March 2024

# Special District Needs Assessment Report

## Bridgeport

*for—*

**Mono County Community Development**

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# List of Acronyms

| Acronym | Description |
|---|---|
| ADUs | Accessory dwelling units |
| AFA | Acre-feet annually |
| APN | Assessor's Parcel Number |
| CSD | Community Service District |
| Demand | Average daily use |
| FPD | Fire Protection District |
| Gal | gallons |
| gpd | Gallons per day |
| gpm | Gallons per minute |
| Hwy | Highway |
| JADU | Junior accessory dwelling unit |
| NFPA | National Fire Protection Association |
| psi | Pounds per square inch |
| PUD | Public Utility District |
| PVC | Polyvinyl chloride |
| sq ft | Square feet |
| SFR | Single-family residence |
| SR | State route |

# Section 1. Introduction

California Housing Element law requires local governments to adequately plan to meet their existing and projected housing needs, including their share of the regional housing need (Mono County Housing Element). In response to this law, Mono County has prepared the Mono County Housing Element, the most recent update adopted in 2019, covering the time frame of 2019 to 2027.

The Housing Element establishes the following goals to address housing in Mono County:

1) Increase Overall Housing Supply, Consistent with Mono County's Rural Character
2) Increase the Supply of Community Housing
3) Retain Existing Community Housing
4) Ensure All Other Needs Related to Housing are Met

Policies are included within the Housing Element in support of these goals, including policy 1.5 below:

> *1.5 Identify sites within or adjacent to existing communities where infrastructure limits development potential. Participate in the preparation of at least two grant applications by invitation of the infrastructure entities and assist those entities with understanding environmental regulations.*

This policy supports the evaluation of infrastructure barriers within Mono County, which is addressed within this Special Districts Needs Assessment Report. This report includes the analysis of utility infrastructure within Bridgeport as a whole and specifically for the key sites identified in the Housing Element.

The purpose of this report is to identify potential barriers to housing growth due to limitations within the water and sewer utilities in Bridgeport and specifically for each key site identified in the Housing Element. Fire district(s) associated with the Bridgeport community have been included in the collection of operational, organizational and asset information and data to evaluate any specific barriers to development within the key sites. A summary of the findings can be found at the end of this report.

Special District Needs Assessment Reports have also been developed for the communities of Crowley Lake, June Lake, and Lee Vining.

## 1.1 Accessory Dwelling Units

Mono County housing policies and changes to state law incentivize the construction of accessory dwelling units (ADUs). For purposes of the analysis, a conservative estimate of demand from ADU development is based on the theoretical highest intensity allowed. The current rate of ADU development is approximately 10% of new building permits in Mono County. Cost and site constraints are expected to limit this type of development overall.

***Table 1: Accessory Dwelling Unit Water Use and Sewer Discharge***

| Single-family dwelling unit equivalent 1.0 | ADU – 0.65 | JADU - 0.35 |
|---|---|---|
| 3 bedrooms | 2 bedrooms | 1 bedroom (conversion or addition) |
| 2 bathrooms + kitchen | 1 bath + kitchen | 1 bath + efficiency kitchen |

When considering ADUs in the community, the rate of use is estimated at 65% of the use of a single-family residence, and a Junior ADU (JADU) is estimated at 35% of the use of a single-family residence. This ratio is determined based on assumed plumbing fixtures in each unit. This assumes two bathrooms and a kitchen for a single-family unit, one bathroom and one kitchen for an ADU, and one bathroom and an efficiency kitchen for a JADU. Typically, an ADU uses less water and produces less effluent than a standard residence and we find from other communities' data that the above approximations are sound for planning purposes.

# Section 2. Bridgeport

## 2.1 Description

The community of Bridgeport is located at the intersection of US Highway (Hwy) 395 and State Route (SR) 182, 13 miles from the Nevada border and 50 miles north of the Town of Mammoth Lakes. Bridgeport is the county seat of Mono County, California, and had a population of 553 within 170 households based on the 2020 U.S. Census (https://data.census.gov/ ). The community consists of Bridgeport Townsite at the intersection of the highways, as well as primarily residential developments south along US Hwy 395 and north on SR 182. Bridgeport Reservoir is located north of Bridgeport, with the East Walker River flowing through Bridgeport to the reservoir.

The Bridgeport Public Utility District (PUD) provides domestic and fire protection water and sewer service in Bridgeport, including 258 water connections and 96 sewer connections. The water and sewer systems, and ability to meet the needs of additional housing is discussed in the following sections. Six key sites as identified in the Mono County Housing Element are analyzed in this report with respect to infrastructure opportunities and/or constraints and potential housing capacity.

## 2.2 Water System

### *Demand*

In 2020, the water supplied by Bridgeport PUD was 91,477,881 gallons, equal to 280.1 Acre-Feet Annually (AFA). Based on that use, the average daily use (demand) is 250,624 gallons. Table 2 below shows the approximate average use per day based on different criteria.

***Table 2: Water Use per Day, Bridgeport PUD***

| Criteria | Value | Avg Use Rate per Day |
|---|---|---|
| **Population** | 553 | 453 gallons |
| **Connections** | 258 | 971 gallons |
| **Households** | 170 | 1,474 gallons |

Please note these values are bulk estimates, and may include water used throughout the system for firefighting, construction, water treatment backwash, etc. The maximum day water usage during 2020 occurred in July and was 714,860 gallons, or approximately 2,771 gallons per water connection. As with many communities in Mono County, Bridgeport experiences a large seasonal population increase during the summer months. Combined with a greater demand for outdoor landscaping, water demand in the summer is much higher than during other times of the year.

The projected water demand for additional housing development can be approached in numerous ways, including applying standard use rates per new residence, with slightly lower rates per unit for multi-family housing than for single-family homes. This method works well when potential development is specific, such as with a planned residential subdivision. Since average water use is known, while future development is unknown, this analysis uses average current water use to predict future use. Considerations that are likely to affect water demand per capita in a community can include the type

and density of residential development, water service metering, commercial and industrial water use changes, seasonal population changes, landscaping changes, and water conservation efforts.

When considering accessory dwelling units (ADUs) in the community, the rate of use has been estimated at 65% of the use of a single-family residence (households per this analysis), and a Junior ADU (JADU) is estimated at 35% of the use of a single-family residence as shown in Table 2.

### *Source*

The Bridgeport PUD water system is served by two groundwater wells in Bridgeport Valley that have a current combined maximum production of 1,200 gallons per minute (gpm). Each drinking water well is capable of producing 1,000 – 1,100 gpm but is currently set to 620-630 gpm. There is the potential for the drinking water wells to produce more than the current flow. There is an additional well that supplies construction water but is not operable at the time of this report. The well locations and overall system components are shown in Figure 1, Bridgeport PUD Water System, below.

### *Storage*

The system includes a water storage capacity of 525,000 gallons in two separate storage tanks located just east of Bridgeport. The Evans Tank is 300,000 gallons and the Coasting Hill Tank is 225,000 gallons. Both tanks are approximately 20 years old, epoxy coated and in excellent condition, as reported by the water system operator. The tanks are cleaned and inspected every 4-5 years. The elevation of the tanks (185 ft above lowest homes) provides sufficient pressure for most service connections, with some homes close to the tank elevation requiring pressure boosters. A review of recent fire flow tests by Bridgeport PUD shown in Table 5 found adequate flows in most cases, with two tests resulting in flows less than 1,500 gpm. These lower flows correspond to areas with smaller diameter water mains.

As shown in Table 3, the current daily water production alone is more than sufficient to meet the average day demand and fire flow. The capacity is also able to meet the maximum day demand, plus fire flow (with four hours of fire flow which is the duration required by fire codes for the typical construction type and sizes of buildings within the community).

***Figure 1: Bridgeport PUD Water System***

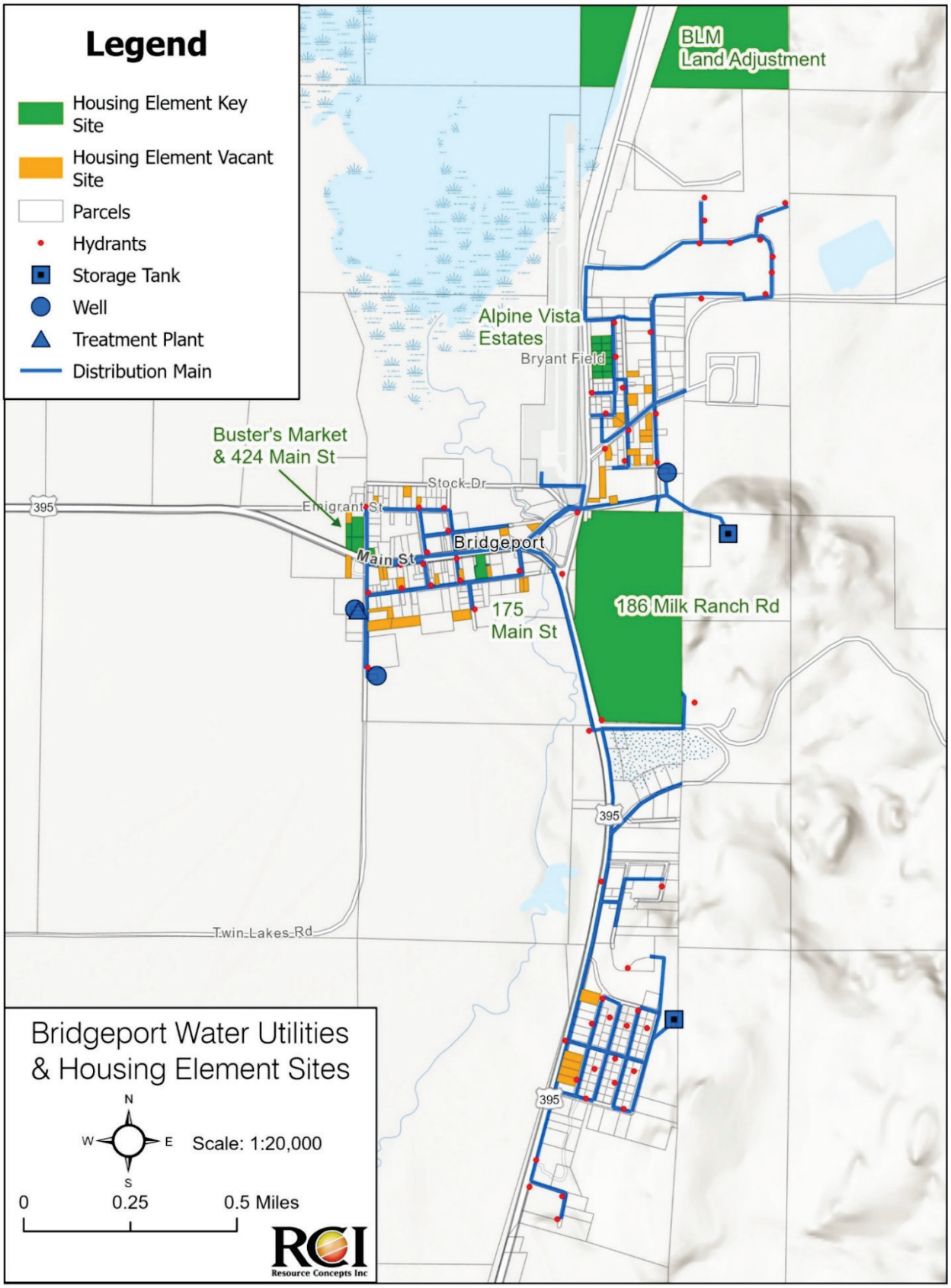


***Table 3: Sample Water Supply and Demand Based on Well Production***

| Supply and Demand | Basis of Calculation | Quantity (gpd) |
|---|---|---|
| Daily water production | 1200 gpm over 24 hrs | 1,728,000 |
| Maximum storage volume | 330,000 gal + 225,000 gal | 525,000 |
| **Total Supply & Capacity** | | **2,253,000** |
| **Average Day Demand** | | 250,624 |
| Maximum day demand | Based on 2020 reports | 714,860 |
| Fire flow | 1500 gpm for 4 hrs | 360,000 |
| **Total Maximum Demand** | | **1,074,860** |
| | **Excess Supply per day** | **1,178,140** |

