unknown |
| Install VFDs and new pumps at the City's wells as needed. (As funding is available) | $75,000 - $115,000 (each) | X | | X | | Cost for a single well pump, controls and VFD system installed at the City's well. Range accounts for production rates between 300 - 800 gpm and pump placement up to 800 feet below ground surface. | $300,000 (Plan to complete one replacement and postpone replacement for the remaining three wells at an assumed cost of $100,000 each) |
| Well inspection and mechanical and chemical cleaning (As funding is available) | $25,000 - $60,000 (each) | X | | X | | Cost includes the pulling of the well's pump and motor; downhole video inspection; mechanical cleaning; acid/chemical treatment; jetting of the well screen; pumping, transportation, treatment, and lawful disposal of chemicals; secondary downhole video inspection, and reinstallation of the existing pump and motor. | $90,000 (Plan to clean two wells and postpone cleaning of three wells at an assumed cost of $30,000 each) |
| Conversion of public space outdoor irrigation from potable supplies to raw water irrigation through ditch and alluvial well supplies, including: golf course, open areas, parks, medians, and landscaping (As funding is available) | $150,000 to $250,000 (total) | X | | X | | Cost to design and install the necessary infrastructure (ditch headgate, settling pond, filter system, pump, VFD, controls, piping, and necessary modifications to the existing golf course irrigation system). | $150,000 (Plan to investigate and design a raw water irrigation system for the City golf course given available funding. Assume the construction of the raw water irrigation system will occur after the WEP implementation period) |
| Obtain a decree in Division 3, Case No. 16CW3024 (City's augmentation plan) | $30,000 - $80,000 (without trial) $30,000 - $50,000 (additional for trial) | X | | | | This range illustrates the potential legal and engineering fees associated with obtaining a decree in Case No. 16CW3024. There is a large amount of uncertainty in water court, and specifically for this case there are many objectors, and this case is one of the first seeking augmentation of high capacity municipal wells under the Division 3 Groundwater Rules, which have not been decreed. As such a final decree in this case may not be issued until 2019 or 2020, and could potentially go to trial. | |

Instructions:
[1] List capital improvement projects and water acquisitions being implemented or considered.
[2] Include estimated cost for the projects/water acquisitions.
[3] Specify with an "X" whether the project/water acquisition may be eliminated, postponed, or downsized as a result of water efficiency improvements.
[4] Provide additional comments (e.g. extent of postponement and/or anticipated downsizing).
[5] Include potential cost savings as a result of the elimination, postponement and/or downsizing.

# WORKSHEET D - IDENTIFICATION AND SCREENING OF FOUNDATIONAL ACTIVITIES

| Water Efficiency Activities for Screening [1] | State Statute Requirement [2] | Identification | | Qualitative Screening [5] | | | | | Carry to Evaluation [6] | Reason for Elimination [7] |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Existing/ Potential Activity [3] | Targeted Customer Category [4] | Is it acceptable to the Public? | Implementable from staff level | Can it be implemented in the plan timeframe | Economically viable and cost effective | Notes on Additional Pros/Cons to Consider | | |
| **Metering (BP1)** | V, VII | | | | | | | | | |
| Automatic Meter Reading Installation and Operations | | P | All | X | X | | | Desired, but cost prohibitive during planning period | | 5c,d |
| Submetering for Large Users (Indoor and Outdoor) | | E | All | X | X | | | Currently exists for some customers with limited savings observed | | 5c,d |
| Meter Testing and Replacement | | E | All | X | X | X | X | City tests and replaces as needed | X | |
| Meter Upgrades | | E | All | X | X | X | X | As possible, the City is upgrading to Sensus II water meters | X | |
| Identify Unmetered/Unbilled Treated Water Uses | V, VII | E | All | X | X | X | X | The City currently has a few unmetered residences, commercial users, and parks and desires to begin metering those water users | X | |
| **Data Collection - Monitoring and Verification (BP2)** | | | | | | | | | | |
| Frequency of Meter Reading | | E | All | | | | | The City does not have enough resources to increase the frequency of meter readings until units with automatic meter readings are installed and operational | | 5a-d |
| Tracking Water Use by Customer Type | | E/P | All | X | X | X | X | Currently in place | X | |
| Upgrade Billing System to Track Use by Sufficient Customer Types | | E | All | X | X | X | X | City currently uses the Caselle Clarity billing software | X | |
| Tracking Water Use for Large Customers | | E | All | X | X | X | X | Currently occurs, but with little tracking of individual users | X | |
| Area of Irrigated Lands in Service Area (e.g. acres) | | E/P | CF | X | X | X | X | Currently tabulated for City Parks and Open Spaces, but not for other customer types | X | |
| **Water Use Efficiency Oriented Rates and Tap Fees (BP1)** | VII, VIII | | | | | | | | | |
| Volumetric Billing | VII | E | SF,MF,G,C | X | X | X | X | Currently in place | X | |
| Water Rate Adjustments | VII | E/P | SF,MF,G,C | | X | X | X | Water rates increased in 2014 - City plans to revisit water rates within the planning period | X | |
| Frequency of Billing | | E/P | SF,MF,G,C | | | | | The City currently bills monthly water usage - likely won't increase the frequency | | 5a-d |
| Inclining/Tiered Rates | VII, VIII | E | SF,MF,G,C | X | X | X | X | Tiered rates established in 2016 | X | |
| Water Budgets | | P | SF,MF,G,C | | X | | | Determination of irrigated land could be developed after the City's Water System is incorporated into a GIS-based map | | 5a,c,d |
| Tap Fees with Water Use Efficiency Incentives | | P | SF,MF,G,C | X | X | X | X | Potential activity for new developments | X | |
| **System Water Loss Management and Control (BP3)** | | | | | | | | | | |
| System Wide Water Audits | VI | P | All | X | X | X | X | Ideally would be conducted annually, but limited City funding is available | X | |
| Control of Apparent Losses (with Metering) | V | E/P | All | X | X | X | X | Existing meters for the majority of water users and wells | X | |
| Leak Detection and Repair | V | E/P | All | X | X | X | X | The City can identify key water system losses through future audits and leak detection inspections | X | |
| Water Line Replacement Program | | E/P | All | X | X | X | X | The City will utilized leak detection inspections and audits to guide its future line replacement program | X | |
| **Planning (BP2)** | | | | | | | | | | |
| Integrated Water Resources Plans | | E/P | All | X | | X | | Cost prohibitive - the City does not foresee the ability to complete an integrated water resource plan within the WEP planning period | | 5b,d |
| Master Plans/Water Supply Plans | | E/P | All | X | | X | X | The City is in the process of obtaining a decreed plan for augmentation in Case No. 16CW3024 | X | |
| Capital Improvement Plans | | E/P | All | X | X | X | X | The City anticipates developing a Capital Improvement Plan within the WEP planning period | X | |
| Feasibility Studies | | E/P | All | X | | X | | Cost prohibitive - the City does not foresee the ability to complete additional feasibility studies within the WEP planning period | | 5b,d |
| **Staff (BP4)** | | | | | | | | | | |
| Water Conservation Coordinator | | P | All | | | | | Cost prohibitive - the City does not foresee the ability to hire a full-time water conservation coordinator within the WEP planning period | | 5a-d |

Instructions:
[1] This column provides a list of possible activities & identifies the Best Practice activity as defined in the Colorado WaterWise Guidebook of Best Practices (BP) for Municipal Water Conservation in Colorado. List additional activities identified through the planning process.
[2] This column identifies, by roman numeral, the elements that correspond with the best practices and that shall be fully considered in the planning process per Colorado State Statute 37-60-126.
[3] Specify whether the activity is "Existing" or a "Potential" activity to carry through screening by entering an "E" or "P", respectively.
[4] As applicable, specify which customer category (residential, commercial, etc.) is/would be impacted by the activity.
[5] Enter screening criteria based on qualitative goals developed in Step 3 and insert an "X" for activities that meet the listed screening criteria.
[6] Based on the screening process, indicate which activities will be carried onto the evaluation phase with an "X".
[7] If eliminated via screening, comment on why.

# WORKSHEET E - IDENTIFICATION AND SCREENING OF TARGETED TECHNICAL ASSISTANCE INCENTIVES

| Water Efficiency Activities for Screening [1] | State Statute Requirement [2] | Identification | | | | | Qualitative Screening [6] | | | | | Carry to Evaluation [7] | Reason for Elimination [8] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Existing/ Potential Activity [3] | SWSI Framework Levels [4] | | | Targeted Customer Category [5] | Is it acceptable to the Public? | Implementable from staff level | Can it be implemented in the plan timeframe | Economically viable and cost effective | Notes on Additional Pros/Cons to Consider | | |
| | | | Level 1 Municipal Uses | Level 2 Customers with the Largest Water Use | Level 3 Customer Type(s) in Service Area | | | | | | | | |
| **Installation of Water Efficient Fixtures and Appliances** | I | | | | | | | | | | | | |
| Indoor Audits | VI | P | X | X | X | All | X | | | | Cost and resource prohibitive - the City does not foresee the ability to provided indoor audits within the WEP planning period | | 6b,c,d |
| Toilet Retrofits | I | P | X | | | CF | X | X | X | X | Could be cost prohibitive, but effective for large water users | X | |
| Urinal Retrofits | I | P | X | | | CF | X | X | | | Could be cost prohibitive, and limited in overall impact | | 6c,d |
| Showerhead Retrofits | I | P | X | | | CF | X | X | X | X | Could be cost prohibitive, but effective for large water users | X | |
| Faucet Retrofits (e.g. aerator installation) | I | P | X | | | CF | X | X | X | X | Could be cost prohibitive, but effective for large water users | X | |
| Water Efficient Washing Machines | | P | | | | CF | X | X | | | The City has very few washing machines in the City facility buildings, resulting in a limited savings with a relatively large cost | | 6c,d |
| Water Efficient Dishwashers | | P | X | | | CF | X | X | | | Could be cost prohibitive, and limited in overall impact | | 6c,d |
| Efficient Swamp Cooler and Air Conditioning Use | | P | X | | | CF | X | X | | | City facilities do not have many swamp coolers or air conditioning units, resulting in a limited savings with a relatively large cost | | 6c,d |
| **Low Water Use Landscapes** | II | | | | | | | | | | | | |
| Drought Resistant Vegetation | II | P | X | | | CF | | | | | City staff does not anticipate that low water use landscaping will be welcomed within the community | | 6a-d |
| Removal of Phreatophytes | II | P | X | | | CF | | | | | City staff does not anticipate that the removal of phreatophytes will be welcomed within the community | | 6a-d |
| Irrigation Efficiency Evaluations/Outdoor Water Audits | VI | P | X | X | X | All | | | | | Cost and resource prohibitive - the City does not foresee the ability to provided outdoor audits within the WEP planning period | | 6a-d |
| Outdoor Irrigation Controllers | II | E | X | X | | SF,MF,G,C | X | X | X | X | New outdoor irrigation controllers for largest water uses could provide significant savings | X | |
| Irrigation Scheduling/Timing | II | E | X | X | X | All | X | | | | City staff does not have the resources to enforce irrigation scheduling and timing, nor the water meters to monitor usage | | 6b,c,d |
| Rain Sensors | | E/P | X | X | X | All | | | | | Could be cost prohibitive, but effective for large water users | | 6a-d |
| Residential Outdoor Meter Installations | | E/P | | X | X | SF,MF | X | | X | | Currently exists for some customers with limited savings observed | X | |
| Xeriscape | II | P | X | | | CF | | | X | X | City staff does not anticipate that xeriscape features will be welcomed within the community | X | |
| Other Low Water Use Landscapes | II | P | X | | | CF | X | | X | X | City staff does not anticipate that low water use landscaping will be welcomed within the community | X | |
| Irrigation Equipment Retrofits | II | P | X | X | | CF | X | | X | X | Updated outdoor irrigation equipment for the City's facilities could provide significant savings | X | |
| Water Reuse Systems | IV | P | X | | | CF | | | | | Currently the City's water supplies are not decreed for reuse, so this activity is not viable until a future decree allows for reuse of the City's water supplies. | | 6a-d |
| Raw Water Irrigation of City Parks | | E/P | X | | | CF | X | X | X | X | The City does not anticipate having a sufficient budget to fully implement a raw water irrigation system for it's golf course, parks, and open spaces, but would like to complete a raw water master plan or raw water system design | X | |
| **Water- Efficient Industrial and Commercial Water-Using Processes** | III | | | | | | | | | | | | |
| Specialized Nonresidential Surveys, Audits and Equipment Efficiency Improvements | III, VI | P | | X | | C | X | | | | Cost and resource prohibitive - the City does not foresee the ability to provided specialized nonresidential indoor audits within the WEP planning period | | |
| Commercial Indoor Fixture and Appliance Rebates/Retrofits | III | P | | X | | C | | X | X | X | Could be cost prohibitive, but effective for large water users | X | |
| Cooling Equipment Efficiency | III | P | | X | | C | X | | | | Could be cost prohibitive, but effective for large water users | X | |
| Restaurant equipment | III | P | | X | | C | X | X | X | X | Could be cost prohibitive, but effective for large water users | X | |
| Economic Development Incentives (City website: http://www.cityofmontevista.com/2156/Economic-Development) | | E/P | | X | | C | X | X | X | X | The City currently offers water rate incentives for new economic development. In the future, the incentives could be tied to water efficient activities | X | |
| **Incentives** | X | | | | | | | | | | | | |
| Toilet Rebates | X | P | | X | X | SF,MF,G,C | X | X | X | X | Could be cost prohibitive, but effective for large water users | X | |
| Urinal Rebates | X | P | | X | X | MF,G,C | | | | | Could be cost prohibitive, and limited in overall impact | | 6a-d |
| Showerhead Rebates | X | P | | X | X | SF,MF,G,C | X | X | X | X | Could be cost prohibitive, but effective for large water users | X | |
| Water Efficient Faucet or Aerator Rebates | X | P | | X | X | SF,MF,G,C | X | X | X | X | Could be cost prohibitive, but effective for large water users | X | |
| Water Efficient Washing Machine Rebates | X | P | | X | X | SF,MF,G,C | X | X | | | Could be cost prohibitive, and limited in overall impact | | 6c,d |
| Water Efficient Dishwasher Rebates | X | P | | X | X | SF,MF,G,C | X | X | | | Could be cost prohibitive, and limited in overall impact | | 6c,d |
| Efficient Irrigation Equipment Rebates | X | P | | X | X | SF,MF,G,C | X | X | X | X | Updated outdoor irrigation equipment for largest water uses could provide significant savings | X | |
| Landscape Water Budgets Information and Customer Feedback | | P | | X | X | SF,MF,G,C | X | | | | Determination of irrigated land could be developed after the City's Water System is incorporated into a GIS-based map | | 6b,c,d |
| Turf Replacement Programs/Xeriscape Incentives | X | P | | X | X | SF,MF,G,C | | | | | City staff does not anticipate that turf replacement/xeriscape will be welcomed within the community | | 6a-d |
| Giveaways | | P | | X | X | SF,MF,G,C | X | X | X | X | Extent of giveaways will be limited by available budget, but is likely a good place to begin educating the community about water efficiency | X | |

Instructions:
[1] This column provides a list of activities & if applicable, identifies the Best Practice activity as defined under *Colorado WaterWise Guidebook of Best Practices (BP) for Municipal Water Conservation in Colorado*. List additional activities identified through the planning process.
[2] This column identifies, by roman numeral, the elements that correspond with the best practices and that shall be fully considered in the planning process per Colorado State Statute 37-60-126.
[3] Specify whether the activity is an "Existing" or "Potential" activity to carry through screening by entering an "E" or "P", respectively.
[4] Specify which level the historical/potential activities fall under by entering an "X" in the appropriate column.
[5] As applicable, specify which customer category (residential, commercial, etc.) is/would be impacted by the activity.
[6] Enter screening criteria based on qualitative goals developed in Step 3 and insert an "X" for activities that meet the listed screening criteria.
[7] Based on the screening process, indicate which activities will be carried on the evaluation phase with an "X".
[8] If eliminated via screening, comment on why.

