

PRELIMINARY ENGINEERING REPORT
FOR
WATER SYSTEM IMPROVEMENTS

PROJECT NO. 2023-065.100

DRAFT: DECEMBER 2023

OWNER:

TOWN OF MOFFAT
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SECTION I EXECUTIVE SUMMARY

A. BACKGROUND

The Town of Moffat was settled in 1890 and incorporated as Statutory Town in 1911. The Town is located in southwestern Colorado within Saguache County, approximately 11 miles west of the Town of Crestone and 36 miles north of the City of Alamosa. Historically, water supply to residents of the Town has been provided by both private and public artisan groundwater wells. The Town currently provides potable water to 11 customers from its groundwater supply. The Town's water system became regulated by the Colorado Department of Public Health and Environment (CDPHE) in 2021 as a Non-Transient, Non-Community water system as a result of providing drinking water to Area 420, LLC. Prior to this, the size of the Town's customer base, less than 15 customers, did not qualify it to be regulated.

B. WATER SYSTEM

The Town of Moffat's water system consists of supply, treatment, storage, distribution and customer metering components. The water supply is provided from four active groundwater wells drawing water from the confined San Luis Valley aquifer. Currently, the Town only treats the groundwater at Well No. 5. The Town's water treatment consists of disinfection using sodium hypochlorite and disinfection contact piping. The Town has four separate hydraulically connected distribution systems. Each system is a pressurized, closed system with booster pumps and hydropneumatics pressure tanks provided at each well.

As a result of recently becoming a regulated public water system, the Town is under an Enforcement Order from the CDPHE for significant regulatory deficiencies and violations that pose a risk to public health. The Town has been actively addressing the multiple compliance items of the Order.

Since 2021, the Town has resolved many issues in the two issued Enforcement Orders. The Town has installed and tested a backflow prevention device at Well No. 7 to prevent

contamination. Hydropneumatic tanks with booster pumps have been installed at wells 4, 5 and 7 to provide adequate pressures to its customers. Well No. 10 serving the Town Hall is not disinfected requiring faucets to be posted as non-potable. In November 2023, the Town completed a water treatment plant (WTP) improvements project providing disinfection and disinfection contact for Well No. 5. All water quality sampling and reporting requirements at each well have been corrected by the Town.

The four active distribution systems serve a total of 11 customers. In total, the Town has approximately 0.6 miles of piping for the individual distribution systems. Well No. 4 supplies four houses southwest of the well with nondisinfected water. The Well No. 5 distribution system by services two residents and the Area 420 marijuana grow operation. Customers served from Well No. 5 are metered but are not billed. All other customers are not metered and not billed for water usage. Well No. 7 has three customers tapped directly into the well head.

Historical water usage was limited to Well No. 5. As such, water projections were based on conservative estimates. The Town wells and water rights are adequate to meet current and projected water demands. The Town has other inactive wells that could be reactivated if the need for extra water supply arises. Water rights for use of the existing wells have been decreed in Division 3 Water Court, Case No. W-2153. Well No. 5 is the only well with a permit. All other wells do not have a permit as they were constructed before 1965 and are not required to have a permit. However, any improvements to the wells will require a new permit.

C. RECOMMENDED WATER SYSTEM IMPROVEMENTS

This Preliminary Engineering Report presents a summary of the Town of Moffat's water system components, an evaluation on the condition and needs of the groundwater disinfection treatment, and alternatives for the Town's distribution system. In summary, the Town's water system needs significant improvements. The general recommendation is for the Town to begin public outreach to inform residents of proposed water system improvement projects. The benefits that the distribution system offers the residents of the Town are not known to many, thus the Town should actively be advertising the positives of the system. Implementation of the recommend improvements presented herein are based

upon the assumption that the Town will use its statutory authority to require residents within the Town boundaries connect to the water system. The Town needs more customers to be a financially sustainable system. The recommended improvements presented in this report have a total estimated project cost of \$2,743,000. The cost of the project is relatively significant and has been presented in this report as two priorities of work.

The recommended Priority One improvements are intended to meet the Town's more urgent and ongoing needs. Recommended Priority One improvements, with an estimated cost of \$1,499,000 includes:

- Raw water piping from Well No. 4 to Well No. 5 to enable well No. to be disinfected.
- New water storage and bulk water sales building at Well No. 5 to house two 1,800-gallon storage tanks, booster pumps, and a bulk water dispensing station (recommended in Priority Two).
- New iron and manganese sequestration feed system at Well No. 5.
- New Well No. 7 WTP building for two 3,700-gallon tanks, flow meter, booster pumps, sodium hypochlorite chlorination feed system, and iron and manganese sequestration feed system.
- 8-inch PVC piping for disinfection contact at Well No. 7 WTP.
- Approximately 480 feet of 6-inch and 4,500 feet of 4-inch distribution system piping.
- New backup generators at Well Nos. 5 and 7 for power outage conditions.
- 32 new radio meters, setters and pits to meter and bill customers.

The recommended Priority Two improvements are intended to meet less critical needs but should be implemented by the Town in the future for a sustainable system. Recommended Priority Two improvements, with an estimated cost of \$1,244,000, include:

- Approximately 430 feet of 6-inch and 8,100 feet of 4-inch distribution system piping.
- 75 feet of 4-inch directional drilled piping under State Highway 17 at 5th Street and Russel Avenue to connect the east and west distribution systems created in Priority One.
- A new bulk water sales dispensing system at the storage and bulk water sales building.
- 30 new radio meters, setters and pits to meter and bill customers.

D. FINANCIAL

In the past, water fund revenues and expenditures were managed through the Town's general fund and were not itemized; thus, it has been difficult to ascertain the costs attributable solely to the water system. The Town has historically not charged any customers for water usage so there has been very limited revenue. The Town recently created an ordinance which established water rates and rules and regulations for the water system. The Town has also established a Water Enterprise Fund in order for the Town to properly account for both revenues and expenditures attributed to the water system.

Funding of the needed improvements is recommended to be pursued using a combination of a Community Development Block Grant (CDBG) available through the Colorado Department of Local Affairs (DOLA), and Drinking Water Revolving Fund (DWRP) loan funds available through the Colorado Water Resources and Power Development Authority (CWR&PDA) as administered by the CDPHE. Loan forgiveness may be available through the CWR&PDA Disadvantaged Communities program made available through the Bipartisan Infrastructure Law (BIL).

The estimated annual debt payment for recommended Priority No. 1 improvements is \$17,056 based on a project cost of \$1,499,000.

SECTION II INTRODUCTION

A. PURPOSE AND SCOPE

This Preliminary Engineering Report (PER) has been prepared for the Town of Moffat's potable water system. In 2021, Town became a regulated Non-Transient, Non-Community drinking water system. The purpose of this report is to present the findings of a comprehensive evaluation of the water system including water supply and treatment, water quality, storage, distribution, and metering elements. A financial review of the Town's water system is also presented. Details of recommended improvements are presented in this report to upgrade and improve the water system to meet current waterworks standards and regulatory requirements to ensure a long-term, reliable and safe water system. This report has been prepared to address the requirements of the Colorado Department of Public Health and Environment (CDPHE), Drinking Water Project Needs Assessment (PNA) and is presented in a logical, readable format.

This report addresses the CDPHE Service of Drinking Water Enforcement Order Numbers DW.11.21.155518 and DW.06.23.155518 and presents alternative solutions to provide treated water to the residents of the Town. The violations include failure to provide adequate disinfection for the entire drinking water system, failure to develop an adequate bacteria sampling plan, failure to install and operate a temporary disinfection for Well No. 5, an uncontrolled cross connection in the distribution system, and inadequate pressures in the distribution system. The Town has corrected most of the items in the Enforcement Order. This Preliminary Engineering Report provides guidance to remedy the groundwater disinfection and provides a plan to expand the treated water distribution system for the constituents of the Town of Moffat.

B. BACKGROUND

The Town of Moffat provides potable water services to a small portion of the residents of the Town. The Town was established in 1890, incorporated in 1911, and has officially served water to the Town since 2021. The Town's water system is typical in makeup to other small

towns and communities in Colorado. The Town's water supply consists of groundwater sources, disinfection for treatment at Well No. 5, storage and distribution facilities. Fire protection services are made available through the Northern Saguache County Fire District.

The existing distribution system consists of four separated distribution systems. Well No. 4 services four homes. The size and material of the distribution line is not known. Well No. 5 services Area 420 and two homes. The distribution consists of 6-inch C900 PVC pipe, primarily to serve Area 420. Well No. 7 has three residential customers directly connected to the well house with no water mains. Well No. 10 only services the Town Hall. Each system is a closed system without elevated storage. Pressures are maintained with a pump and hydropneumatic tank. A small storage tank is provided at the Town's Well No. 4 and at Well No. 7.

In 2019, the Town completed improvements to connect Well No. 5 to Area 420 as a new customer. A 6-inch diameter pipeline extends north from the well along the gravel road of Garfield Avenue approximately 1,500 feet, then west approximately 1,200 feet before entering the Area 420 property. At this point the pipeline becomes a private line. In the construction, the Town included a tee for the future connection to Well No. 4. In the earlier half of 2023, the Town installed 75 feet of 6-inch C900 PVC to connect two residents along Garfield Avenue, south of the well.

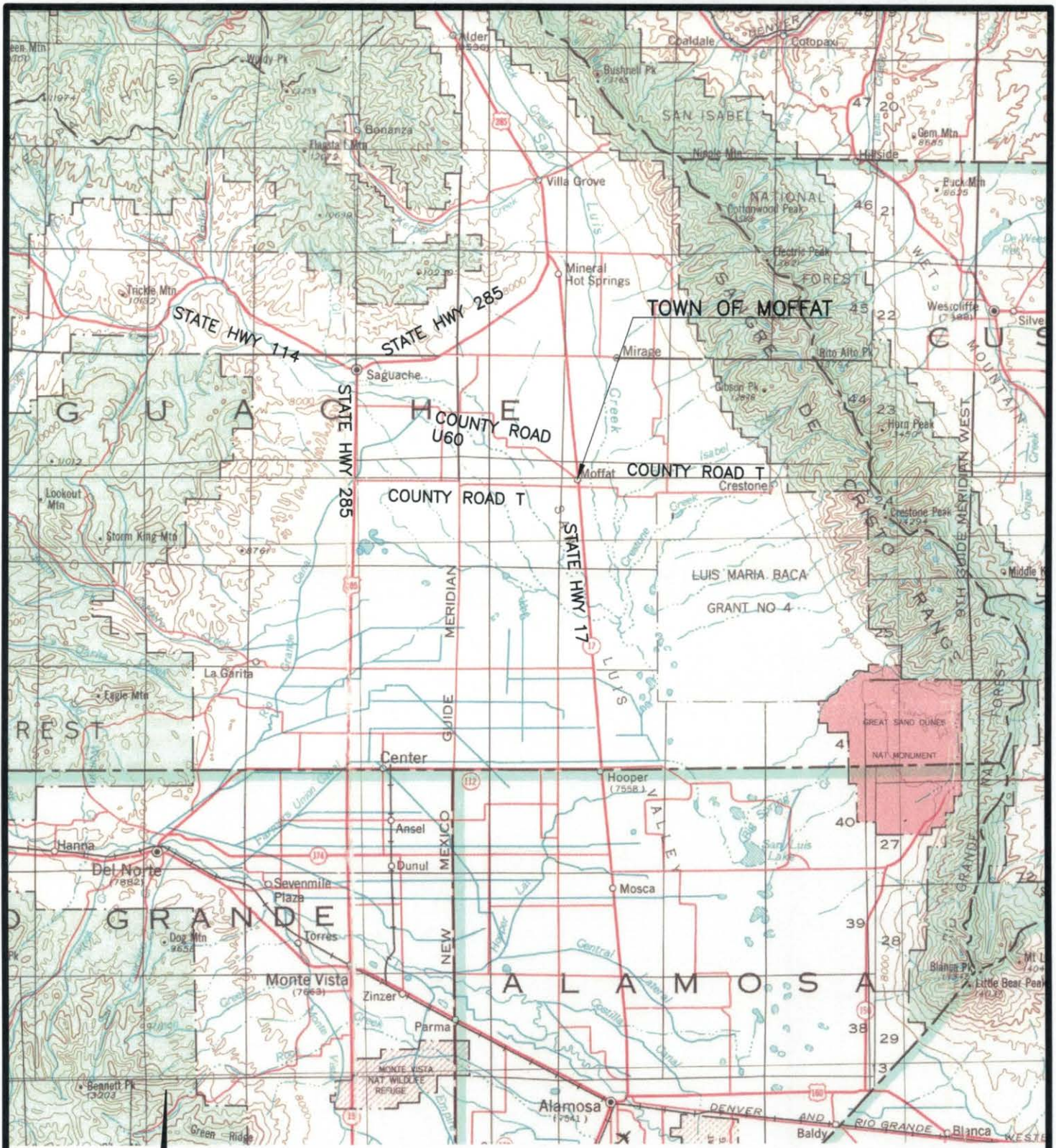
In November 2023, the Town completed installing disinfection treatment equipment for Well No. 5. The design and construction of the disinfection process was conducted by SGM Engineering, Inc., Glenwood Springs, Colorado. The Town and Area 420 both have water use rights to this well. Area 420 paid for the improvements to the well. Sodium hypochlorite solution is added to the well flow prior to new disinfection contact piping. Disinfected well flow then continues to the Well No.5 distribution system.

C. SERVICE AREA

The Town of Moffat is located in Colorado's San Luis Valley within Saguache County. The community lies along State Highway 17 approximately 36 miles north of the City of Alamosa and 11 miles west of the Town of Crestone. The Town's boundaries are within Sections 5, 6, 7 and 8 of Township 43 North, Range 10 East of the New Mexico Meridian.

The following Figure 1 is a general vicinity map showing the location of the Town of Moffat. The source of this map is the US Geological Survey's base map for the State of Colorado compiled at 1-inch equals approximately 8 miles. Figure 2 is an excerpt taken from the US Geological Survey's Moffat, Sheds Camp and Mirage Colorado quadrangle maps. The map highlights street configurations of the community, general building locations, topography, drainage and irrigation canal locations, State Highway 17 and local County roads and their relationship to the Town. The Atchison Topeka and Santa Fe Railroad line, as shown on Figure 2, has been abandoned and the tracks have been removed. Also shown on this map are the Town's three active groundwater wells (Well No. 10 at the Town Hall not shown). These wells are within the Town boundaries.

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SCALE: 1" = 8 miles
(approximate)

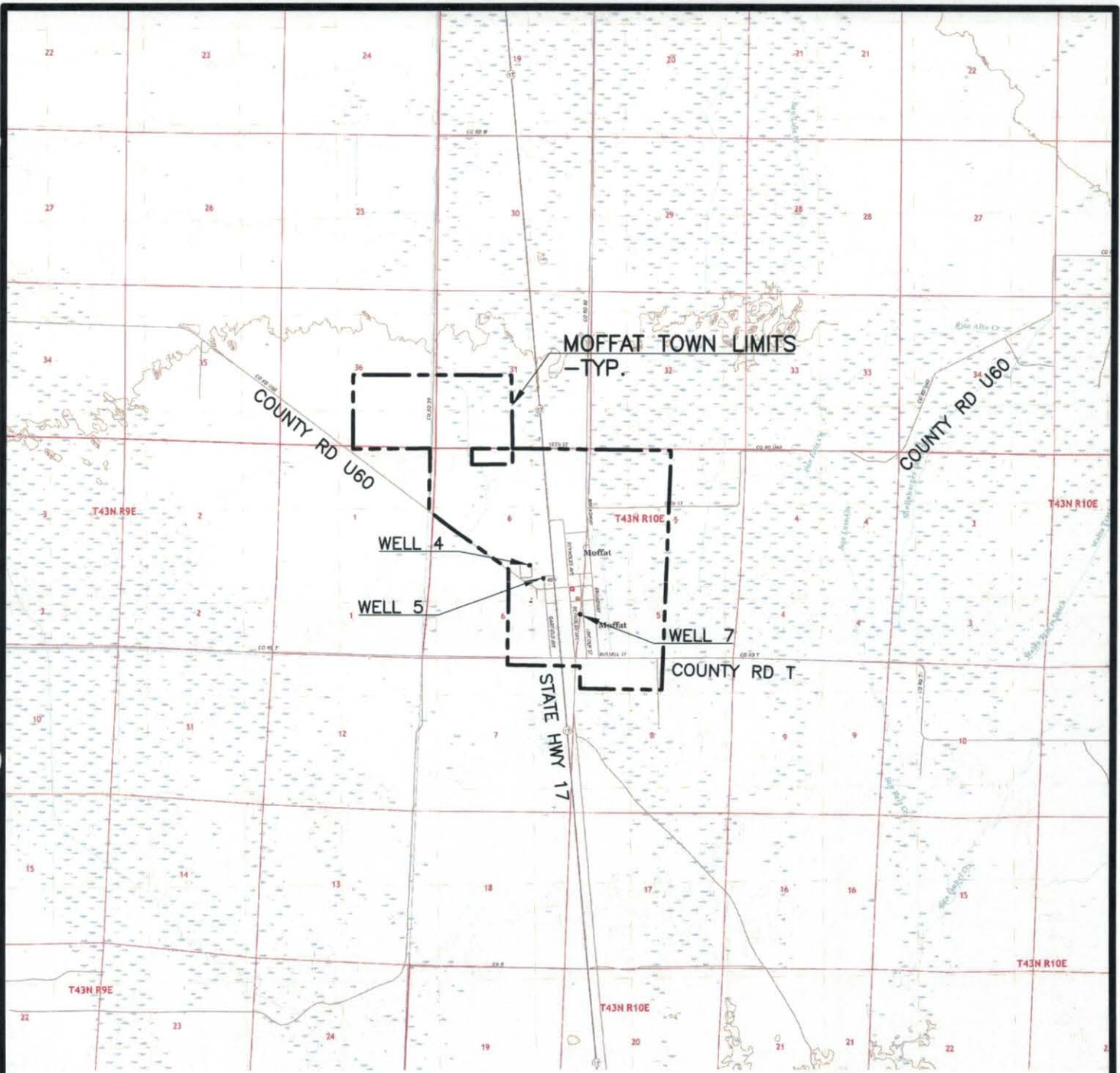
SOURCE: USGS MAP OF COLORADO

FIGURE 1.DWG

FIGURE 1
VICINITY MAP
TOWN OF MOFFAT

GMS, INC.