## *Distribution*

The water distribution system in Bridgeport includes pipe diameters between 10 inches and 2 inches. Most mains are 8-inch diameter with some sections of 10-inch. An 8-inch main runs to Evans Tract, with a 6-inch line running further south to Huggans Lane (Bridgeport PUD system mapping, 2000 RO Anderson). Sections of 2-inch diameter water pipe are limited to only a couple of locations with only a couple of homes connected. Current Bridgeport PUD standards require a minimum diameter of 6 inches for new water mains. Areas of sub-standard distribution mains sized 2-inch and 4-inch include Aurora Canyon Road, Evans Tract, and Main Street.

The water infrastructure in the townsite portion of Bridgeport is the oldest in the system, with an average pipe age of 40 years. Pipe materials used in the water system include 55% plastic, with an average age of 15 years; 5% ductile iron, with an average age of 3 years; and 40% asbestos cement with an average age of 40 years. Pipes south of the intersection of US Hwy 395 and SR 182 have been predominantly replaced by polyvinyl chloride (PVC) mains. There are no known areas of poor condition water lines.

## *Quality/Treatment*

An arsenic treatment system using coagulation filtration was brought online in spring 2021 and treats water from both system supply wells before pumping the treated water to the two storage tanks. The maximum treatment capacity is 650 gpm. At the higher end of production during warm months, frequent (daily) system maintenance (backwashing) is required. Because the water treatment system is already nearing capacity during high demand times of the year, and because the water must be treated, this component of the water system may prove to be a barrier to future development, which will be illustrated later in this report.

While the overall supply and demand calculation of Table 4 shows excess supply, the quantity is less than the maximum-day demand for the system and does not leave a substantial buffer should there be system supply issues, or excessive usage due to fire flow demand.

***Table 4: Water supply and demand based on treatment system production.***

| Supply and Demand | Basis of Calculation | Quantity (gpd) |
|---|---|---|
| Daily water production | 650 gpm over 24 hrs | 936,000 |
| Maximum storage volume | 330,000 gal + 225,000 gal | 525,000 |
| **Total Supply** | | **1,461,000** |
| Maximum day demand | Based on 2020 reports | 714,860 |
| Fire flow | 1500 gpm for 4 hrs | 360,000 |
| **Total Demand** | | **1,074,860** |
| | **Excess Supply per day** | **386,140** |

## *Pressure and Fire Flow*

There are currently just over 60 fire hydrants in Bridgeport, spread throughout the community, and including Bridgeport Townsite, Alpine Vista Estates, Evans Tract, and the Bridgeport Indian Colony. Pressure in the system varies but is typically 85-90 pounds per square inch (psi) on the valley floor area (Bridgeport Townsite) and increases when wells are pumping. The water pressure in homes at higher elevations reduces to below 80 psi.

Table 5 below shows results of fire flow testing completed in 2015 and 2023.

***Table 5: Fire flow testing results, Bridgeport PUD.***

| Test Location | Date | Measured Flow (gpm) |
|---|---|---|
| **Twin Lakes Rd.** | 07/2023 | 1,130 |
| **US Hwy 395 & Bridge St.** | 12/2015 | 1,910 |
| **Main St. & School St.** | 12/2015 | 2,120 |
| **SR 182 & Aurora Canyon Rd.** | 12/2015 | 1,430 |
| **US Hwy 395 & Mt. Patterson (Evans Tract)** | 12/2015 | 1,750 |

Although there are a couple of hydrants connected to 4-inch water mains, no hydrants are connected to smaller pipes. Flow testing shows that much of the community is covered by adequate fire flow rates above 1,500 gpm, though some areas are below. While 1,500 gpm is typically adequate for single-family homes, some multi-family developments, and larger commercial facilities may require greater flow values.

## *Capacity Analysis*

In analyzing the current and potential future capacity in the water system, both the average day use and maximum day use are considered. Because the system capacity in households is directly dependent upon the average use per household, efforts to promote water conservation can have a direct impact on the remaining capacity for additional housing and other development. As expected, there is less capacity available for additional housing when considering the maximum day demand.

Tables 6 and 7 are a representation of increased demand created by certain potential development scenarios. Table 6 uses one unit of average day usage as 1,474 gallons per day (gpd) per household, as shown in Table 2. This unit is then applied to equivalent household units that may be developed given vacant lots within the service area, possible development of the key sites, and development of a single

ADU, plus a JADU at each existing single-family zoned property. The Remaining Capacity column represents the capacity remaining based on the sum of demand for each scenario subtracted from the system capacity, with households shown in parentheses. Refer to Appendix B for alternate capacity analysis tables and full data notes.

***Table 6: Water Capacity Analysis for Average Day Demand for Bridgeport PUD***

| Development Scenario Average Day Demand | Demand/ Use | Remaining Capacity (936,000 gpd system capacity) |
|---|---|---|
| **Scenario 1: Current Demand** *(1,474 gpd Use Rate & 170 households)* | 250,580 gpd | 685,420 gpd (465 Households) |
| **Scenario 2: Development of Vacant Parcels & Current Demand** *(1,474 gpd Use Rate & 126 Vacant Residential Parcels & Current Demand)* | 436,304 gpd | 499,696 gpd (339 Households) |
| **Scenario 3: Development of Vacant Parcels & Key Sites & Current Demand** *(1,474 gpd Use Rate & 126 Vacant Parcels + 52 Key Sites Units & Current Demand)* | 512,952 gpd | 423,048 gpd (287 Households) |
| **Scenario 4: Development of ADUs/JADUs & Current Demand** *(1,474 gpd Use Rate & 170 ADUs/JADUs & Current Demand)* | 501,160 gpd | 434,840 gpd (295 Households) |
| **Scenario 5: Development of Vacant Parcels & Key Sites & ADUs/JADUs & Current Demand** *(1,474 gpd Use Rate & 126 Vacant Parcels + 52 Key Sites Units +296 ADUs/JADUs & Current Demand)* | 949,256 gpd | -13,256 gpd (-9 Households) |
| **Scenario 6: Full Build-Out – Current Development & ADUs & Maximum Density Development** *(1,474 gpd Use Rate - Current Discharge + ADUs/JADUs + Maximum Density Development of Current Vacant Parcels)* | 1,339,866 gpd | -403,866 gpd (-274 Households) |

***Table 7: Water Capacity Analysis for Maximum Day Demand for Bridgeport PUD***

| Development Scenario Maximum Day Demand | Demand/ Use | Remaining Capacity (936,000 gpd system capacity) |
|---|---|---|
| **Scenario 1: Current Demand** *(4,205 gpd Use Rate & 170 connections)* | 714,850 gpd | 221,150 gpd (53 Households) |
| **Scenario 2: Development of Vacant Parcels & Current Demand** *(4,205 gpd Use Rate & 126 Vacant Residential Parcels & Current Demand)* | 1,244,680 gpd | -308,680 gpd (-73 Households) |
| **Scenario 3: Development of Vacant Parcels & Key Sites & Current Demand** *(4,205 gpd Use Rate & 126 Vacant Parcels + 52 Key Sites Units & Current Demand)* | 1,463,340 gpd | -527,340 gpd (-125 Households) |
| **Scenario 4: Development of ADUs/JADUs & Current Demand** *(4,205 gpd Use Rate & ADUs/JADUs & Current Demand)* | 1,429,710 gpd | -493,710 gpd (-243 Households) |
| **Scenario 5: Development of Vacant Parcels & Key Sites & ADUs/JADUs & Current Demand** *(4,205 gpd Use Rate & 126 Vacant Parcels + 52 Key Sites Units +296 ADUs/JADUs & Current Demand)* | 2,708,020 gpd | -1,772,020 gpd (-421 Households) |
| **Scenario 6: Full Build-Out – Current Development & ADUs & Maximum Density Development** *(4,205 gpd Use Rate - Current Discharge + ADUs/JADUs + Maximum Density Development of Current Vacant Parcels)* | 3,822,345 gpd | -2,886,345 gpd (-686 Households) |

## 2.3 Sewer System

The sewer system in Bridgeport includes 96 connections and is comprised of approximately four miles of gravity sewer lines, approximately two miles of force main, four pumping stations, and wastewater treatment ponds. The current permitted capacity of the treatment ponds is 200,000 gpd.

The current treatment volumes are unknown. For design and planning purposes, in accordance with nationally and industry-wide accepted design standards for planning infrastructure (known as the Ten State Standards), the value of 100 gallons per capita per day (plus wastewater flow from industrial plants and major institutional and commercial facilities) is used to estimate sewer flows. The calculated sewage flow based on a population of 553 and no significant institutional or commercial facilities results in an estimated flow of 55,300 gpd. Alternatively, a standard average daily flow of 255 gpd for a typical single-family residence is used in flow development for planning purposes for many communities along the Eastern Sierra front. Using the 96 sewer connections (assuming most are residential), this results in an estimated average flow of 24,480 gpd. Alternately, the known rate from a similar community may be used as an estimate of the flow per connection, as shown in Table 8, below.