# WORKSHEET F - IDENTIFICATION AND SCREENING OF ORDINANCES AND REGULATIONS

| Water Efficiency Activities for Screening [1] | State Statute Requirement [2] | Identification | | | | | Qualitative Screening [6] | | | | | Carry to Evaluation [7] | Reason for Elimination [8] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Existing/ Potential Activity [3] | SWSI Framework Levels [4] | | | Targeted Customer Category [5] | Is it acceptable to the Public? | Implementable from staff level | Can it be implemented in the plan timeframe | Economically viable and cost effective | Notes on Additional Pros/Cons to Consider | | |
| | | | Level 1 Customer Type(s) within the Existing Service Area | Level 2 New Development | Level 3 Point of Sales on Existing Building Stock | | | | | | | | |
| **General Water Use Regulations** | IX | | | | | | | | | | | | |
| Water Waste Ordinance (BP 5) | IX | E/P | X | | | All | X | X | X | X | Exists - water savings will depend upon publicity and enforcement | X | |
| Time of Day Watering Restriction | IX | P | X | | | All | | X | X | | Likely not welcomed publicly, but City Staff believe it could be adopted | X | |
| Day of Week Watering Restriction | IX | P | X | | | All | | X | X | | Likely not welcomed publicly, but City Staff believe it could be adopted | X | |
| Water Overspray Limitations | IX | P | X | | | All | | | | | Likely not welcomed publicly, and City staff do not have the capacity to enforce | | 6a-d |
| **Landscape Design/Installation Rules and Regulations** | IX | | | | | | | | | | | | |
| Rules and Regulations for Landscape Design/Installation (BP 9) | IX | P | | X | | All | | X | | | Likely not welcomed publicly, and City staff do not have the capacity to enforce | | 6a,c,d |
| Landscaper Training and Certification (BP 8) | | | | | | N/A | | | | | Likely not welcomed publicly, and City staff do not have the capacity to complete training | | 6a-d |
| Irrigation System Installer Training and Certification (BP 8) | | P | X | X | X | All | X | X | X | X | City staff not sure who would train installers, but think voluntary training would be welcomed and a benefit | X | |
| Soil Amendment Requirements (BP 9) | | | | | | All | | | | | Likely not welcomed publicly, and City staff do not have the capacity to enforce | | 6a-d |
| Turf Restrictions (BP 9) | IX | P | | X | | All | | | | | Likely not welcomed publicly, and City staff do not have the capacity to enforce | | 6a-d |
| Irrigation Equipment Requirements | IX | P | | X | | All | | | | | Likely not welcomed publicly, and City staff do not have the capacity to enforce | | 6a-d |
| Outdoor Water Audits/Irrigation Efficiency Regulations (BP 10) | VI, IX | P | | X | | All | | | | | Likely not welcomed publicly, and City staff do not have the capacity to complete | | 6a-d |
| Outdoor Green Building Construction (BP 8,9) | | P | | X | | All | | | | | Likely not welcomed publicly, and City staff do not have the capacity to enforce | | 6a-d |
| Raw Water Irrigation of City Parks and Open Spaces | | P | X | X | | CF | X | X | X | X | City staff do not think there is enough funding to complete the raw water system, but desire to complete the design within the WEP planning period | X | |
| **Indoor and Commercial Regulations** | IX | | | | | | | | | | | | |
| High Efficiency Fixture and Appliance Replacement (BP 12) | IX | P | X | | | All | X | X | | X | City staff think the overall public would support the regulation and the City could incorporate into their ordinances | X | |
| Commercial Cooling and Process Water Requirements (BP 14) | IX | P | | X | | C | X | X | | X | City staff think the overall public would support the regulation and the City could incorporate into their ordinances | X | |
| Green Building Construction (BP 12) | | P | | X | | All | X | X | X | | City staff think the overall public would support the regulation and the City could incorporate into their ordinances | X | |
| Indoor Plumbing Requirements (BP 12) | IX | P | X | X | | All | X | X | X | X | City staff think the overall public would support the regulation and the City could incorporate into their ordinances | X | |
| City Facility Requirements (BP 12) | IX | P | X | | | CF | | X | X | | City staff think the overall public would support the regulation and the City could incorporate into their ordinances | X | |
| Required Indoor Residential Audits (BP 13) | | | | | | SF, MF | | | | | Likely not welcomed publicly, and City staff do not have the capacity to complete | | 6a-d |
| Required Indoor Commercial Audits (BP 14) | | | | | | C | | | | | Likely not welcomed publicly, and City staff do not have the capacity to complete | | 6a-d |
| Commercial Water Wise Use Regulations (Car Washes, Restaurants, etc.) | IX | P | X | X | | C | X | X | X | X | City staff think the overall public would support the regulation and the City could incorporate into their ordinances | X | |

Instructions:
[1] This column provides a list of possible activities & if applicable identifies the Best Practice activity as defined under Colorado WaterWise Guidebook of Best Practices (BP) for Municipal Water Conservation in Colorado. List additional activities
[2] This column identifies, by roman numeral, the elements that correspond with the best practices and that shall be fully considered in the planning process per Colorado State Statute 37-60-126.
[3] Specify whether the activity is an "Existing" or "Potential" activity to carry through screening by entering an "E" or "P", respectively.
[4] For current/historical activities, specify which level the activities fall under by entering an "X" in the appropriate column.
[5] As applicable, specify which customer category (residential, commercial, etc.) is/would be impacted by the activity.
[6] Enter screening criteria based on qualitative goals developed in Step 3 and insert an "X" for activities that meet the listed screening criteria.
[7] Based on the screening process, indicate which activities will be carried on the evaluation phase with an "X".
[8] If eliminated via screening, comment on why.

# WORKSHEET G - IDENTIFICATION AND SCREENING OF EDUCATION ACTIVITIES

| Water Efficiency Activities for Screening [1] | State Statute Requirement [2] | Identification | | | | | Qualitative Screening [6] | | | | | Carry to Evaluation [7] | Reason for Elimination [8] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Existing/ Potential Activity [3] | SWSI Framework Levels [4] | | | Targeted Customer Category [5] | Is it acceptable to the Public? | Implementable from staff level | Can it be implemented in the plan timeframe | Economically viable and cost effective | Notes on Additional Pros/Cons to Consider | | |
| | | | Level 1 One-Way | Level 2 One-Way with Feedback | Level 3 Two-way communication | | | | | | | | |
| **Customer Education (BP6)** | VI | | | | | | | | | | | | |
| Bill Stuffers | VI | E/P | X | | | ALL | X | X | X | X | Current billings have a small section where the City could add efficiency information | X | |
| Newsletter | VI | P | X | | | ALL | X | X | X | | Relatively expensive, with potentially small impact | | Cost prohibitive with potentially small impact |
| Newspaper Articles | VI | E/P | X | | | ALL | X | X | X | X | Relatively inexpensive | X | |
| Mass Mailings | VI | E/P | X | | | ALL | X | X | X | X | Could include information with the annual CCR's | X | |
| Web Pages | VI | E/P | X | | | ALL | X | X | X | X | Existing webpage has some information - relatively easy to update | X | |
| Water Fairs | VI | P | | X | | ALL | X | X | X | | Public Works Department has a booth at the Annual City Open House and could focus on water efficiency | X | |
| K-12 Teacher and Classroom Education Programs | VI | P | | X | | ALL | X | X | | | City staff are supportive, but not sure if this could be implemented within the WEP planning period | X | |
| Message Development/Campaign | VI | P | | | X | ALL | X | X | X | X | City staff would like to develop a consistent water efficiency market/campaign | X | |
| Interactive Websites | VI | E/P | | X | | ALL | X | X | X | X | City staff are interested in linking existing resources to the City's website | X | |
| Social Networking (e.g. Facebook) | VI | E/P | | X | | ALL | X | X | X | X | City staff currently use social networking for public announcements and could incorporate water efficiency | X | |
| Customer Surveys | VI | P | | X | | ALL | X | X | X | X | Potentially expensive, but likely helpful to connect with the public | X | |
| Focus Groups | VI | P | | | X | ALL | X | X | X | X | Potentially time consuming, but likely helpful to connect with the public | X | |
| Citizen Advisory Boards | VI | P | | | X | ALL | X | X | X | | Potentially time consuming, but likely helpful to connect with the public | X | |
| **Technical Assistance** | VI | | | | | | | | | | | | |
| Customer Water Use Workshops | VI | P | | X | | ALL | X | X | X | X | Likely time consuming, but likely helpful to inform the public | X | |
| Landscape Design and Maintenance Workshops | | P | | X | | ALL | X | | | X | Likely cost prohibitive | | Cost prohibitive |
| Xeriscape Demonstration Garden | VI | P | | X | | ALL | X | X | | X | City staff like the idea of a xeriscape demonstration garden at a City facility and would like to implement within the WEP planning period | X | |
| Water Conservation Expert Available | | | | | X | ALL | | | | | Cost prohibitive - the City does not foresee the ability to hire a full-time water conservation coordinator within the WEP planning period | | Cost prohibitive |

Instructions:
[1] This column provides a list of possible activities & if applicable identifies the Best Practice activity as defined under Colorado WaterWise Guidebook of Best Practices (BP) for Municipal Water Conservation in Colorado. List additional activities identified through the planning process.
[2] This column identifies, by roman numeral, the elements that correspond with the best practices and that shall be fully considered in the planning process per Colorado State Statute 37-60-126.
[3] Specify whether the activity is an "Existing" or "Potential" activity to carry through screening by entering an "E" or "P", respectively.
[4] For current/historical activities, specify which level the activities fall under by entering an "X" in the appropriate column.
[5] As applicable, specify which customer category (residential, commercial, etc.) is/would be impacted by the activity.
[6] Enter screening criteria based on qualitative goals developed in Step 3 and insert an "X" for activities that meet the listed screening criteria.
[7] Based on the screening process, indicate which activities will be carried on the evaluation phase with an "X".
[8] If eliminated via screening, comment on why.

# WORKSHEET H - EVALUATION AND SELECTION OF WATER EFFICIENCY ACTIVITIES

| Water Efficiency Activities for Evaluation [1] | Existing/ Potential Activity [2] | Targeted Customer Category [3] | Review of Qualitative Screening: Qualitative Goals [4] | | | | Evaluation: Projected Water Savings [5] | | | Quantitative Goals [7] | | | | Final Selection [8] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Is it acceptable to the Public? | Implementable from staff level | Can it be implemented in the plan timeframe | Economically viable and cost effective | Total Water Savings | Average Annual Water Savings | Projected Implementation Costs Per Year [6] | 100% metered water service | Reduce non-revenue water by 50% | Reduce overall water consumption by 10% | Notes on Additional Pros/Cons to Consider | Selected for Implementation | If Eliminated, Reason Why Eliminated |
| **Foundational Activities** | | | | | | | | | | | | | | | |
| Meter Testing and Replacement | E | All | X | X | X | X | N/A | N/A | $1,200.00 | X | X | X | | X | |
| Meter Upgrades | E | All | X | X | X | X | N/A | N/A | $600.00 | X | X | X | | X | |
| Identify Unmetered/Unbilled Treated Water Uses | E | All | X | X | X | X | 101.72 | 11.30 | $980.00 | X | X | X | | X | |
| Tracking Water Use by Customer Type | E/P | All | X | X | X | X | N/A | N/A | N/A | X | X | X | | X | |
| Upgrade Billing System to Track Use by Sufficient Customer Types | E | All | X | X | X | X | | | | X | X | X | | | The City's current software (Caselle Clarity) does this and is sufficient for the City's needs |
| Tracking Water Use for Large Customers | E | All | X | X | X | X | 153.62 | 17.07 | N/A | X | X | X | | X | |
| Area of Irrigated Lands in Service Area (e.g. acres) | E/P | CF | X | X | X | X | | | | X | | X | | | The City does not have the available staff time, nor GIS database to develop an irrigated lands map |
| Volumetric Billing | E | SF,MF,G,C | X | X | X | X | 101.72 | 11.30 | $980.00 | X | X | X | | X | |
| Water Rate Adjustments | E/P | SF,MF,G,C | | X | X | X | 179.28 | 22.41 | N/A | X | X | X | | X | |
| Inclining/Tiered Rates | E | SF,MF,G,C | X | X | X | X | 136.83 | 17.10 | N/A | X | X | X | | X | |
| Tap Fees with Water Use Efficiency Incentives | P | SF,MF,G,C | X | X | X | X | 80.51 | 10.06 | N/A | X | | X | | X | |
| System Wide Water Audits | P | All | X | X | X | X | 249.23 | 27.69 | N/A | | | | | X | |
| Control of Apparent Losses (with Metering) | E/P | All | X | X | X | X | 65.45 | 10.91 | N/A | X | X | X | | X | |
| Leak Detection and Repair | E/P | All | X | X | X | X | 233.81 | 33.40 | $5,290.00 | X | X | X | | X | |
| Water Line Replacement Program | E/P | All | X | X | X | X | 341.05 | 56.84 | $120 - $150 (cost per linear foot) | | X | X | | X | |
| Master Plans/Water Supply Plans | E/P | All | X | | X | X | | | | X | X | X | | | The City does not anticipate being able to complete additional master plans within the Planning Period |
| Capital Improvement Plans | E/P | All | X | X | X | X | 0.00 | 0.00 | $50,000 (total project) | X | X | X | | X | |
| **Targeted Technical Assistance and Incentives** | | | | | | | | | | | | | | | |
| Toilet Retrofits | P | CF | X | X | X | X | 1.96 | 0.28 | $140.00 | | | X | | X | |
| Showerhead Retrofits | P | CF | X | X | X | X | 0.14 | 0.02 | $40.00 | | | X | | X | |
| Faucet Retrofits (e.g. aerator installation) | P | CF | X | X | X | X | 3.18 | 0.45 | $110.00 | | | X | | X | |
| Irrigation Equipment Retrofits | P | CF | X | | X | X | 18.41 | 3.68 | $960.00 | | | X | | X | |
| Outdoor Irrigation Controllers | E | SF,MF,G,C | X | X | X | X | 9.21 | 1.84 | $480.00 | | | X | | X | |
| Residential Outdoor Meter Installations | E/P | CF | X | | X | | | | | X | | X | | | The City currently allows, but has seen little increased savings and there is a greater risk of freezing |
| Xeriscape | P | CF | | | X | X | 0.32 | 0.11 | $1.25-2.00/sq.ft | | | X | | X | |
| Other Low Water Use Landscapes | P | CF | X | | X | X | 0.11 | 0.04 | $1.25-2.00/sq.ft | | | X | | X | |
| Raw Water Irrigation of City Parks | E/P | CF | X | X | X | X | | | | | X | | | | The City does not anticipate having a sufficient budget to fully implement a raw water irrigation system for it's golf course, parks, and open spaces, but would like to complete a raw water master plan or raw water system design |
| Commercial Indoor Fixture and Appliance Rebates/Retrofits | P | C | | X | X | X | 27.03 | 6.76 | $710 | | | X | | X | |
| Cooling Equipment Efficiency | P | C | X | | | | | | | | | X | | | There is very limited cooling equipment in Monte Vista |
| Restaurant equipment | P | C | X | X | X | X | | | | | | X | | | Limited opportunities for large scale restaurant upgrades |
| Economic Development Incentives (City website: http://www.cityofmontevista.com/2156/Economic-Development) | E/P | C | X | X | X | X | 9.11 | 0.91 | N/A | X | X | X | | X | |
| Toilet Rebates | P | SF,MF,G,C | X | X | X | X | | | | | | X | | | Too expensive for the City to implement |
| Showerhead Rebates | P | SF,MF,G,C | X | X | X | X | | | | | | X | | | Too expensive for the City to implement |
| Water Efficient Faucet or Aerator Rebates | P | SF,MF,G,C | X | X | X | X | | | | | | X | | | Too expensive for the City to implement |
| Efficient Irrigation Equipment Rebates | P | SF,MF,G,C | X | X | X | X | | | | | | X | | | Too expensive for the City to implement |