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611 N. WEBER, SUITE 300
COLORADO SPRINGS, COLORADO 80903
NOVEMBER 2023



SCALE: 1" = 5,000'

SOURCE: MOFFAT, SHEDS CAMP AND MIRAGE USGS QUAD MAPS

FIGURE 2.DWG

<p>FIGURE 2 LOCATION MAP TOWN OF MOFFAT</p>
<p>GMS, INC. CONSULTING ENGINEERS 611 N. WEBER, SUITE 300 COLORADO SPRINGS, COLORADO 80903 NOVEMBER 2023</p>

SECTION III PROJECT PLANNING AREA

A. LOCATION

The Town of Moffat provides potable water to a portion of its residents in Moffat, Colorado. The Town is located in southwestern Colorado within Saguache County lying within Sections 5, 6, 7 and 8 of Township 43 North, Range 10 East of the New Mexico Meridian. Moffat is located approximately 11 miles west of Crestone and 36 miles north of Alamosa. The community is divided by State Highway 17. The Town's established boundary consists of 1.4 square miles of land.

B. PLANNING ANALYSIS

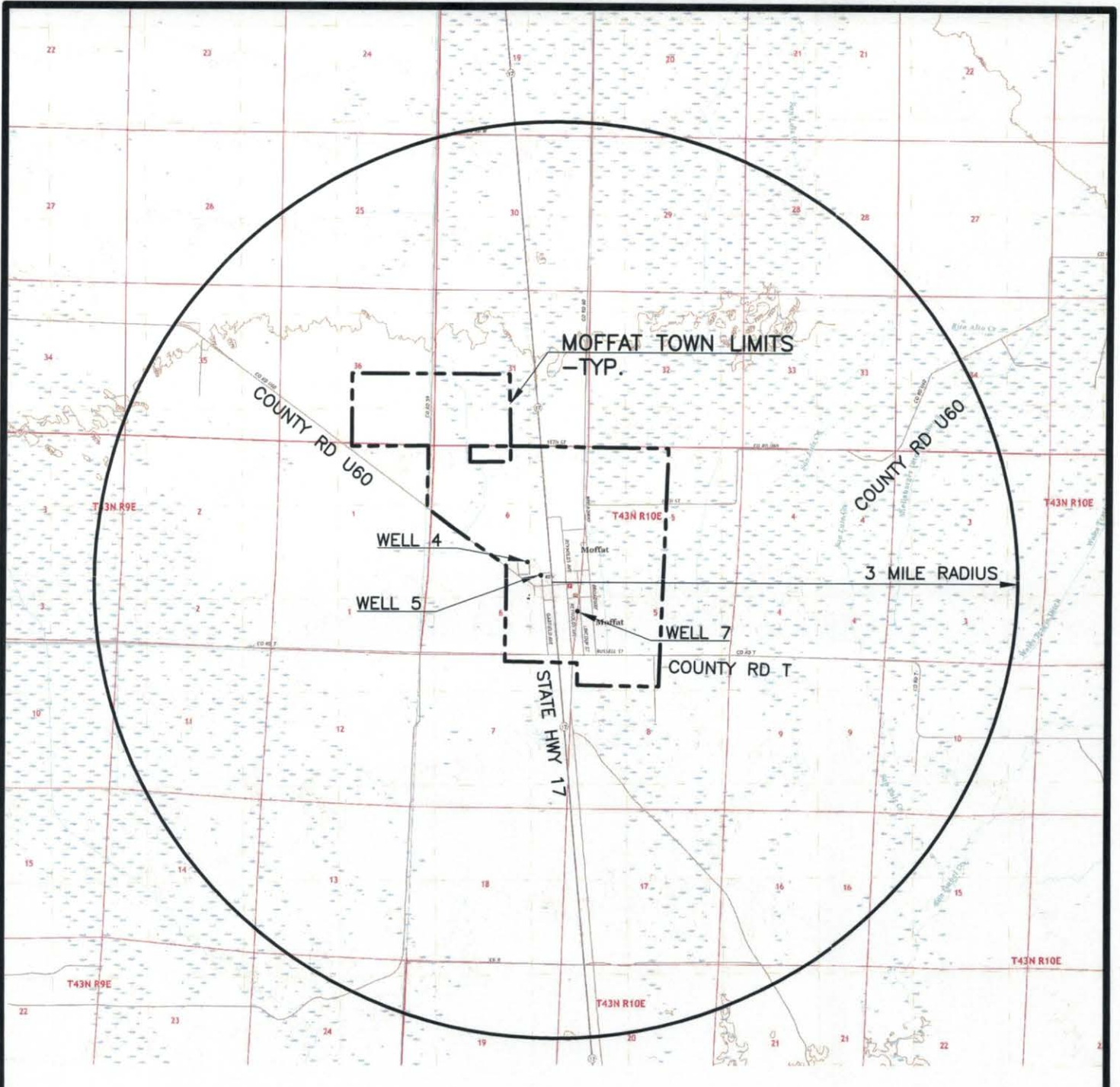
This planning analysis is presented to address the requirements of the CDPHE Project Needs Assessment (PNA). Specific details on environmental features are discussed in this section of the report. The following Figure 3 has been prepared to depict a three-mile radius around the community of Moffat to compile and assess environmental conditions and potential project impacts. The existing planning area consists of the Town limits, as shown on Figure 3.

Only a portion of the constituents of the Town enjoy the use of potable water made available through the Town's central water distribution system. The community also provides fire services through the Moffat Volunteer Fire Department.

The economic roots of the area lie in livestock and agriculture. Agriculture still plays a major economic role in the region and constitutes the largest employment base.

Population projections for the Town's service area are presented in this section of the report. An analysis of existing and future water demands are presented in Section V of this report. An evaluation of the existing and future source water supply, water rights and capacity are presented in Section VI of this report.

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SCALE: 1" = 5,000'

SOURCE: MOFFAT, SHEDS CAMP AND MIRAGE USGS QUAD MAPS

FIGURE 3.DWG

<p>FIGURE 3 3-MILE RADIUS MAP TOWN OF MOFFAT</p>
<p>GMS, INC. CONSULTING ENGINEERS 611 N. WEBER, SUITE 300 COLORADO SPRINGS, COLORADO 80903 NOVEMBER 2023</p>

C. WATER RESOURCES

Drainage within the community is generally in a northwest to southeast direction. Area water features include the drainageway associated with San Luis Creek which is an intermittent stream that flows north to southeast approximately two miles east of the Town. The Creek terminates approximately 30 miles downstream at the San Luis Lake. The Town's water supply consists of groundwater from the deep, confined Lower San Luis Valley aquifer. This aquifer is artesian in the Moffat area. Additionally, there are numerous private wells within the Town's service area that many residents utilize. The elevations vary from a high of approximately 7,573 feet along the north fringe of the Town's boundary at 9th Street and State Highway 17. The low is approximately 7,563 feet at the southeast portions of the Town along Russel Street.

Under Regulation No. 36, the Colorado Water Quality Control Commission has designated the segment of the San Luis Creek as Segment 5 of the San Luis Valley River basin. The following classifications have been assigned to this segment of the river system.

- Agriculture
- Cold Water Aquatic Life - Class 2
- Recreation - Class E

D. PHYSIOGRAPHY, TOPOGRAPHY AND SOILS

Saguache County is in the physiographic province of the Southern Rocky Mountains, typified by high mountain ranges. The Town of Moffat is located in the central San Luis Valley. The San Luis Valley lies between the Sangre De Cristo Mountains to the east and San Juan Mountains to the west. The San Luis Valley has been referred to as the largest high elevation, cold desert valley within the Southern Rocky Mountains having an average elevation of 7,600 feet. A significant part of the San Luis Valley consists of irrigated farming. The Great Sand Dunes National Park is located approximately 22 miles southeast of Moffat. The topography directly surrounding the Town is relatively uniform, sloping gradually to the southeast.

Local soils in the area have been classified by the Natural Resources Conservation Service (NRCS), formerly the Soil Conservation Service. Soil survey data compiled and mapped by the NRCS is currently available through the NRCS's online web soil survey service. Figure 4A presents a soils map showing the soil classifications in and around the Town of Moffat. Following the soils map is Figure 4B consisting of a map legend, and Figure 4C with a summary of the soil types identified on the soils map. The soil types which underlay the Town are predominantly Harlem, dry-Slickspots complex; Laney loam; Crestvale loam; Hagga loam; and Big Blue-Hagga, dry complex. More information about the predominant soils types is listed below.

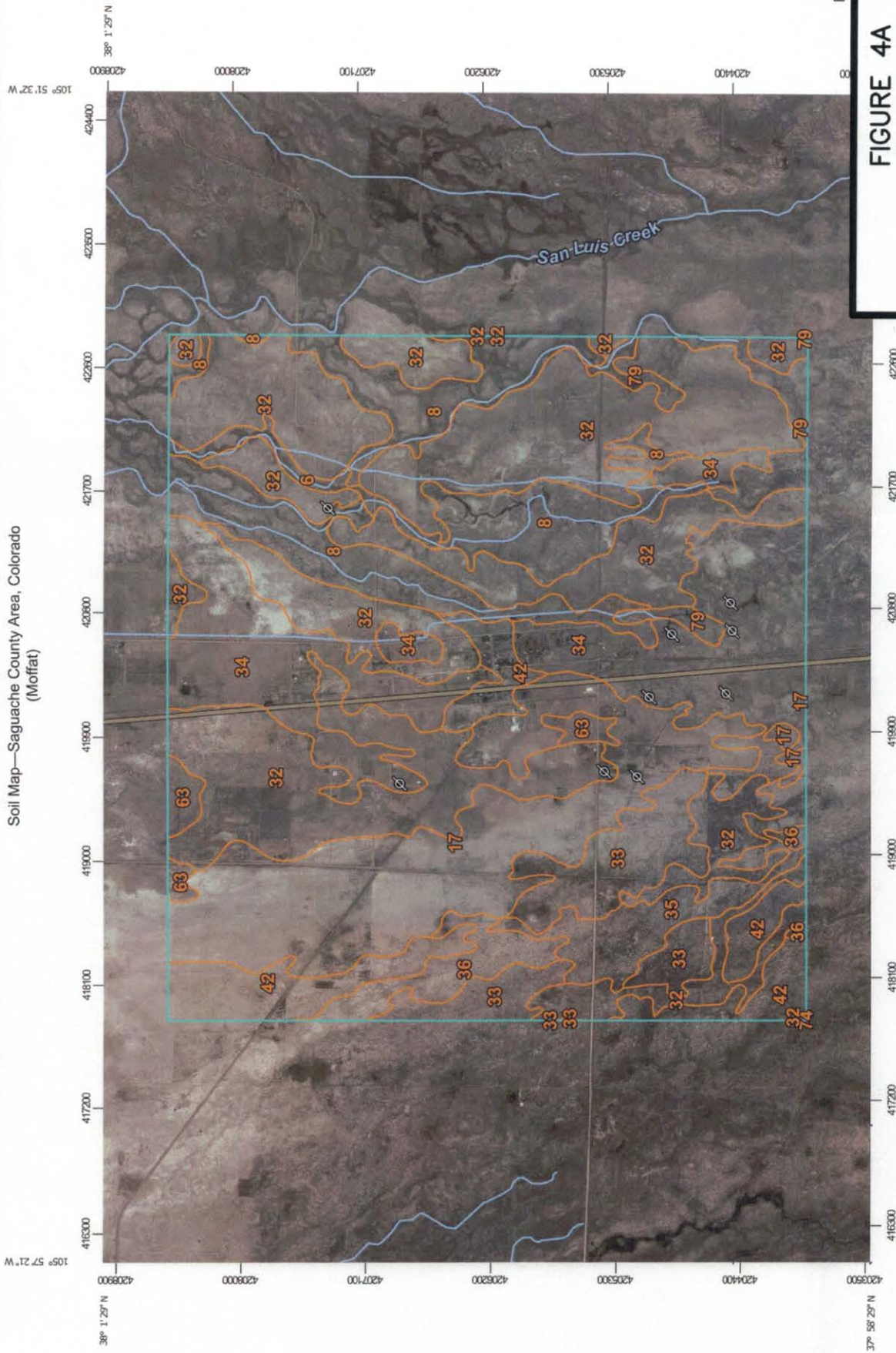
1. Harlem, dry-Slickspots complex, 0 to 1 percent slope

This is the predominant soil throughout the entire Town. The Harlem, dry-Slickspots complex soil is moderately well drained. Typically, the surface consists of 0 to 29 inches of clay. The subsoil is 29 to 52 inches of clay loam. The underlying material is sandy clay loam to a depth of 60 inches. Permeability is moderately low to moderately high with a transmissivity rate in the range of 0.06 to 0.20 inches per hour. Runoff class is medium. This soil is determined to be Not Prime Farmland.

2. Laney Loam, 0 to 3 percent slopes

The Laney Loam soil is deep and well drained. Typically, the surface consists of 0 to 8 inches of loam. The subsoil is 8 to 50 inches of stratified loam to clay loam. The underlying material is loamy coarse sand to a depth of 60 inches. Permeability is moderately high with a transmissivity rate in the range of 0.20 to 0.60 inches per hour. Frequency of flooding is none. This soil is determined to be Not Prime Farmland.

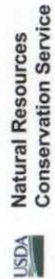
Soil Map—Saguache County Area, Colorado
(Moffat)



Map Scale: 1:39,000 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84



Web Soil Survey
National Cooperative Soil Survey

FIGURE 4A.DWG

FIGURE 4A
SOILS MAP
TOWN OF MOFFAT

GMS, INC.

CONSULTING ENGINEERS
611 N. WEBER, SUITE 300
COLORADO SPRINGS, COLORADO 80903

NOVEMBER 2023

MAP LEGEND

 Area of Interest (AOI)	 Spoil Area
 Area of Interest (AOI)	 Stony Spot
 Soils	 Very Stony Spot
 Soil Map Unit Polygons	 Wet Spot
 Soil Map Unit Lines	 Other
 Soil Map Unit Points	 Special Line Features
 Special Point Features	 Water Features
 Blowout	 Streams and Canals
 Borrow Pit	 Transportation
 Clay Spot	 Rails
 Closed Depression	 Interstate Highways
 Gravel Pit	 US Routes
 Gravelly Spot	 Major Roads
 Landfill	 Local Roads
 Lava Flow	 Background
 Marsh or swamp	 Aerial Photography
 Mine or Quarry	
 Miscellaneous Water	
 Perennial Water	
 Rock Outcrop	
 Saline Spot	
 Sandy Spot	
 Severely Eroded Spot	
 Sinkhole	
 Slide or Slip	
 Sodic Spot	

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Saguache County Area, Colorado
 Survey Area Data: Version 18, Aug 24, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 18, 2020—Sep 8, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

FIGURE 4B.DWG

FIGURE 4B SOILS MAP LEGEND TOWN OF MOFFAT

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NOVEMBER 2023

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
6	Big Blue clay loam, 0 to 3 percent slopes	53.7	0.9%
8	Big Blue-Hagga, dry complex	681.5	11.9%
17	Crestvale loam	829.3	14.5%
32	Hagga loam, dry	2,044.2	35.8%
33	Hapney clay loam	316.9	5.5%
34	Harlem, dry-Slickspots complex	930.1	16.3%
35	Hooper loamy sand, 0 to 1 percent slopes	182.2	3.2%
36	Hooper clay loam, 0 to 1 percent slopes	122.0	2.1%
42	Laney loam, 0 to 3 percent slopes	358.7	6.3%
63	San Luis sandy loam, 0 to 1 percent slopes	60.7	1.1%
74	Torsido loam, 0 to 1 percent slopes	0.0	0.0%
79	Vastine loam	133.9	2.3%
Totals for Area of Interest		5,713.5	100.0%

**FIGURE 4C
SOILS MAP UNIT LEGEND
TOWN OF MOFFAT**

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NOVEMBER 2023

E. CLIMATE

Data pertaining to precipitation, evaporation, temperature, and prevailing winds has been obtained from the National Weather Service, The Climatic Atlas of the United States prepared by the Department of Commerce, and information from the Colorado Decision Support System (CDSS) database.

The climate of Saguache County is semi-arid with warm, dry summers and cold, snowy winters. The high temperature occurs in July, around 78 degrees and the low temperature occurs in January, around 4 degrees. Saguache County gets an average of 11 inches of rain annually and 57 inches of snow annually. Most of the rain occurs between spring and early summer. The area typically sees 285 sunny days per year.

Based on the Climatic Atlas of the United States, the average annual precipitation in the area is approximately 7.3 inches. Currently there are two (2) active weather stations near the Town of Moffat. The Colorado Climate Center database has extensive precipitation data for the Alamosa San Luis AP station (No. 050130) located south of Moffat. For the period from 1948 through 2020, total precipitation has averaged 7.16 inches per year. Snowfall typically occurs during the winter months and can remain on the ground for several weeks during the coldest months. Free water evaporation in the San Luis Valley averages 50 inches per year. The current USDA Drought Monitor mapping shows this region of the state is currently classified to be experiencing abnormally dry conditions. Extreme drought conditions were seen from November 2021 through March 2022.

F. FLOODPLAIN

Flood Insurance Rate Maps for Saguache County have not been prepared by FEMA. The San Luis Valley GIS /GPS Authority mapping shows a floodplain delineated along Saguache Creek south of the Town of Saguache. No other published floodplain mapping near the Town of Moffat was found. The topography surrounding Moffat is very flat. Saguache Creek lies 3 miles to the southwest of the Town. The Town lies approximately 6 feet above Saguache Creek. Multiple minor streams lie to the east of the Town. These streams appear to be fed by natural artesian flows. San Luis Creek lies 1.3 miles to the east. The Town of Moffat does not appear to be in the floodplains of Saguache Creek or San Luis Creek.

However, due to the flat topography of the area, localized flooding may occur during heavy rainfall events. All proposed improvements for the Town's water system presented in this report are recommended to be constructed at least one foot above the existing ground surface.

G. VEGETATION

Vegetation of the San Luis Valley consists primarily of cultivated land. The surrounding areas of the Town include grass/pastureland, idle cropland, alfalfa, potatoes, and hay. Native grasses include Blue Grama and Indianrice grass. The foothills and drainage ways include pinyon pine mixed with occasional Rocky Mountain juniper. The service area is also impacted by the riparian conditions where the river and groundwater conditions significantly support the growth and sustain the existence of riparian, deciduous vegetation. Dense stands of willow, dogwood, and greasewood are typical of these riparian areas.