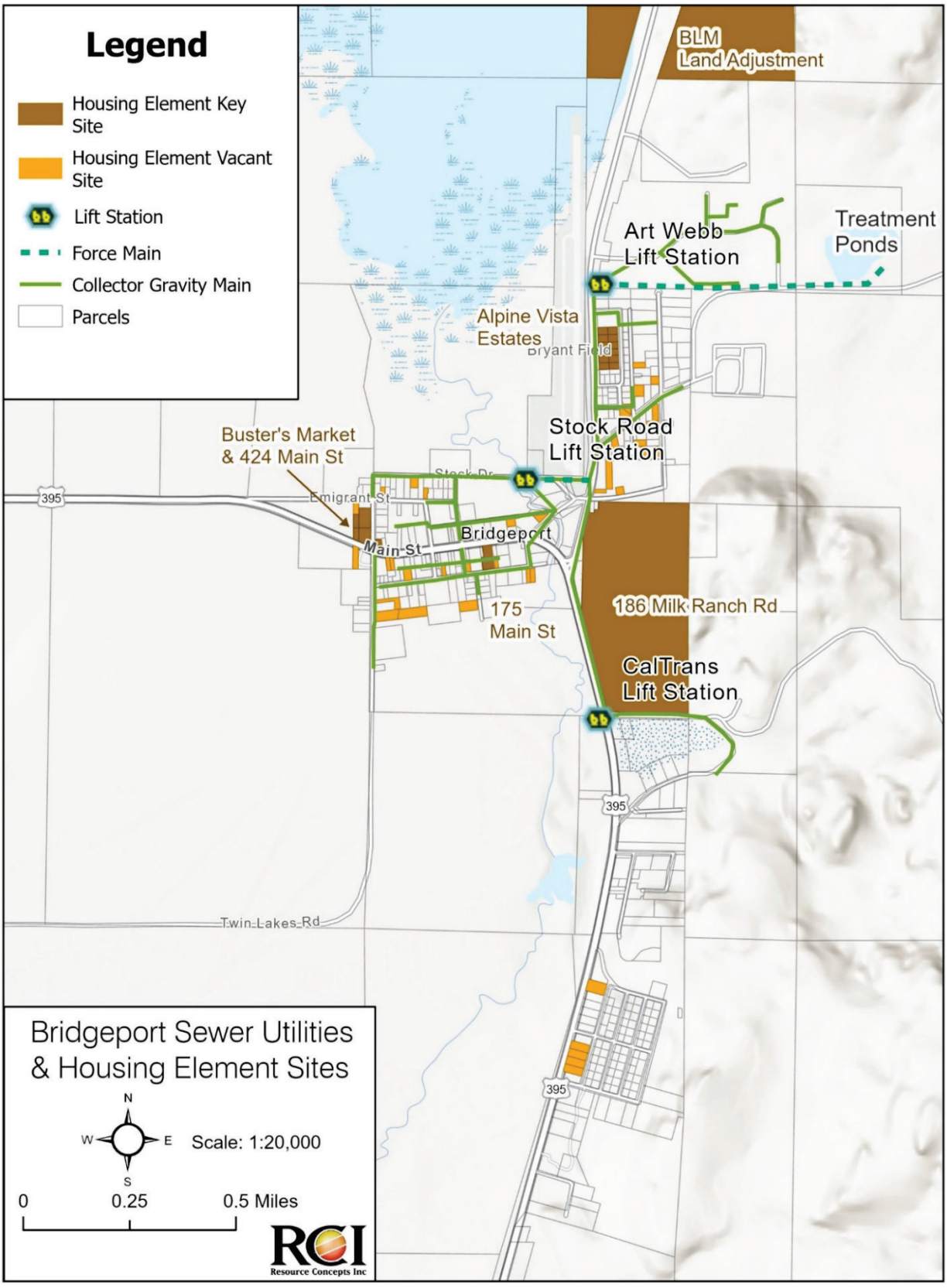
***Table 8: Wastewater Discharge Estimates***

| Criteria | Rate | Discharge per Day |
|---|---|---|
| **Per Capita Standard** | 100 gal. per capita | 55,300 gallons |
| **Per SFR – Design Standard** | 255 gpd per SFR | 24,480 gallons |
| **Same rate as Crowley Lake** | 121 gal/connection | 11,616 gallons |

The per capita rate does not take into consideration either the large portion of population currently using septic systems, or the large influx of seasonal population not included in the population estimate. The discharge of 55,300 gpd for the per capita estimate is used in the capacity analysis to be conservative. When needed, during a specific potential improvement project, further investigation to determine actual flows can be completed by measuring the discharge into the treatment ponds.

As with water demand, sewer disposal volumes are higher in the summer months due to increased occupancy. Though much of the increased water use during warmer months occurs outdoors; however, the occupancy in the community is higher, which leads to higher sewer flows as well. The overall sewer system is shown in Figure 2.

***Figure 2: Bridgeport PUD Sewer System***



### *Capacity Analysis*

In analyzing the current and potential future capacity of the sewer system, both the average day discharge and maximum day discharge are considered. Because the system capacity in households is directly dependent upon the average water use per household, efforts to promote water conservation would have a direct impact on the remaining sewer capacity for additional housing.

Tables 9 and 10 are a representation of increased discharge to the sewer system generated by each potential development scenario. The tables use one unit of discharge, in households, as 576 gallons per day for average day discharge and 1,728 gallons per day for maximum day discharge, as shown in Table 8. This unit is then applied to equivalent household units that may be developed, given vacant lots within the service area, possible development of the key sites, and the addition or development of a single ADU, plus a JADU at each existing single-family household.

The Remaining Capacity column represents the capacity remaining based on the sum of discharge for each scenario subtracted from the system capacity. The number in parentheses represents the number of additional households that may be served by the system at the applicable discharge rate. Refer to Appendix B for alternate capacity analysis tables and full data notes.

***Table 9: Sewer Capacity Analysis for Average Day Demand for Bridgeport PUD***

| Development Scenario<br>Average Day Discharge | Discharge | Remaining Capacity (200,000 gpd system capacity) |
|---|---|---|
| **Scenario 1: Current Discharge**<br>*(576 gpd Discharge Rate - 96 connections)* | 55,296 gpd | 144,704 gpd<br>(251 Households) |
| **Scenario 2: Development of Vacant Parcels & Current Discharge**<br>*(576 gpd Discharge Rate - 126 Vacant Residential Parcels & Current Discharge)* | 127,872 gpd | 72,128 gpd<br>(125 Households) |
| **Scenario 3: Development of Vacant Parcels & Key Sites & Current Discharge**<br>*(576 gpd Discharge Rate - 126 Vacant Parcels + 52 Key Sites Units + Current Discharge)* | 157,824 gpd | 42,176 gpd<br>(73 Households) |
| **Scenario 4: Development of ADUs/JADUs & Current Discharge**<br>*(576 gpd Discharge Rate - ADUs/JADUs + Current Discharge)* | 110,596 gpd | 89,404 gpd<br>(155 Households) |
| **Scenario 5: Development of Vacant Parcels & Key Sites & ADUs/JADUs & Current Discharge**<br>*(576 gpd Discharge Rate - 126 Vacant Parcels + 52 Key Sites Units +222 ADUs/JADUs + Current Discharge)* | 285,692 gpd | -85,692 gpd<br>(-148 Households) |
| **Scenario 6: Full Build-Out – Current Development & ADUs & Maximum Density Development**<br>*(576 gpd Discharge Rate - Current Discharge + ADUs/JADUs + Maximum Density Development of Current Vacant Parcels)* | 523,584 gpd | -323,584 gpd<br>(-562 Households) |

***Table 10: Sewer Capacity Analysis for Maximum Day Demand for Bridgeport PUD***

| Development Scenario Maximum Day Discharge | Discharge | Remaining Capacity (200,000 gpd system capacity) |
|---|---|---|
| **Scenario 1: Current Discharge** *(1,728 gpd Discharge Rate & 96 connections)* | 165,888 gpd | 34,112 gpd (20 Households) |
| **Scenario 2: Development of Vacant Parcels & Current Discharge** *(1,728 gpd Discharge Rate & 126 Vacant Residential Parcels & Current Discharge)* | 383,616 gpd | -183,616 gpd (-106 Households) |
| **Scenario 3: Development of Vacant Parcels & Key Sites & Current Discharge** *(1,728 gpd Discharge Rate & 126 Vacant Parcels + 52 Key Sites Units & Current Discharge)* | 473,472 gpd | -273,472 gpd (-158 Households) |
| **Scenario 4: Development of ADUs/JADUs & Current Discharge** *(1,728 gpd Discharge Rate & ADUs/JADUs & Current Discharge)* | 549,504 gpd | -349,504 gpd (-202 Households) |
| **Scenario 5: Development of Vacant Parcels & Key Sites & ADUs/JADUs & Current Discharge** *(1,728 gpd Discharge Rate & 126 Vacant Parcels + 52 Key Sites Units +222 ADUs/JADUs & Current Discharge)* | 857,088 gpd | -657,088 gpd (-380 Households) |
| **Scenario 6: Full Build-Out – Current Development & ADUs & Maximum Density Development** *(1,728 gpd Discharge Rate - Current Discharge + ADUs/JADUs + Maximum Density Development of Current Vacant Parcels)* | 1,570,752 gpd | -1,370,752 gpd (-793 Households) |

***Special Note.*** *It is understood that Table 10 represents and calculates a conservative discharge rate at maximum day discharge. The actual value may be as much as half the value shown but can only be utilized when confirmed by measured system discharge into the ponds. It is possible that the system may be able to support the demand represented by the existing users, plus vacant lots, plus nearly all the potential households at the key sites. For example, discharge flow shown in Scenarios 2, 3, 4, and 5 could be reduced to 191,808 gpd, 236,736 gpd, 274,752 gpd, and 428,544 gpd respectively. This change shows that the current system can accommodate the existing plus vacant lots (Scenario 2) but would still be overtaxed when considering Scenarios 3, 4, and 5.*

In summary, the existing Bridgeport PUD sewer system capacity is sufficient to provide services to the existing households, plus infill vacant lot and the 52 additional households within the key sites for the average day usage. However, system capacity upgrades and improvements may be required to sufficiently serve the key sites at maximum day usage.

Regarding increased density and allowing for ADU and JADU connections within the existing single-family and/or at key sites, the analysis concludes that maximum day discharges are in excess of capacity for most scenarios and not able to support increased density development.

## 2.4 Fire Protection

### *Background*

Fire protection for Bridgeport is provided by the Bridgeport Fire Protection District (FPD). Peak call volumes occur during summer months associated with increased travel and visitation.

### *Staffing*

Bridgeport FPD services are provided by an all-volunteer fire department with a part-time paid Chief. There are 20 firefighters at the time of this report. Firefighter training and incident response times are

consistent with National Fire Protection Association (NFPA) standards for volunteer and rural departments.

### *Station*

The Bridgeport FPD is served by one station located at 309 Main Street, built in 1950. The 4,000 sq ft station has three bays, an office, and a training room. The station parcel is 6,000 sq ft and there is limited area available to expand the station.

### *Apparatus*

Bridgeport FPD operates two Type 1 engines, one Type 3 brush truck, and a rescue vehicle. The existing apparatus meets the need for immediate incident response. The FPD has identified the need for a Type 6 brush truck.

### *Emergency Access*

Bridgeport has good access to state highways, local road connectivity, and few dead-end roads.

### *Water Supplies*

Bridgeport PUD provides hydrants throughout the water service area. Most fire flows are adequate to meet existing needs, though two fire flow tests resulted in flows less than 1,500 gallons, as identified in Table 5.

### *Ambulance and Medical*

Mono County Emergency Medical Services provides ambulance services based from Station 7-Bridgeport.