# WORKSHEET H - EVALUATION AND SELECTION OF WATER EFFICIENCY ACTIVITIES

| Water Efficiency Activities for Evaluation [1] | Existing/ Potential Activity [2] | Targeted Customer Category [3] | Review of Qualitative Screening | | | | Evaluation | | | | | | | Final Selection [8] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Qualitative Goals [4] | | | | Projected Water Savings [5] | | | Quantitative Goals [7] | | | | | |
| | | | Is it acceptable to the Public? | Implementable from staff level | Can it be implemented in the plan timeframe | Economically viable and cost effective | Total Water Savings | Average Annual Water Savings | Projected Implementation Costs Per Year [6] | 100% metered water service | Reduce non-revenue water by 50% | Reduce overall water consumption by 10% | Notes on Additional Pros/Cons to Consider | Selected for Implementation | If Eliminated, Reason Why Eliminated |
| Giveaways | P | SF,MF,G,C | X | X | X | X | 37.99 | 4.22 | $500.00 | | | X | | X | |
| **Ordinances and Regulations** | | | | | | | | | | | | | | | |
| Water Waste Ordinance (BP 5) | E/P | All | X | X | X | X | 84.85 | 8.48 | N/A | | | X | | X | |
| Time of Day Watering Restriction | P | All | | X | X | | 76.36 | 8.48 | N/A | | | X | | X | |
| Day of Week Watering Restriction | P | All | | X | X | | 67.88 | 8.48 | N/A | | | X | | X | |
| Irrigation System Installer Training and Certification (BP 8) | E/P | All | X | X | X | X | | | | | | X | | | Limited staff time to develop and provide trainings |
| Raw Water Irrigation of Parks and Open Spaces | P | CF | X | X | X | X | 0.00 | 0 | $50,000 (total project) | X | X | X | | X | |
| High Efficiency Fixture and Appliance Replacement (BP 12) | P | All | X | X | | X | | | | | | X | | | Too expensive for the City to implement |
| Commercial Cooling and Process Water Requirements (BP 14) | P | C | X | X | | X | | | | | | X | | | Too expensive for the City to implement |
| Green Building Construction (BP 12) | P | All | X | X | X | | 8.69 | 4.34 | N/A | | | X | | X | |
| Indoor Plumbing Requirements (BP 12) | P | All | X | X | X | X | 13.03 | 4.34 | N/A | | | X | | X | |
| City Facility Requirements (BP 12) | P | CF | | X | X | | 0.07 | 0.01 | N/A | | X | X | | X | |
| Commercial Water Wise Use Regulations (Car Washes, Restaurants, etc.) | P | C | X | X | X | X | 10.58 | 3.53 | N/A | | | X | | X | |
| **Education Activities** | | | | | | | | | | | | | | | |
| Bill Stuffers | E/P | ALL | X | X | X | X | 4.22 | 0.42 | N/A | | | X | | X | |
| Newspaper Articles | E/P | ALL | X | X | X | X | 4.22 | 0.42 | N/A | X | X | X | | X | |
| Mass Mailings | E/P | ALL | X | X | X | X | 4.22 | 0.42 | $3,500.00 | X | X | X | | X | |
| Web Pages | E/P | ALL | X | X | X | X | 4.22 | 0.42 | N/A | X | X | X | | X | |
| Water Fairs | P | ALL | X | X | X | | | | | X | X | X | | | Limited staff time to develop and provide resources |
| K-12 Teacher and Classroom Education Programs | P | ALL | X | X | | | | | | X | X | X | | | Limited staff time to develop and provide trainings |
| Message Development/Campaign | P | ALL | X | X | X | X | 2.95 | 0.42 | N/A | X | X | X | | X | |
| Interactive Websites | E/P | ALL | X | X | X | X | 3.38 | 0.42 | $500.00 | X | X | X | | X | |
| Social Networking (e.g. Facebook) | E/P | ALL | X | X | X | X | 4.22 | 0.42 | N/A | X | X | X | | X | |
| Customer Surveys | P | ALL | X | X | X | X | 2.11 | 0.42 | $500.00 | X | X | X | | X | |
| Focus Groups | P | ALL | X | X | X | X | | | | X | X | X | | | Limited staff time to develop and provide resources |
| Citizen Advisory Boards | P | ALL | X | X | X | | | | | X | X | X | | | Limited staff time to develop and provide resources |
| Customer Water Use Workshops | P | ALL | X | X | X | X | 1.69 | 0.42 | $500.00 | | | X | | X | |
| Xeriscape Demonstration Garden | P | ALL | X | X | | X | 1.27 | 0.42 | $4,000.00 | | | X | | X | |

Instructions:
[1] List of water efficiency activities that were carried to the evaluation process (based upon Worksheets D through G).
[2] Specify whether the activity is "Existing" or "Potential" activity by entering an "E" or "P", respectively.
[3] As applicable, specify which customer category (residential, commercial, etc.) is/would be impacted by the activity.
[4] Enter the screening results from Worksheets D through G by entering the screening criteria and appropriate "X" designations.
[5] As applicable, enter the estimated water savings to implement the activities within the planning horizon and the average annual water savings. Enter N/A if the water savings can not be estimated with reasonable accuracy.
[6] As applicable, enter the estimated annual costs.
[7] Enter evaluation criteria based on quantitative goals developed in Step 3 and insert an "X" for activities that meet the listed criteria.
[8] Enter an "X" for activities selected for implementation and provide an explanation if an activity was not selected for implementation.

# WORKSHEET I - SELECTED WATER EFFICIENCY ACTIVITIES AND ESTIMATED WATER SAVINGS

| Selected Water Efficiency Activities [1] | Implementation Period of Historical Activities [2] | Historical Total Water Savings [3] | Implementation Period of New Activities [4] | Projected Water Savings for Planning Period [5] |
|---|---|---|---|---|
| **Foundational Activities** | | | | |
| Meter Testing and Replacement | 2005-2017 | Unknown | 2018 - 2027 | N/A |
| Meter Upgrades | 2015-2017 | Unknown | 2018 - 2027 | N/A |
| Identify Unmetered/Unbilled Treated Water Uses | N/A | N/A | 2019 - 2027 | 102 |
| Tracking Water Use by Customer Type | N/A | N/A | 2018 - 2027 | N/A |
| Tracking Water Use for Large Customers | N/A | N/A | 2019 - 2027 | 154 |
| Volumetric Billing | 2000-2005 | 770 AF/yr | 2019 - 2027 | 102 |
| Water Rate Adjustments | 2014 | 62 AF/yr | 2020 - 2027 | 179 |
| Inclining/Tiered Rates | 2016 | N/A | 2020 - 2027 | 137 |
| Tap Fees with Water Use Efficiency Incentives | N/A | N/A | 2020 - 2027 | 81 |
| System Wide Water Audits | N/A | N/A | 2019 - 2027 | 249 |
| Control of Apparent Losses (with Metering) | 2017 | N/A | 2022 - 2027 | 65 |
| Leak Detection and Repair | 2005-2017 | Unknown | 2021 - 2027 | 234 |
| Water Line Replacement Program | N/A | N/A | 2022 - 2027 | 341 |
| Capital Improvement Plans | N/A | N/A | 2019 - 2020 | 0 |
| **Targeted Technical Assistance and Incentives** | | | | |
| Toilet Retrofits | N/A | N/A | 2021 - 2027 | 2 |
| Showerhead Retrofits | N/A | N/A | 2021 - 2027 | 0 |
| Faucet Retrofits (e.g. aerator installation) | N/A | N/A | 2021 - 2027 | 3 |
| Xeriscape | N/A | N/A | 2025 - 2027 | 0 |
| Other Low Water Use Landscapes | N/A | N/A | 2025 - 2027 | 0 |
| Irrigation Equipment Retrofits | N/A | N/A | 2023 - 2027 | 18 |
| Outdoor Irrigation Controllers | N/A | N/A | 2023 - 2027 | 9 |
| Commercial Indoor Fixture and Appliance Rebates/Retrofits | N/A | N/A | 2024 - 2027 | 27 |
| Water Use Efficiency Incentives (http://www.cityofmontevista.com/2156/Economic-Development) | 2012 | Unknown | 2018 - 2027 | 9 |
| Giveaways | N/A | N/A | 2019 - 2027 | 38 |
| **Ordinances and Regulations** | | | | |
| Water Waste Ordinance (BP 5) | 2009 | 4 AF/yr | 2018 - 2027 | 85 |
| Time of Day Watering Restriction | 2009 | 0 AF/yr | 2019 - 2027 | 76 |
| Day of Week Watering Restriction | 2009 | 0 AF/yr | 2020 - 2027 | 68 |
| Raw Water Irrigation of Parks and Open Spaces | N/A | N/A | 2023 - 2027 | 0 |
| Green Building Construction (BP 12) | N/A | N/A | 2026 - 2027 | 9 |
| Indoor Plumbing Requirements (BP 12) | N/A | N/A | 2025 - 2027 | 13 |
| City Facility Requirements (BP 12) | N/A | N/A | 2019 - 2027 | 0 |
| Commercial Water Wise Use Regulations (Car Washes, Restaurants, etc.) | N/A | N/A | 2025 - 2027 | 11 |
| **Education Activities** | | | | |
| Bill Stuffers | N/A | N/A | 2018 - 2027 | 4 |
| Newspaper Articles | N/A | N/A | 2018 - 2027 | 4 |
| Mass Mailings | 2010-2017 | Unknown | 2018 - 2027 | 4 |
| Web Pages | 2015-2017 | Unknown | 2018 - 2027 | 4 |
| Message Development/Campaign | N/A | N/A | 2021 - 2022 | 3 |
| Interactive Websites | N/A | N/A | 2020 - 2027 | 3 |
| Social Networking (e.g. Facebook) | 2015-2017 | Unknown | 2018 - 2027 | 4 |
| Customer Surveys | N/A | N/A | 2023 - 2027 | 2 |
| Customer Water Use Workshops | N/A | N/A | 2024 - 2027 | 2 |
| Xeriscape Demonstration Garden | N/A | N/A | 2025 - 2027 | 1 |

Instructions:

[1] Provide the list of water efficiency activities selected for implementation based on Worksheet H.
[2] Include the period of time when historical activities were implemented. For potential activities, include "N/A".
[3] Provide total water savings for historical activities (average annual or total cumulative savings). For potential activities, include "N/A".
[4] Indicate when new activities will be implemented. For existing activities, include "N/A".
[5] Specify potential future water savings for both historical/current and new activities (average annual or total cumulative savings).