H. WILDLIFE

The Moffat area is known for its abundance of varied species of wildlife. This area provides excellent habitat for mule deer, elk, black bear, bighorn sheep, pronghorn, coyote, and moose. There is also an abundance of bird species, including hawks, owls, grouse, and species common to the mountainous areas.

The US Fish and Wildlife Service Information for Planning and Consulting (IPaC) database lists threatened and endangered species that may impact the planning area. These species include one mammal (gray wolf), two birds (Mexican spotted owl and yellow-billed cuckoo), and two insects (monarch butterfly and silverspot). There are no critical habitats in the defined area. Three species of migratory birds that may be present were also noted by the IPaC analysis: Cassin's Finch, Evening Grosbeak, and golden eagle.

I. WETLANDS

The US Fish and Wildlife Service National Wetlands Inventory Mapping was reviewed to determine the types and locations of wetlands within the planning area. In the southeast portion of the Town limits, there is a palustrine emergent wetland classified as persistent

and temporary flooded. Additionally, the eastern portion of the Town has a riverine wetland classified as intermittent streambed and a palustrine emergent wetland classified as persistent and intermittently flooded. The wetlands map is shown in Figure 5. The proposed work will not be within or in the vicinity of any delineated wetlands.

J. AIR QUALITY AND NOISE

Air quality in the area is considered fair. The only permanent sources of air pollution in the area are related to residential uses, i.e., furnaces, wood stoves, fireplaces, and residential and tourist traffic.

Noise generated within the Moffat area is limited to those normal domestic activities that occur within a residential community and a tourist/recreational area. Typically, the noise generated by the year-round population is insignificant. Noise generated from traffic passing through the area on State Highway 17 is considered minimal.

Overall, the Moffat area does not contain any noise or air quality problems or are any anticipated in the future.

K. PUBLIC FACILITIES AND SERVICES

The Town of Moffat consists of a platted residential community in Saguache County. The Town's water system became a regulated public water supplier in 2021. Currently, the Town service 11 customers, including the Area 420 marijuana grow facility. Residents within the Town, not provided with Town water, rely on private wells. Centralized sanitary sewer collection and treatment is not provided by the Town. Sanitary sewage treatment is provided by on-site waste treatment systems.

Fire protection is provided by the Northern Saguache County Fire District. Electricity is provided by Xcel Electric and San Luis Valley Rural Electric. Natural gas for home heating is provided by propane tanks fueled by Amerigas. Telephone service is provided by Ciello.



U.S. Fish and Wildlife Service National Wetlands Inventory

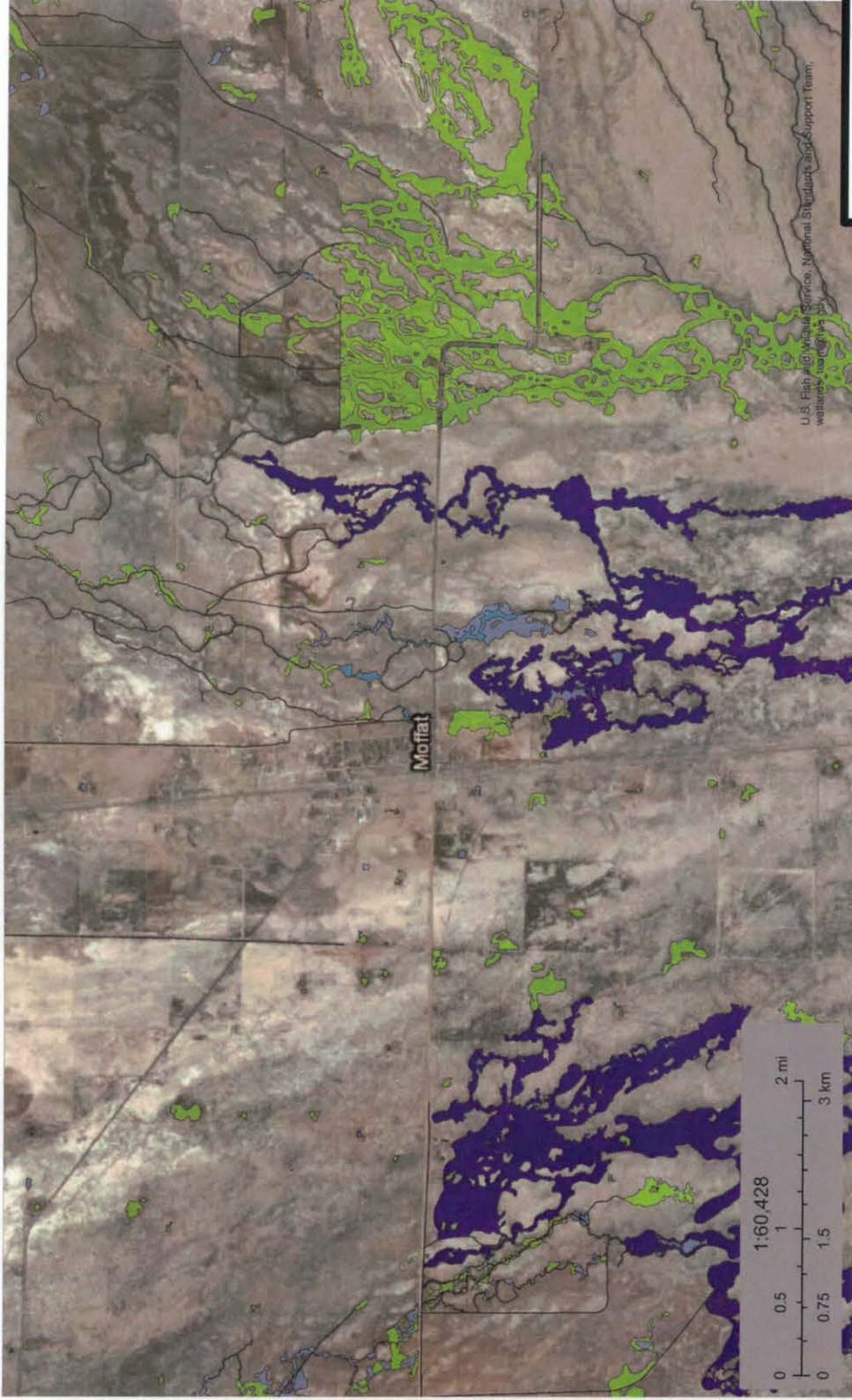


FIGURE 5.DWG

FIGURE 5 WETLANDS MAP TOWN OF MOFFAT

GMS, INC.

CONSULTING ENGINEERS
611 N. WEBER, SUITE 300
COLORADO SPRINGS, COLORADO 80903
NOVEMBER 2023

- Wetlands**
- Estuarine and Marine Deepwater
 - Estuarine and Marine Wetland
 - Freshwater Emergent Wetland
 - Freshwater Forested/Shrub Wetland
 - Freshwater Pond
 - Lake
 - Other
 - Riverine

L. GROWTH AREAS AND POPULATION TRENDS

1. Historic Population

In general, population numbers in the majority of the mountain counties of Colorado have seen steady to explosive historical population growth since the 1970s. The state experienced a 14.8% rate of population growth between 2010 and 2020. Saguache County has seen an increase in population of 6,108 in 2010 to 6,368 in 2020 for a growth of 4.3%.

The following table presents population counts from the previous eight census periods for Saguache County and the Town of Moffat. The table includes the estimated population for 2021 and 2022 as presented by the Colorado State Demographer's Office. County population numbers declined from 1950 to 1970, but experienced tremendous growth from 1980 through 2020. Population within the Town of Moffat decreased steadily from 1950 through 1970, rose slightly in 1980 and decreased again in 1990. However, the Town saw an increase in 2000 and 2010 before declining by 6.9% in 2020.

TABLE 1
TOWN OF MOFFAT
HISTORIC POPULATION ¹⁾

Year	Saguache County	Town of Moffat
1950	5,664	279
1960	4,473	104
1970	3,827	98
1980	3,935	105
1990	4,619	89
2000	5,917	114
2010	6,108	116
2020	6,368	108
2021 ²⁾	6,507	109
2022 ²⁾	6,616	108

1) Data from US Census.

2) State Demographer population estimates, October 2023.

2. Population Projections

While the U.S. census data provides current and historic population numbers, the State Demographer's office compiles population projections for both counties and regions. They do not compile any statistical projections for individual communities or unincorporated portions of individual counties. Population projections are based on regional statistical data for births, deaths and migration into and out of an area. The most recent population projection data available from the State Demographer's Office, dated October 2023, projects the long-term countywide population to increase at a slow, steady rate through 2045. According to the Demographer's projections, the population for Saguache County over the period from 2020 to 2045 is projected to increase by 1%, rising by an annual percent of change of 0.8% per year from 2020 to 2025; 0.05% per year from 2025 to 2030; 0.02% per year from 2030 to 2035; 0.03% per year from 2035 to 2040; and 0% per year from 2040 to 2045.

The population base within the Town is influenced by factors other than county and regional growth rates. Major factors influencing the base population of the community are the relatively stable agricultural base, the business opportunities associated with Potch LLC's Area 420 marijuana grow operation, and the regular enrollment and employee numbers associated with the local school located within the Town.

In consideration of the countywide population growth projections and development projections for the Town, the annual growth rate for the Town of Moffat would conservatively be expected to grow at a rate equal to or greater than that projected for the entire county. When comparing the historical population data presented in the previous table, the Town of Moffat has appeared to decline slightly in population over the past decade, despite showing substantial growth between 1990 to 2010. However, the Town has a K-12 school for neighboring communities. The presence of schools is a strong factor for economic development as it is an epicenter for education and community employment. In addition, included within the Town limits are the business opportunities associated with Area 420. This fast-growing cannabis business park began in the late 2010's and is still expected to grow in coming years. The Area 420 property was annexed by the Town; however, Area 420 has its own water system using the Town's No. 5 well as their sole supply. The Town staff has noted that there is the

future potential to connect 20 water services between the Town's Well No. 5 and Area 420. Currently, there has been some customer interest in connecting into this line, but no significant growth is anticipated. In conjunction with the potential connections, Area 420 has seasonal workers that travel to the facility for harvest. The Town has expressed interest in accommodating these workers with housing. In consideration of the Town school and the business opportunities with Area 420, the Town is projected to grow at a higher rate than the countywide population trends. Therefore, the Town of Moffat is assumed to increase at a modest annual rate of 0.5%.

Presuming adequate quantities of water made available, and thus any pressure to restrict growth is negated, the following table has been developed. The table presents population projections for Saguache County and the Town of Moffat.

TABLE 2
TOWN OF MOFFAT
POPULATION PROJECTIONS

Year	Saguache County ¹⁾	Town of Moffat ²⁾
2022	6,616	108
2025	6,646	110
2030	6,663	113
2035	6,671	116
2040	6,680	119
2045	6,680	122

- 1) 2022 Population Projections by the State Demographers Office
2) Based on conservative annual growth rate of 0.5%

The above population projections through the year 2045 are seen as being relatively conservative. The total service area population growth from the year 2022 to 2045 equates to an increase of 12.5%, well above the overall forecasted County population increase of 1.0%.

M. LAND USE DEVELOPMENT

The Town of Moffat reflects the land use patterns typical of Colorado rural communities. The majority of the Town consists of residential buildings. Several commercial activities exist in the Town as well, including a Dollar General store, a few cannabis dispensaries, churches, a

coffee shop, a restaurant, and the public school. The largest commercial activity is Area 420 which is a licensed marijuana industry.

N. HISTORIC AND ARCHEOLOGICAL RESOURCES

A review of the National Register of Historic Places for Moffat was conducted. There was one property listed on the National Register in Moffat, which is the First Baptist Church of Moffat. The church is located at the northwest corner of the intersection of 4th Street and Lincoln Street. As the purpose of this project is a water systems improvements project, all work will be confined to Town easements and Town, County and CDOT rights-of-way.

O. EQUIVALENT RESIDENTIAL USERS

An estimate of equivalent residential units (EQR) cannot be calculated based on the limited water use data available. An EQR estimate adjusts large users to an equivalent number of residential customers based on actual water use of a large use customer divided by the average residential water use of the service area. An EQR is established so large commercial users are being charged equitably for water use.

SECTION IV EXISTING WATER SYSTEM FACILITIES

A review of the existing water system for the Town of Moffat was undertaken within the course of this study effort. A list of information requested on the water system was provided by Town staff prior to an onsite review. This section of the report provides a summary of the discreet element of the Town's potable water system facilities, including supply, treatment, distribution, storage, and metering, based on the information provided by the Town.

A. WATER SUPPLY

The Town of Moffat derives its water supply from groundwater sources. All four actively used wells are located inside the corporate limits of the Town. The Town wells draw from the confined San Luis Valley aquifer for potable water supply. Water rights for use of the San Luis Valley aquifer have been decreed in Division 3 Water Court, Case No. W-2153.

The Town owns 10 existing groundwater wells but currently only utilizes four of the wells. Two of the inactive wells (Well Nos. 8 and 9) are fire and irrigation wells and are permitted at a capacity of 300 gallons per minute (gpm) each. The remaining four inactive wells (Well Nos. 1, 2, 3, and 6) have been discontinued for unknown reasons and have maximum pumping rates of 30 gpm. Figure 6 denotes the geographical locations of the wells. The following table presents a summary of information for the Town wells, followed by a discussion of each active well from information obtained from the Town and the Colorado Division of Water Resources.

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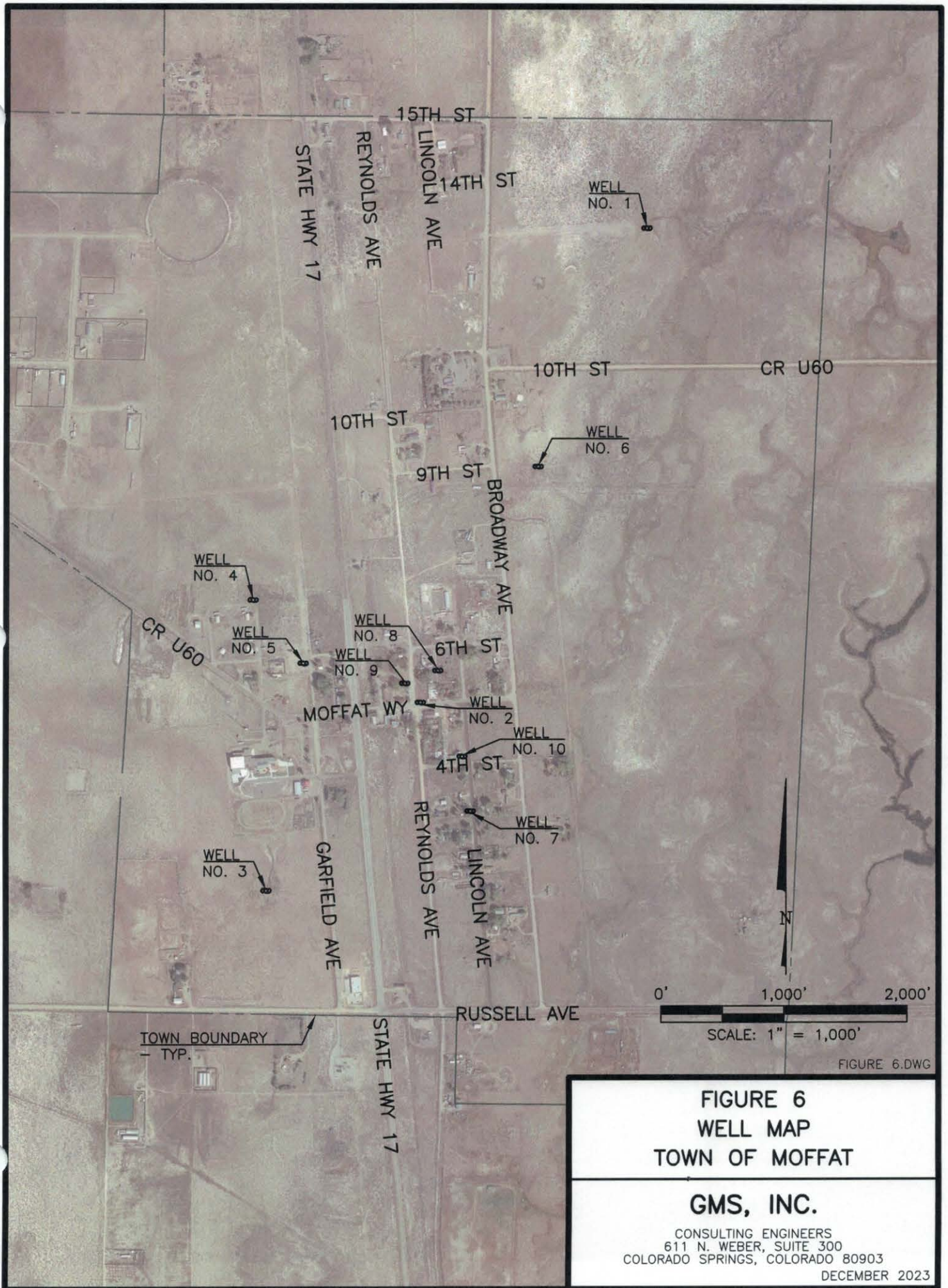


FIGURE 6.DWG

FIGURE 6
WELL MAP
TOWN OF MOFFAT

GMS, INC.
 CONSULTING ENGINEERS
 611 N. WEBER, SUITE 300
 COLORADO SPRINGS, COLORADO 80903
 DECEMBER 2023

TABLE 3
TOWN OF MOFFAT
EXISTING WELLS

Well	CDPHE Facility ID	WDID ¹⁾	Status	Priority Date	Permit	Maximum Decreed Pumping Rate ⁴⁾ , gpm	Daily Decreed Amount ⁵⁾ , ac-ft/day
Well No. 1	001	2505384	Inactive	12/31/1898	None ³⁾	30	0.134
Well No. 2	002	2505385	Inactive	12/31/1906	None ³⁾	30	0.134
Well No. 3	003	2505386	Inactive	12/31/1900	None ³⁾	30	0.134
Well No. 4	004	2505387	Active	12/31/1905	None ³⁾	30	0.134
Well No. 5	005	2505388	Active	12/31/1937	82534-F	25	0.112
Well No. 6	006	2505389	Inactive	12/31/1908	None ³⁾	30	0.134
Well No. 7	007	2505390	Active	12/31/1905	None ³⁾	25	0.112
Well No. 8	008	2505391	Inactive	12/31/1954	None ³⁾	300	1.336
Well No. 9	009	2505392	Inactive	12/31/1954	None ³⁾	300	1.332
Well No. 10	010	-	Active ²⁾	8/22/2014	295484	15	0.33 ⁶⁾

- 1) Water Resources Division Structure ID number.
- 2) Currently inactive for potable use and only used for non-potable activities such as toilets.
- 3) The wells were constructed prior to May 17, 1965, and therefore the wells are legally operating without a permit.
- 4) Pumping limits per the Water Court Decree. W-2153.
- 5) Daily amount as stated in the Water Court Decree No. W-2153. For annual pumping limitations, multiple daily amounts by 365 days.
- 6) Annual pumping limitation as stated by Permit No. 295484.