### *Conclusion*

The Bridgeport FPD has identified the need for an additional brush truck apparatus to maintain or improve capabilities. The district station is older and located on a site that may not allow for expansion to the existing facility.

## 2.5 Priority Sites

The key sites associated with Bridgeport PUD and the Bridgeport area, identified in the Housing Element are summarized below with the potential number of additional housing units. See Appendix A for a graphical representation of the sites together with vital information, zoning, Assessor's Parcel Numbers (APNs), and summary of characteristics.

1) **Buster's Market (Redevelopment) – 23 units**
2) **424 Main Street (Vacant Infill) – 3 units**

3) **175 Main Street (Vacant Infill) – 14 units**

The parcels located within the town and along Main Street (Buster's Market, 424 Main Street, and 175 Main Street) are redevelopment properties and have only minor utility infrastructure barriers to redevelopment. Both the water and sewer systems are within the right-of-way along frontage and can provide services to these properties. Upsizing pipes near the properties may be required for adequate fire flow.

4) **Alpine Vista Estates (Vacant Outskirts) – 12 Units**

The Alpine Vista Estates properties have water service available along Sierra View Drive to the east; water mains do not run along the properties fronting Sweetwater Road (SR 182) and may need to be extended to serve these properties. Additionally, there is currently no sewer service available to these parcels, which makes them undevelopable based on lot size requirements for septic system installation. There are options to extend sewer lines to this area to allow for development, either tying into existing gravity sewer mains or running a sewer main to the existing lift station north of the neighborhood.

5) **186 Milk Ranch Rd (Vacant Remote) – Undetermined**

There is a sewer main that runs within US Hwy 395 fronting this property, and water infrastructure runs along several sides of the property. Infrastructure would have to be extended into the property for any future development. The property is not currently located within the Bridgeport PUD service area and would have to be annexed prior to service.

6) **BLM Land Exchange (Vacant Remote) – Undetermined**

No water or sewer infrastructure currently serves the identified property. The property is not currently located within the Bridgeport PUD service area and would have to be annexed prior to service. This site does not have any of the utility location advantages of other key sites identified and would require construction of significant infrastructure to develop.

## 2.6 Other Considerations

Other areas not identified as key sites have potential for residential development with some utility infrastructure addition. The Evans Tract area could support additional development with extension of sewer service, and some properties in the Aurora Canyon Road area could support additional development with water and sewer service.

## 2.7 Conclusions

The current Bridgeport PUD water and sewer systems serve the majority of the Bridgeport community, but opportunities exist for infill development and extending infrastructure to allow for additional residential development in established residential areas. The foregoing analysis reveals that some increased density may be supported with the existing system, however, the system cannot support development of full key sites with increased density to allow ADU and JADU development.

During the high demand summer months, the water system production is limited by the capacity of the water treatment plant, which currently operates near capacity during these times. The source water wells in the system have the ability to produce more water than they currently do, if not limited by the water treatment maximum flows.

The sewer system in Bridgeport appears to have additional disposal capacity, but less than the water system based on the capacity analyses. The current discharge volume could be investigated to better understand the actual flows, which could impact the available capacity. Some residential properties are currently undevelopable due to lack of sewer infrastructure and lot size.

## 2.8 Capacity Improvement Recommendations

In considering next steps and possible capital improvement projects to improve or increase the water and sewer systems capacities, our summary for the community of Bridgeport is the following:

1) Water system treatment capacity should be increased.
2) Consideration of developer-constructed water distribution systems and extensions.
3) Additional sewer infrastructure (collection systems) should be considered to extend collection to undeveloped lots and opportunities for increased density.

Specific area and system improvements will be addressed in Phase 3 of the project – Capacity Improvement Projects Summary.

# Section 3. References

California Drinking Water Watch; https://sdwis.waterboards.ca.gov/PDWW/index.jsp; accessed July - December 2023

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Mono County Housing Element; Mono County Community Development, 6th Cycle Update, 2019-2027; adopted November 5, 2019

Municipal Service Review and Sphere of Influence Recommendation; Bridgeport Public Utility District, Mono County, California; Mono County Local Agency Formation Commission; October 2010

Recommended Standards for Wastewater Facilities (Ten States Standards), 2004 Edition, Great Lakes-Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers

California Government Code; §§ 65852.2, subd. (f), and 66000, https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?sectionNum=65852.2&lawCode=GOV , accessed January – March 2024

# Appendix A

Key Sites from Housing Element

## 1) Buster's Market (Redevelopment) – 23 units

**Buster's Market (Redevelopment)**

APN: 008-092-003, 008-092-006,

008-092-009

Acres: 1.77

Unit Potential: 23

LUD: Commercial, Multi-Family Low

Income Level: Moderate

Potential for redevelopment of the former Buster's Market, an existing vacant building. Property consists of three parcels – two commercial lots and one multi-family low (MFR-L). Site is located along main street at the northern end of the Bridgeport core. The County will consider re-zoning to MFR-H to accommodate more density.

## 2) 424 Main Street (Vacant Infill) – 3 units

**424 Main Street**

APN: 008-093-026

Acres: 0.22

Unit Potential: 3

LUD: Commercial

Income Level: Moderate

Adjacent to the vacant "Buster's Market" property, this commercial parcel could provide site for a small multi-family or mixed-use development along main street. No infrastructure improvements required.

### 3) 175 Main Street (Vacant Infill) – 14 units

| | |
|---|---|
| **175 Main Street (Underdeveloped)**<br>APN: 008-141-004<br>Acres: 0.94<br>Unit Potential: 14<br>LUD: Commercial<br>Income Level: Low, Moderate<br><br>Property is a candidate for infill or redevelopment. Parcel is in the Bridgeport core and has access from Main Street (Highway 395) and Kingsley Street. No infrastructure improvements required. |  |

### 4) Alpine Vista Estates (Vacant Outskirts) – 12 Units

| | |
|---|---|
| **Alpine Vista Estates**<br>Acres: 3.1<br>Unit Potential: 12<br>LUD: SFR<br>Income Level: Moderate<br><br>Subdivision of single-family lots located along Highway 182. Agreement is in place to improve roads for subdivision. Project on hold until market conditions improve. |  |

## 5) 186 Milk Ranch Rd (Vacant Remote) – Undetermined

| | |
|---|---|
| **186 Milk Ranch Rd**<br>APN: 008-080-011<br>Acres: 74.3<br>LUD: Estate Residential, Specific Plan<br>Income Level: Moderate<br><br>Large parcel located east of the Bridgeport townsite. Main constraints are water quality environmental impacts due to the presence of alkali flats and wetlands. |  |

## 6) BLM Land Exchange (Vacant Remote) – Undetermined

| | |
|---|---|
| **BLM Land Exchange**<br>APN: 008-030-014<br>Acres: 163.2<br>LUD: Resource Management<br>Income Level: Moderate<br><br>Large flat parcel located north of the Bridgeport townsite along Highway 182. Lot is owned by BLM and could be a candidate for a land exchange proposal. |  |

# Appendix B

Full Capacity Tables with Notes

***Table 6B: Water Capacity Analysis for Average Day Demand for Bridgeport PUD***
*(See Table 6 in Section 2 of report)*

| # | Bridgeport – Average Day | Demand/Use (gpd) | Unit Count | Remaining Capacity (gpd) | Remaining Capacity (households) |
|---|---|---|---|---|---|
| **1** | Current system capacity | | | 936,000 | |
| **2** | Use rate per household | 1,474 | | | |
| **3** | Current households | | 170 | | |
| **4** | Current Demand | 250,580 | | 685,420 | 465 |
| **5** | **Vacant Residential parcels** | | 126 | | |
| **6** | Current + Vacant Demand | 436,304 | | 499,696 | 339 |
| **7** | **Add Key Sites – Potential Units** | | 52 | | |
| **8** | Current + Vacant + Key Sites | 512,956 | | 423,044 | 287 |
| **9** | **Added ADU + JADU** | | 296 | | |
| **10** | Current + Vacant + Key Sites + ADU & JADU | 949,260 | | -13,260 | -9 |

**Table Line Notes**

1. Current system capacity at 650 gpm, the maximum treatment flow, over 24 hours. This capacity is applicable to both average and maximum daily demand.
2. The use rate per household for an average day is based on the annual water production reported in 2020 divided by the number of households identified in the 2020 Census (item 3).
4. Current demand is determined by multiplying the use rate per household by the number of households.
5. It is assumed that each vacant residential parcel can support one single-family residence, which would equate to one household each.
7. The potential units for key sites are as determined as shown in the 2019 Mono County Housing Element.
9. It is assumed that each ADU on a property would use approximately 65% of the current use rate per household, and a JADU would use approximately 35% of the current use rate per household. If every current parcel added one ADU and one JADU, the household/residence count in terms of water use would be equal to two times the use rate per household.

***Table 7B: Water Capacity Analysis for Maximum Day Demand for Bridgeport PUD***
*(See Table 7 in Section 2 of report)*

| # | Bridgeport – Maximum Day | Demand/Use (gpd) | Unit Count | Remaining Capacity (gpd) | Remaining Capacity (households) |
|---|---|---|---|---|---|
| **11** | Current system capacity | | | 936,000 | |
| **12** | Use rate per household | 4,205 | | | |
| **13** | Current households | | 170 | | |
| **14** | Current Demand | 714,860 | | 221,140 | 53 |
| **15** | Vacant Residential parcels | | 126 | | |
| **16** | Current + Vacant Demand | 1,244,690 | | -308,690 | -73 |
| **17** | Key Sites – Potential Units | | 52 | | |
| **18** | Current + Vacant + Key Sites | 1,463,350 | | -527,350 | -125 |
| **19** | **Added ADU + JADU** | | 296 | | |
| **20** | Current + Vacant + Key Sites + ADU & JADU | 2,708,030 | | -1,772,030 | -421 |

**Table Line Notes:**

11. Current system capacity at 650 gpm, the maximum treatment flow, over 24 hours. This capacity is applicable to both average and maximum daily demand.
12. The use rate per household for maximum day is based on the maximum day water production reported in 2020 divided by the number of households identified in the 2020 Census.
14. Current demand is determined by multiplying the use rate per household by the number of households.
15. It is assumed that each vacant residential parcel can support one single-family residence, which would equate to one household each.
16. Note that while negative values for remaining capacity are not possible, the values are shown for illustrative purposes to quantify the potential shortfall in water production for future scenarios.
17. The potential units for key sites are as determined as shown in the 2019 Mono County Housing Element.
19. It is assumed that each ADU on a property would use approximately 65% of the current use rate per household, and a JADU would use approximately 35% of the current use rate per household. If every current parcel added one ADU and one JADU, the household/residence count in terms of water use would be equal to two times the use rate per household.