# WORKSHEET J - IMPLEMENTATION PLAN

| Selected Water Efficiency Activities [1] | Period of Implementation [2] | Implementation Actions [3] | Milestone Deadlines [4] | Annual Budget ($1,000) [5] | Entity/Staff Responsible for Implementation [6] | Coordination and Public Involvement [7] | Additional Comments [8] |
|---|---|---|---|---|---|---|---|
| **Foundational Activities** | | | | | | | |
| Meter Testing and Replacement | 2018 - 2027 | -Train staff to complete regular reviews of water usage<br>-Respond to customers' calls for meter testing | Semi-annually & as needed each year | $1,200.00 | Public Works Department | N/A | Assumes City replaces 8 meters per year at a unit cost of $150/meter. |
| Meter Upgrades | 2018 - 2027 | -Train staff to complete regular reviews of water usage<br>-Respond to customers' calls for meter testing | Semi-annually & as needed each year | $600.00 | Public Works Department | N/A | Assumes the City upgrades 4 meters per year at a unit cost of $150/meter. |
| Tracking Water Use by Customer Type | 2018 - 2027 | -Train staff to complete regular reviews of water usage | Semi-annually each year | N/A | Public Works Department | N/A | City staff will review monthly water usage by individual customers twice a year to track large water users, abnormal usage, and total usage by customer type |
| Identify Unmetered/Unbilled Treated Water Uses | 2019 - 2027 | -Identify flat rate customers & unmetered parks<br>-Secure additional funding<br>-Work with customers to install meters | 2018 - identify all unmetered services | $980.00 | Public Works Department | N/A | City staff's Planning Period is to work with unmetered customers to install approximately 50 residential meters, 3 commercial meters, and 4 meters at its parks over a total of 9 years. |
| Tracking Water Use for Large Customers | 2019 - 2027 | -Train staff to complete regular reviews of water usage | Semi-annually each year | N/A | Public Works Department | N/A | City staff will review monthly water usage by individual customers twice a year to track large water users, abnormal usage, and total usage by customer type |
| Volumetric Billing of Previously Unmetered Customers | 2019 - 2027 | -Train staff to complete regular reviews of water usage<br>-Work with unmetered customers to install meters | Semi-annually each year | $980.00 | Public Works Department | N/A | City staff's Planning Period is to work with unmetered customers to install approximately 50 residential meters, 3 commercial meters, and 4 meters at its parks over a total of 9 years. |
| Capital Improvement Plan | 2019 - 2020 | -Apply for funding | Apply for DOLA grant mid-2019 | $50,000 (total project) | City Manager | Notification through educational activities | City desires to complete a comprehensive water and wastewater Capital Improvement Project including a systems inventory, leak detection survey, prioritization of systems improvements, and rate studies. |
| System Wide Water Audit | 2019 - 2027 | -Download and use the free AWWA system-wide audit software | April of each year | N/A | Public Works Director | N/A | Goal will be to complete the previous year's water system audit by the subsequent April. |
| Water Rate Adjustments | 2020 - 2027 | -Rely on CIP Project rate study information from CIP<br>-Work with City Council to approve water rate adjustments | End of 2020 | N/A | Public Works Director, City Manager, City Council | Notification through educational activities, and City Council meetings | City staff envision a gradual increase of water rates over a five-year ramp up period. |
| Inclining/Tiered Rates | 2020 - 2027 | -Rely on CIP Project rate study information from CIP<br>-Work with City Council to approve tiered rate adjustments | End of 2020 | N/A | Public Works Director, City Manager, City Council | Notification through educational activities, and City Council meetings | City staff envision a gradual adjustment of tiered rates over a five-year ramp up period. |
| Tap Fees with Water Use Efficiency Incentives (http://www.cityofmontevista.com/2156/Economic-Development) | 2020 - 2027 | -Rely on CIP Project rate study information from CIP<br>-Work with City Council to approve tap fee changes<br>-Work with City Council to approve water use efficiency incentives | End of 2020 | N/A | Public Works Director, City Manager, City Council | Notification through educational activities, and City Council meetings | City staff would like to revisit the Economic Development Assistance Program water use efficiency quantification incentives. |
| Leak Detection and Repair | 2021 - 2027 | -Rely on CIP Project to focus leak repair program<br>-Secure funding | End of 2021 | $5,290.00 | Public Works Department, City Manager | Notification through educational activities | City staff will use the information collected and tabulated in the CIP study to strategically begin fixing largest leaks within its water system. |
| Water Line Replacement Program | 2022 - 2027 | -Rely on CIP Project to focus water line replacement program<br>-Secure funding | End of 2022 | $120 - $150(cost per linear foot) | Public Works Department, City Manager | Notification through educational activities | City staff will use the information collected and tabulated in the CIP study to strategically begin fixing water lines in the worst condition within the City. |
| Control of Apparent Losses (with Metering) | 2022 - 2027 | -Rely on CIP Project to focus water meter replacement/installation program<br>-Secure funding | End of 2022 | N/A | Public Works Department | Notification through educational activities | City staff will use the information collected and tabulated in the CIP study to strategically begin adding or replacing water meters within the City. |
| **Targeted Technical Assistance and Incentives** | | | | | | | |
| Update City's Economic Development Assistance Program website: (http://www.cityofmontevista.com/2156/Economic-Development) | 2018 - 2027 | -Rely on CIP Project rate study information from CIP<br>-Work with City Council to develop water use efficiency quantification incentives into the existing Economic Development Assistance Program | End of 2018 | N/A | Public Works Director, City Manager, City Council, I.T. Department | Notification through educational activities, and City Council meetings | City staff would like to incorporate defined water use efficiency quantification incentives into the existing Economic Development Assistance Program. |
| Giveaways | 2019 - 2027 | -Secure funding<br>-City staff will research and purchase cost-effective and simple to install fixture retrofits | March of each year | $500.00 | Public Works Department | Notification through educational activities | City staff envision providing its single family and multi-family customers with various indoor fixture retrofit items, and will track which users take fixtures. |
| Faucet Retrofits (e.g. aerator installation) | 2021 - 2027 | -Secure funding<br>-City staff will prioritize City facilities that would most benefit from faucet retrofits<br>-City staff will purchase and install fixtures | End of each year | $110.00 | Public Works Department | N/A | City staff will research, purchase, and install the desired fixtures in the various City facilities (up to its annual budget) |
| Toilet Retrofits | 2021 - 2027 | -Secure funding<br>-City staff will prioritize City facilities that would most benefit from toilet retrofits<br>-City staff will purchase and install fixtures | End of each year | $140.00 | Public Works Department | N/A | City staff will research, purchase, and install the desired fixtures in the various City facilities (up to its annual budget) |
| Showerhead Retrofits | 2021 - 2027 | -Secure funding<br>-City staff will prioritize City facilities that would most benefit from showerhead retrofits<br>-City staff will purchase and install fixtures | End of each year | $40.00 | Public Works Department | N/A | City staff will research, purchase, and install the desired fixtures in the various City facilities (up to its annual budget) |
| Irrigation Equipment Retrofits | 2023 - 2027 | -Secure funding<br>-City staff will prioritize City facilities that would most benefit from irrigation controller/equipment retrofits<br>-City staff will purchase and install devices | April of each year | $960.00 | Public Works Department | N/A | City staff will research, purchase, and install the desired equipment in the various City facilities (up to its annual budget) |
| Outdoor Irrigation Controllers | 2023 - 2027 | -Secure funding<br>-Identify and work with largest non-City irrigation users<br>-Staff will purchase replacement outdoor irrigation controllers and install devices | April of each year | $480.00 | Public Works Department | N/A | City staff will research, purchase, and install a compatible outdoor irrigation controller at its largest non-City outdoor irrigation users (up to its annual budget) |
| Commercial Indoor Fixture and Appliance Rebates/Retrofits | 2023 - 2027 | -Secure funding<br>-Identify and work with largest non-City indoor users<br>-Staff will purchase replacement fixtures and install devices | End of each year | $710.00 | Public Works Department | Public Works Department will contact largest indoor water users | City staff will research, purchase, and install effective indoor fixture replacement/retrofit devices at its largest non-City indoor water users (up to its annual budget) |
| Xeriscape | 2025 - 2027 | -Secure funding<br>-City staff will research effective Colorado xeriscape demonstration gardens<br>-City staff will work with local landscapers & nurseries to design and install garden in Chapman Park | Fall 2025 | $3,000.00 | Public Works Department | Notification through educational activities, and City Council meetings | City staff desire to have a mixed 2,000 S.F. xeriscape and low water use landscape garden at Chapman Park, City will install plant and water use signage at demonstration garden to educate the public |
| Other Low Water Use Landscapes | 2025 - 2027 | -Secure funding<br>-City staff will research effective Colorado low water use landscape demonstration gardens<br>-City staff will work with local landscapers & nurseries to design and install garden in Chapman Park | Fall 2025 | $1,000.00 | Public Works Department | Notification through educational activities, and City Council meetings | City staff desire to have a mixed 2,000 S.F. xeriscape and low water use landscape garden at Chapman Park, City will install plant and water use signage at demonstration garden to educate the public |

# WORKSHEET J - IMPLEMENTATION PLAN

| Selected Water Efficiency Activities [1] | Period of Implementation [2] | Implementation Actions [3] | Milestone Deadlines [4] | Annual Budget ($1,000) [5] | Entity/Staff Responsible for Implementation [6] | Coordination and Public Involvement [7] | Additional Comments [8] |
|---|---|---|---|---|---|---|---|
| **Ordinances and Regulations** | | | | | | | |
| Water Waste Ordinance (BP 5) | 2018 - 2027 | -City hire a Code Enforcement Officer<br>-Increased observance of ordinance violations when City staff are collecting meter reads and traveling through City | End of 2018 | N/A | Code Enforcement Officer, Public Works Department | Notification through educational activities, and City Council meetings | City staff have limited time for field observations and coordination with the Code Enforcement Officer, but desire to increase enforcement during working hours when possible while completing normal tasks. |
| Time of Day Watering Restriction | 2019 - 2027 | -Work with City Council to approve ordinance<br>-Educate and inform customers<br>-City hire a Code Enforcement Officer | End of 2019 | N/A | Code Enforcement Officer, Public Works Director, City Manager, City Council | Notification through educational activities, and City Council meetings | City staff have limited time for field observations and coordination with the Code Enforcement Officer, but desire to increase enforcement during working hours when possible while completing normal tasks. |
| City Facility Requirements (BP 12) | 2019 - 2027 | -Work with City Council to approve ordinance<br>-Educate and inform customers<br>-City staff begin enactment of ordinance | End of 2019 | N/A | Code Enforcement Officer, Public Works Director, City Manager, City Council | Notification through educational activities, and City Council meetings | When City staff need to replace indoor fixtures and/or outdoor equipment, they will select EPA WaterSense labeled products after ordinance has been adopted. |
| Day of Week Watering Restriction | 2020 - 2027 | -Work with City Council to approve ordinance<br>-Educate and inform customers<br>-City hire a Code Enforcement Officer | April of 2020 | N/A | Code Enforcement Officer, Public Works Director, City Manager, City Council | Notification through educational activities, and City Council meetings | City staff have limited time for field observations and coordination with the Code Enforcement Officer, but desire to increase enforcement during working hours when possible while completing normal tasks. |
| Raw Water Irrigation of Parks and Open Spaces | 2023 - 2027 | -Secure funding<br>-Work with City Council to approve ordinance<br>-Educate and inform customers<br>-Initiate a Raw Water Irrigation Master Plan and Preliminary Design Project | End of 2023 | $50,000 (total project) | Code Enforcement Officer, Public Works Director, City Manager, City Council | Notification through educational activities, and City Council meetings | The further development of the City's Raw Water Irrigation system will likely begin after the 2018 through 2027 Planning Period, but City staff want to develop a Raw Water Irrigation Master Plan and implementation timeline |
| Indoor Plumbing Requirements (BP 12) | 2025 - 2027 | -Work with City Council to approve ordinance<br>-Educate and inform customers<br>-City hire a Code Enforcement Officer | End of 2025 | N/A | Code Enforcement Officer, Public Works Director, City Manager, City Council, Rio Grande County Building Inspector | Notification through educational activities, and City Council meetings | The general basis of the proposed future ordinance will be to require all new construction within the City install indoor fixtures that are EPA WaterSense labeled products after ordinance has been adopted. |
| Commercial Water Wise Use Regulations (Car Washes, Restaurants, etc.) | 2025 - 2027 | -Work with City Council to approve ordinance<br>-Educate and inform customers<br>-City hire a Code Enforcement Officer | End of 2025 | N/A | Code Enforcement Officer, Public Works Director, City Manager, City Council, Rio Grande County Building Inspector | Notification through educational activities, and City Council meetings | The general basis of the proposed future ordinance will be to require that as commercial customers replace water devices (either proactively or as they are found to be faulty) they install water efficient indoor fixtures, appliances and outdoor equipment with EPA WaterSense labeled products after ordinance has been adopted. |
| Green Building Construction (BP 12) | 2026 - 2027 | -Work with City Council to approve ordinance<br>-Educate and inform customers<br>-City hire a Code Enforcement Officer | End of 2026 | N/A | Code Enforcement Officer, Public Works Director, City Manager, City Council, Rio Grande County Building Inspector | Notification through educational activities, and City Council meetings | The general basis of the proposed future ordinance will be to require all new construction within the City installed outdoor equipment that is EPA WaterSense labeled products after ordinance has been adopted. |
| **Education Activities** | | | | | | | |
| Bill Stuffers | 2018 - 2027 | -Include water efficiency tips and resources on its monthly water bills | August of 2018 | N/A | Public Works Department | N/A | City staff desire to provide monthly tips/resources to its customers with its existing monthly water bill. |
| Newspaper Articles | 2018 - 2027 | -Prepare a bi-annual water efficiency article for the Monte Vista Journal's editorial section of the paper | April and October each year | N/A | Public Works Department, City Manager | N/A | City staff will use the Monte Vista Journal to convey water efficiency tips and resources to its customers twice a year. |
| Mass Mailings | 2018 - 2027 | -Include water efficiency tips and resources on its annual CCR Report | October each year | $3,500.00 | Public Works Department, City Manager | N/A | City staff desire to provide monthly tips/resources to its customers with its annual Customer Confidence Rule Report. |
| Social Networking (e.g. Facebook) | 2018 - 2027 | -Regularly engage and inform the Public of water efficiency activities, tips, resources, and public involvement opportunities through existing social media platforms | Goal of quarterly, but may be more | N/A | Public Works Department, City Manager | Possible feedback through social media platforms | City staff will use existing social media platforms to inform its customers, engage participation in various activities, and notify customers of updated educational tips/resources. |
| Update City's Water Efficiency Website (www.cityofmontevista.com/2161/Water-Rates) | 2018 - 2027 | -Add water efficiency resources, links, and tips to a more prominent portion of the City's website | October of 2018 | N/A | Public Works Director, City Manager, I.T. Department | Use educational activities to update customers | City staff anticipate notifying customers of the updated website via monthly water bills, annual CCR Reports, newspaper articles, and existing social network platforms. |
| Interactive Websites | 2020 - 2027 | -Secure funding<br>-Add interactive water efficiency resources to the City's website | April of 2020 | $500.00 | Public Works Director, City Manager, I.T. Department | Use educational activities to update customers | City staff anticipate notifying customers of the updated website (links to water savings calculators, kids games, quizzes, etc.) via monthly water bills, annual CCR Reports, newspaper articles, and existing social network platforms. |
| Message Development/Campaign | 2021 - 2022 | -Identify key stakeholders<br>-Advertise message development campaign with customers<br>-Develop an effective and positive water efficiency message development campaign | Initiate mid-2021 | N/A | Public Works Director, City Manager, City Council | Use educational activities to engage stakeholders | City staff desire to develop a effective and positive message/logo/plan to facilitate a grassroots effort to embrace water efficiency within the City. |
| Customer Surveys | 2023 - 2027 | -Secure funding<br>-Develop water efficiency baseline questions<br>-Select electronic platform<br>-Advertise educational activity | Initiate mid-2023 | $500.00 | Public Works Director, City Manager | Use educational activities to engage stakeholders | City staff desire to complete a baseline survey of the City's desire for and amount of water efficiency activities within individual homes/businesses, and anticipate completing a follow-up survey every other year. |
| Customer Water Use Workshops | 2024 - 2027 | -Secure funding<br>-Develop water efficiency curriculum/handouts<br>-Research desirable times and locations<br>-Advertise educational activity | Initiate mid-2024 | $500.00 | Public Works Director, City Manager | Use educational activities to engage stakeholders | City staff desire to provide a bi-annual workshop to provide customers with educational water efficiency opportunities on a variety of topics. |
| Xeriscape Demonstration Garden | 2025 - 2027 | -Secure funding<br>-City staff will research effective Colorado xeriscape/low water landscaping demonstration gardens<br>-City staff will work with local landscapers & nurseries to design and install garden in Chapman Park | Fall 2025 | $4,000.00 | Public Works Department | Notification through educational activities, and City Council meetings | City staff desire to have a mixed 2,000 S.F. xeriscape and low water use landscape garden at Chapman Park, City will install plant and water use signage at demonstration garden to educate the public |

Instructions:
[1] Provide the list of water efficiency activities selected for implementation during Step 4.
[2] Provide period in which activity is going to be implemented.
[3] Include information on specific actions necessary to implement the activities (e.g. advertise rebates to public).
[4] Indicate timing of when the action are scheduled to be implemented (e.g. when leaks will be repaired, when rebate program will start, etc.).
[5] Insert anticipated annual costs.
[6] Specify which entity/staff responsible for implementing the activities.
[7] If applicable, comment on necessary coordination among staff/other entities and how the public will be involved. This includes educational campaigns, feedback, direct participation in certain actions, etc.
[8] Add any additional comments.