Well No. 4 (referred to as Well 4 in the CDPHE monitoring schedule) has a priority date of December 31, 1905, and is located in the right-of-way 500 feet north of the 6th Street and McPherson Avenue intersection. This well does not have a permit but has a water right adjudicated under Water Court Decree W-2153. In Section 37-90-137(1) of the Colorado Revised Statutes, wells constructed prior to 1965 do not require a permit or decree at this time. As this well predates 1965, a permit is not needed for this well. However, any modifications to the well will require a permit. The well was drilled to a depth of 520 feet with a 2-inch casing. This well has a maximum decreed pumping rate of 30 gpm and an annual pumping limitation of 48.91 ac-ft/yr. The well is an artesian well where the groundwater flows to the surface naturally without pumping. The groundwater flows continuously into a 625-gallon raw water storage tank and the excess water flows out of the overflow line into a nearby swamp. The Division of Water Resources has recommended the Town install a recharger aquifer pit to aid in replenishing the groundwater, but the Town has not expressed any urgency in constructing the pit. The Town has noted that Well No. 4 and Well No. 5 do not flow water naturally in the months of August and September. Thus, pumps are included in the well houses in the event water is not producing naturally. Well

No. 4 is equipped with a Myers Model 5KC33MN2702DX, $\frac{3}{4}$ horsepower (hp) pump. Well No. 4 serves four customers on a block just southwest of the well house and each customer uses approximately 2,000 gallons per month. Pressure is provided to the homes through a single, 86-gallon hydropneumatic tank that was installed February 21, 2005.

Well No. 5 (referred to as Well 5 Potch LLC in the CDPHE monitoring schedule) has a priority date of December 31, 1937, and resides on Town property 400 feet north of the Moffat Way and Garfield Avenue intersection. The well was re-drilled at the existing location in June 2019. This well has a Division of Water Resources permit No. 82534-F with a water right adjudicated under Water Court Decree W-2153. This well was drilled to a depth of 420 feet with a 2-inch casing. This well has a maximum permitted pumping rate of 25 gpm and an annual pumping limitation of 40.88 ac-ft/yr. This artesian well has a natural flow of 50 gpm, effectively increasing the well's capacity to 75 gpm. The well services 2 residential customers and Area 420. The Town of Moffat has senior water rights for Well No. 5, but Area 420 had applied for further use of Well No. 5 through the Division of Water Resources permit No. 86477-F. The Substitute Water Supply Plan (SWSP) was approved for the expansion of use of the existing well permitted under permit No. 82534-F. The permit allows Area 420 a maximum pumping rate of 100 gpm and the combined pumping rate for all uses from Well No. 5 to not exceed 125 gpm for the duration of the SWSP. The maximum amount of groundwater to be appropriated by this well for Area 420 could not exceed 10 ac-ft/yr. This SWSP was approved for augmentation for the period between June 21, 2021 and May 31, 2022. In March 2023, the well was approved for an additional SWSP under Case No. 22CW3043. This is the fifth year of approval for the Area 420 SWSP. The SWSP allows Area 420 to operate Well No. 5 in conjunction with Area 420's Well No. 1 to provide a maximum pumping rate of 1,275 gpm and a total annual pumping limitation from Well No. 5 of 22.44 ac-ft/yr. This request has been approved for the period of April 1, 2023 through March 31, 2024. Since the Town and Area 420 have water rights for Well No. 5, the well is equipped with two totalizing flow meters to track the separate water usage for the Town and for Area 420. The Town utilizes a pit less adapter to connect to a submersible pump that was installed in 2020 with a maximum capacity of 25 gpm. The specific pump that the Town utilizes is not known. The Area 420 service is equipped with a Century Model C48B04B67, 1.5 hp pump at the well house. Pressure is provided through a single, 27.3-gallon hydropneumatic tank with a maximum working pressure of 125 psi.

Well No. 7 (referred to as Well 7 in the monitoring schedule) has a priority date of December 31, 1937, and is situated 450 feet south of the 4th Street and Lincoln Street intersection. This well does not have a permit but has a water right adjudicated under Water Court Decree W-2153. In Section 37-90-137(1) of the Colorado Revised Statutes, wells constructed prior to 1965 do not require a permit or decree at this time. As this well predates 1965, a permit is not needed for this well. However, any modifications to the well will require a permit. The well was drilled to a depth of 420 feet with a 2-inch casing. This well has a maximum decreed pumping rate of 25 gpm and an annual pumping limitation of 40.88 ac-ft/yr. Well No. 7 is also an artesian well with a natural flow of 42 gpm, effectively increasing the well's capacity to 67 gpm. The well is considered a flow through system, since water is pumped to the surface naturally and the overflow is to swampy areas in neighboring properties. Division of Water Resources has recommended that Well No. 7 install a dedicated recharger aquifer pit to aid in replenishing the groundwater. The Town has no plans for constructing the pit. The artesian well flows to the dedicated storage tank within the well house. The pump then pressurizes the water into the hydropneumatics. The Town has installed a backflow prevention device and a pressure tank to provide adequate pressure to the three customer accounts connected to this well. Currently, the wellhead is in the right-of-way of Lincoln Street. However, the well house that occupies the pump, storage tank, pressure tank and backflow prevention device is stored in a nearby shed located on private property.

Well No. 10 (referred to as Well 10 Town Hall in the monitoring schedule) has a priority date of August 8, 2014, and is located at the Town Hall at the northwest corner of the 4th Street and Lincoln intersection. This well has a Division of Water Resources permit No. 295484, and no water court ruling was discoverable at the writing of this report. Well No. 10 is only permitted to serve the Town Hall. The well has a maximum permitted pumping rate of 15 gpm and an annual pumping limitation of 1/3 ac-ft/yr. This well was drilled to a depth of 300 feet. Because the well is not disinfected, the 2021 Enforcement Order required the Town to prevent public access to Well No. 10 consumption by blocking, bagging or disconnecting the sinks, water fountain and other consumption taps in the Town Hall building. Flushing toilets is allowed by the public, but handwashing is not available. Therefore, this well is still active, but for non-potable use until the Town implements treatment techniques.

As mentioned previously, the Town has six other wells that are no longer active. Well Nos. 8 and 9 (referred to as Well 8 Park and Well 9 Fire in the monitoring schedule) are permitted for fire and irrigation wells and cannot be used for municipal purposes. The wells have maximum pumping rates of 300 gpm and are in the properties north of the Town's existing fire department. The depth of Well No. 8 is 50 feet, and the depth of Well No. 9 is 50 feet. Both wells have a 16-inch casing. The fire department does not have water within the building to fill up the fire trucks or for consumption. The fire department supplies the truck with water from the school's water system. The Town is interested in relocating Well Nos. 8 and 9 to the corner of the fire department and constructing a fill station for the fire trucks.

The remaining four wells are inactive. Well No. 1 (referred to as Well 1 AG Use in the monitoring schedule) resides in a field to the northeast of the Town. Well No. 2 (referred to as Well 2 Under Road in the monitoring schedule) is located at the intersection of Reynolds and 5th Steet. Well No. 3 (referred to as Well 3 AG Use in the monitoring schedule) sits in a field to the southwest of the Town. Well No. 6 (referred to as Well 6 AG Use in the monitoring schedule) is located on the southeast corner of the 9th Street and Broadway Avenue intersection. These wells all have a maximum pumping rates of 30 gpm with individual pumping limitations of 48.91 ac-ft/yr. Well No. 2 has a depth of 620 feet, and the other wells are all a depth of 420 feet with 2-inch casing. The wells are permitted to be used for domestic, stock, and municipal use. The reason for each well's inactivity is unknown at the writing of this report.

B. TREATMENT

The 2021 Enforcement Order was issued primarily for the lack of water treatment to the Town wells. When the enforcement order was originally issued, none of the wells were being treated.

In November 2023, the Town completed installing disinfection treatment equipment to Well No. 5. The design and construction of the disinfection process was conducted by SGM Engineers, Inc. The well was historically high in salt and minerals but has decreased since chlorination was added. The Town and Area 420 both obtain water use rights to this well, but Area 420 paid for all the improvements to the well. A 12.5% sodium hypochlorite solution is now injected from a Stenner S3VO2 peristaltic pump. This chemical feed flows

into the pipe after the raw water meters from a 15-gallon drum at a rate between 0.03 to 0.71 gallons per hour (gph). The disinfection contact time is provided by approximately 240 linear feet of 6-inch DR18 C900 PVC that was installed in a serpentine configuration for a total approximate volume of 360 gallons. This pipeline network sits directly north of the existing well house and provides adequate contact time before entry to the system. SGM noted that manganese concentrations are present in the well, and the Town will want to provide iron and manganese removal equipment in the future to minimize these contents.

Well Nos. 4, 7, and 10 do not have any treatment techniques for the wells. Per the 2021 Enforcement Order, the Town is required to collect one routine total coliform bacteria sample every two weeks from Well Nos. 4 and 7 until these sources are treated with continuous chemical disinfection is provided. Well No. 10 is closed for public access until this source is treated with continuous chemical disinfection. Therefore, it is recommended that the Town install disinfection in Well Nos. 4 and 7 to satisfy the requirements from the Enforcement Order. Well No. 10 will be suggested to deactivate and will not be further analyzed.

C. WATER STORAGE

The Town of Moffat owns and operates one 625-gallon storage tank located inside the Well No. 4 well house. A storage tank is also located in the Well No. 7 well house, but the size of the storage tank was unknown at the writing of this report. Groundwater from Well Nos. 4 and 7 are artesian and flow continuously into the storage tanks. Excess flow is discharged to the ground. A pump is then utilized, in addition to the artesian flow, to pump water into the hydropneumatics tank for customer delivery pressure. The Well No. 4 pump is connected to a single three phase, 240-volt power panel. The electrical details for Well No. 7 devices are unknown at the writing of this report. No generator is available for either well, thus in the event the artesian well is not producing in the low months, and a power outage occurs, the Town is susceptible to water shortage with the relatively small storage capacity.

No storage is provided at Well No. 5. Power is provided to Well No. 5 through a single three phase, 240-volt power panel. Water flow is pumped directly from Well No. 5 to the distribution system. The artesian flow also contributes to the flow. In times of low flow when

the artesian well does not naturally produce water, the well house is susceptible to water shortages in the event a power outage occurs.

D. WATER DISTRIBUTION SYSTEM

The Town's three separate distribution systems are minimal. As many residents in the Town have their own wells, the Town has not constructed a distribution system to interconnect all of the existing wells. The Town currently serves the customers in the immediate vicinity of each well. Since the wells are separate, the Town operates four small, hydraulically separate distribution systems and is shown schematically on Figure 7 in the back of this report. Each system is a closed system, meaning the Town does not derive water pressure from an elevated storage tank, but rather through the use of hydropneumatic tanks at each well house. In total, the Town has approximately 0.6 miles of piping that makes up the distribution systems, most of which connects Area 420 to Well No. 5.

Well No. 4 supplies four houses that reside on a 3.5-acre lot to the southwest of the well. The system is pressurized by an 86-gallon hydropneumatic tank. From the tank, the water main travels west approximately 180 feet, and then south approximately 450 feet between the two rows of houses. The connection to the houses was built in the 1980s, and the size, material and exact location of the water main is unknown by Town staff.

Well No. 5 supplies two residential accounts of the Town and Area 420. The system is pressurized by a single hydropneumatic tank. Water is pumped from the well into the distribution system. As previously mentioned, there is approximately 240 linear feet of 6-inch DR18 C900 PVC that was installed in a serpentine configuration for disinfection contact time. After this stretch of pipe, the water enters the distribution system which tees to the north and south. In 2019, the Town installed improvements to connect Well No. 5 to Area 420. The line proceeds north along the gravel road of Garfield Avenue approximately 1,500 feet, then west approximately 1,200 feet before entering the Area 420's property and the end of the Town's responsibility. The 2,700 linear feet of pipe is a 6-inch C900 PVC. In the construction, the Town included a tee for the future connection to Well No. 4. In the earlier half of 2023, the Town continued by installing 75 feet of 6-inch C900 PVC to connect to the two residents who live along Garfield Avenue, south of the well.

Well No. 7 supplies three nearby residential accounts that live on both sides of Lincoln Street. Water is pumped from the artesian well into a storage tank in the well house that is located on private property. Located in the well house is a storage tank, pump, and hydropneumatic tank to pressurize the system for the connected customers. The Town's only backflow prevention device is also installed to prevent contamination. Well No. 7 is a flow through system where water flows through the system and is disposed of in a swamp on private property. To prevent contamination of the well, a backflow prevention device was added in the well house. Of the three customers, one customer is directly tapped into the well head before traversing across Lincoln Street. It is recommended that the service be relocated away from the well head, in addition to moving the entire well house to Town property.

Well No. 10 supplies the Town Hall. The service line material is unknown and the well is currently unavailable for consumption.

The Town does not provide bulk water sales. Water provided to bulk haulers is provided by a private company. The Town has requested a bulk water loading station be incorporated into the project as a source of supplemental revenue. A review of the Town's water rights is needed to determine if bulk water sales would be permissible.

E. WATER METERS

The Town of Moffat has a total of 11 water customers. Well No. 4 has four residential accounts, Well No. 5 has two residential accounts and the Area 420 account, Well No. 7 has three residential accounts, and Well No. 10 services the Town Hall. On September 5, 2023, the Town passed Ordinance No. 2023-04 which requires residents of the Town to connect to the Town's distribution system once it is constructed, unless the property is already serviced by a private well or water system. In addition to this requirement, the Town set up a tap fee and rate structure. Existing customers are not paying for water usage, except for the largest user, Area 420 who pays a 2% excise tax of all revenue from cannabis sales. The ordinance, and subsequent metered and billed customers, will provide financial sustainability for the Town's water fund as it provides revenue to maintain and operate the infrastructure.

The Town's only meters are the master meters at Well Nos. 4 and 5. Well No. 7 does not have a master meter, and it is recommended one be added to track water production. The recent improvements in 2023 to the distribution system south of Well No. 5 included two residential customer meters. These meters are manually read meters. These two accounts are not yet being charged for water.

F. WATER SYSTEM OPERATION AND MAINTENANCE PRACTICES

The Town of Moffat operates its water system in conformance with the Colorado Department of Public Health and Environment (CDPHE) Water Quality Control Commission's (WQCC) Regulation 11, Colorado Primary Drinking Water Regulations. The Town has been assigned Public Water System Identification Number CO-0155518.

1. Organization Description

Water system operations are hired out to a contracted water operator. The Town of Moffat's organizational structure consists of a Mayor and a five member Board of Trustees. Under the Mayor and Board is the municipal judge, the Town attorney, Town clerk/treasurer, and code officer. Underneath the Town clerk/treasurer is the public works coordinator and water operator. The Town's contract operator reports directly to the Mayor and Board on day-to-day operations, maintenance issues, and other system concerns. The Town clerk/treasurer is responsible for billing, financial filings, and record keeping.

2. Record Keeping

Water system record keeping is conducted in accordance with the requirements of the Water Quality Control Division (WQCD), including water quality monitoring reports, operating reports, maintenance, and financial records.

3. Contracted Operator-of-Responsible Charge

The operations of a public water system is regulated by the WQCD under Regulation 100. The Town's contracted water system operator holds a Class "C" water treatment

facility and a Class "2" water distribution certification level. The certification level is sufficient for the Town of Moffat's water system.

4. Backflow and Cross-Connection Control Plan

The Town has developed and implemented a current Cross-Connection Control Plan as specified by Regulation 11, Section 11.39(2)(a) of the Colorado Primary Drinking Water Regulations (5CCR 1002-11).

5. Routine Operations and Maintenance

System maintenance and minor repairs are typically conducted by the contracted water system operator. Excavation work is done by a Town trustee. The Town has not written a formal Standard Operating Procedures document (SOP) for the contracted ORC. The following schedule is a list of routine operation and maintenance activities:

- Chlorine residual testing Weekly
- Bacteriological test.....Bi-weekly
- Conduct water quality testing Per CDPHE monitoring schedule
- Repair or replace broken meters.....As-needed
- Equipment maintenance and serviceAs-needed

SECTION V
HISTORIC AND PROJECTED WATER CONSUMPTION

A. HISTORICAL WATER CONSUMPTION

An assessment of the historical and projected water demands for the Town of Moffat is presented in this section. Master meter flow totals were provided by the Town for Well No. 4 and Well No. 5. At Well No. 4 a meter was installed in mid-2023 with data from July 2023 to November 2023. Well No. 5 has monthly data from December 2020 to July 2023. No meter is installed at Well No. 7 and therefore Well No. 7 production is not included. The following table is a summary of the well production for Well No. 4.

TABLE 4
TOWN OF MOFFAT
WELL NO. 4 PRODUCTION

Month ¹⁾	Gallons
January	-
February	-
March	-
April	-
May	-
June	-
July	38,762
August	
September	
October	
November	
December	-
Total, gal.	38,762
Days Online	104
Avg Flow, gpd ²⁾	373

1) Meter was installed July 20, 2023 and the last recorded data was on November 1, 2023.
2) Gallons per day

As shown in the above table, the meter has only been active for 104 days. No monthly breakdown was available. For this duration, Well No. 4 has produced approximately 38,800 gallons of water, or 0.1 acre-feet (ac-ft). The data provided from the Town only

represents one-third of the year and is not considered sufficient to base future projected demands.

Well No. 5 meters well production for the Town of Moffat and Area 420. The data provided from the Town has combined water production until July 2022, before being separated between the Town of Moffat plus Area 420 productions. The following is a summary of the Town of Moffat's water production from July 2022 to July 2023 and the combined readings from December 2020 to July 2023.

TABLE 5
TOWN OF MOFFAT
WELL NO. 5 PRODUCTION

Month	Gallons	
	2022 ¹⁾	2023 ¹⁾
January	-	312,730
February	-	446,760
March	-	358,770
April	-	391,360
May	-	351,200
June	-	379,750
July	210	168,130
August	310	-
September	560	-
October	241,910	-
November	193,530	-
December	356,390	-
Total, gal.	792,910	2,408,700
Days Online	184	212
Avg Flow, gpd ²⁾	4,309	11,362

1) Data only available between July 2022 to July 2023.