***Table 9B: Sewer Capacity Analysis for Average Day Demand for Bridgeport PUD***
*(See Table 9 in Section 2 of report)*

| # | Bridgeport – Average Day | Sewer Discharge (gpd) | Unit Count | Remaining Capacity (gpd) | Remaining Capacity (households) |
|---|---|---|---|---|---|
| **1** | Current system capacity | | | 200,000 | |
| **2** | Discharge rate per household | 576 | | | |
| **3** | Current sewer connections | | 96 | | |
| **4** | Current Discharge | 55,296 | | 144,704 | 251 |
| **5** | Vacant Residential parcels | | 126 | | |
| **6** | Current + Vacant Discharge | 127,872 | | 72,128 | 125 |
| **7** | Key Sites – Potential Units | | 52 | | |
| **8** | Current + Vacant + Key Sites | 157,824 | | 42,176 | 73 |
| **9** | **Added ADU + JADU** | | 222 | | |
| **10** | Current + Vacant + Key Sites + ADU & JADU | 285,692 | | -85,692 | -148 |

**Table Line Notes**

2. The discharge rate per household is based on an estimated discharge per capita for an average day of 100 gpd for a population of 553 and divided by the number of sewer connections to determine the rate per household.
4. Current discharge is determined by multiplying the discharge rate per household by the number of sewer connections.
5. It is assumed that each vacant residential parcel can support one single-family residence, which would equate to one household each.
7. The potential units for key sites are as determined as shown in the 2019 Mono County Housing Element.
9. It is assumed that each ADU on a property would discharge approximately 65% of the current rate per household, and a JADU would discharge approximately 35% of the current rate per household. If every current parcel added one ADU and one JADU, the household/residence count in terms of sewer discharge would be equal to two times the discharge rate per household.

***Table 10B: Sewer Capacity Analysis for Maximum Day Demand for Bridgeport PUD***
*(See Table 10 in Section 2 of report)*

| # | Bridgeport – Maximum Day | Demand/Use (gpd) | Unit Count | Remaining Capacity (gpd) | Remaining Capacity (households) |
|---|---|---|---|---|---|
| **11** | Current system capacity | | | 200,000 | |
| **12** | Discharge rate per household | 1,728 | | | |
| **13** | Current sewer connections | | 96 | | |
| **14** | Current Discharge | 165,900 | | 34,100 | 20 |
| **15** | Vacant Residential parcels | | 126 | | |
| **16** | Current + Vacant Discharge | 383,628 | | -183,628 | -106 |
| **17** | Key Sites – Potential Units | | 52 | | |
| **18** | Current + Vacant + Key Sites | 473,484 | | -273,484 | -158 |
| **19** | Total households/residences | | 222 | | |
| **20** | Current + Vacant + Key Sites + ADU & JADU | 857,088 | | -657,088 | -380 |

**Table Line Notes**

12. The discharge rate per household for maximum day is estimated as three times the average day discharge. This represents a standard, yet conservative peaking factor for sewer discharge.

14. Current discharge is determined by multiplying the discharge rate per household by the number of sewer connections.

15. It is assumed that each vacant residential parcel can support one single-family residence, which would equate to one household each.

16., 18. & 20. Note that while negative values for remaining capacity are not possible, the values are shown for illustrative purposes to quantify the potential shortfall in sewer treatment for future scenarios.

17. The potential units for key sites are as determined as shown in the 2019 Mono County Housing Element.

19. It is assumed that each ADU on a property would discharge approximately 65% of the current rate per household, and a JADU would discharge approximately 35% of the current rate per household. If every current parcel added one ADU and one JADU, the household/residence count in terms of sewer discharge would be equal to two times the discharge rate per household.

March 2024

# Special District Needs Assessment Report

## Crowley Lake

*for—*

**Mono County Community Development**

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# Tables



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# List of Acronyms

| Acronym | Description |
|---|---|
| AC | Acre |
| ADUs | Accessory dwelling units |
| AFA | Acre-feet annually |
| APN | Assessor's Parcel Number |
| CIP | Capital Improvement Plan |
| CSD | Community Service District |
| Demand | Average daily use |
| FPD | Fire Protection District |
| Gal | gallons |
| gpd | Gallons per day |
| gpm | Gallons per minute |
| Hwy | Highway |
| JADU | Junior accessory dwelling unit |
| MWC | Mutual Water Company |
| NFPA | National Fire Protection Association |
| psi | Pounds per square inch |
| PUD | Public Utility District |
| PVC | Polyvinyl chloride |
| sq ft | Square feet |
| SFR | Single-family residence |
| SR | State route |

# Section 1. Introduction

California Housing Element law requires local governments to adequately plan to meet their existing and projected housing needs, including their share of the regional housing need (Mono County Housing Element). In response to this law, Mono County has prepared the Mono County Housing Element, the most recent update adopted in 2019, covering the time frame of 2019 to 2027.

The Housing Element establishes the following goals to address housing in Mono County:

1) Increase Overall Housing Supply, Consistent with Mono County's Rural Character
2) Increase the Supply of Community Housing
3) Retain Existing Community Housing
4) Ensure All Other Needs Related to Housing are Met

Policies are included within the Housing Element in support of these goals, including policy 1.5 below:

> *1.5 Identify sites within or adjacent to existing communities where infrastructure limits development potential. Participate in the preparation of at least two grant applications by invitation of the infrastructure entities and assist those entities with understanding environmental regulations.*

This policy supports the evaluation of infrastructure barriers within Mono County, which is addressed within this Special Districts Needs Assessment Report. This report includes the analysis of utility infrastructure within the community of Crowley Lake, Mono County, California.

The purpose of this report is to identify potential barriers to housing growth due to limitations within the water and sewer utilities in Crowley Lake and specifically for the key site identified in the Housing Element. Water is provided by several mutual water companies in Crowley Lake. This report includes basic information regarding those water systems, but they are not within the scope of the Special Districts for this effort. The Hilton Creek Community Services District (Hilton Creek CSD) provides sanitary sewer service and disposal for most of the community of Crowley Lake.

The fire district associated with the Crowley Lake community (Long Valley Fire Protection District) has been included in the collection of operational, organizational and asset information and data to evaluate any specific barriers to development within the key sites. A summary of the findings can be found at the end of this report.

Special District Needs Assessment Reports have also been developed for the communities of Bridgeport, June Lake, and Lee Vining.

## 1.1 Accessory Dwelling Units

Mono County housing policies and changes to state law incentivize the construction of ADUs. For purposes of the analysis, a conservative estimate of demand from ADU development is based on the theoretical highest intensity allowed. The current rate of ADU development is approximately 10% of new building permits in Mono County. Cost and site constraints are expected to limit this type of development overall.

***Table 1: Accessory Dwelling Unit Water Use and Sewer Discharge***

| Single-family dwelling unit equivalent 1.0 | ADU – 0.65 | JADU - 0.35 |
|---|---|---|
| 3 bedrooms | 2 bedrooms | 1 bedroom (conversion or addition) |
| 2 bathrooms + kitchen | 1 bath + kitchen | 1 bath + efficiency kitchen |

When considering ADUs in the community, the rate of use is estimated at 65% of the use of a single-family residence, and a Junior ADU (JADU) is estimated at 35% of the use of a single-family residence. This ratio is determined based on assumed plumbing fixtures in each unit. This assumes two bathrooms and a kitchen for a single-family unit, one bathroom and one kitchen for an ADU, and one bathroom and an efficiency kitchen for a JADU. Typically, an ADU uses less water and produces less effluent than a standard residence and we find from other communities' data that the above approximations are sound for planning purposes.

Note that at the time of this report, ADUs and JADUs are not subject to connection fees for structures under 800 square feet.

# Section 2. Capacity Analysis

## 2.1 Description

The community of Crowley Lake is located along U.S. Highway 395, approximately 15 miles southeast of the Town of Mammoth Lakes and approximately 28 miles northwest of Bishop in Inyo County. Crowley Lake is grouped with Sunny Slopes, Aspen Springs, and McGee Creek into the Long Valley Planning Area in Mono County. Crowley Lake had a population of 980 within 399 households based on the 2020 U.S. Census (data.census.gov). Crowley Lake consists of residential and commercial development, a county park, community center and ball fields, county road facilities, fire station, and a water treatment facility. Anticipated future development includes single-family and multi-family residential development, commercial uses, lodging, and public facilities.

The Hilton Creek CSD provides sewer service in Crowley Lake, including 373 sewer connections, serving approximately 1,000 to 1,200 residents. Water service within Crowley Lake is provided by Mountain Meadows Mutual Water Company (Mountain Meadows MWC), Crowley Lake Mutual Water Company (Crowley Lake MWC), and the Crowley Lake Trailer Park. The water and sewer systems, and ability to meet the needs of additional housing, are discussed in the following sections.

Birchim Community Service District (Birchim CSD) provides water to the Sunny Slopes community, including 69 water connections, serving approximately 139 residents. It is acknowledged that this community is composed of a high ratio of second homes, therefore the number of reported households per the 2020 census will not be used in the capacity analysis. Birchim CSD provides water to the existing residential community.

The Mountain Meadows MWC and Crowley Lake MWC providing water within Crowley Lake are private, mutual benefit corporations established for the purpose of providing water to their shareholders. The MWCs are regulated as public water systems by the California Department of Public Health. MWCs are not special districts subject to oversight, identified by Mono County for assessment. The water system information provided below is summarized and not highly detailed. A discussion for each key site identified in the Housing Element is included in section 2.4 of this report.

None of the key sites currently identified would connect to the trailer park water system, and the trailer park would not be subject to accessory dwelling units (ADUs), therefore it is not discussed beyond the number of connections and population served.

The Sunny Slopes community and the Birchim CSD is included in the special districts, identified by Mono County for assessment, the water system information is provided below and used for analysis.

## 2.2 Water System

### *Demand*

The population and connections for each water system is shown in Table 2, below. Data is from California Drinking Water Watch.

***Table 2: Population and Connections within Water Systems in Crowley Lake***

| Water System | Population | Connections |
|---|---|---|
| **Mountain Meadows MWC** | 505 | 121 |
| **Crowley Lake MWC** | 175 | 57 |
| **Crowley Lake Trailer Park** | 230 | 108 |
| **Birchim CSD** | 139 | 69 |

The Crowley Lake Trailer Park connections are not metered, while Mountain Meadows MWC and Crowley Lake MWC do have metered connections. Typically, the water use for unmetered connections is greater than those that are metered. The total annual water usage for Mountain Meadows MWC in 2020 was 27.75 million gallons, which equates to approximately 76,030 gallons per day (2023 Electronic Annual Report). The total annual water usage for Crowley Lake MWC in 2022 was 10.0 million gallons, which equates to approximately 27,390 gallons per day. The total annual water usage for the Birchim CSD in 2020 was 14.35 million gallons, which equates to approximately 39,329 gallons per day. The water usage per day for Crowley Lake MWC, Mountain Meadows MWC, and Bircham CSD are shown in Tables 3A and 3B, and in Table 4, for Birchim CSD.

***Table 3A: Water Use per Day, Crowley Lake MWC***

| Criteria | Value | Use Rate per Day |
|---|---|---|
| **Population** | 175 | 157 gallons |
| **Connections** | 57 | 481 gallons |

***Table 3B: Water Use per Day, Mountain Meadows MWC***

| Criteria | Value | Use Rate per Day |
|---|---|---|
| **Population** | 505 | 151 gallons |
| **Connections** | 121 | 628 gallons |

Note: The Mountain Meadows MWC provides a water usage estimate on its website of approximately 440 gallons per residential unit per day and 125 gallons per capita, which is lower than that reported in 2020.