# WORKSHEET K - SELECTION OF MONITORING DEMAND DATA FOR MONITORING PLAN

| Monitoring Data [1] | HB 10-1051 Reporting | | | | Selection | | | | Entity/Staff Responsible for Data Collection and Evaluation [4] | Schedule/Timing of Monitoring [5] | Comments [6] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Annual | Monthly | Bi-Monthly | Daily | Annual | Monthly | Bi-Monthly | Daily | | | |
| **Total Water Use** | | | | | | | | | | | |
| Total treated water produced (metered at individual wells) | | | | | | | | X | Public Works Department | Consistent time each day | City staff collect daily well meter readings |
| Total treated water delivered (sum of customer meters) | X | | | | | X | | | Public Works Department | Between 15th and 20th of each month | Four staff collect monthly meter readings over 4 days |
| Raw water for irrigation produced | | | | | | X | | | Public Works Department | Consistent day/time each month | City staff collect monthly irrigation well meter readings |
| Per capita water use | | | | | X | | | | Public Works Department | Late winter/early spring | System-wide delivery divided by population |
| Indoor and outdoor treated water deliveries | | | | | | X | | | Public Works Department | Late winter/early spring | Currently done for sub-metered customers |
| Treated water peak day produced | | | | | | | | X | Public Works Department | Late winter/early spring | Currently done on a daily basis for City's confined wells |
| Non-revenue water | X | | | | | X | | | Public Works Department | Late winter/early spring | Calculated as the difference between the metered produced water and the metered delivered water |
| **Water Use by Customer Type** | | | | | | | | | | | |
| Treated water delivered | | X | | | | X | | | Public Works Department | Between 15th and 20th of each month | Four staff collect monthly meter readings over 4 days |
| Raw non-potable deliveries | | | | | | X | | | Public Works Department | Consistent day/time each month | City staff collect monthly irrigation well meter readings |
| Residential per capita water use | | | | | X | | | | Public Works Department | Late winter/early spring | SF & MF residential deliveries divided by population |
| Unit water use (e.g. AF/account or AF/irrigated acre) | | | | | | X | | | Public Works Department | Late winter/early spring | City staff will calculate the total volume used by customer on an annual gallons and AF basis |
| Indoor and outdoor treated water deliveries | | | | | | X | | | Public Works Department | Late winter/early spring | Currently done for sub-metered customers |
| Large users | | | | | | X | | | Public Works Department | Late winter/early spring | City staff will rank each customer to determine its largest users as well as largest users within each customer category |
| **Other Demand Related Data** | | | | | | | | | | | |
| Irrigated landscape (e.g. AF/acre or number of irrigated acres) | | | | | X | | | | Public Works Department | Late winter/early spring | City staff will summarize the irrigation of all City parks, open spaces, and the golf course on an AF/year basis, and will calculate the irrigation rate (AF/acre) based upon the irrigated acres per location |
| Precipitation | | | | | | X | | | Public Works Department | Late winter/early spring | City staff will being storing the previous year's monthly precipitation amounts from nearby climate stations [WRCC Station No: 055706 - http://wrcc.dri.edu/coopmap] |
| Temperature | | | | | | X | | | Public Works Department | Late winter/early spring | City staff will being storing the previous year's monthly average temperature from nearby climate stations [WRCC Station No: 055706 - http://wrcc.dri.edu/coopmap] |
| Population | | | | | X | | | | Public Works Department | Late winter/early spring | City staff will collect previous year's estimate from DOLA |
| New taps | | | | | X | | | | Public Works Department | Late winter/early spring | City staff will track new taps and incorporate into ongoing monitoring |

Instructions:
[1] This worksheets provides a list of possible demand data. Add additional demand data provider would like to monitor.
[2] Specifies annual reporting requirements per HB 10-1051.
[3] Select demand data provider plans to use to monitor effectiveness of water efficiency activities by inserting an "X" in appropriate boxes.
[4] Specify staff/entity responsible for data collection and evaluation.
[5] Specify the timing and/or set schedule in which data will be collected and evaluated.
[6] Add any additional comments.

# WORKSHEET L - MONITORING PLAN

| Selected Water Efficiency Activities [1] | Customer Category Impacted [2] | Demand Monitoring Data [3] | | | | | | Other Monitoring Data [5] | | | | | | | | Entity/Staff Responsible for Data Collection and Evaluation [6] | Schedule/ Timing of Monitoring [7] | Comments [8] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Total treated water produced | Total treated water delivered | Raw water for irrigation produced | Monthly Individual Customer Usage | Per capita water use | Non-revenue water | Description of Parameter(s) to Record [4] | Annual costs | Lessons learned | Water saving estimates | Administration data | Relevant public feedback | Records of significant changes | | | | |
| **Foundational Activities** | | | | | | | | | | | | | | | | | | |
| Meter Testing and Replacement | All | X | X | X | X | | | Monthly meter readings | X | X | X | | | | | Public Works Department | Semi-annually | City staff should look for abnormally low water use records |
| Meter Upgrades | All | X | X | X | X | | | Monthly meter readings | X | X | X | | | | | Public Works Department | Semi-annually | City staff should look for abnormally low water use records |
| Tracking Water Use by Customer Type | All | | X | | X | X | X | Monthly metered usage | | X | X | | | | | Public Works Department | Semi-annually | City should track monthly water use for all customer types |
| Identify Unmetered/Unbilled Treated Water Uses | All | | | | X | | X | Identify all Flat Rat customers | | X | X | X | X | | | Public Works Department | July 2018 | City should identify all remaining unmetered customers and parks |
| Tracking Water Use for Large Customers | All | | X | | X | X | | Monthly metered usage | | X | X | | | | | Public Works Department | Semi-annually | City should track monthly water use for large customers |
| Volumetric Billing of Previously Unmetered Customers | SF,MF,C | | X | | X | X | X | Monthly metered usage | X | X | X | X | X | X | | Public Works Department | Semi-annually once metered | City should track monthly water use for all newly metered customers |
| Capital Improvement Plan | All | X | X | X | X | X | X | All produced & delivered water | X | X | X | | X | X | | Public Works Department | Semi-annually after plan completion | City should prepare to compare pre-CIP and post-CIP water usage |
| System Wide Water Audit | All | X | X | X | | X | X | All data necessary for AWWA software | | X | X | X | | X | | Public Works Department | April of each year | City will use free AWWA System-wide audit software |
| Water Rate Adjustments | SF,MF,G,C | X | X | X | X | X | X | All produced & delivered water | | X | X | X | X | X | | Public Works Department | Annually (winter/spring) | City will track total water usage by customer type & GPCDs with new water rates |
| Inclining/Tiered Rates | SF,MF,G,C | X | X | X | X | X | X | All produced & delivered water | | X | X | X | X | X | | Public Works Department | Annually (winter/spring) | City will track total water usage by customer type & GPCDs with new tiered rates |
| Tap Fees with Water Use Efficiency Incentives (http://www.cityofmontevista.com/2156/Economic-Development) | SF,MF,G,C | | X | | X | X | | Monthly metered usage for new customers | X | X | X | X | X | | | Public Works Department | Annually (winter/spring) | City will track new efficient customer usage each year |
| Leak Detection and Repair | All | X | X | X | | X | X | All produced & delivered water | X | X | X | X | X | X | | Public Works Department | Annually (winter/spring) | City will compare usage or Non-Revenue water after repairing significant leaks |
| Water Line Replacement Program | All | X | X | X | | X | X | All produced & delivered water | X | X | X | X | X | X | | Public Works Department | Annually (winter/spring) | City will compare usage or Non-Revenue water after replacing sections of water line |
| Control of Apparent Losses (with Metering) | All | | X | | X | X | X | Monthly metered usage | X | X | X | X | X | X | | Public Works Department | Semi-annually once metered | City should track monthly water use for all new meters |
| **Targeted Technical Assistance and Incentives** | | | | | | | | | | | | | | | | | | |
| Toilet Retrofits | CF | X | X | | X | | X | Monthly metered usage for updated City facilities | X | X | X | X | X | X | | Public Works Department | Semi-annually | City should note timing of fixture installation and changes in future use amounts |
| Showerhead Retrofits | CF | X | X | | X | | X | Monthly metered usage for updated City facilities | X | X | X | X | X | X | | Public Works Department | Semi-annually | City should note timing of fixture installation and changes in future use amounts |
| Faucet Retrofits (e.g. aerator installation) | CF | X | X | | X | | X | Monthly metered usage for updated City facilities | X | X | X | X | X | X | | Public Works Department | Semi-annually | City should note timing of fixture installation and changes in future use amounts |
| Xeriscape | CF | X | X | X | | | X | Monthly metered usage for updated City facilities | X | X | X | X | X | X | | Public Works Department | Semi-annually | City should note timing of garden construction and changes in future use amounts |
| Other Low Water Use Landscapes | CF | X | X | X | | | X | Monthly metered usage for updated City facilities | X | X | X | X | X | X | | Public Works Department | Semi-annually | City should note timing of garden construction and changes in future use amounts |
| Irrigation Equipment Retrofits | CF | X | X | X | | | X | Monthly metered usage for updated City facilities | X | X | X | X | X | X | | Public Works Department | Semi-annually | City should note timing of device installation and changes in future use amounts |
| Outdoor Irrigation Controllers | SF,MF,G,C | X | X | | X | | X | Monthly metered usage for affected customers | X | X | X | X | X | X | | Public Works Department | Semi-annually | City should note timing of device installation and changes in future use amounts |
| Commercial Indoor Fixture and Appliance Rebates/Retrofits | C | X | X | | X | | X | Monthly metered usage for affected customers | X | X | X | X | X | X | | Public Works Department | Semi-annually | City should note timing of device installation and changes in future use amounts |
| Water Use Efficiency Incentives (http://www.cityofmontevista.com/2156/Economic-Development) | SF,MF,G,C | X | X | | X | X | X | Monthly metered usage for affected customers | X | X | X | X | X | X | | Public Works Department | Annually (winter/spring) | City should review new water efficient customers total water use annually and compare to similar non-efficient water users |
| Giveaways | SF,MF,G,C | X | X | | X | X | X | Monthly metered usage for affected customers | X | X | X | X | X | X | | Public Works Department | Semi-annually | City should note timing of device installation and changes in future use |
| **Ordinances and Regulations** | | | | | | | | | | | | | | | | | | |
| Water Waste Ordinance (BP 5) | All | X | X | | X | X | X | All produced & delivered water | | X | X | X | X | X | | Public Works Department | Semi-annually | City should note timing of increased enforcement and changes in future use |
| Time of Day Watering Restriction | All | X | X | | X | X | X | All produced & delivered water | | X | X | X | X | X | | Public Works Department | Semi-annually | City should note beginning of enforcement and changes in future use |
| Day of Week Watering Restriction | All | X | X | | X | X | X | All produced & delivered water | | X | X | X | X | X | | Public Works Department | Semi-annually | City should note beginning of enforcement and changes in future use |
| Raw Water Irrigation of Parks and Open Spaces | CF | X | X | X | X | X | X | Monthly raw water production for irrigation | | X | X | X | X | X | | Public Works Department | Semi-annually | City should note beginning of raw water system development and reduction in potable water production and delivery |
| Green Building Construction (BP 12) | SF,MF,G,C | X | X | | X | X | X | All produced & delivered water | | X | X | X | X | X | | Public Works Department | Semi-annually | City should note beginning of ordinance implementation and compare new water efficient customers total water use annually and to similar non-efficient water users |
| Indoor Plumbing Requirements (BP 12) | SF,MF,G,C | X | X | | X | X | X | All produced & delivered water | | X | X | X | X | X | | Public Works Department | Semi-annually | City should note beginning of ordinance implementation and compare new water efficient customers total water use annually and to similar non-efficient water users |
| City Facility Requirements (BP 12) | CF | X | X | X | X | X | X | All produced & delivered water (potable & raw) | | X | X | X | X | X | | Public Works Department | Semi-annually | City should note beginning of ordinance implementation and compare to the previous year's usage |
| Commercial Water Wise Use Regulations(Car Washes, Restaurants, | C | X | X | | X | X | X | All produced & delivered water | | X | X | X | X | X | | Public Works Department | Semi-annually | City should note beginning of ordinance implementation and compare to the previous year's usage |
| **Education Activities** | | | | | | | | | | | | | | | | | | |
| Bill Stuffers | All | | | | X | X | | Monthly metered usage and annual GPCD | X | X | X | X | X | | | Public Works Department | Monthly | City should make a record of each month's water bill tips, feedback, and relevant observations |
| Newspaper Articles | All | | | | X | X | | Monthly metered usage and annual GPCD | X | X | X | X | X | | | Public Works Department | Semi-annually | City should save a PDF copy of article, feedback, and relevant observations |
| Mass Mailings | All | | | | X | X | | Monthly metered usage and annual GPCD | X | X | X | X | X | | | Public Works Department | Annual | City should save a PDF copy of CCR, feedback, and relevant observations |
| Web Pages | All | | | | X | X | | Monthly metered usage and annual GPCD | X | X | X | X | X | | | Public Works Department | Update by October 2018 | City should work with I.T. Department to see if they can track the number of times visited |
| Message Development/Campaign | All | | | | X | X | | Monthly metered usage and annual GPCD | X | X | X | X | X | | | Public Works Department | Initiate mid-2021 (monthly/quarterly meetings) | City should keep an electronic copy of agendas, notes, volunteers, and decisions made |
| Interactive Websites | All | | | | X | X | | Monthly metered usage and annual GPCD | X | X | X | X | X | | | Public Works Department | April of 2020 | City should work with I.T. Department to see if they can track the number of times visited |
| Social Networking (e.g. Facebook) | All | | | | X | X | | Monthly metered usage and annual GPCD | X | X | X | X | X | | | Public Works Department | Quarterly | City should save list of posts, feedback, and relevant observations |
| Customer Surveys | All | | | | X | X | | Monthly metered usage and annual GPCD | X | X | X | X | X | | | Public Works Department | Initiate mid-2023 | City should save PDF of blank survey, tabulated results, feedback, lessons learned, and goals |
| Customer Water Use Workshops | All | | | | X | X | | Monthly metered usage and annual GPCD | X | X | X | X | X | | | Public Works Department | Initiate mid-2024 | City should track participants, customer type, questions, feedback, and lessons learned |
| Xeriscape Demonstration Garden | All | X | X | X | X | X | | All produced & delivered irrigation water, annual GPCD | X | X | X | X | X | X | | Public Works Department | Fall 2025 | City should track annual water use at Chapman Park, public feedback, and lessons learned |

Instructions:
[1] Provide the list of water efficiency activities selected for implementation during Step 4.
[2] As applicable, specify which customer category (Residential, Commercial, etc.) is/would be impacted by the activity.
[3] Enter type of demand data selected in Worksheet K (e.g. total annual treated water delivered or monthly treated water delivered by customer type). Enter an "X" for each activity that will be monitored by the respective demand data type.
[4] If applicable, enter description of parameters to record for each activity (e.g. number of workshops, fixture/meter replacements, rebates and audits; acres of xeriscape; and length of pipeline replaced).
[5] Select other data to be collected for monitoring of each activity by inserting an "X" in appropriate boxes.
[6] Specify staff/entity responsible for data collection and evaluation.
[7] Specify the timing and/or schedule in which data will be collected and evaluated.
[8] Add any additional comments.

# WORKSHEET M - ANNUAL DEMAND TRACKING SHEET

| Demand Tracking Data [1] | Month [2] | | | | | | | | | | | | Annual [3] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | January | February | March | April | May | June | July | August | September | October | November | December | |
| **Total Water Production (AF) - Adjusted to match metered usage periods** | | | | | | | | | | | | | |
| Well 1 (Batterson) | | | | | | | | | | | | | 0 |
| Well 2 (Jackson) | | | | | | | | | | | | | 0 |
| Well 3 (Broadway) | | | | | | | | | | | | | 0 |
| Well 4 (Sherman) | | | | | | | | | | | | | 0 |
| Well 8 (Prospect) | | | | | | | | | | | | | 0 |
| Peak Daily Potable Demand (MGD) | | | | | | | | | | | | | |
| Unconfined Aquifer Raw Water for Irrigation (Well No. 5) | | | | | | | | | | | | | 0 |
| Unconfined Aquifer Raw Water for Irrigation (Well No. 6) | | | | | | | | | | | | | 0 |
| Unconfined Aquifer Raw Water for Irrigation (Well No. 7) | | | | | | | | | | | | | 0 |
| Other Raw Water Supplies for Irrigation | | | | | | | | | | | | | 0 |
| **Water Use by Customer Category - Measured between the 15th and 20th of each month** | | | | | | | | | | | | | |
| Single Family Residential | | | | | | | | | | | | | 0 |
| Multi-Family Residential | | | | | | | | | | | | | 0 |
| City Facilities (Non-billed) | | | | | | | | | | | | | 0 |
| Governmental | | | | | | | | | | | | | 0 |
| Commercial | | | | | | | | | | | | | 0 |
| Non-Revenue Water | | | | | | | | | | | | | 0 |
| Raw Water Delivered for Irrigation | | | | | | | | | | | | | 0 |
| **Other Demand Related Data** | | | | | | | | | | | | | |
| Total Monthly Precipitation (Inches) | | | | | | | | | | | | | 0 |
| Average Monthly Temperature | | | | | | | | | | | | | |
| Population | | | | | | | | | | | | | #DIV/0! |
| Single Family Residential Customers (taps) | | | | | | | | | | | | | #DIV/0! |
| Multi-Family Residential Customers (taps) | | | | | | | | | | | | | #DIV/0! |
| City Facilities (taps) | | | | | | | | | | | | | #DIV/0! |
| Governmental Customers (taps) | | | | | | | | | | | | | #DIV/0! |
| Commercial Customers (taps) | | | | | | | | | | | | | #DIV/0! |
| Flat Rate Customers (total across all customers) | | | | | | | | | | | | | 0 |

Instructions:

This worksheet may be used on an annual basis to record demand data used to monitor the effectiveness of individual water efficiency activities.