2) Gallons per day

TABLE 6
TOWN OF MOFFAT
TOWN OF MOFFAT PLUS AREA 420 WELL NO. 5 PRODUCTION

Month	Gallons		
	2021	2022	2023 ²⁾
January	1,596,200 ¹⁾	207,090	325,890 ²⁾
February		201,740	461,450 ²⁾
March		257,650	374,200 ²⁾
April	191,300	476,480	420,700 ²⁾
May	408,300	672,200	384,740 ²⁾
June	848,100	495,070	644,930 ²⁾
July	786,350	416,790 ²⁾	876,980 ³⁾
August	3,397,110	920,380 ²⁾	-
September		1,028,600 ²⁾	-
October		480,430 ²⁾	-
November	360,270	234,630 ²⁾	-
December	370,630	361,720 ²⁾	-
Total, gal.	7,958,260	5,752,780	3,488,890
Days Online	396	365	212
Avg Flow, gpd ⁴⁾	20,097	15,761	16,457

- 1) Production includes December 2020.
- 2) Town separated the provided data for production recordings between the Town of Moffat and Area 420 Wells. See Table 5 for Town of Moffat water production breakdown.
- 3) The last available recording is July 2023.
- 4) Gallons per day

The Town of Moffat has available readings for 396 days. For this duration, the Town saw a well production of 3.2 million gallons (MG) or 9.8 ac-ft. The readings for the combined meter recordings was available for a longer period. The total well production for Well No. 5 in 2021, 2022, and 2023 was 8.0 MG (24.4 ac-ft), 5.8 MG (17.7 ac-ft), and 3.5 MG (10.7 ac-ft), respectively.

Area 420 has a SWSP for use of Well No. 5. Since the Town has senior rights, the Town is adjudicated the first 25 gpm of water, and Area 420 is assessed from 25 gpm onward. Although the water systems are metered separately, the water does combine again before entering the distribution system. Area 420 has the ability to connect 41 total connections within their smaller consecutive water system. These connections are seasonal customers, with only some being year-round customers. The number of current customers in Area 420 was not available at the writing of this report. The Town only has two residential customers connected to the water supply. Since the water production is combined before entering the

water system, the production per capita for Well No. 5 of the Town cannot be ascertained because of the larger water use and numerous transient customers of Area 420. It is uncertain whether the Town well production is solely used for the two residential customers. Therefore, baseline parameters to determine projected demands cannot be determined for the Town of Moffat from the provided data.

As previously mentioned, the Town does not meter individual customers, and thus sales data is not available for the Town of Moffat. Production is typically compared to system sales to determine a per capita production estimate and per capita metered water use. Since the Town has a small distribution system, production data is insufficient, and metered sales are not available, these factors are not quantifiable for baseline conditions.

The 2022 WTP production for the nearby City of Alamosa was 142.9 gallons per capita per day (gpcd). Alamosa is significantly larger than the Town of Moffat with more commercial and industrial users, and more outdoor irrigation use. Since the Town of Moffat has minimal commercial users and irrigation use, the Town of Moffat's water production is presumed to be less than Alamosa's production. Therefore, for the Town of Moffat, it is conservatively assumed to have a water demand of 120 gpcd.

B. PROJECTED WATER DEMANDS

For the purpose of this report, water use projections are based on the assumed per capita water production of 120 gpcd. Maximum day demand conditions occur during the summertime and early fall when conditions are dry and outdoor water usage is elevated. Water sales are not available. A maximum day demand peaking factor was selected at 250% of the average day demand. The highest demand condition that stresses a system the most is the peak hour demand. Peak hour demands typically occur for a short period of time during the maximum day demand condition. Typical peak hour demand factors for a community of this size range from 3.0 to 4.0 times the average day demand. For the purpose of this evaluation, a peak hour demand of 350% of the average day demand has been selected as being representative for the Town.

The Town of Moffat currently serves a total of 11 customers. However, the Town's new ordinance No. 2023-04 requires residents of the Town to connect to the Town's distribution

system once it is constructed if they are not already supplied by a private well or system. One alternative for improvements would be to build an entire distribution system that connects all the residents of the Town. Another alternative is a partial distribution system that serves parts of the Town, with an end goal to build out the entire distribution system to serve all buildings in the Town. Therefore, demands are projected based on the Town's entire projected population.

Table 7 presents a summary of the existing and estimated future water demand requirements for the Town's water system. Based on the assumed baseline parameter of 120 gpcd and the population growth rate projections in Table 2, the existing and estimated future water demand requirements for the Town's water system are presented..

TABLE 7
TOWN OF MOFFAT
EXISTING AND PROJECTED DEMANDS

Condition	Service Population	Average Day Demand ¹⁾ , gpd	Maximum Day Demand ²⁾ , gpd	Peak Hour Demand ³⁾ , gpm
Existing – 2022	108	12,960	32,400	32
Future – 2025	110	13,200	33,000	32
Future – 2030	113	13,560	33,900	33
Future – 2035	116	13,920	34,800	34
Future – 2040	119	14,280	35,700	35
Future - 2045	122	14,640	36,600	36

- 1) Estimated average day demand based on service population and assumed well production of 120 gpcd.
- 2) Maximum day demand at 250% of average day demand.
- 3) Peak hour demand at 350% of average day, divided by 1,440.

SECTION VI FUTURE WATER SUPPLY REQUIREMENTS

The Town of Moffat has four active groundwater wells that draw its water from the confined San Luis Valley aquifer. One of the wells, Well No. 10, is only active for non-potable use. The following analysis is based upon deactivating Well No. 10, and only using the other three active wells. Well Nos. 4, 5, and 7 are decreed in Division 3 Water Court, Case No. W-2153.

Well Nos. 4 and 7 both have priority dates of December 31, 1905. Well Nos. 4 and 7 are decreed a maximum pumping rate of 30 and 25 gpm, respectively. The daily amounts are 0.134 ac-ft/day for Well No. 4 and 0.112 ac-ft/day for Well No. 7. Both wells are adjudicated, however, neither well has a permit. As these wells predate 1965, a permit is not needed. In the future when it becomes necessary to replace or modify the well, the Town will need to register for permits with the State. Pumps are utilized at each well house. No information on the actual pumping rates of the wells were available at the writing of this report.

Well 5 has a priority date of December 31, 1937. The well was redrilled in June 2019 under No. 82534-F. The well is permitted a maximum pumping rate of 25 gpm. The daily amount is limited to 0.112 ac-ft/day. The well serves the marijuana grow business associated with Area 420. This corporation has an SWSP for additional water rights of up to 1,275 gpm or 22.44 ac-feet. As Area 420 is a separate PWSID, the water supply will be analyzed solely on the Town of Moffat's population and current adjudicated water rights. The pump for the Town at Well No. 5 was installed in 2020 and pumps at a capacity of 25 gpm.

The consultant recommends that the Town create a partial distribution system to connect the core of the Town. This will result in Well Nos. 4 and 5 to be connected to supply a common distribution system on the west side of State Highway 17, and Well No. 7 will supply its own distribution system on the east side of State Highway 17. In addition, approximately one-third of the Town's population will be supplied by Well Nos. 4 and 5, and two-thirds of the Town's population will be supplied by Well No. 7. It is recommended that these two distribution systems be connected in the future to provide redundancy.

From a water supply planning standpoint, a well should not be counted upon to produce more than two-thirds of the time. The remaining time should be allowed for well maintenance and repair, power supply interruptions, and the fact in off hour periods when water demands have been met and storage tanks are full, the wells are not called upon for production. Using this criteria, Well Nos. 4 and 5 should be capable of producing 52,800 gallons per day (gpd). This comfortably exceeds the future average day demand on the west side of State Highway 17 of 4,880 gpd. Well No. 7 should be capable of producing 24,000 gpd which sufficiently exceeds the future average day demand on the east side of Highway 17 of 9,760 gpd. The Town's total future average day demand is estimated to be 14,640 gpd.

Total well production must be capable of meeting maximum day demand requirements. Typical maximum day requirements will occur with several days of heightened demand occurring prior to and immediately after the maximum day demand is experienced. Maximum day demand typically occurs during the summer months when conditions are dry and irrigation demands are their highest. Sufficient water storage cannot be economically provided to meet these extended demand periods; thus, the water supply must be capable of meeting these elevated, extended demand periods.

The Town's maximum day demand is estimated to be 36,600 gpd. Under maximum day demand conditions, the full-time potable well capacities of Well Nos. 4 and 5 is 79,200 gpd. Under worst case conditions, the use of the largest capacity well may not be available for use as it may be out of service for maintenance or repair. Therefore, if Well No. 4 was out of service, the available well capacity would be 36,000 gpd. This is sufficient to meet the future maximum day demand on the west side of State Highway 17 of 12,200 gpd. Well No. 7, under worst case scenario, also has an available well capacity of 36,000 gpd which comfortably exceeds the future maximum day demand on the east side of State Highway 17 of 24,400 gpd. Until the Town connects Well Nos. 4 and 5 distribution system to Well No. 7's distribution system, the distribution system on the east side of State Highway 17 only has one source of supply in Well No. 7. The flow out of this well is an artesian flow, and the Town does not use a pump to draw water. Instead, the Town utilizes a booster pump to pressurize the system. Therefore, it is recommended that the Town have a second booster pump in the event the first booster pump needs maintenance or repair.

Based on the water demand projections presented in this report, the existing well capacities are sufficient to meet future average day and maximum day demand conditions for the Town. Currently, there is not a short-term need to increase the water supply capacity with the reactivation of other inactive Town wells.

A review of Area 420's SWSP and supply is not conducted in detail within this report.

SECTION VII
EXISTING FINANCIAL STATUS OF THE WATER FUND

The Town of Moffat adopts a formal budget for each fiscal year for its operating funds, including the General Fund, Conservation Trust Fund, the Highway Users Fund, Excise Tax, Reserves from Excise Tax, and the Water Fund. An annual audit of the Town's financial statements is not conducted. An annual audit exemption is filed each year with the State. Such is allowed by the Colorado Office of the State Auditor for communities having an annual budget of less than \$750,000. The audit exemption is compiled by an independent accountant. The Town audit exemptions were obtained online through the Office of the State Auditor. The Town's 2023 budget was provided by the Town and online through the Department of Local Affairs (DOLA) Local Government Filings. The Town's fiscal year runs concurrent with the calendar year.

These financial statements provide very limited data within the audit exemptions regarding the water fund revenues and expenditures. For the period reviewed, the audit exemptions did not clearly identify water fund revenues and or expenditures. Town budgets include the actual revenues and expenditures for the previous year in greater detail than that provided in the typical audit exemption filings, along with estimated expenditures for the current year and the budget for the upcoming year.

The Town historically has not assessed monthly water charges to any of their water customers. The water accounts are limited to nine residential accounts, Area 420, and the Town Hall. In September 2023, the Town passed an ordinance adopting rules and regulations concerning the operation of the municipal water system of the Town of Moffat. This ordinance established fees and rates for all water connections to the system. The Town's current water rate schedule is summarized in the following table:

TABLE 8
TOWN OF MOFFAT
WATER RATES

Rate Description	Charge
Residential (3/4) Hook-Up Fee ¹⁾	\$5,000 ²⁾
Commercial (3/4) Hook-Up Fee ¹⁾	\$6,000 ²⁾
Line Extension Fee (outside of service area)	\$60/foot ³⁾ approx.
Monthly Service Fee (under 4,000 gallons)	\$40 flat fee
Monthly Surcharge Rate (between 4,000 to 10,000 gallons)	\$10 per 1,000 gallons
Monthly Surcharge Rate (above 10,000 gallons)	\$15 per 1,000 gallons
Late Fee	\$5
Reconnection Fee	\$75

- 1) Includes tap, distribution, connection and meter
- 2) Quarterly installment plans available
- 3) As quoted

The Town does not have any debt on the water system; therefore, the monthly service fee will allow the Town to cover the operational expenditures that are attributable to the water system. The current agreement with Area 420 does not include monthly water sales fees; all taxes and fees related to Area 420 are through a separate agreement for which Area 420 contributes a marijuana excise tax.

The Town's tap fee structure for a new ¾" water service is \$5,000 which includes tap, distribution, connection and a meter.

The Town assesses a property tax mil levy. The mil levy for 2023 was 10.407 mils. The assessed valuation of the Town in 2023 was \$3,606,624. Thus, the general property tax revenue from the 2023 budget, was estimated to total \$37,534. Property tax revenues are directed into the General Fund. The Water Enterprise Fund does not receive property tax revenues.

Article X, Section 20 of the Colorado Constitution, commonly known as the Taxpayer's Bill of Rights (TABOR) establishes, taxing, spending, revenue and debt limitations for the State of

Colorado and all local governments, including enterprise funds, which are defined as government owned businesses. Revenues received which are in excess of the fiscal year's spending limits must be refunded. In 2017, the Town residents approved a ballot measure overriding TABOR. The ballot question passed by the community read:

"Without creating any new tax or increasing any current taxes, and as envisioned by the provisions of TABOR, shall the Town of Moffat be permitted to retain and spend Town revenues derived from any and all sources in excess of the spending or other limitation set for in Article X, Section 20 of the Colorado Constitution, or any other law, beginning with revenues received in 2017 and for all future years?"

With the passage of this ballot measure, the Town has effectively "debruced". Thus, the Town has been authorized by its constituents to accept State grant funds generated from State taxes.

The Town established a Water Enterprise Fund on December 19, 2023 it will be subject to TABOR by the nature of enterprise funds. The Enterprise Fund will be a "business" of the Town and should be able to operate independently of the other funds within the Town. If more than 10% of the revenues are from local or state tax generated funds, then the water fund would lose its enterprise status. The benefit of enterprise funds is that it allows the Town to borrow and take on debt for water system improvements without going to a vote; the debt is pledged by user revenues. However, if the Town does not have, or loses enterprise status, the Town would be required to go to a vote to take on debt. At the present time due to limited data, it is unknown if there will be sufficient revenue generated for the Water Enterprise Fund to operate independently from other Town funds and maintain enterprise status. Within the Water Enterprise Fund, revenues and expenditures for the water system will be clearly identified which will be important for government agencies that may participate with the Town with both grants and loans.

The current agreement with Area 420 provides Area 420 with water without a charge for water use. With the revenue from Area 420 is through a marijuana excise tax, it is understood that the intention of this agreement is that the tax would pay for water usage. The challenge with this is that Area 420 is by far the largest water user but is not charged for water through a traditional user fee. Currently, the Town covers the expenditures of the water system from the revenues

generated from this tax. In the future, this would effectively disqualify the Moffat Water Enterprise Fund from operating as an enterprise since the revenues from local taxes would be greater than 10% of the revenue requiring any improvements that would require debt to go to a vote.

In order to assess the overall financial health of the water system, revenues and expenditures within the water fund as identified in the Town budgets were reviewed. The audit exemptions do not separate out the water fund revenues or expenditures, although some years the audit exemption indicated water expenditures. The water fund has been consistently separated in the annual budgets; therefore, the following table is a summary of the water fund revenues as presented in the 2019 through 2023 Town budgets.

TABLE 9
TOWN OF MOFFAT
WATER SYSTEM REVENUES

Year	Lease Payments	Water Utility Payment	Total Operating Revenue	Grants	Total
2019 ¹⁾	\$840	\$224	\$1,064	-	\$1,064
2020 ²⁾	-	\$5,010	\$5,010	-	\$5,010
2021 ³⁾	\$5,000	\$800	\$5,800	-	\$5,800
2022 ⁴⁾	-	\$5,040	\$5,040	\$50,000	\$55,040
2023 ⁴⁾	-	\$5,040	\$5,040	\$60,000	\$65,040

- 1) Actual values from the 2021 budget.
- 2) Actual values from the 2022 budget.
- 3) Actual values from the 2023 budget.
- 4) From the 2023 Budget

From the financial data provided, the following table has been compiled to reflect the water system expenditures incurred as presented in the 2019 through 2023 Town budgets.

TABLE 10
TOWN OF MOFFAT
WATER SYSTEM EXPENDITURES

Year	Water Operator	Operation & Maintenance ⁵⁾	Bank Charges	Lease Payment	Violations	Capital Improvements	Total
2019 ¹⁾	-	\$1,535	\$202	-	-	-	\$1,737
2020 ²⁾	-	\$1,550	\$5	\$5,000	-	-	\$6,555
2021 ³⁾	-	\$2,000	-	-	\$783	-	\$2,783
2022 ⁴⁾	\$11,204	\$89,711	-	-	-	-	\$100,915
2023 ⁴⁾	\$13,000	\$57,500	-	-	-	\$138,000	\$208,500

- 1) Actual values from the 2021 budget.
- 2) Actual values from the 2022 budget.
- 3) Actual values from the 2023 budget.
- 4) From the 2023 Budget.
- 5) Includes compliance, testing, and Well #1 revenues.

In reviewing the actual revenues and expenditures as presented in the Town's budgets, the Town consistently receives approximately \$5,000 for leasing water. This was sometimes categorized under water lease and in other years this revenue is realized in the water utility payment category. The expenditures are very limited and have varied from approximately \$2,000 to \$6,500 over the period of review. It is assumed that some of the Town's water expenditures are being accounted for within the Town's general fund, as a typical cost for a contract operator would be at minimum of \$6,000 annually. This does not seem to be accounted for in the Town budgets. With the establishment of the Water Enterprise Fund, the Town has developed a budget for the Water Fund for 2024. The draft budget, which has not been published and thus not included herein, shows limited revenue. The 2024 budgeted expenditures appear to be itemized in more detail than what has been done historically.

It will be important for the Town Board to frequently review the water rate structure to ensure that there are sufficient revenues for the water fund to operate. It is not typical for communities of this size to be able to afford infrastructure improvements from annual revenue; therefore, capital improvements are typically funded through grants and loans provided by governmental entities.

SECTION VIII EVALUATION OF EXISTING WATER SYSTEM

In evaluating the overall condition and adequacy of the existing water system, discrete elements of the system are reviewed including water treatment and resulting water quality, water supply, water storage, distribution, and metering components. The primary focus of this study is to address the water quality and treatment groundwater supply, as well as the Town's distribution system. A more detailed water quality and treatment assessment is presented in the next section.