***Table 4: Water Use per Day, Birchim CSD***

| Criteria | Value | Use Rate per Day |
|---|---|---|
| **Population** | 139 | 283 gallons |
| **Connections** | 69 | 569 gallons |

As with many communities in Mono County, the Crowley Lake and Sunny Slopes communities experience seasonal population and use increases during the summer months, causing higher water demand. Within the Mountain Meadows MWC service area, the maximum day demand in summer is 300% of the average day demand. The peak summer demand compared to average day demand is consistent with rates in similar communities.

The projected water demand for additional housing development can be approached in numerous ways, including applying standard use rates per new residence, with slightly lower rates per unit for multi-family housing than for single-family homes. This method works well when potential development is specific, such as with a planned residential subdivision. Since average water use is known, while future development is unknown, this analysis uses average current water use to predict future use. Considerations that are likely to affect water demand per capita in a community can include the type and density of residential development, water service metering, commercial and industrial water use changes, seasonal population changes, landscaping changes, and water conservation efforts.

## *Source*

All public water systems identified in section 2.1 rely on groundwater wells to provide water to their systems. The Mountain Meadows MWC utilizes two wells equipped with submersible pumps. The Crowley Lake MWC has two wells: one primary well and one for emergency use.

The maximum pumping rate for Mountain Meadows MWC is 450 gpm, or 648,000 gpd. The production capacity for Crowley Lake MWC and Birchim CSD is unknown.

## *Storage*

The Mountain Meadows MWC system includes a water storage capacity of 335,000 gallons in two separate welded steel storage tanks. A third tank is proposed to be constructed in the southwest corner of the Lakeridge Bluffs Subdivision to serve the lower pressure zone of the system. The Crowley Lake MWC system includes one 275,000-gallon water storage tank. Birchim CSD is served by two storage tanks of 210,000 and 47,000 gallons

## *Distribution*

The water distribution system for the Mountain Meadows MWC includes pipe diameters between 6 inches and 10 inches. Distribution infrastructure was installed originally in 1980, with additional system expansions periodically until the present.

The sizes and dates of installation of infrastructure within the Crowley Lake MWC are unknown at this time.

Birchim CSD has water mains needing replacement due to age and sub-standard diameter.

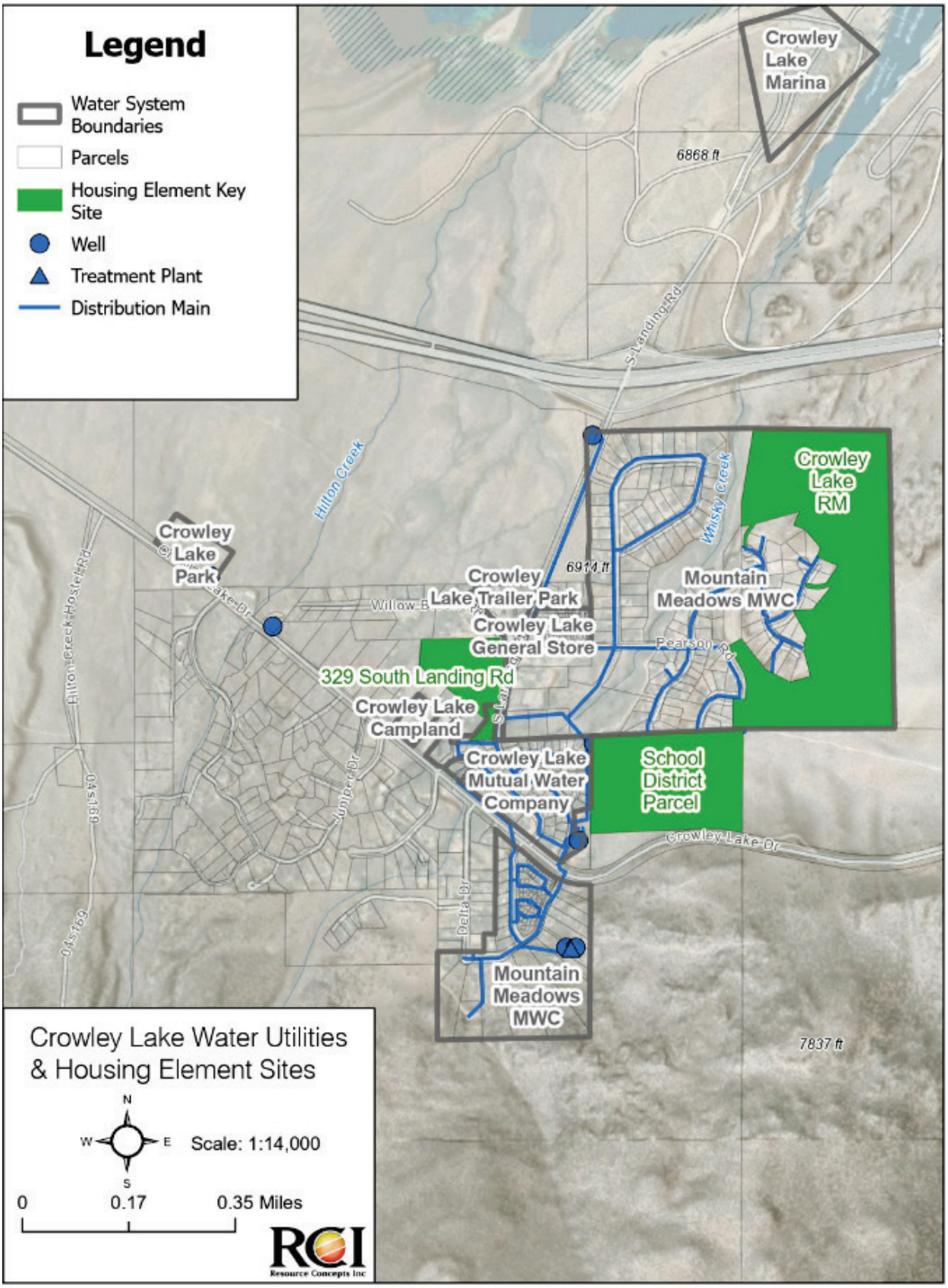
## *Quality/Treatment*

The Mountain Meadows MWC has taken two of their 4 wells off-line due to uranium levels in the groundwater. Mountain Meadows MWC performs system chlorination on a quarterly basis, but no other water treatment is utilized at this time.

## *Pressure and Fire Flow*

There are currently fire hydrants in Crowley Lake in areas served by the two mutual water companies. Fire flow volume and pressure available throughout the community are unknown at this time.

***Figure 1: Crowley Lake Public Water Systems and Housing Element Sites***



## *Capacity Analysis*

### Mountain Meadow MWC

In analyzing the current and potential future water capacity in the systems, both the average day use and maximum day use are considered. The current capacity is determined based on the pumping rate, which is equal to 648,000 gpd. Because the system capacity in households is directly dependent upon the average use per household, efforts to promote water conservation can have a direct impact on the remaining capacity for additional housing and other development. As expected, there is less capacity available for additional housing when considering the maximum-day demand. Due to a lack of available system information, only the capacity analysis for the Mountain Meadows MWC is included here.

Tables 5 and 6 are a representation of demand created by certain potential development scenarios. The tables use one unit of usage in households as 628 gallons per day (gpd) per household for average day demand as shown in Table 3B and 1,885 gpd per household for maximum day demand. This unit is then applied to equivalent household units that may be developed given vacant lots within the service area, possible development of the key sites, and then finally assuming the addition or development of a single ADU, plus a JADU at each existing single-family household. The Remaining Capacity column represents the capacity remaining based on the sum of demand for each scenario subtracted from the system capacity, with the corresponding households shown in parentheses. Refer to Appendix B for alternate capacity analysis tables and full data notes.

***Table 5: Water Capacity Analysis for Average Day Demand for Mountain Meadows MWC***

| Development Scenario<br>Mountain Meadows MWC- Average Day Demand | Demand /Use | Remaining Capacity (648,000 gpd system capacity) |
|---|---|---|
| **Scenario 1: Current Demand**<br>*(628 gpd Use Rate & 121 connections)* | 76,030 gpd | 571,970 gpd<br>(910 Households) |
| **Scenario 2: Development of Vacant Parcels & Current Demand**<br>*(628 gpd Use Rate & 52 Vacant Residential Parcels & Current Demand)* | 108,704 gpd | 539,296 gpd<br>(858 Households) |
| **Scenario 3: Development of Vacant Parcels & Key Sites & Current Demand**<br>*(628 gpd Use Rate & 52 Vacant Parcels + 331 Key Sites Units & Current Demand)* | 316,512 gpd | 331,488 gpd<br>(527 Households) |
| **Scenario 4: Development of ADUs/JADUs & Current Demand**<br>*(628 gpd Use Rate & ADUs/JADUs & Current Demand)* | 152,018 gpd | 495,982 gpd<br>(790 Households) |
| **Scenario 5: Development of Vacant Parcels & Key Sites & ADUs/JADUs & Current Demand**<br>*(628 gpd Use Rate & 52 Vacant Parcels + 331 Key Sites Units +173 ADUs/JADUs & Current Demand)* | 425,156 gpd | 222,844 gpd<br>(355 Households) |
| **Scenario 6: Full Build-Out – Current Development & ADUs & Maximum Density Development**<br>*(628 gpd Use Rate – Current Demand + ADUs/JADUs + Maximum Density Development of Current Vacant Parcels)* | 529,404 gpd | 118,596 gpd<br>(189 Households) |

***Table 6: Water Capacity Analysis for Maximum Day Demand for Mountain Meadows MWC***

| Development Scenario<br>Mountain Meadows MWC - Maximum Day Demand | Demand/ Use | Remaining Capacity (648,000 gpd system capacity) |
|---|---|---|
| **Scenario 1: Current Demand**<br>*(1,885 gpd Use Rate & 121 connections)* | 228,090 gpd | 419,910 gpd (223 Households) |
| **Scenario 2: Development of Vacant Parcels & Current Demand**<br>*(1,885 gpd Use Rate & 52 Vacant Residential Parcels & Current Demand)* | 326,112 gpd | 321,888 gpd (171 Households) |
| **Scenario 3: Development of Vacant Parcels & Key Sites & Current Demand**<br>*(1,885 gpd Use Rate & 52 Vacant Parcels + 331 Key Sites Units & Current Demand)* | 950,061 gpd | -302,061 gpd (-160 Households) |
| **Scenario 4: Development of ADUs/JADUs & Current Demand**<br>*(1,885 gpd Use Rate & ADUs/JADUs & Current Demand)* | 554,195 gpd | 93,805 gpd (50 Households) |
| **Scenario 5: Development of Vacant Parcels & Key Sites & ADUs/JADUs & Current Demand**<br>*(1,885 gpd Use Rate & 52 Vacant Parcels + 331 Key Sites Units +173 ADUs/JADUs & Current Demand)* | 1,276,166 gpd | -628,166 gpd (-333 Households) |
| **Scenario 6: Current Development & ADUs & Maximum Density Development**<br>*(1,885 gpd Use Rate – Current Demand + ADUs/JADUs + Maximum Density Development of Current Vacant Parcels)* | 1,589,055 gpd | -941,055 gpd (-499 Households) |

## 2.3 Sewer System

The Hilton Creek CSD sewer system in Crowley Lake is comprised of approximately 8.5 miles of gravity sewer lines, approximately 0.8 miles of force main, 1 pumping station, and wastewater treatment ponds. The current permitted capacity of the treatment ponds is 176,000 gallons per day.