[1] Enter demand data used to monitor the effectiveness of the water efficiency plan.

[2] Enter monthly demands.

[3] Insert total annual demands.

# ATTACHMENTS

Report for City of Monte Vista Water Efficiency Plan Survey.

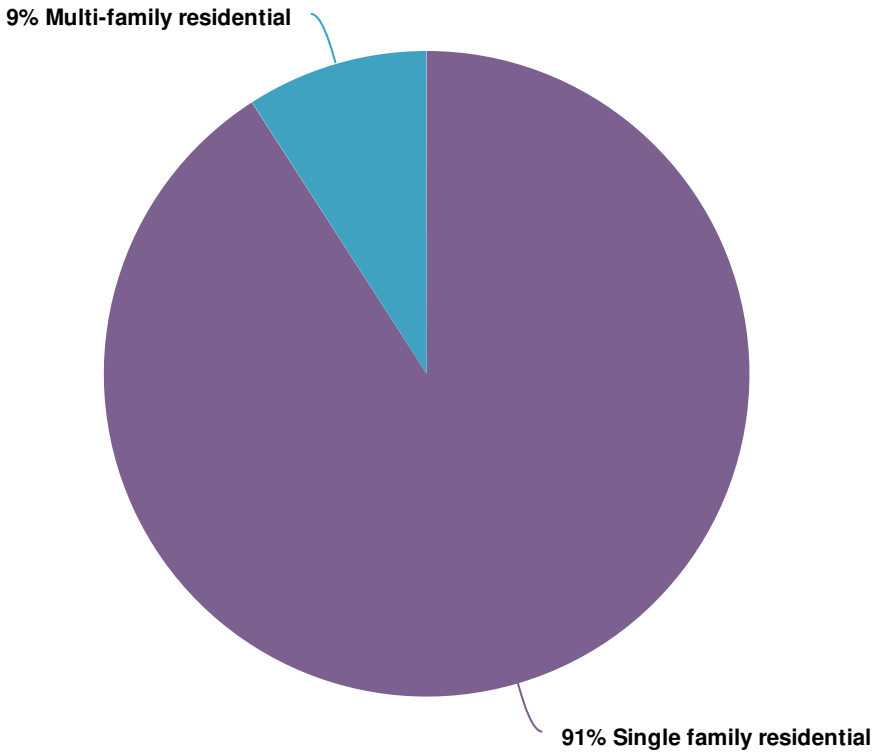
# Report for City of Monte Vista Water Efficiency Plan Survey

## Response Counts

| | | | |
|---|---|---|---|
| **Completion Rate:** | **64.3%** | | |
| | Complete | | 9 |
| | Partial | | 5 |

**Totals: 14**

1. Please identify what type of water customer best describes you and/or your place of business:

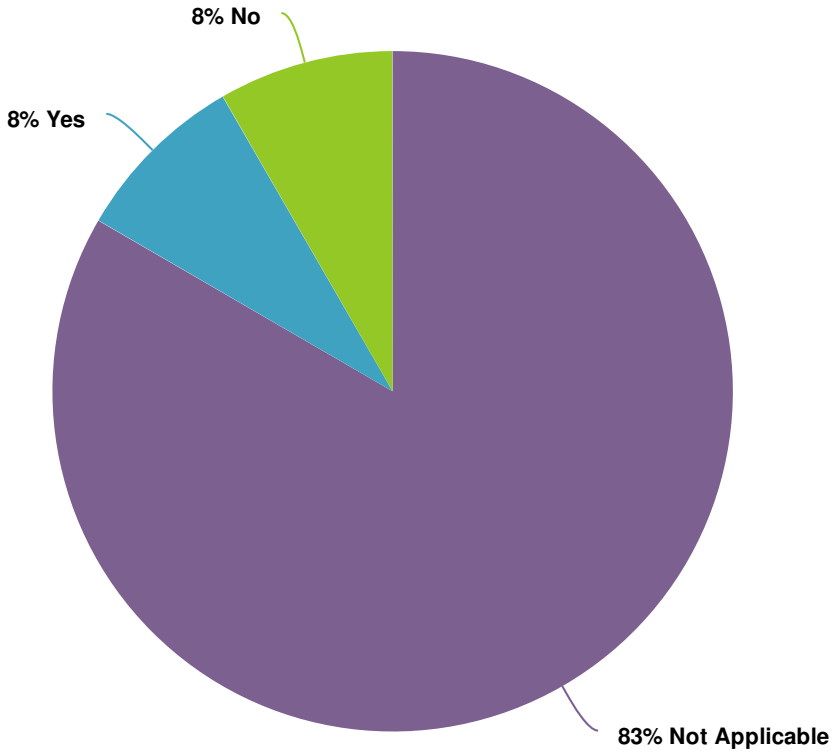



| Value | Percent | Responses |
|---|---|---|
| Single family residential | 90.9% | 10 |
| Multi-family residential | 9.1% | 1 |

**Totals: 11**

| Other | Count |
|---|---|
| Totals | 0 |

2. If your water service line from the city is not currently metered, meaning your water bill indicates you are charged a flat rate, are you interested in having the City install a water meter to your service?




| Value | Percent | Responses |
|---|---|---|
| Not Applicable | 83.3% | 10 |
| Yes | 8.3% | 1 |
| No | 8.3% | 1 |

**Totals: 12**

3. Please provide your contact information so that we may follow up with you. Thanks!

Name

**No data:** No responses found for this question.

| Count | Response |
|---|---|

Address

**No data:** No responses found for this question.

| Count | Response |
|---|---|

City , State, Zip

**No data:** No responses found for this question.

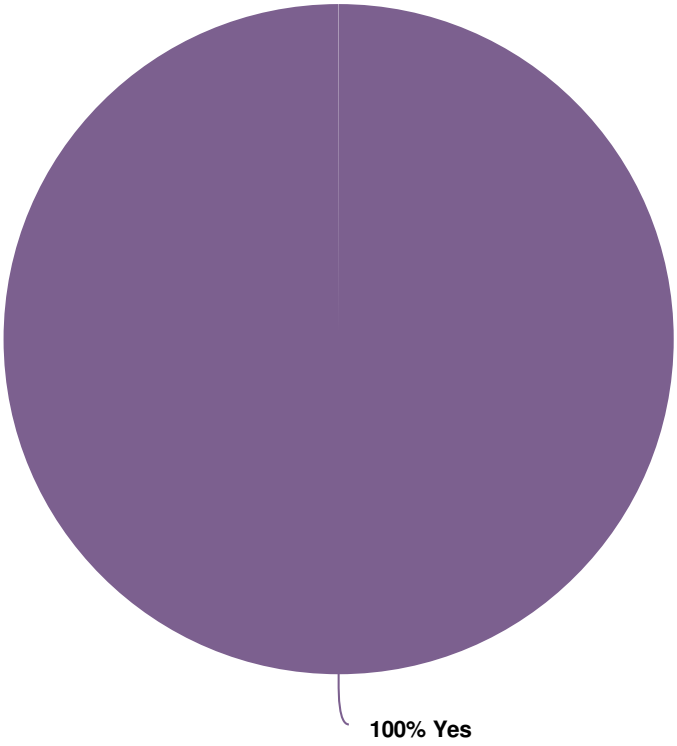
| Count | Response |
|---|---|

Email address

**No data:** No responses found for this question.

| Count | Response |
|---|---|

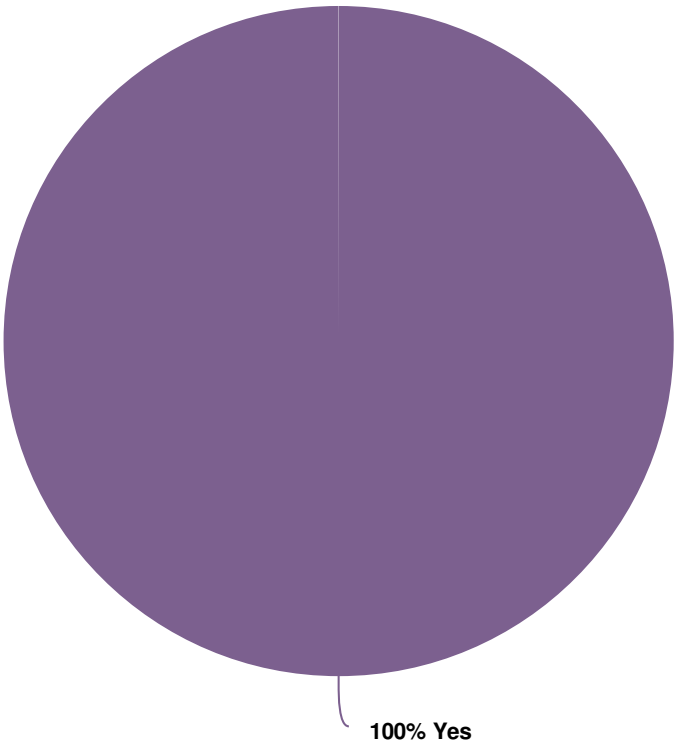
4. Are you aware that snow accumulation in the Rio Grande Basin during 2018 was well below normal, and only marginally better than that of the drought in 2002?




| Value | Percent | Responses |
|---|---|---|
| Yes | 100.0% | 11 |

**Totals: 11**

5. Are you aware that the City's drinking water supply is groundwater pumped from below the Monte Vista?



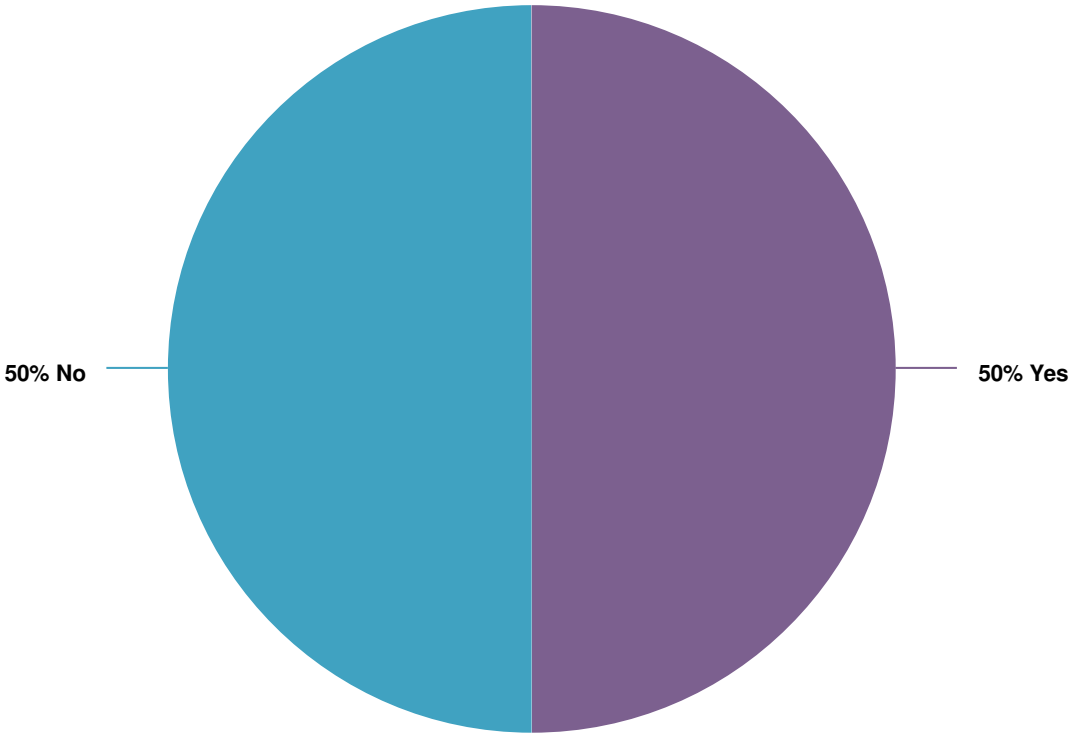

| Value | Percent | Responses |
|---|---|---|
| Yes | 100.0% | 11 |

**Totals: 11**

6. What information would you like to share with the City regarding its water system?


| ResponseID | Response |
|---|---|
| 21 | Alot of residents don't know about the watering plan. There was never anything delivered in the mail and not everyone has facebook |
| 22 | We are willing to pay more to update the Cities antiquated system. |
| 25 | I believe we have great drinking water and need to protect it. We also need a storage system for emergencies. |

7. Are you aware of the City's 2011 Water Conservation Plan and current Water Efficiency Planning efforts? For additional information, please visit www.cityofmontevista.com/DocumentCenter/View/788/Water-Efficiency-Plan-Draft-Doc




| Value | Percent | Responses |
|---|---|---|
| Yes | 50.0% | 4 |
| No | 50.0% | 4 |