A. WATER SUPPLY

An assessment of the Town's water supply needs was presented in Section VI of this study. The Town's three potable wells range in age from 1905 to 1937. The future average day demand of the Town's population west of State Highway 17, estimated at 4,880 gpd, is comfortably supplied by two-thirds of Well Nos. 4 and 5 (estimated to be 52,800 gpd). Similarly, two-thirds of Well No. 7, estimated at 14,640 gpd, is sufficient for the future average day demand of the Town's population east of State Highway 17, estimated at 9,760 gpd.

The maximum well production capacity for Well Nos. 4 and 5 is 36,000 gpd, under worst case scenario, which appears to be adequate for the projected future maximum day demand of 12,200 gpd for the west side of Town. The maximum well production capacity for Well No. 7 is 36,000 gpd which exceeds the projected future maximum day demand of 24,400 gpd for the east side of Town.

Future water supply demands within the Town's service area are estimated at 16.4 ac-ft/yr. Per the Division 3 Water Court, Case No. W-2153, Well Nos. 4, 5, and 7 have a combined daily amount of 0.358 ac-ft/day, which equates to 130.67 ac-ft/year. The Town's annual water rights are sufficient for the Town's projected demands.

As previously discussed, Well Nos. 4 and 7 are not permitted wells. The current operation, however, is legal as the wells predate 1965. In the future, when the replacement of the well

becomes necessary, a replacement well permit will be required. Additionally, any wells that the Town chooses to reactivate will require a permit to reactivate for Town use.

Although the Town's groundwater supply capacity is sufficient, it is recommended the Town include an additional booster pump at Well No. 7. The operation at Well No. 7 includes the artesian well pumping water to the Town's storage tank located inside the Well No. 7 well house. A booster pump then pressurizes the distribution system, alongside a hydropneumatic tank, to provide adequate pressure to the connected customers. In the event the booster pump becomes inactive, the customers may experience inadequate system pressures. Therefore, to ensure adequate services to customers, it is recommended the Town install a second booster pump.

Upon review of each of the wells, all wells utilize pumps and hydropneumatic tanks to pressurize their respective distribution systems. The Town does not have generators as a back-up power supply in case the power is interrupted. In times of power outages, the Town is susceptible to water shortages and inadequate pressures. Therefore, it is recommended the Town install generators at each well house, so the customer's water usage will be uninterrupted in power outage events.

It is recommended that the Town deactivate Well No. 10. Per the 2021 Enforcement Order, the Town has to prevent public access to the well for water quality deficiencies until proper treatment techniques are implemented. Well No. 10 is only permitted for Town Hall use. Thus, the well cannot be used to provide redundancy to Well No. 7. Therefore, it is recommended the Town disconnect this well. Well No. 10 can be of use in the future if the need arises. This would require a change of use filing with the water court for Well No. 10 to be used for domestic and municipal use. However, the supply of Well No. 7 is currently sufficient to carry the demands of the Town.

The Town staff expressed interest in reactivating Well No. 2 and providing redundancy to Well No. 7 on the east side of Town. The capacity of Well No. 7 is sufficient to provide for the Town's projected demands on the east side of State Highway 17. In the event Well No. 7 becomes unable to provide the necessary water supply, the Town could connect the two distribution systems on either side of State Highway 17. Well No. 2 is available for municipal and domestic use. However, the exact location of the well is unknown, and would

need to be re-drilled for use. Any work done to Well No. 2 will require a permit to reactivate the well for Town use.

B. WATER STORAGE

The Town of Moffat has two distribution system storage tanks. One storage tank is located in the Well No. 4 well house with a capacity of 625 gallons. The second storage tank is located at the Well No. 7 well house, but the size was unknown at the writing of this report. The tanks do not function as conventional gravity storage tanks where the vertical relationship of the water in the tanks provides pressure to the system, such as that provided by an elevated water storage tank. The existing tanks are ground level tanks located inside each well house. Groundwater is boosted by pumping from the tanks into the distribution system. Pressures are maintained within the system by the hydropneumatic tanks located in the well houses.

As required by CDPHE Drinking Water Policy DW012, a periodic storage tank inspection must be conducted at least twice per year and a comprehensive storage tank inspection at least every five years. It is unknown when the latest comprehensive inspection was conducted.

The Town's most recent sanitary survey found significant deficiencies associated with the storage tank in the Well No. 4 well house. At the time of the survey, the inspector observed that the material used to seal the vent on the raw water tank lid did not provide a proper seal as there was a noticeable gap. Noted deficiencies were addressed by the Town in early 2023. There is no information regarding the storage tank at the Well No. 7 well house.

In evaluating the Town's storage tank requirements, it is necessary to evaluate demands within the system to determine the reasonable amount of storage required. Distribution system storage serves several purposes. The total storage need must be evaluated with consideration given to each individual storage component. Three primary purposes of water storage are:

1. Equalization storage to meet hourly variations in water system demands.
2. Fire storage to store water for firefighting.
3. Emergency storage to provide a supply reserve for emergency use.

The first of these factors is the equalization of daily flow. Instantaneous demands placed on a water system are not uniform throughout any given day. The system must be able to supply the peak demands that occur on an hourly basis throughout the day. Water storage is a means whereby the equalization of these heightened demands can be obtained without placing the demand directly on the supply system. Equalization storage typically ranges from 15% to 30% of maximum daily use. This factor has an inverse relationship to the size of the customer base. As such, small communities have a higher peak hour supply need than larger communities. Thus, the 30% equalization factor is considered for the Town of Moffat. As developed earlier in this study, the future maximum day demand has been estimated at 36,600 gpd (12,200 gpd on the west side of Town and 24,400 gpd on the east side of Town). Therefore, the Town would need a storage equalization capacity of 3,600 gallons on the west side of the Town and 7,320 gallons on the east side of Town.

The second component of the storage calculation requirement is that of fire flow. Fire protection is provided by the Northern Saguache County Fire District (NSCFD). The current distribution system does not have firefighting capabilities. In addition, the proposed distribution system would not be designed for fire suppression storage because the larger diameter piping required and the large distances between services would likely create water quality problems. Therefore, the proposed storage capacities do not include fire storage volumes. The fire department uses a water tanker for firefighting and draws water from the Moffat School water system. The NSCFD fire station in Moffat has no running water in or near the station. Therefore, it is recommended the Town either reactivate Well No. 9 (decreed for fire use) for the fire department needs, or build a distribution line to supply the fire department for tanker filling. The consultant recommends that the NSCFD install a fire storage tank at the Moffit station for rapid tanker truck filling.

The third factor in sizing storage is that of an emergency reserve. An emergency reserve is that portion of the total storage that is available when normal supply is interrupted. The quantity of supply for emergency storage depends primarily upon the source of water and its method of delivery. The primary emergency condition would be a power failure. Under this condition, the service area would be supplied directly from the distribution system storage if such storage was capable of providing water on a gravity feed basis. Since the system is dependent on the booster pumps and hydropneumatic tanks for pressure at each well, an

emergency standby generator is recommended to be placed outside each well house. The topography within and around the Town is such that the Town would need a standpipe approximately 50 to 80 feet minimum to attain adequate pressures throughout the Town through a gravity feed system. Adding a backup emergency generator is a more practical and economical solution for the Town. Since a generator is recommended to be sized to back up the booster pumps, no emergency supply will be required.

From the above methodology, the required distribution storage volume, utilizing ground level tanks and the adjacent booster pumps, is approximately 3,600 gallons for the west side of the Town and 7,300 gallons on the east side of Town. The storage tank on the west side of Town is approximately 625 gallons. Therefore, the storage tank on the west side of Town is inadequately sized to provide sufficient equalization storage to the community. The volume of available storage at Well No. 7 is unknown, however, based on photographs of the tank, it does not appear to provide the needed 7,300 gallons. Therefore, it is recommended the Town increase the size of the storage tanks at both sites.

C. DISTRIBUTION SYSTEM

The Town's distribution system is composed of approximately 0.6 miles of piping. The distribution system that is supplied by Well No. 4 consists of approximately 630 feet of pipe. The size and material of the pipe is unknown. The distribution system near Well No. 4 services four houses. The distribution system near Well No. 5 is comprised of 2,700 feet towards Area 420 and 75 feet south towards two Town residents. The main to these customers is a 6-inch DR18 C900 PVC pipe. The distribution system does have an existing tee to eventually connect to the distribution system associated with Well No. 4. No distribution system exists near Well No. 7 and customers are directly tapped into the well house.

At the writing of this report, the Town only services 11 total customers, nine of which are residential. The distribution system is minimal and does not service the core of the Town. Most of the residents within the Town are serviced by individual, private wells. The Town has passed Ordinance No. 2023-04 which requires residents of the Town who do not have a private well or separate water supply to connect to the proposed distribution system as it expands through the Town. To ensure the Town has a sustainable source of revenue, it is

recommended the Town begin serving and charging residents of the Town for water usage. It is recommended the Town begin construction of a distribution system that provides service to the core of the Town, with the end goal to service all residents within the Town limits in the future. Further discussion of the proposed alternatives is presented in Section X.

The consultant recommends that the Town install a bulk water loading station to serve a local need. The bulk water loading station will provide a source of revenue for the Town. The location of the recommended bulk water loading station is shown on Figure 8 in the back of this report.

The Town has received interest from potential commercial customers who want to receive potable water from the Town. Also, the Town school operates a regulated public water system for the school building. This represents a potential customer to the Town as the school's current expense of operating a public water system could represent considerable savings on expenses if water were provided by the Town.

It is recommended that the Town require residents and businesses within Town boundaries to connect to the water line at the owner's expense. In addition, it is recommended that the Town create a distribution system with a metering system to begin creating a revenue source for the water utility.

D. METERS AND SERVICES

The Town of Moffat has a total of 11 water customers. Well No. 4 has four residential accounts, Well No. 5 has two residential accounts and the Area 420 account, Well No. 7 has three residential accounts, and Well No. 10 services the Town Hall. The Town passed Ordinance No. 2023-04 which requires residents of the Town to connect to the Town's distribution system once it is constructed unless the resident has their own private well or a separate water supply. In addition to this requirement, the Town set up a tap fee and rate structure. Existing customers are not paying for water usage. Area 420 is paying the Town an 2% excise tax on revenues from cannabis sales, but not on water usage.

The Town currently meters only two of the residents who are connected to Well No. 5. These meters are manual read and recorded. The remaining customers do not have meters installed. It is recommended the Town install meters to the remaining customers, as well as future proposed connections to existing houses at the homeowner's expense.

The Town's new ordinance 2023-04 requires all properties to connect to the water system unless currently served by a well. This could be problematic in getting customers to connect to the system as it is likely that properties not on the water system are served by a well. Nevertheless, for the purpose of this report it is assumed that all residential and commercial properties adjacent to the distribution system extension proposed will be connected to the system with a meter. In addition, it is recommended the Town charge Area 420 for water usage.

The Town of Moffat collects a Marijuana Excise Tax from the Area 420 per Town Ordinance No. 2019-16. The Ordinance was signed August 6, 2019, and states that the "excise tax will be set on a tiered system of 2% the first year, 3% the second year, and 5% every year following the second year of business on all commercial marijuana cultivations, facilities, manufactured infused product grows and facilities." The Town noted that Area 420 was paying a 5% excise tax in 2022 but agreed to reduce the excise tax to 2% in 2023. Area 420 does not pay for water usage but has a rate structure for local growers within their public water system. The consultant recommends that the Town create a rate structure for Area 420's usage. It is noted that Area 420 paid for all the work done to incorporate disinfection to Well No. 5. The Town should work on an agreement with Area 420 to reimburse Area 420 for their contribution to the water system. Although Area 420 paid for the improvements, the Town is responsible for the operation and maintenance costs associated with the well. Therefore, in the long term, the Town of Moffat should implement a rate structure to charge Area 420 for water usage.

In addition to installing meters, it is recommended that the Town begin inventorying the service line materials on its nine residential customers. In 1991, the Environmental Protection Agency (EPA) promulgated the Lead and Copper Rule (LCR) which regulated lead and copper concentrations in public drinking water systems. In January 2021, the EPA further reinforced this Rule with the Lead and Copper Rule Revisions (LCRR). The LCRR

revised the rule for communities with the intention of eliminating all lead service lines. The new requirements in the LCRR include:

- Water systems must develop a system-wide service line inventory (SLI) and create a lead service line replacement plan (LSLRP) by October 16, 2024.
- Comply with a lead "trigger level" of 10 parts per billion (ppb) that triggers additional planning, monitoring, and treatment requirements.
- "Find and Fix" at individual taps above the 15 ppb lead action level to investigate and potentially remediate the source of the lead.
- Lead testing in schools and childcare facilities.
- Strengthen corrosion control treatment, lead service line replacement, lead sampling, and public education requirements.

By October 16, 2024, the Town will need to have all service lines inventoried and have a lead service line replacement plan submitted to the CDPHE to comply with federal regulations. Additionally, the Town must sample and monitor for lead in their distribution system as stated in the above points listed for the LCRR.

SECTION IX WATER QUALITY AND WATER TREATMENT

A. WATER QUALITY

The Town's four groundwater wells draw from the confined San Luis Valley aquifer. The Town of Moffat is required to test its water supply in accordance with the CDPHE Drinking Water Monitoring Schedule. The required sampling includes microbiological, chlorine residual, nitrate, organic and inorganic contaminants, and disinfection byproducts. The Town is also required to conduct lead and copper sampling from customer taps every year.

Water quality data has been obtained from the CDPHE Water Quality Control Division Records Unit for the period from 2016 to 2023. The data has been reviewed and tabulated as part of this study. The following Table 11 presents the regulated water quality parameters representing the typical water quality conditions of Well Nos. 4, 5 and 7.

TABLE 11
TOWN OF MOFFAT
WATER QUALITY DATA ⁷⁾

Parameter	Samples	Average Concentration	MCL ¹⁾	Units ²⁾
Antimony	15	BDL ³⁾	0.006	mg/l
Arsenic	15	0.0004	0.01	mg/l
Barium	15	0.061	2	mg/l
Beryllium	15	0.0002	0.004	mg/l
Cadmium	28	0.004	0.005	mg/l
Chromium	15	BDL ³⁾	0.1	mg/l
Fluoride	15	1.35	4 ⁴⁾	mg/l
Glyphosate	24	BDL ³⁾	0.7	mg/l
Mercury	15	BDL ³⁾	0.002	mg/l
Nickel	15	BDL ³⁾	⁵⁾	mg/l
Nitrate	22	0.005	10	mg/l
Nitrite	4	BDL ³⁾	1	mg/l
Selenium	15	0.0006	0.05	mg/l
Sodium	15	26	⁵⁾	mg/l
Thallium	15	BDL ³⁾	0.002	mg/l
Total Coliform	216	0% of samples ⁶⁾	5% of samples	Positive
E. Coli	195	0% of samples	5% of samples	Positive
Total Haloacetic Acids	2	3.5	60	ug/l
Total Trihalomethanes	2	11.1	80	ug/l

- 1) Regulated Maximum Contaminate Level
- 2) mg/l - milligrams per liter. ug/l - micrograms per liter
- 3) Below Detection Limit
- 4) Secondary MCL at 2mg/l, not enforceable
- 5) No MCL, MCLG, or SMCL
- 6) One positive sample dated June 8, 2022.
- 7) Combined data from wells 4, 5, and 7

As shown in the above table, the regulated contaminants are below the regulated Maximum Contaminate Level (MCL) for each parameter. The historical water quality data presented in the table does not include the detailed sample data for regulated and unregulated volatile organic compounds and synthetic organic compounds, which have consistently been non-detected.

Total coliform and E. coli samples have been compliant with drinking water regulations. The only violation the Town has experienced is in regard to the timely development of a

monitoring sampling plan. Following the CDPHE correspondence with the Town, a monitoring and sampling plan has been created and submitted to the State.

Disinfection byproducts consist of the five surrogate haloacetic acids (HAA5), total trihalomethanes (TTHMs), chlorite, and bromate. TTHMs and HAA5s are required to be sampled in the distribution system and the two samples are well below their MCLs. The Town only treats the water with disinfection at Well No. 5. Per the 2021 Enforcement Order, the Town must sample the residual concentration at the entry point to the distribution system at a frequency of at least seven days. No data for the residual concentration has been made available at the writing of this report.

The Town's water supply does not contain any regulated drinking water contaminants of concern that would require treatment. The Town does not conduct routine sampling for other, non-enforceable water quality parameters such as alkalinity, pH, hardness, Iron, Manganese and corrosivity are not available. The recent improvement projects to Well No. 5 has data from 2018 and 2019 for some of these non-regulated contaminants and are available in detail in the Basis of Design Report by SGM Engineering. In February of 2018, iron concentrations were below the detection limit, manganese concentrations were 1.3 mg/l, hardness concentration was 101.1 mg/l, the pH was 8.2, and alkalinity was measured as 101.1 mg/l as CaCO₃. In March of 2019, iron was measured at 0.748 mg/l, manganese was 0.264 mg/l, hardness was 95.9 mg/l, pH was 7.7, and the alkalinity was measured at 95.9 mg/l as CaCO₃. The secondary maximum contaminant level (SCML) for iron is 0.3 mg/l, manganese is 0.05 mg/l, and pH is between 6.5 and 8.5. As seen above, iron and manganese are above the SCML. Although this is not enforceable or creates health concerns, iron and manganese can cause discoloration and taste issues in the water. Current data is not available for these non-regulated contaminants, but it is recommended that the Town provide iron and manganese sequestration chemical addition at the well houses. Manganese is categorized as an emerging contaminant having a chronic concentration level of 1.0 mg/l. The two samples average above 1.0 mg/l. Additional monitoring is recommended.

The Town conducts lead and copper surveys at customer taps annually. The most recent report was issued in May 2023. No violations or maximum contaminant level exceedances are indicated. As required by the Lead and Copper Rule, sampling of five customer taps is

required every six months. The 90th percentile Action Level for lead is 15 ug/l and for copper at 1.3 mg/l. The last lead and copper survey found the 90th percentile for lead at 0 ug/l and for copper at 0.02 mg/l. These levels are well below the regulated action level.