The current treatment volume is approximately 45,000 gallons per day, well below the system design capacity. As with water demand, sewer disposal volumes are much greater in the warmer months and lower in the colder months. This discharge equates to approximately 121 gpd for 373 connections for average day discharge.

The Hilton Creek CSD adopted a Capital Improvement Plan (CIP) to support an updated rate study, which was adopted in February 2023. The CIP includes approximately $650,000 in improvements including wastewater treatment plant clarifier replacements and an emergency generator.

### *Capacity Analysis*

#### Hilton Creek CSD

In analyzing the current and potential future capacity in the sewer system, both the average day discharge and maximum day discharge are considered. The current system capacity of 176,000 gpd is based on the current permitted discharge rate for the wastewater treatment facility. Because the system capacity in households is directly dependent upon the average water use per household, efforts to promote water conservation would have a direct impact on the remaining sewer capacity for additional housing.

Tables 7 and 8 are a representation of discharge to the sewer system generated by each potential development scenario. The tables represent a unit of discharge in households as 121 gallons per average day based on current treatment volumes and 363 gallons per maximum day per household. This unit is then applied to equivalent household units that may be developed given vacant lots within the service area, possible development of the key sites, and the addition or development of a single ADU, plus a JADU, at each existing single-family household. The Remaining Capacity column represents the capacity derived from the sum of Discharge column at each subject scenario subtracted from system capacity. The number in parentheses represents the number of additional households that may be served by the system, or in some cases, a representation of the shortage (net negative number). Note that the full build-out scenario considers key sites as they are currently zoned.

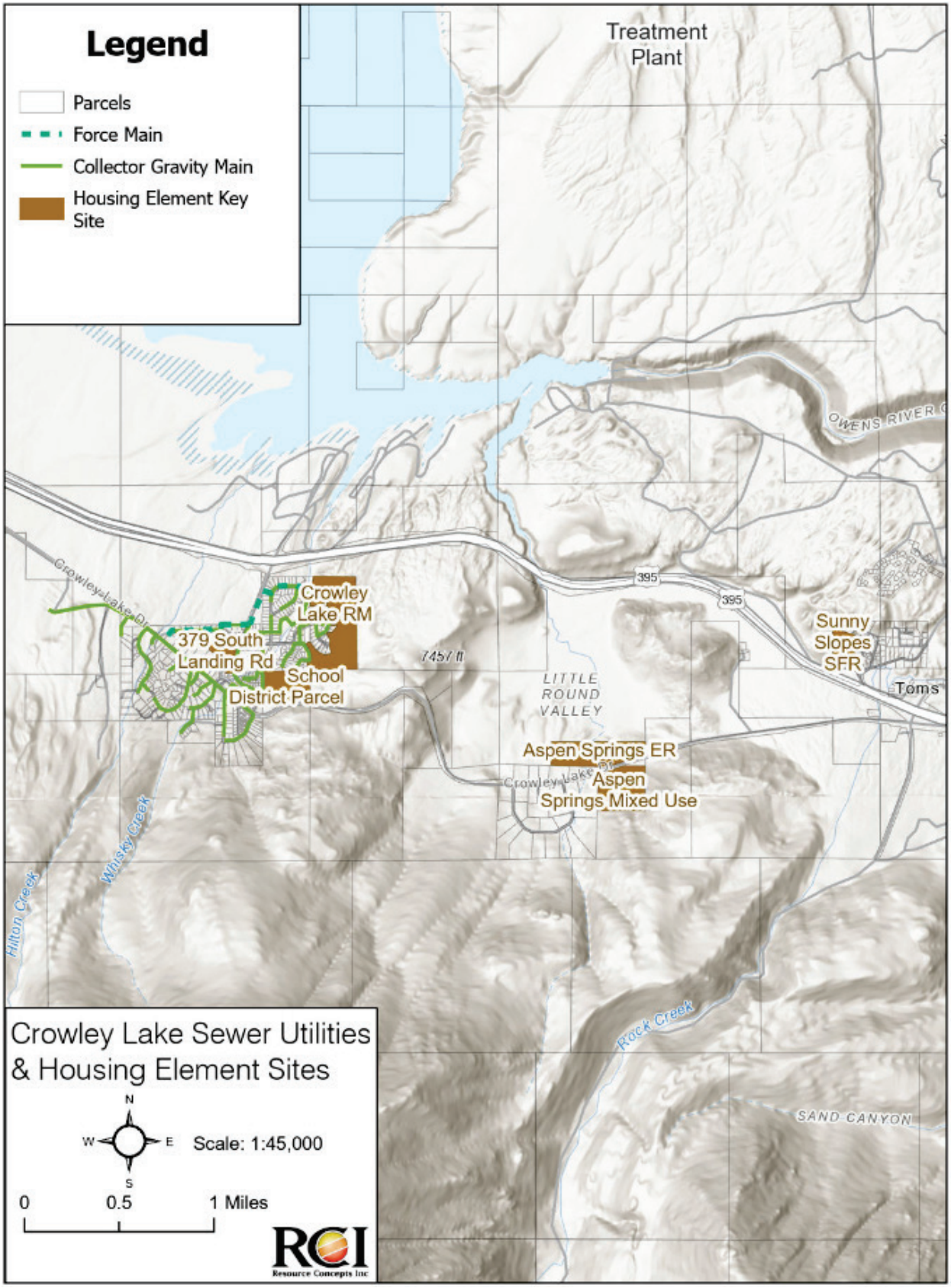
***Table 7: Sewer Capacity Analysis for Average Day Demand for Hilton Creek CSD***

| Development Scenario<br>Hilton Creek CSD - Average Day Discharge | Discharge | Remaining Capacity (176,000 gpd system capacity) |
|---|---|---|
| **Scenario 1: Current Discharge**<br>*(121 gpd Discharge Rate & 373 connections)* | 45,000 gpd | 131,000 gpd (1,083 Households) |
| **Scenario 2: Development of Vacant Parcels & Current Discharge**<br>*(121 gpd Discharge Rate & 52 Vacant Residential Parcels & Current Discharge)* | 51,292 gpd | 124,708 gpd (1,031 Households) |
| **Scenario 3: Development of Vacant Parcels & Key Sites & Current Discharge**<br>*(121 gpd Discharge Rate & 52 Vacant Parcels + 331 Key Sites Units & Current Discharge)* | 91,343 gpd | 84,657 gpd (700 Households) |
| **Scenario 4: Development of ADUs/JADUs & Current Discharge**<br>*(121 gpd Discharge Rate & ADUs/JADUs & Current Discharge)* | 90,133 gpd | 85,867 gpd (710 Households) |
| **Scenario 5: Development of Vacant Parcels & Key Sites & ADUs/JADUs & Current Discharge**<br>*(121 gpd Discharge Rate & 52 Vacant Parcels + 331 Key Sites Units + 425 ADUs/JADUs & Current Discharge)* | 142,768 gpd | 33,232 gpd (275 Households) |
| **Scenario 6: Full Build-Out – Current Development & ADUs & Maximum Density Development**<br>*(121 gpd Discharge Rate – Current Discharge + ADUs/JADUs + Maximum Density Development of Current Vacant Parcels)* | 102,003 gpd | 73,997 gpd (612 Households) |

***Table 8: Sewer Capacity Analysis for Maximum Day Demand for Hilton Creek CSD***

| Development Scenario<br>Hilton Creek CSD - Maximum Day Discharge | Discharge | Remaining Capacity (176,000 gpd system capacity) |
|---|---|---|
| **Scenario 1: Current Discharge**<br>*(363 gpd Discharge Rate & 373 connections)* | 135,000 gpd | 41,000 gpd<br>(113 Households) |
| **Scenario 2: Development of Vacant Parcels & Current Discharge**<br>*(363 gpd Discharge Rate & 52 Vacant Residential Parcels & Current Discharge)* | 154,275 gpd | 21,725 gpd<br>(59 Households) |
| **Scenario 3: Development of Vacant Parcels & Key Sites & Current Discharge**<br>*(363 gpd Discharge Rate & 52 Vacant Parcels + 331 Key Sites Units & Current Discharge)* | 274,029 gpd | -98,029 gpd<br>(-270 Households) |
| **Scenario 4: Development of ADUs/JADUs & Current Discharge**<br>*(363 gpd Discharge Rate & ADUs/JADUs & Current Discharge)* | 270,399 gpd | -94,399 gpd<br>(-260 Households) |
| **Scenario 5: Development of Vacant Parcels & Key Sites & ADUs/JADUs & Current Discharge**<br>*(363 gpd Discharge Rate & 52 Vacant Parcels + 331 Key Sites Units + 425 ADUs/JADUs & Current Discharge)* | 428,304 gpd | -252,304 gpd<br>(-695 Households) |
| **Scenario 6: Full Build-Out – Current Development & ADUs & Maximum Density Development**<br>*(363 gpd Discharge Rate – Current Discharge + ADUs/JADUs + Maximum Density Development of Current Vacant Parcels)* | 426,162 gpd | -250,162 gpd<br>(-689 Households) |

***Figure 2: Hilton Creek CSD Sewer Infrastructure and Key Sites***



# 2.4 Fire Protection

## *Background*

Fire protection for the Crowley Lake, Aspen Springs, and Sunny Slopes communities is provided by the Long Valley Fire Protection District (Long Valley FPD). Long Valley FPD responds to approximately 120 annual calls for service.

## *Staffing*

Long Valley FPD services are provided by an all-volunteer fire department with a full-time paid Chief. There are 25 firefighters. Firefighter training and incident response time are consistent with National Fire Protection Association (NFPA) standards for volunteer and rural departments.

## *Station*

Long Valley FPD is served by one station located at 3605 Crowley Lake Drive. The station has five bays, 5,000 square feet, and training facilities. The existing station has adequate space for current demand. A new station is proposed to be constructed in Sunny Slopes.

Most of the structures and population in Crowley Lake FPD are within the 14 minute response time from the station per NFPA guidance response time of 14 minutes (NFPA 1720). Long Valley FPD is planning to construct a new station located in Sunny Slopes.

## *Apparatus*

Long Valley FPD operates two Type 1 engines, one Type 2 engine, and a water tender. Long Valley FPD has identified the need for new and replacement engines.