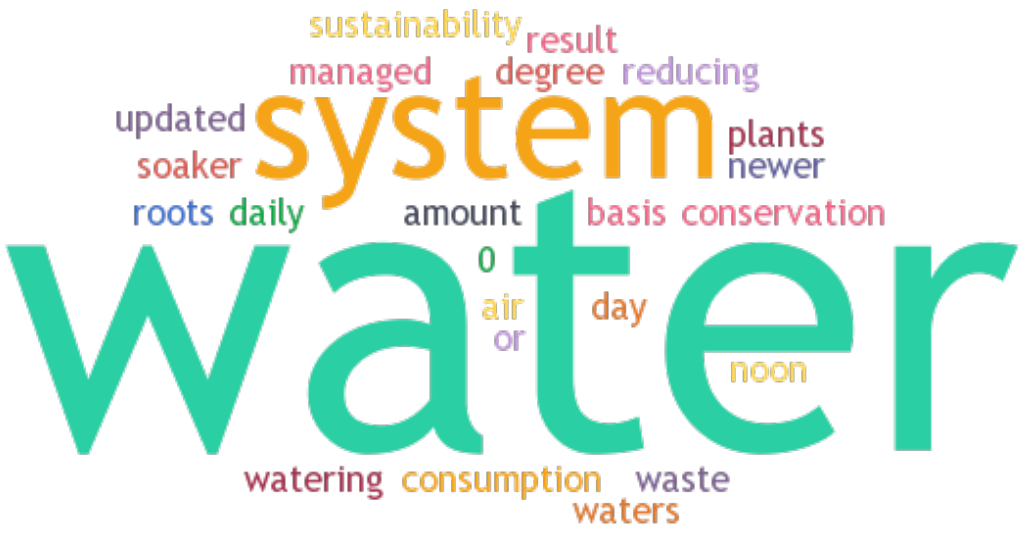
**Totals: 8**

8. Do you have any feedback or comments on the City's Final Draft Water Efficiency Plan Report?

**No data:** No responses found for this question.

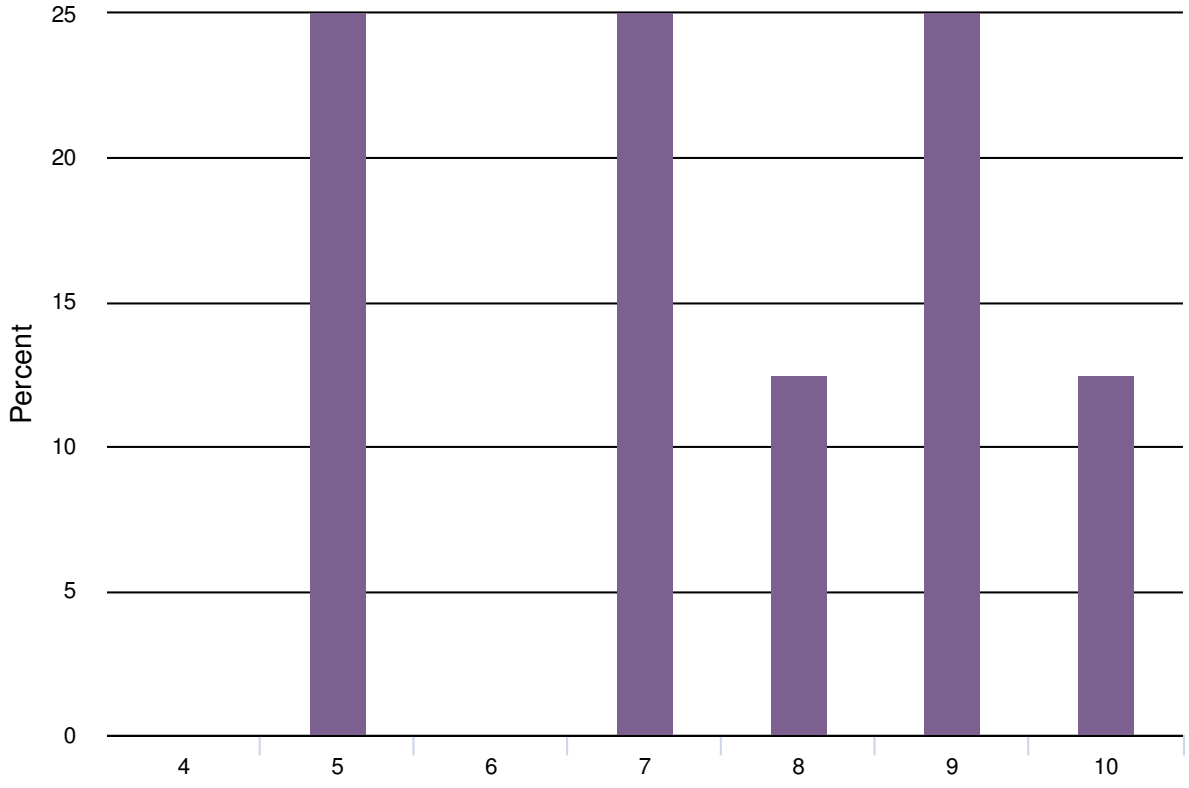
| ResponseID | Response |
| --- | --- |

9. What do you think of when you hear the phrase 'water efficiency'?

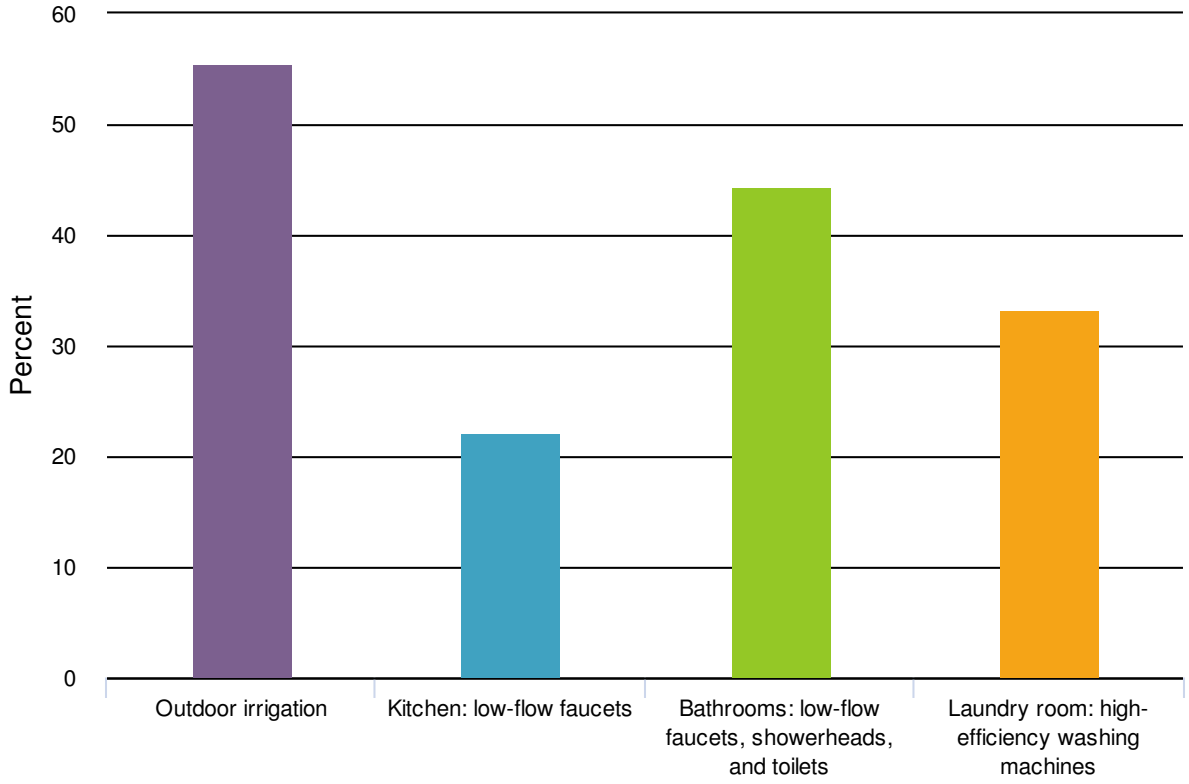



| ResponseID | Response |
|---|---|
| 16 | Using the least amount of water to yield the best result, like not watering into the air or at noon on a 90 degree day or using a soaker system that waters the roots of plants |
| 17 | Don't waste water because we can't "make" more |
| 19 | How will water is managed |
| 22 | A newer updated system. |
| 25 | Sustainability, Conservation |
| 31 | Reducing my water consumption on a daily basis |

10. How would you describe your awareness of your monthly water consumption?

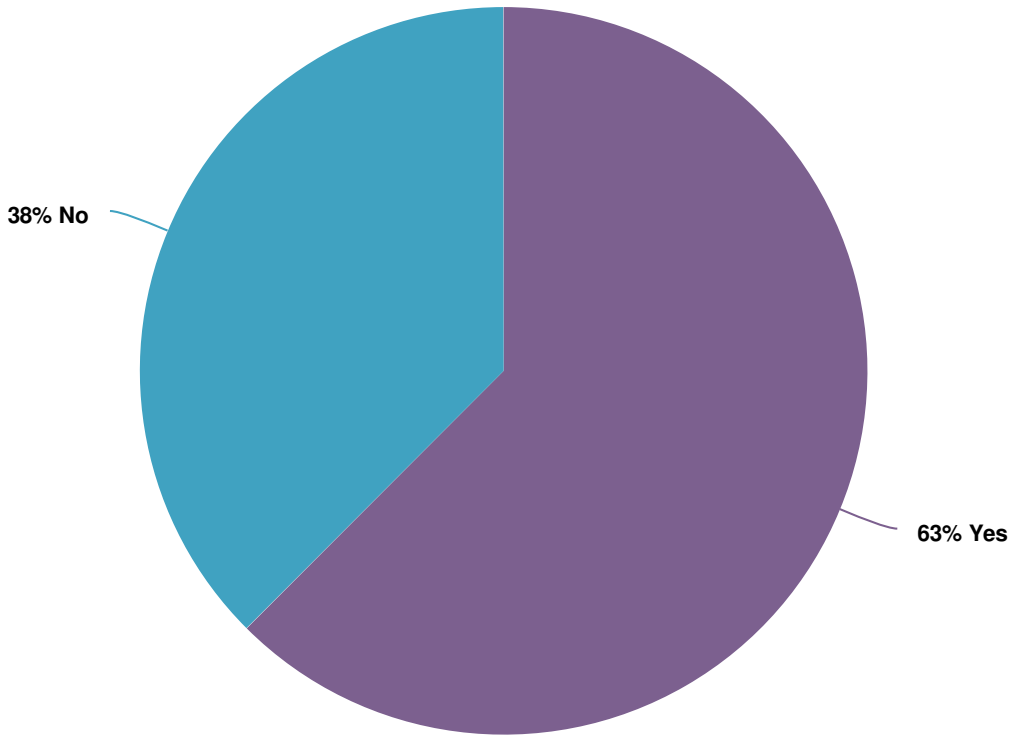


11. What areas of your home and/or business would benefit most from water saving tips, practices, and/or devices? (Click all that apply.)




| Value | Percent | Responses |
|---|---|---|
| Outdoor irrigation | 55.6% | 5 |
| Kitchen: low-flow faucets | 22.2% | 2 |
| Bathrooms: low-flow faucets, showerheads, and toilets | 44.4% | 4 |
| Laundry room: high-efficiency washing machines | 33.3% | 3 |

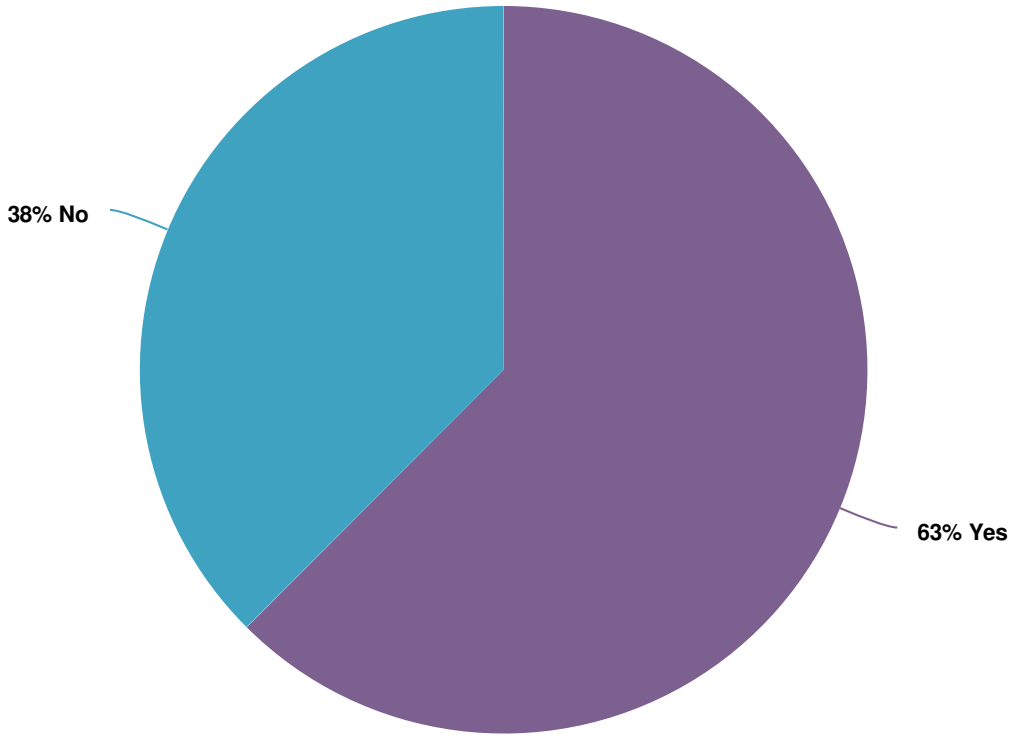
12. Do you think the installation of water-efficient fixtures and/or implementation of water-saving practices would result in a lower water bill each month?




| Value | Percent | Responses |
|---|---|---|
| Yes | 62.5% | 5 |
| No | 37.5% | 3 |

**Totals: 8**

13. Have you installed any water-efficient fixtures or devices at your home and/or business?



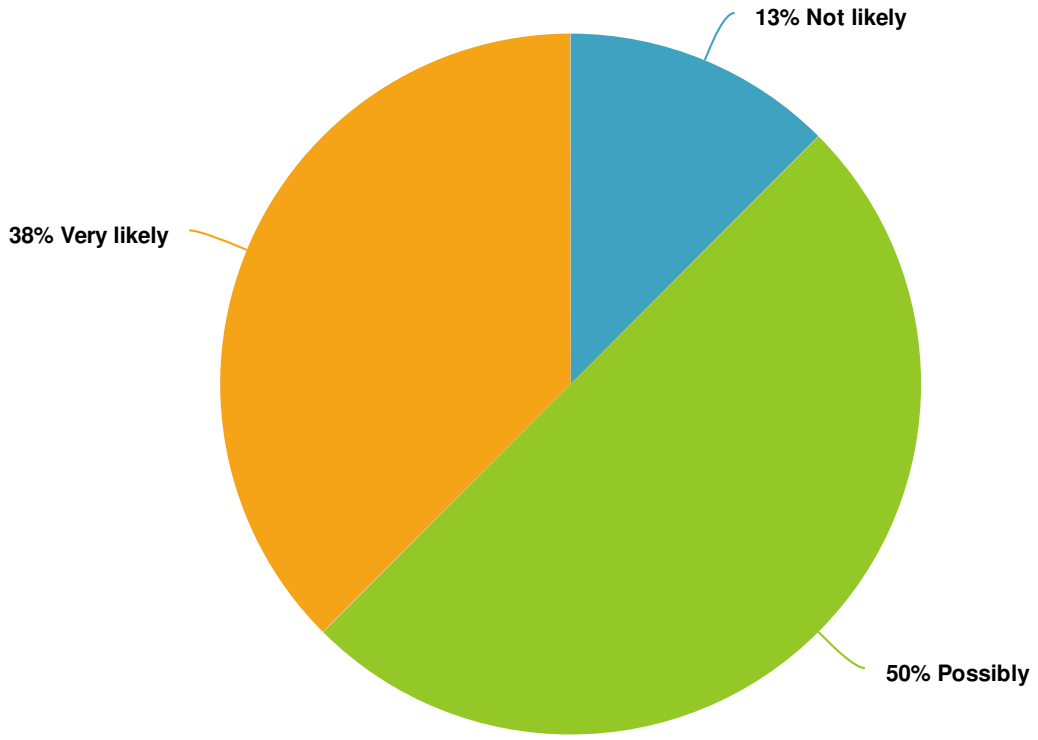

| Value | Percent | Responses |
|---|---|---|
| Yes | 62.5% | 5 |
| No | 37.5% | 3 |

Totals: 8

14. If so, what have you installed?


| Count | Response |
|---|---|
| 1 | Faucets, shower heads, toilets, water efficient washer |
| 1 | Washer, toilets, faucets |
| 1 | Water efficient washing machine and faucets |
| 1 | low flow faucets |
| 1 | low flow showerheads, dual flush toilets |