B. WATER TREATMENT

The Town provides disinfection treatment for Well No. 5. This consists of a 12.5% sodium hypochlorite solution which is injected from a Stenner S3VO2 peristaltic pump. This chemical feed flows into the pipe after the raw water meters from a 15-gallon drum at a rate between 0.03 to 0.71 gallons per hour (gph). The disinfection contact time is provided by approximately 240 linear feet of 6-inch DR18 C900 PVC that was installed in a serpentine configuration for a total approximate volume of 360 gallons. This pipeline network sits directly north of the existing well house and provides adequate contact time before entry to the system. For groundwater supplies, adequate disinfection must be provided to achieve a 4-log virus inactivation. The 4-log virus inactivation is determined as a function of the water pH, temperature and chlorine residual. For groundwater at 50° F, pH in the range of 6 to 9, and a 2.5 mg/l free chlorine residual (as designed by SGM), the required CT (chlorine residual times effective contact time) is 6.0 or 2.4 minutes. This relatively high dosage was determined based on a considerable demand to oxidize high levels of iron and manganese. For Well No. 5, disinfection contact time is provided through contact piping. Disinfection contact time is provided by 240 feet of 6-inch diameter piping. The pipe has an effective disinfection volume of 363 gallons since the baffle factor is equal to one. Using the maximum pumping rate from Well No. 5 of 25 gpm, the disinfection contact time is 36.3 or 14.5 minutes. Therefore, adequate disinfection contact time is provided to the Well No. 5. However, with the contact provided volume, the Town could potentially reduce the dosage volume to attain a free chlorine residual of 0.5 mg/l.

It is important to note that Area 420 has a SWSP to expand the well use to a combined amount of 1,275 gpm. However, this higher flow rate does not satisfy the CDPHE residual disinfection concentration of 0.2 to 4.0 mg/L. It is recommended to have a residual disinfection concentration between 0.2 to 1.0 mg/l. Therefore, to attain a 1.0 mg/l residual disinfection concentration, the peak hour flow would be limited to 60 gpm for both the Town and Area 420. This provides a disinfection contact time of 6.1 or 6.1 minutes. Pumping at the maximum allowed SWSP amount of 1,275 gpm does not provide adequate disinfection

contact time for the system with the current contact piping. Thus, the Town should take into consideration the pumping rate of Area 420 to ensure proper disinfection.

The Town issued enforcement order requires disinfection of potable water supplies. Well Nos. 4 and 7 are not equipped with disinfection equipment. Therefore, to satisfy the requirements of the enforcement order, it is recommended the Town implement disinfection techniques to each of the wells. The consultant recommends piping Well No. 4 to the Well No. 5 well house and utilize the existing disinfection facilities at Well No. 5. It is recommended the Town only operates one well at a time to maintain a residual concentration of 0.5 mg/l. Well No. 4 pumps at a rate of 30 gpm, which would provide a disinfection contact time of 6.1 or 12.1. Both wells operating simultaneously would result in a chlorine residual of 1.0 mg/l. This would be a disinfection contact time of 6.6 or 6.6 minutes. Operating one well at a time through Well No. 5 WTP is recommended to provide adequate contact time and prolong the chlorine solution to promote cost savings.

Well No. 7 is required to install disinfection treatment equipment and disinfection piping for proper contact time. It is recommended to have a chlorine residual of 0.7 mg/l at the Well No. 7 system entry point. For groundwater at 50° F, pH in the range of 6 to 9, and a 0.7 mg/l free chlorine residual, the required CT (chlorine residual times effective contact time) is 6.0 or 8.6 minutes. In addition to the required contact time, the Town must ensure proper piping for the disinfection contact time. The State of Colorado Design Criteria for Potable Water Systems Policy DW005, Section 4.4.3.a has implemented standards for disinfection contact volumes and baffle factors:

“To achieve a baffle factor of 1.0, pipe segments must have a total length to width ratio greater than 160:1 with no segment less than 40:1 prior to bends, a constant diameter, and fully turbulent flow under the minimum flow condition.”

The peak hour flow from Well No. 7 is the maximum pumping rate of 25 gpm. The disinfection piping must provide a minimum volume of 215 gallons. To attain this volume at the correct length to width ratio, the pipe must be an 8-inch diameter pipe with a length of 110 feet. The total volume is 290 gallons with a disinfection contact time of 8.1 or 11.6 minutes. This meets the requirements set forth by the State. Exact dosages of the chlorine will be determined in the design phase of the project.

In addition to the recommended Well No. 7 treatment, the existing pump, hydropneumatic tank and storage tank for Well No. 7 is currently sited on private property. A new well house is recommended to be constructed on the adjacent Town owned vacant right-of-way, south of the private property site. The new building will be approximately 24 feet by 30 feet. The building will have enough room to accommodate the hydropneumatic tank, pumps, and backflow prevention device.

In order to address the high levels of iron and manganese in the wells, the consultant recommends the addition of a phosphate sequestering agent to Well Nos. 5 and 7 WTP's to prevent iron and manganese from coming out of the solution. Dosages will be determined in the design phase of the project.

SECTION X DISTRIBUTION SYSTEM ALTERNATIVES

The Town of Moffat's water supply is currently in compliance with current drinking water regulations; however, the Town is under an enforcement order due to not providing disinfection of its ground water supplies. The Town has sent public notices advising people to avoid drinking water from these wells and instead drink bottled water. The Town lacks a distribution system that can service the core of the Town. Constructing a sizeable distribution system will ensure the residents of the Town have access to treated water and provide the Town with a sustainable system to maintain their infrastructure. The following alternatives present the distribution system alternatives considered.

A. DISTRIBUTION SYSTEM ALTERNATIVES

The following distribution alternatives were evaluated for the Town of Moffat.

1. No Action Alternative

This alternative is the most inexpensive option as the system would be required to solely address the Enforcement Order. The Town has a small distribution system, and the least expensive option is to only provide disinfection at Well Nos. 4 and 7. Included in this alternative is deactivating Well No. 10 and installing pipe from Well No. 7 to the Town Hall. This alternative does not address expanding the distribution system to connect more residents of the Town to the distribution system.

2. Partial Distribution System

A partial distribution system seeks to comply with the enforcement order, as well as build a smaller distribution system to connect the core area of the Town. To comply with the Enforcement Order, the Town would pipe the raw water from Well No. 4 and to treat it at Well No. 5 before servicing residents. The Town would also install disinfection at Well No. 7 and include contact piping at the well site. Well No. 10 would be deactivated. This partial system alternative would consist of two separate distribution systems on

each side of State Highway 17. Well No. 7 would supply the east system, and Well Nos. 4 and 5 would supply the west system. Each system would include adequately sized treated water storage to accommodate demand fluctuations throughout the day. This smaller system approach is an incremental in a long-term objective for the Town to expand the distribution system to service most of the Town. Recommended improvements have been grouped into two priorities of work.

3. Complete Distribution System

The complete distribution system alternative consists of providing a distribution system to serve all platted properties within all rights-of-ways in the incorporated limits of the Town. In addition to satisfying the requirements listed in the Enforcement Order, the Town would also include a project to service every resident of the Town and provide looping in the network to prevent stagnant water. This alternative is the most expensive option and is seen as being cost prohibitive.

4. Non-viable Alternatives

From the alternatives evaluated, several can be eliminated without full evaluation, as they are not considered viable or practical. A brief discussion is presented as follows:

a. Complete Distribution System

A complete distribution system for the Town is not a viable option for the Town to undertake. The Town does not currently have a distribution system, and constructing a sizeable distribution system would be an expensive project. The Town was provided with a preliminary cost of \$25 million from SGM Engineering to construct a complete distribution system to service all residents of the Town. The Town boundaries are approximately 1.4 square miles, and servicing residents within the Town would require extensive lengths of piping to provide looping. The Town also recently began implementing a rate structure for residents of the Town to pay for water usage. The Town does not meter or charge any current customers, and thus, the exact cost to operate the current water system is unknown. Therefore, it is not recommended to build a full water system until the Town's water funds are self-

sustainable. In addition, building an entire distribution system is not practical for the Town. Many residents have their own private wells for water and are not dependent on the Town for supply. Also, the Town does not have the support of the Town residents to connect to the proposed distribution system. Therefore, the construction of a complete distribution system is not feasible nor practical for the Town to implement under the current conditions.

B. ALTERNATIVES EVALUATION

The No Action alternative is the most economical decision for the Town. The alternative seeks to solely satisfy the requirements in the Enforcement Order. The Town must disinfect the groundwater supply at Well Nos. 4, 5, 7, and 10 to meet the Enforcement Order. This alternative consists of providing disinfection at each of the wells. Well No. 10 is recommended to be disconnected and new piping be installed from Well No. 7 to service the Town Hall. These recommendations do not expand the distribution system, minus the piping from Well No. 7 to the Town Hall. No new customers would be added in this alternative. However, it would be recommended for the Town to install meters for the existing customers and to charge the customers. Operations and maintenance costs to run the current system would not be sustainable. The Town implemented a rate structure, and it would be recommended for the Town to begin charging current customers for their water usage. With only 11 customers in the system, the Town would not have the revenue to sustain the costs of operating the water system. Installing disinfection at the necessary wells will fulfill the requirements of the Enforcement Order, but it will not provide the Town with sustainability in their water system in the future. The Town would need to seek funds from other Town accounts to maintain the water system.

The recommended alternative is to build a partial system to provide water to the core area of the Town. The improvements include two priorities of work for the Town to incrementally build a water system that the Town can feasibly and practically implement. Priority One consists of the needed groundwater disinfection improvements, and sequestration chemical addition to address high levels of iron and manganese. This partial system alternative will start with a separate distribution system on the east and west sides of State Highway 17. The distribution system on the east side of State Highway 17 will begin at the new WTP at Well No. 7, and head north along Lincoln Avenue to 5th Street. The line will go east and

west along 5th Street from Broadway Avenue to State Highway 17. The distribution system on the west side of Town will start at the entry point near Well No. 5 and proceed west to connect to the main that services the four houses near Well No. 4. The main will also proceed south from Well No. 5 underneath 5th Street to the school. In addition, the main will proceed west one block from Well No. 5 to service the existing accounts in the alleyway. In total, the Priority One improvements would service approximately 34 customers (includes the two meters already installed by Well No. 5). Meters would be installed to begin charging the customers. The Priority Two improvements would connect the two separate distribution systems underneath State Highway 17 and 5th Street and extend the distribution system north and south along Lincoln Avenue. Priority Two improvements would add approximately 30 more customers to the distribution system. Meters would also be installed at these new accounts. The partial system does not service the Town in its entirety but provides water to the core of the Town. The Town would service approximately 64 accounts, which is significantly more than the current number of customers. 14 of these customers are assumed to be commercial accounts. The additional customers would allow the Town to become a sustainable water system.

SECTION XI WATER SYSTEM IMPROVEMENT NEEDS AND ALTERNATIVES

The Town of Moffat's primary water system need is to comply with the Enforcement Order to disinfect the groundwater. The distribution system is also in need of improvement. These water system needs have been identified within this report; however, the necessary Enforcement Order compliance improvements are paramount.

The recommended alternative is for the Town to build a partial water system, with the goal of further expansion in the future. The distribution system addresses a public health concern and ensures treated water is being served to all residents of the Town. These recommendations also include the Town using its statutory authority to connect residents of the Town to the proposed distribution system. Connecting and charging the residents to the proposed distribution system will allow the Town to operate and maintain an efficient distribution system. The Town Ordinance No. 2023-04 requires properties to pay for the materials and installation to connect the property to the system. The ordinance also indicates that a service will be provided by the Town. For the purpose of this report, it is assumed that new services, including the service line, meter and meter pit are included in the distribution system improvements. Future connections to the distribution system would be by the property owner. The Town also needs to conduct public outreach to ensure Town residents know of the proposed improvements. Upon the site visit, many of the residents were unaware of the proposed improvements. Therefore, the Town should conduct a public outreach to inform the residents of the Town about the opportunity to connect residents to a treated water supply. The partial water system alternative is presented in two priorities of work so the Town can incrementally build a complete water system over time. The recommended priorities are shown on Figure 8 in the back of this report.

Priority One work includes the disinfection requirements as noted in the Enforcement Order, distribution system piping, and customer meters. Well No. 4 will have a new raw water pipeline to Well No. 5 WTP so it can be disinfected before entry to the distribution system. There have historically been elevated concentrations of iron and manganese in the water supply. It is recommended that Well No. 5 WTP has an iron and manganese sequestration feed system in the existing Well No. 5 WTP building. Additionally, Well No. 7 will include a new WTP that is located in Town right-of-way, and no longer on private property. The building will consist of a

new 24 feet by 30 feet by 12 feet high wood framed building. The WTP will be equipped with a sodium hypochlorite chlorination feed system and iron and manganese sequestration feed system, and booster pumps to pressurize the system. Well No. 7 will include 110 feet of 8-inch PVC for disinfection contact time. Well No. 10 will be disconnected and can be made available to use in the future. Priority One work will also include new storage tanks at Well No. 7 WTP and Well No. 5 WTP. These storage tanks will provide equalization storage to account for the varying demands of water use throughout the day. The Well No. 7 WTP will house two new 3,700-gallon storage tanks to protect from freezing temperatures and for the artesian well to naturally pump into. The Well No. 5 WTP will need to build a new 24 foot by 16 foot by 8-foot-high wood frame storage building to house two 1,800-gallon storage tanks to protect from the freezing temperatures in the wintertime. Backup generator supplies will be added to Well Nos. 5 and 7 in case of power failure. The Town will also need to connect 32 customers to the distribution system including the service line, meter and meter pit. These costs are included in the recommended improvements. The following table presents a detailed project cost estimate for Priority One.

TABLE 12
TOWN OF MOFFAT
PRIORITY ONE PROJECT COST ESTIMATE

Item	Description	Quantity	Unit Cost	Total Cost
A. WTP Improvements				
1.	Well No. 4 WTP			
a.	4-inch raw water from Well No. 4 to Well No. 5	950 LF	\$60	\$57,000
b.	4-inch gate valves	2 EA	\$2,000	\$4,000
c.	Booster pump, standby	1 EA	\$5,000	\$5,000
2.	Well No. 5 WTP and Treated Water Storage			
a.	Iron and manganese sequestration feed system in existing building	1 LS	\$8,000	\$8,000
b.	Water storage and bulk water sales building, 24' x 16' x 8' high wood framed building including foundation, heating, ventilation and house electrical.	1 LS	\$77,000	\$77,000
c.	Water storage tank, 1,800 gallon HDPE with piping and level controls	2 EA	\$6,000	\$12,000
3.	Well No. 7 WTP			
a.	New WTP Building, 24' x 30' x 12' high wood framed building including foundation, heating, ventilation and house electrical.	1 LS	\$158,000	\$158,000
b.	Water storage tank, 3,700 gallon HDPE with piping and level controls	2 EA	\$9,000	\$18,000

Item	Description	Quantity	Unit Cost	Total Cost
c.	Booster pumps, piping, valves and controls	2 EA	\$9,000	\$18,000
d.	Flow meter	1 EA	\$7,000	\$7,000
e.	8-inch disinfection contact piping	110 LF	\$95	\$10,450
f.	8-inch gate valves	2 EA	\$3,000	\$6,000
g.	Sodium hypochlorite chlorination feed system	1 LS	\$10,000	\$10,000
h.	Iron and manganese sequestration feed system	1 LS	\$8,000	\$8,000
B. Water Distribution System Improvements				
1.	6-inch PVC piping	480 LF	\$80	\$38,400
2.	4-inch PVC piping	4,490 LF	\$60	\$269,400
3.	6-inch gate valves	1 EA	\$2,600	\$2,600
4.	4-inch gate valves	9 EA	\$2,000	\$18,000
5.	Blowoff Assembly	2 EA	\$2,500	\$5,000
6.	Connection to existing piping	4 EA	\$3,000	\$12,000
7.	Backup generator at Well Nos. 5 and 7	2 EA	\$60,000	\$120,000
C. Customer Meters				
1.	Install 3/4" x 5/8" radio meters, dual check meter setters, and meter pits	30 EA	\$2,400	\$72,000
2.	Install 2" radio read meters, setters, and meter pits (school and fire department)	2 EA	\$4,500	\$9,000
3.	Service line and connections, 30' average length	32 EA	\$1,400	\$44,800
4.	Meter reading data collector, billing software, and training	1 LS	\$23,000	\$23,000
Subtotal preliminary cost				\$1,012,650
Project contingencies @ 15%				\$152,450
Engineering design/contract administration				\$93,000
Construction observation based on 120 calendar days				\$102,900
Other engineering ¹⁾				\$125,000
Administrative expenses (Advertising, Legal Counsel, Bond Counsel, etc.)				\$13,000
Total preliminary project cost estimate - Priority One				\$1,499,000

- 1) Other engineering costs includes: Easement/property evaluations and acquisition, Environmental Report, geotechnical services, reproduction, funding administration, CDPHE approvals, Prequalification Application, Project Needs Assessment, and HMWMD Radioactive

The recommended Priority Two improvements provides an expansion of the Town's distribution system to connect more of the Town's constituents to the water system. The recommendations include the connection of the east and west distribution systems under State Highway 17 and 5th Street. This will create redundancy in well supply for the distribution system on the east side which is only supplied by Well No. 7. Additionally, it is recommended that the line extends further north on Lincoln Avenue to 9th Street and goes south on Lincoln Avenue to Russel Avenue and along Russel Avenue west towards the Dollar General store. A bulk water filling station is recommended to be installed in the storage tank building near Well No. 5 that will be built in Priority One. This will generate additional revenue for the water enterprise fund. Lastly,

the Town will need to connect 30 additional customers to the distribution system as well as install meters to track water usage. This will provide the Town with a total of 64 customers. The following table presents a detailed project cost estimate for Priority Two.

TABLE 13
TOWN OF MOFFAT
PRIORITY TWO PROJECT COST ESTIMATE

Item	Description	Quantity	Unit Cost	Total Cost
A. Water Distribution System Improvements				
1.	6-inch PVC piping	430 LF	\$80	\$34,400
2.	4-inch PVC piping	8,100 LF	\$60	\$486,000
3.	6-inch gate valves	1 EA	\$2,600	\$2,600
4.	4-inch gate valves	14 EA	\$2,000	\$28,000
5.	Blowoff Assembly	3 EA	\$2,500	\$7,500
6.	Connection to existing piping	5 EA	\$3,000	\$15,000
7.	4" HDPE directional drill crossing of HWY 17, 100' long including bore pits and connection to PVC piping	2 EA	\$42,000	\$84,000
8.	Bulk Water Filling Station in new well No. 5 storage building including valves, dispensing panel, valving, piping, software and training.	1 LS	\$50,000	\$50,000
C. Customer Meters				
1.	Install 3/4" x 5/8" radio meters, dual check meter setters, and meter pits	30 EA	\$2,400	\$72,000
2.	Service line and connections, 30' average length	30 EA	\$1,400	\$42,000
Subtotal preliminary cost				\$821,500
Project contingencies @ 15%				\$123,600
Engineering design/contract administration				\$77,000
Construction observation based on 120 calendar days				\$102,900
Other engineering ¹⁾				\$106,000
Administrative expenses (Advertising, Legal Counsel, Bond Counsel, etc.)				\$13,000
Total preliminary project cost estimate - Priority Two				\$1,244,000

1) Other engineering costs includes: Easement/property evaluations and acquisition, Environmental Report, geotechnical services, reproduction, funding administration, CDPHE approvals, Prequalification Application, Project Needs Assessment, and HMWMD Radioactive

Priority One has a total project cost of \$1,499,000 and Priority Two has a project cost of \$1,244,000. The total cost of the project is estimated around \$2,743,000.