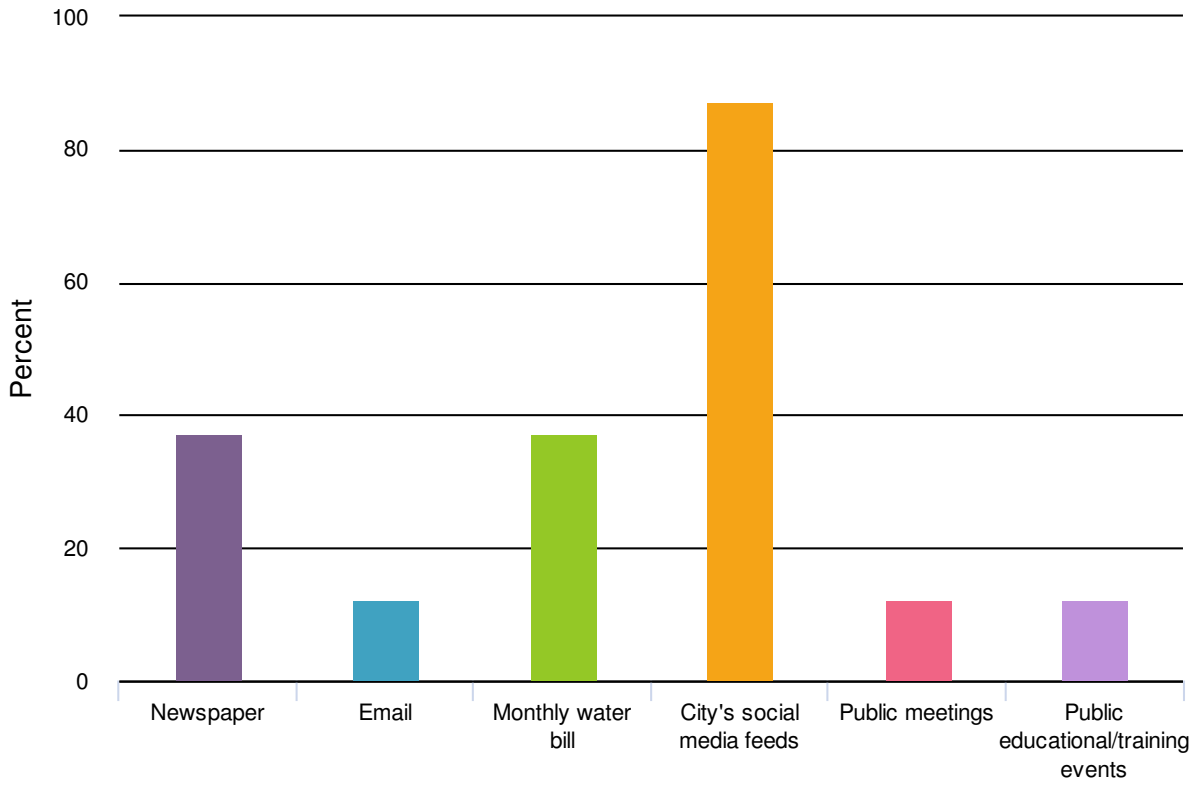
15. How likely are you to implement water efficiency tips and/or practices, or install new water-efficient devices within the next three months?




| Value | Percent | Responses |
|---|---|---|
| Not likely | 12.5% | 1 |
| Possibly | 50.0% | 4 |
| Very likely | 37.5% | 3 |

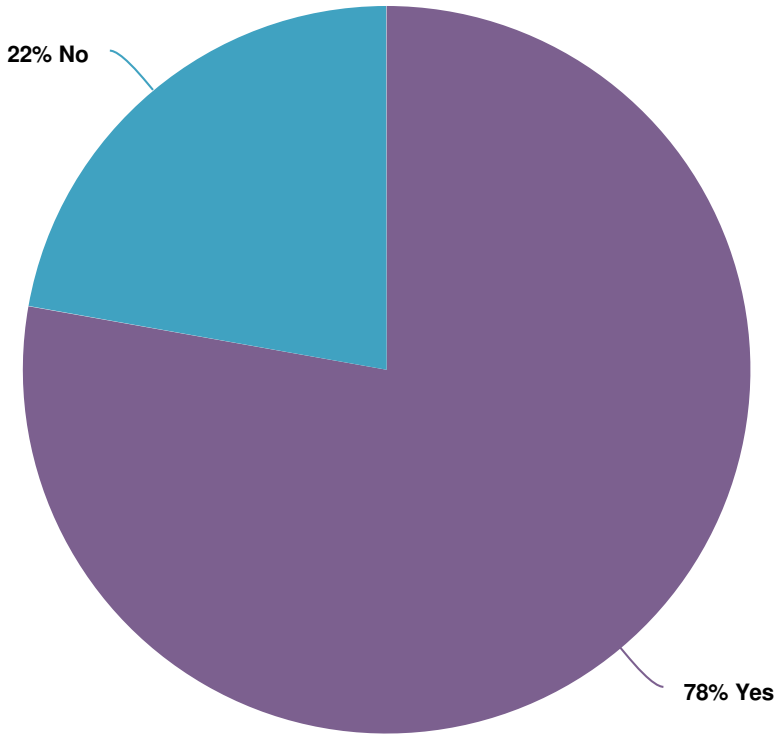
Totals: 8

16. How would you prefer to receive information regarding water efficiency tips, City giveaways, and/or future water efficiency education opportunities? (Click all that apply)




| Value | Percent | Responses |
|---|---|---|
| Newspaper | 37.5% | 3 |
| Email | 12.5% | 1 |
| Monthly water bill | 37.5% | 3 |
| City's social media feeds | 87.5% | 7 |
| Public meetings | 12.5% | 1 |
| Public educational/training events | 12.5% | 1 |

17. Are you interested in learning more about water efficiency tips, and/or future education and giveaway opportunities?




| Value | Percent | Responses |
|---|---|---|
| Yes | 77.8% | 7 |
| No | 22.2% | 2 |

Totals: 9

# ATTACHMENTS

Monte Vista Journal Article – City Council Swears In New Member.

HTTPS://WWW.MONTEVISTAJOURNAL.COM/ARTICLE/CITY-COUNCIL-SWEARS-IN-NEW-MEMBER

THE Monte Vista JOURNAL

MAY 2018

# City Council Swears In New Member



*By: By Chelsea McNerney-Martinez - Updated: 2 months ago*

By Chelsea McNerney-Martinez
MONTE VISTA—Monte Vista City Council met last Thursday, May 17. The newest councilor was sworn in and council approved a camping permit for Fullenwider Park for the first annual Thunder in the Valley motorcycle rally. Additionally, the city heard the progress of the water efficiency plan and announced they are seeking volunteers to join a committee to review the city charter.

Kathy Lorenz was sworn in as the newest councilor, taking the position vacated by former councilor Joe Schlabach's resignation, leaving no councilors from the former administration. Lorenz is the spouse of former councilor Jason Lorenz who did not seek reelection in 2017. She was also an outspoken supporter and donor to the Monte Movement committee which successfully elected Councilor Gary Johnson, Councilor Victor Sigala and Mayor Dale Becker. Lorenz was selected in a tie-breaker vote following an executive session at the last council meeting; please see the May 9 edition for a complete story on her selection.

City Manager Forrest Neuerburg presented on behalf of Scott Deacon, who is organizing the first annual Thunder in the Valley Brother's Keepers Motorcycle Rally in Monte Vista on June 16. Deacon requested attendees be permitted to camp in Fullenwider Park overnight because of its proximity to Stars and Strikes, where the rally will be held.

Deacon's request noted the rally organizers would provide portable toilets as no public restroom facilities exist at the park. Council discussed several factors, including setting a precedent for future events and a cleaning deposit. Neuerburg and Public Works Director Rob Vance noted although council should establish a rental agreement for parks in the future, the Ski-Hi rental agreement could easily be modified, which includes a $150 damage deposit. Vance also suggested as long as the depot road is closed for everyone not participating in the rally and the attendees follow the established laws against drinking in the park, the matter shouldn't be a major issue, adding that most of the attendees are "bringing $30,000 Harley Davidsons; most are going to get a hotel room." Council approved the request unanimously, with the caveat that similar future events be tied to a charitable event.

Jordan Dimick with SGM, the civil engineering, consulting and surveying firm, presented the city's water efficiency plan. Dimick explained that the plan fulfills requirements set by the Colorado Water Conservation Board (CWCB) and fulfills the need for "strategic planning on how to do more with less water."

Dimick stated the efficiency plan found that 51 percent of the city's water use is by single family homes, 12 percent by multifamily facilities like apartment buildings, eight percent by the city, six percent by commercial entities, one percent by non-municipal government facilities like the post office and BLM office, but the largest concern is the 22 percent non-revenue water use. Dimick explained the non-revenue water comes from unmetered flat rate water customers, unmetered parks and leaks in the water lines. The plan sets goals for the city that include decreasing the non-revenue water use by half by adding meters to parks and getting the remaining flat-rate customers on meters. The city should also look at means of reducing all other use groups' consumption by 10 percent.

Dimick provided council with list of 15-30 activities broken down by year to implement by 2027 to meet the efficiency goals.

Staff reports

During the staff reports portion of the meeting, Police Chief John Rosecrans outlined future events the department is working on and noted the first of the city's two K9 officers will be on the street this week. Once both are certified, Rosecrans stated the PD will have a dog working seven days/week. Rosecrans stated he has been speaking with Monte Vista School District Superintendent Robert Webb as well as officials from the Sargent School District about getting the dogs in schools to look for drugs and for "using the schools as training grounds." Rosecrans also discussed the increase in property crimes and mentioned the arrest of Cruz Villa, who the police department stated on Facebook "is who is stealing from you and your community," but has only one burglary warrant out of Monte Vista and two from Del Norte.

Rosecrans emphasized he wanted to get the officers enrolled in the Fire and Police Pension Association (FPPA) retirement plans, a statewide plan he stated is 120 percent funded and in better financial shape than PERA.

Code Enforcement Officer Jeff Huff explained there were 13 exceptions to watering restrictions in the first week, largely for newly planted lawns. He noted that the city should consider additional ways to explore educating residents, as

five out of the 11 homes he found in violation were elderly people who didn't know about the restrictions but were fine with complying.

Resident Margot Alexander stated the restrictions weren't explained on recent water bills, which Neuerburg explained had been the city's intention and should be on the next bill. Resident Phinel Garcia also noted Fullenwider Park was being watered last Monday, encouraging the city to lead by example in following its own restrictions. Vance explained he has changed the park watering schedule for the future and in his staff report also thanked Stones Farm Supply in Center for their generous donation of fertilizer for the parks as well.

Vance also addressed recent inquiries about extending Chico Camino to Lariat Road, stating he has been redoing the cost estimate, which was $260,000 in 2005 for a dirt road. Vance explained it's a lengthy process that includes surveying, ensuring a right of way could be established, examining and possibly removing the topsoil and then looking into infrastructure like sewer lines and storm drains. The road was is part of the 2018 budget but Vance noted the city can discuss it during their 2019 budget negotiations.

Following staff reports Becker explained the city is requesting letters of interest for community members who want to serve on a committee to review the city charter, which was written in 1922. About six or seven people will be needed to update the language of the charter, meeting once or twice a month. Council held a work session last Tuesday, May 15, in which Neuerburg explained most major changes to the charter will then have to come before voters. Council agreed at the work session the commission should pick approximately 10 major changes to prevent making the ballot exceptionally long and losing the significance of the changes when voters read it. Former mayor and current business owner Raina Bowsher submitted a letter of interest and Lorenz also expressed interest in representing the city on the committee.

# ATTACHMENTS

Monte Vista Journal Article – Do Your Part To Conserve Water.

https://www.montevistajournal.com/article/do-your-part-to-conserve-water

THE Monte Vista JOURNAL

JULY 2018

# Do Your Part To Conserve Water

*By: Ruthanne Johnson - Updated: 1 month ago*

**SAN LUIS VALLEY—** This year's dry conditions may bring to mind the multi-year drought experienced throughout the San Luis Valley starting in 2002. The sustained lack of precipitation and over-appropriated water usage caused nearby streams and water tables to shrink. Some wells even dried up.

The situation seemed dire but a Valley-wide effort— which includes farmers and ranchers paying for water and fallowing portions of their fields—has helped water usage get to a more sustainable level. The Valley's shared aquifer has since recovered nearly 250,000 acre-feet of water.

While it's great that the aquifer is rebounding, there's more that can be done to help it recharge to sustainable usage levels, says Monte Vista City Manager Forrest Neuerburg.

Engineering consultant SGM was hired to help draft a water efficiency plan for the city, which includes implementing water saving strategies such as water meter testing and maintenance, time-of-day outdoor watering restrictions, efficiency incentives, a system-wide water audit and even the xeriscaping of municipal properties. The city also plans on upgrading old appliances and fixtures in municipal buildings over time (toilets, showerheads, sprinkler heads, etc.).

The city, Neuerburg said, additionally plans on seeking grant monies to fund rebates for Monte Vista residents wanting to swap out old appliances and fixtures with newer water-efficient ones. Other cities

with similar rebate plans include the city of Longmont, which offers residents a **$100 rebate on their utility bills for upgrading to dual flush toilets and $50 for low flow toilets. Brighton offers** $125 rebates on WaterSense washing machines and $100 on toilets.

While agriculture uses about 99 percent of water that's pumped from the aquifer, towns like Monte Vista use their fair share. It's worth noting that the city's annual water demand has declined by about half since the installation of water meters in the early 2000s---but from 2012 to 2016, Monte Vistans averaged 135 to 145 gallons of water used per person per day. Add to that local businesses and municipalities and Monte Vista's daily water usage tops 169 to 182 gallons per day, translating to some six million gallons of water being pumped from the aquifer each month in Monte Vista alone.

According to the EPA statistics, the average American used between 80 to 100 gallons of water a day at home. That means Monte Vista residents use more than the national average.

Conserving water isn't as much trouble as people might think. "Something as simple as turning off the water while brushing your teeth or shaving will save a significant amount of water," Neuerburg said. Running the dishwasher just once a week saves nearly 320 gallons of water annually. And repairing leaky faucets, running toilets and dysfunctional hose connections can save some 180 gallons a day.

"Xeriscaping is also one easy thing people can do," Neuerberg said, "and the cool thing about it is that you can make your yard really pretty without bluegrass." He also suggests natural organic products like Revive, which can help your lawn absorb water more efficiently, "You just spray your lawn down with it and it helps your lawn retain water."

Resources to help with water-saving ideas include Colorado Native Plant Society, Colorado Water Wise, Environmental Protection Agency and Energy Smart Colorado, which offers some rebates for water-saving products on home-improvement projects.

The Monte Vista Water Efficiency plan can be viewed at cityofmontevista.com for public comment.

# ATTACHMENTS

Signed Resolution 10-2018.

**RESOLUTION 10-2018**

**A RESOLUTION ADOPTING THE CITY OF MONTE VISTA'S WATER EFFICIENCY PLAN**

**WHEREAS,** the City of Monte Vista recognizes the need to efficiently use is its available water resources, and

**WHEREAS,** the city of Monte Vista recognizes water efficient practices and activities will help ensure the long-term availability of water to the citizens of Monte Vista, and

**WHEREAS,** increasing the City's overall water efficiency will reduce the amount of water the City of Monte Vista may be required to purchase, and

**WHEREAS,** water efficiency is beneficial to the long-term environmental health of the San Luis Valley, and

**WHEREAS,** a Water Efficiency Plan is a valuable tool to implement water efficient practices and activities.

**NOW, THEREFORE BE IT HEREBY RESOLVED BY THE MONTE VISTA CITY COUNCIL THAT THE WATER EFFICIENCY PLAN DEVELOPED BY SGM, INC FOR USE BY THE CITY BE ADOPTED AND UTILIZED AS THE PRIMARY RESOURCE FOR WATER EFFICIENCY GUIDANCE UTILIZED BY THE CITY OF MONTE VISTA.**

Read, adopted and signed this 16th day of August 2018.

SIGNED

Dale Becker, Mayor

Attest:

Unita Vance, City Clerk