SECTION XII

FINANCIAL IMPACTS OF THE PROPOSED IMPROVEMENTS

The recommended Water System Improvements contained within this study address the compliance requirements of the Town of Moffat. The recommended improvements consist of the providing treatment for Well No. 4, modify Well No. 5 treatment and provide storage, provide treatment for Well No. 7, install new distribution system piping, and install new customer meters. The estimated project costs for the recommended improvements is \$2,729,000.

Given the limited number of customers associated with the Town of Moffat and the anticipated future capital improvement needs of the Town's water system, multiple projects of this magnitude cannot be undertaken by the Town without sizeable grant and loan assistance through state and/or federal organizations. Funding for such projects has historically been available through the USDA Office of Rural Development (USDA-RD), the Community Development Block Grant (CDBG) program and the State of Colorado's Energy/Mineral Impact Assistance Fund (EIAF) program. The WQCD in conjunction with the Colorado Water Resources and Power Development Authority (CWR & PDA) facilitated by the Department of Local Affairs (DOLA), administer the Drinking Water Revolving Fund (DWRF) which provides both loan funds and loan forgiveness funds for design and engineering related expenditures as a component of their package for those communities being designated as a disadvantaged community. These programs all base their funding not only on the viability of the project, but also on other factors such as median household income, the need for the project, the debt burden of the community, the percentage of population in the low to moderate income category and the community's existing water rates.

The Town's water system related needs are included on the CDPHE's eligibility list in the 2024 Colorado Drinking Water Revolving Fund Intended Use Plan (IUP). The Town should continue to be on the IUP on an annual basis to ensure that funding through the State Revolving Fund (SRF) is available to the Town.

The USDA Rural Development Rural Utility Program has been used extensively throughout Colorado for small water system improvement projects. However, given their 40-year loan amortization schedule and corresponding interest rates, limited grant availability, coupled with

extensive front-end expenditures, this funding source is utilized on a limited basis. However, as funding availability in other programs changes, USDA may be more widely used again.

Within the USDA's RD program, unique items must be added to the project's cost. Actual construction proceeds for the loan component of the project are obtained through an interim bridge loan from a private lending institution. Upon maximizing the interim financing, the loan portion is retired through RD issuing a revenue bond and paying off the interim loan. This approach carries with it interim interest, which is project eligible. In some cases, RD will directly finance the improvements; thus, eliminating the interim interest expense. The necessary cost for bond counsel as a result of the revenue bond has already been included in the project budget. An Environmental Report (ER) must be compiled at the onset of the project. That cost has also already been included in the project budget as has general legal counsel services. Lastly, there is a significant amount of administrative work associated with the RD process.

RD has historically utilized three (3) categories based on median household income (MHI) levels to determine possible loan and grant participation. These categories use the 2010 census data for statewide, non-metropolitan MHI as the basis for establishing the category thresholds. MHI levels below \$52,720 are eligible for RD's maximum grant amount of 75% at the lowest interest rate of loan money (currently 2.25%) as they fall below the poverty level. This income category is, however, limited to projects that are documented to relate to the protection of public health. The proposed Town water system improvements would likely qualify as a public health related project since the Town currently does not provide treated water to its customers and is also under a compliance schedule. The intermediate income range extends from \$52,720 to \$65,900. Communities in this category are eligible for up to 45% in grant money and a current interest rate of 3.0%. For communities with average MHI's above \$65,900, the interest rate charged by RD is full market value (currently set at 3.75%) and the community is not eligible for any grant funding.

The Town's 2010 MHI was \$34,167. Based on the MHI value, it appears that the Town falls in RD's poverty eligibility category with an anticipated loan interest rate of 2.25%. However, simply having a MHI within this category does not ensure receiving grant funding. Other considerations that are taken into account include the amount of the community's debt burden; water rate, public health requirements, and the availability of RD grant funds.

The State of Colorado, in their administration of the CDBG program and the EIAF program, through DOLA, utilize different funding guidelines than those of Rural Development. The State does not utilize average water rates as a firm guideline around which additional debt burden has to be incurred as does Rural Development. The following highlights the general criteria of the State programs.

The CDBG's Public Facilities program, based on federal guidelines, requires that more than 51% of the community fall within the low to moderate income category to be eligible for this funding source. According to the Colorado State Demography web map of communities, the Town of Moffat qualifies for the CDBG grant with 62% of the population base falling within the low to moderate income category. The maximum grant award with this program is \$600,000. The Town meets the qualifications for this grant funding source. Administrative costs for this source of funding are higher as there are additional regulatory requirements that must be addressed. A typical CDBG assistance contract on a project of this nature historically has fallen into the range of \$200,000 to \$600,000.

DOLA, in their administration of this funding source, has established an application deadline that is typically in mid-February. CDBG funds do not require a specific local match amount. Thus, this source of funding represents a viable source for the Town of Moffat. CDBG assistance carries Davis-Bacon wage requirements. The requirements mandate minimum predetermined wages for various job classifications. The impact of Davis-Bacon wages has been included in the cost estimates prepared for the recommended improvements presented in this report.

Another DOLA administered program is DOLA's EIAF program. This program is funded by State severance tax and federal royalties on energy and mineral production, as well as a from a portion of the State's share of royalties paid to the federal government for mining and drilling of minerals and mineral fuels on federally owned land.

This grant is funded through severance taxes on oil, gas, and mineral acquisition. In the couple of years prior to 2023, this fund had considerably less funding (maximum of \$600,000 and then \$750,000) than previous years; however, in 2023 the maximum grant award has been increased to \$1,000,000. It is unknown how long this maximum grant amount will remain at this value, and it is likely that it will decrease again as severance taxes fluctuate. Applications are currently accepted three times a year; however, it may be reduced again to twice a year, depending on

funding. Applications will be received in April 2024, and then likely again in August and December 2024. There are two Tiers available. Tier I is up to \$200,000, whereas Tier II requests are between \$200,001 and \$1,000,000. This funding source requires a 50% match and due to the competitive nature of the grant, it is advisable to have as much other funding in place or in progress prior to applying. Administration requirements associated with this funding source are minimal. DOLA typically will not process and award funds for both CDBG and EIAF programs on the same project.

Another potential funding source is the use of the CWR&PDA's DWRF as the loan component of the funding package. Within the State Revolving Fund (SRF) program is the Disadvantaged Communities (DAC) Program. For those disadvantaged communities, funding is available for engineering related expenses with a cap of \$300,000 and is available in the form of loan forgiveness (grant) funds. This is often referred to as the Design and Engineering (D&E) grant.

The community must meet two of three primary factors to be designated as a DAC. The first item pertains to the community's median household income (MHI); the second factor reviews the community's median home value (MHV); and the third item examines the County's unemployment numbers or job loss numbers within the community itself. These factors are compared to statewide averages for DAC qualification. As long as the community meets two of these three factors, the community will be deemed a DAC. Once a community has been designated as a DAC, a portion of the funding will be available in the form of a Design and Engineering Grant. The total amount for this is up to \$300,000, as previously noted. The specific amount is ultimately determined by the CDPHE with the Project Needs Assessment (PNA) approval letter.

More specifically, in order for a community to be determined as a DAC, the MHI must be below 80% of the State's MHI which is currently at \$80,183. Thus, the entity would have to have an MHI less than \$64,147 to meet the MHI requirement. According to the State Demographer, the Town of Moffat has a current MHI of \$39,250; however, the data has a large margin of error. To meet the MHV requirement, the entity would have to have an MHV less than 100% of the State MHV. The State's current MHV stands at \$397,500; the State Demographer does not have sufficient information to determine the Town's MHV. To meet the 24-month unemployment value for the third factor, Saguache County would have to have a 24-month unemployment average of greater than or equal to the State average, which currently stands at 5.61%.

Saguache County has a 24-month unemployment value of 4.92%. The other potential factor is a review of the ten-year job change within Saguache County. The State Demographer currently shows 145 jobs created within the last ten years. Of these three primary factors, the Town will likely qualify as a DAC with the MHI and MHV; however, since the data is unreliable there may be additional steps to determine if the Town qualifies as a DAC.

Once a community is designated as a DAC, there are two additional categories that a community will be placed in with regard to the loan. Category One is for communities with a population of less than 10,000 with a median household income between 61% and 80% of the Colorado statewide median household income, including metropolitan areas; and have a median home value less than 100% of the median home value in the State. DOLA staff utilizes data from the American Community Survey (ACS) for determining these median values. The most recent ACS data shows the State median household income as \$80,183 and the median home value at \$397,500. Thus, Category One represents income levels between \$48,912 and \$64,147. Eligible entities in this category may obtain 30-year loans for water projects of up to \$3,000,000 with a current interest rate of 2.75%, or a 20-year loan for 2.50%. Category Two is for similar size communities with a median household income of less than \$48,912 and offers a 1.75% loan rate for 30 years, or 1.25% for 20 years. Category Two considers the amount of debt to median home value, as well as other factors. The DAC category is determined after the loan application is submitted and is noted with the Town's credit report.

It is unknown if the Town would qualify for the Category Two lower interest rate. One of the criteria established within the loan covenants for this funding source is that the Town's water rate structure be established such that a minimum of 10% of excess revenues exist over and above the actual loan payment amount. The unique administrative related costs with this funding source include bond counsel, general counsel, a Project Needs Assessment and an Environmental Report which have been included within the project cost estimates. This program requires Davis-Bacon wages. The impact of Davis-Bacon wages has been integrated into the cost estimates prepared for the project.

There are various steps required in the application process for the DWRF program. An applicant is required to submit a Prequalification Form to the Water Quality Control Division. A preapplication meeting is then conducted with the Owner, the Owner's consultant and the State Revolving Fund Agency personnel who review the prequalification form. If the prequalification

form is deemed to be adequate by the Revolving Fund agency representatives, then the Owner may move forward with the preparation and submission of a PNA. The Enterprise Status of the Water Fund will also be discussed during the prequalification meeting.

The PNA submission incorporates technical related information that must be completed by a professional engineer. This portion of the application process also includes environmental related information together with a Technical, Managerial and Financial Capacity Assessment

Upon the submission of this information, the Revolving Fund agency may provide funds to cover design and engineering related costs that would occur prior to construction in the form of loan forgiveness funds (grant) to the applicant. A public hearing is also required before the loan submission. Any outstanding issues from an environmental standpoint must be resolved, which will require an Environmental Assessment for the project. Final plans and specifications must be submitted in advance of, or at the time of, the loan application.

The third step is the actual loan application. During the loan application process, the community will also be considered for principal forgiveness through the DAC program. This is only for the DWRP program, dependent upon the DAC status and is typically only issued to communities with a DAC Category II status. The potential amount of the loan forgiveness is unable to be calculated in advance but is known prior to the loan approval and subsequent closing. One of the current criteria established within the loan covenants for this funding source is that the Town's water rate structure be established such that a minimum of 10% of excess revenues exist over and above the actual loan payment amount. The loan closing will not occur until the plans and specifications are fully approved by the Division. Additionally, the Environmental Assessment must be approved with a finding of No Significant Impact for the loan to close. The applicant's consultant may provide a self-certification of the plans and specifications or request a streamlined design review. With the approval of the plans and specifications fully in place, the loan may be executed, and the project may proceed into bidding.

This multistep process lengthens the overall application process but provides for the ability of the Water Quality Control Division and the Colorado Water Resources and Power Development Authority to have their funds quickly utilized on the construction projects in accordance with EPA's criteria.

Given the Federal government's directives that occurred in 2008, 2014 and 2021, the SRF program requires Davis-Bacon wages and conformity to America Iron and Steel (AIS) and Build America, Buy America (BABA). AIS and BABA require the acquisition of American manufactured steel, iron, and manufactured products. The impact of Davis-Bacon wages has been integrated into the cost estimates prepared for this project. The Build America, Buy America (BABA) was included in the Bipartisan Infrastructure Law (BIL) which was signed into law in November of 2021 and is similar to the previous American Iron and Steel (AIS) act. BABA will require all products to be manufactured in the United States, not just iron and steel. This new requirement will have cost implications to projects. These cost impacts have not been included in the cost estimate, because the impacts are not yet known how they will impact material prices and it is unknown if BABA will be required for the project.

The BIL provides supplemental funding through the DWRF program for qualifying communities. If a community qualifies as a DAC, it automatically qualifies for BIL funding. BIL funding requires that 50% of the funds are to be utilized for principal forgiveness. Thus, any loan request would be reduced by 50%; there is currently not a limit. The State Revolving Fund is continually evaluating the available BIL funding with the requests and may alter the criteria and eligibility as the program continues. The BIL funding will be available from 2022 through 2026. It is assumed that there will be a minimum of 50% principal forgiveness based on BIL funding, although the Town may receive additional principal forgiveness through the DWRF program.

The CDPHE Small Community Grants (SCG) program was funded in 2015 and again in early 2021 when \$4,000,000 was allocated for SCG eligible projects. This grant receives funding through oil and gas severance taxes. The Town received a \$50,000 grant for planning/engineering. It is not anticipated that this grant will be made available in the near future; therefore, this funding source is not in the funding scenario.

The following table has been developed to depict potential funding scenarios for implementation of the recommended Priority 1 and Priority 2. It is not considered to be affordable to pursue both alternatives together. Coordination will be required with the funding agencies to obtain funding commitments that in turn, are leveraged towards securing other funding. The following scenario is based on a DWRF program loan administered by the Colorado Water Resources and Power Development Authority at a loan rate of 2.75% with a 30-year amortization schedule. The remaining funds would consist of a DOLA CDBG grant and a Design and Engineering

Grant. The consultant, in providing this information, does not claim to be a financial consultant representing any financial products or the issuance of any municipal securities.

TABLE 14
TOWN OF MOFFAT
POTENTIAL PROJECT FINANCING SCENARIO

Component	Priority 1	Priority 2
Project Cost ¹⁾	\$1,499,000	\$1,244,000
DOLA CDBG Grant ²⁾	\$600,000	\$600,000
DWRF D&E Grant ³⁾	\$180,000	\$120,000
DWRF DAC Loan ⁴⁾	\$359,500	\$262,000
DWRF Principal Forgiveness ⁵⁾	\$359,500	\$262,000
Annual Loan Payment ⁶⁾	\$17,056	\$12,430

- 1) Total estimated project cost.
- 2) DOLA Community Development Block Grant (CDBG)
- 3) Design and Engineering (D&E) Grant funds that may be available within the DWRF loan submittal based on soft costs. Final determination to be made by the CDPHE and availability.
- 4) Required loan amount for full project financing.
- 5) A minimum principal forgiveness of 50% is assumed while the BIL funding is available through 2026.
- 6) Annual debt payment includes 10% reserve requirement for DWRF DAC loan at 1.75% and 30 years. Monthly user debt burden for 61 EQRs.

Typically, a comparison in existing revenues per customer are evaluated to the new debt service per customer. Since the Town of Moffat does not charge Area 420 for water service and has a very small residential customer base, the annual payment is not shown per customer per month. In the process of applying for a loan, the Town will need to have a dedicated revenue source for pledging the loan. This revenue source will need to be approved by the lending agency. This is one of the most critical steps forward for the project. Granting agencies (like DOLA) may also require the Town to show a dedicated revenue source for the water fund to prove that it can and will be solvent into the future. Conversations with funding agencies should be held as soon as possible to understand their requirements. Meeting these requirements may take the largest effort for the Town in moving this project forward. After this, the engineering and funding administration will be done by the Consultant and the burden will be less for the Town as others will be completing that work.

The above funding figures are projections only. The actual grant and loan amounts will depend upon the outcome of the discussions held with the funding agencies, the funding level at which the agencies are willing to participate in the project, and the amount of loan the Town desires to pursue. Through the use of available funding sources, the project can be made a reality.

SECTION XII
PLAN OF ACTION

A plan of action and schedule has been developed for the water improvements recommended herein. The following table has been developed based upon the normal progression of a project of this nature. The table is based on utilizing USDA-RD loan and CDBG grant funds, combined with local matching funds.

TABLE 15
TOWN OF MOFFAT
PLAN OF ACTION AND IMPLEMENTATION SCHEDULE

Scheduled Event	Date
Submit PER to CDPHE	December 2023
Review Preliminary Engineering Report with the Town	January 2024
Discuss PER with funding agencies	January 2024
Select Alternative and Authorize design	February 2024
Submit CDBG Application	February 2024
Submit ER to USDA RD	May 2024
Receive CDBG Funding commitment	June 2024
Obtain RD Approval of PER and ER	July 2024
Submit Plans and Specifications to CDPHE/RD for Review	September 2024
Receive RD Financing Package/Letter of Conditions	November 2024
Pursue Bridge loan for construction	December 2024
Obtain CDPHE/RD Approval of Plans and Specifications	December 2024
Satisfy RD Letter of Conditions	December 2024
Advertise Project for Bid	April 2025
Bid Opening	May 2025
Project Award	May 2025
Initiate Construction	July 2025
Rural Development Obtains Closing Instructions	August
Completion of Construction	August 2025

The above schedule realistically represents the required timeline for implementation of the recommended improvements. This is optimistic regarding funding agencies being willing to accept any applications based on the current financial state of the water fund. This schedule is largely dependent upon funding agencies and their willingness to participate with the Town on completing these improvements.

Significant activity must occur prior to the initiation of construction. This activity focuses on securing the necessary funds together with completing, submitting to, and obtaining approvals from the CDPHE and USDA RD. Time has been allotted in the schedule for the various review time for each submittal.

This plan of action and schedule is a dynamic activity that will require modifications and refinements as the project evolves. A delay in one activity will result in subsequent delays in following activities. Securing adequate funding in a timely manner will be crucial not only to maintaining the schedule, but ultimately in implementing the needed improvements.