## *Emergency Access*

Crowley Lake local roads are well connected to major collectors of South Landing Road and Crowley Lake Drive. Existing dead-end roads are not feasible for secondary access considering topography and land ownership. Aspen Springs has good access to Crowley Lake Drive. The undeveloped portion of Sunny Slopes has steep slopes and dead-end road length requirements of the State Fire Safe Regulations 1273.08 and Mono County General Plan Land Use Chapter 22 which may limit the minimum lot size without a secondary access road.

## *Water Supplies*

Crowley Lake has two major water purveyors providing hydrants; Mountain Meadows MWC and Crowley Lake MWC. Crowley Lake MWC has identified the need to replace approximately eight fire hydrants. Outside of these MWCs are individual parcels with wells or small private water systems. There are no water systems or hydrants serving Aspen Springs. Birchim CSD provides hydrants within the developed portion of Sunny Slopes.

## *Ambulance and Medical*

Mono County Emergency Medical Services provides ambulance services based from Station 3-Mammoth Lakes.

### *Conclusion*

Fire protection services are adequate to serve existing demand. Long Valley FPD has identified the need to construct a new fire station and acquire additional apparatus to maintain or improve service.

## 2.5 Priority Sites

The keys sites associated with Crowley Lake MWC and Mountain Meadows MWC along with Sunny Slopes and Aspens Springs areas, identified in the Housing Element are summarized below with the potential number of additional housing units. See Appendix A for a graphical representation of the sites together with vital information, zoning, APNs, and summary of characteristics.

Six key sites as identified in the 2019 Mono County Housing Element are analyzed in this report with respect to infrastructure opportunities and/or constraints and potential housing capacity. The following is a list of the key sites grouped by what community they are a part of:

***Table 9: Key Sites Sorted by Community in Long Valley***

| Community | 2019 Housing Sites | Water | Wastewater | Fire Protection |
|---|---|---|---|---|
| Aspen Springs | Aspen Springs ER,<br>Aspen Springs Mixed Designation | Individual wells | Individual septic | Long Valley FPD |
| Crowley Lake | 379 South Landing Rd<br>Crowley Lake RM<br>Mammoth USD Ballfield Staff Housing<br>Crowley Lake Drive – Mixed Use | **Mutual water companies:**<br>Mountain Meadows MWC<br>Crowley Lake MWC<br>**Small public water systems:**<br>Crowley Lake Trailer Park<br>Crowley Lake General Store<br>Crowley Lake Campland<br>Crowley Lake Park | Hilton Creek CSD | Long Valley FPD |
| Sunny Slopes | Sunny Slopes (vacant) | Birchim CSD | Individual wells | Long Valley FPD |

**Crowley Lake: Key Sites**

School District Parcel – 25.9 AC – Undetermined Potential Units
Crowley Lake RM – 59.4 AC – Undetermined Potential Units
South Landing Road – 9.0 AC – 53 Potential Units

**Aspen Springs: Key Sites**

Aspen Springs ER – 37.6 AC – 20-30 Potential Units
Aspen Springs Mixed-Use – 36.0 AC – Undetermined Potential Units

**Sunny Slopes: Key Sites**

Sunny Slopes SFR – 12.8 AC – 11 Potential Units

## *Crowley Lake Area Key Sites*

### 1) School District Parcel – 25.9 Acres (AC) – Undetermined Potential Units

There is currently no water or sewer service to the School District Parcel, though the parcel is adjacent to the Crowley Lake MWC to the west and Mountain Meadows MWC to the north. The property is outside but adjacent to the Hilton Creek CSD for sewer service. Both water and sewer infrastructure are adjacent to the property and should be able to be extended for service. With an assumed density of 4 units per acre, this property could accommodate approximately 103 residential units.

### 2) Crowley Lake RM – 59.4 AC – Undetermined Potential Units

There is currently no water or sewer service to the Crowley Lake RM property. The property is located within the Hilton Creek CSD, and sewer service could likely be extended to the property via gravity flow to the existing sewer lift station near the northwest boundary of the parcel. Since the property was originally included in the Lakeridge Bluffs future development of 114 parcels, the property is already within the Mountain Meadows MWC service territory, though no water infrastructure currently serves the property. The 2003 Mountain Meadows MWC system layout shows a proposed water tank location near the southeast corner of the property, so it is unclear whether this would need to be constructed in order to serve the area.

### 3) South Landing Road – 9.0 AC – 53 Potential Units

There is currently no water or sewer service to the South Landing Road Parcel, though the parcel is within the Hilton Creek CSD, an 8-inch diameter sewer main runs through the southeast corner of the property and adjacent to the property within South Landing Road. The property is not within a water service district but is adjacent to Mountain Meadows MWC to the northeast. An 8-inch diameter water main is located adjacent to the property within South Landing Road, and existing fire hydrants are located on the east side of South Landing Road. Both water and sewer infrastructure are adjacent to the property and may be able to be extended for service. The Crowley Lake Trailer Park water system is located immediately northeast of the property.

## *Aspen Springs Area Key Sites*

### 4) Aspen Springs ER – 37.6 AC – Estate Residential – 20-30 Potential Units

The Aspen Springs ER site is not located within any public water or sewer system service areas. Mountain Meadows MWC and Hilton Creek CSD are the nearest water and sewer infrastructure approximately 2.3 miles to the west. Additionally, there is a high point along the route between the property and Crowley Lake with approximately a 200-foot elevation difference. Development of this area would require either a lengthy extension for existing water and sewer lines, development of new water and sewer systems to serve the property or parcels large enough to be served by domestic wells and septic systems, which would likely not contribute to low- or moderate-income housing.

### 5) Aspen Springs Mixed Use – 36 AC – Undetermined Potential Units

The Aspen Springs Mixed Use property is similar to the Aspen Springs ER site regarding available public water and sewer in utility limitations. It is not located within any existing water or sewer service territories. Existing water and sewer infrastructure is approximately 2.3 miles

to the west. Additionally, there is a high point along the route between the property and Crowley Lake with approximately a 200-foot elevation difference. Development of this area would require either a lengthy extension for existing water and sewer lines, development of new water and sewer systems to serve the property or parcels large enough to be served by domestic wells and septic systems, which would likely not contribute to low- or moderate-income housing. With similar constraints as the Aspen Springs ER site, an estimated 20-30 single-family residential units are possible.

### *Sunny Slopes Area Key Site*

6) **Sunny Slopes - SFR – 12.8 AC –11 Potential Units**

The Sunny Slopes SFR parcels are located within the Birchim Community Service District, which provides water service to approximately 80 acres in the Sunny Slopes community. Development of this property would require an extension of existing water service and the use of septic systems for waste disposal.

## 2.6 Conclusions

Water in the Crowley Lake community is provided primarily by the Mountain Meadows MWC and the Crowley Lake MWC. The Mountain Meadows MWC has available water capacity during maximum day demand to serve existing demand plus vacant properties, plus more than half of the key site potential units within Crowley Lake. Available capacity within the Crowley Lake MWC is unknown. There are several properties not within or adjacent to either MWC that would require more substantial utility extensions and service district annexations or the creation of new separate water and sewer systems.

The Hilton Creek CSD sewer system has capacity available during maximum day demand to serve existing demand plus vacant properties, plus approximately 61 of the 270 key site potential units in Crowley Lake. It is unknown whether the daily discharge rate of 45,000 gpd reported is the average day demand, so it is possible a more complete analysis of the disposal rate could provide better information for capacity analysis.

The three key sites within Crowley Lake are all adjacent to existing water and sewer infrastructure that may be extended to serve the properties, though two of the three are outside the existing service territories of the mutual water companies. Possible recommended capital improvements will be addressed in Phase 3, Capital Improvement Summary of this study. Such improvements may include a capital project to determine fire flow and pressure availability within the water systems.

# Section 3. References

California Drinking Water Watch; https://sdwis.waterboards.ca.gov/PDWW/index.jsp; accessed July - December 2023

California State Water Resources Control Board GeoTracker; https://geotracker.waterboards.ca.gov ; accessed June – December 2023

Mono County Housing Element; Mono County Community Development, 6th Cycle Update, 2019-2027; adopted November 5, 2019

Municipal Service Review and Sphere of Influence Recommendation; Birchim Community Service District, Mono County, California; Mono County Local Agency Formation Commission; February 2009

Recommended Standards for Wastewater Facilities (Ten States Standards), 2004 Edition, Great Lakes-Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers

# Appendix A

Key Sites from Housing Element

## 1) School District Parcel

**School District Parcel**

APN: 060-110-014

Acres: 25.9

LUD: Public Facility

Income Level: Moderate

Parcel owned by the Mammoth Unified School District. Potential site for housing school district employees.

## 2) Crowley Lake RM

**Crowley Lake RM**

APN: 060-220-008

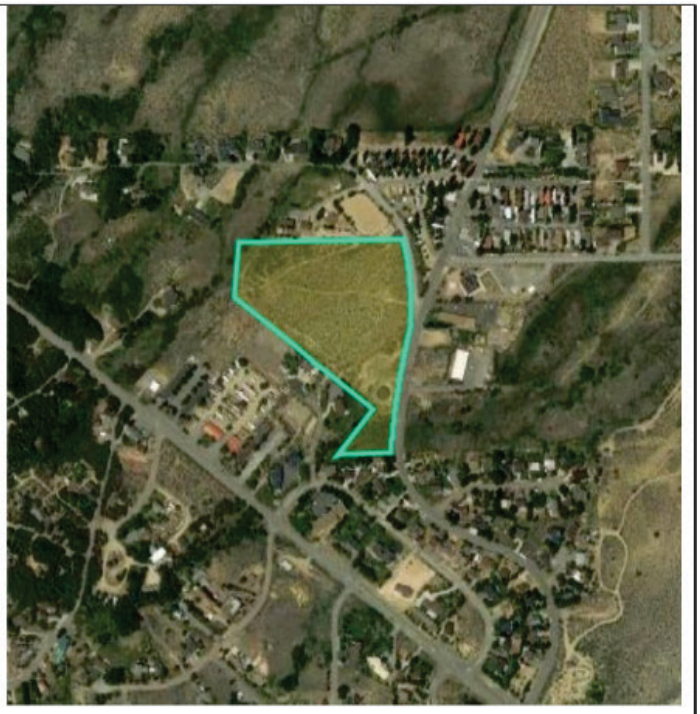
Acres: 59.4

LUD: Resource Management

Income Level: Moderate

Expired tract map for single-family residential with future potential for specific plan development due to size and location. Steep slopes on property. Could provide mix of housing types.

## 3) 379 South Landing Road

| | |
|---|---|
| **379 South Landing Road**<br>APN: 060-210-031<br>Acres: 9.0<br>Unit Potential: 53<br>LUD: Commercial, Specific Plan<br>Income Level: Moderate<br><br>Under the now-expired Crowley Estates Specific Plan, the property offers an opportunity for a mix of housing in the center of the Crowley Lake community. Infrastructure constraints are the largest concern for potential development, particularly water. Currently capacity does not exist to serve a higher density development, including the need for fire-related services. |  |

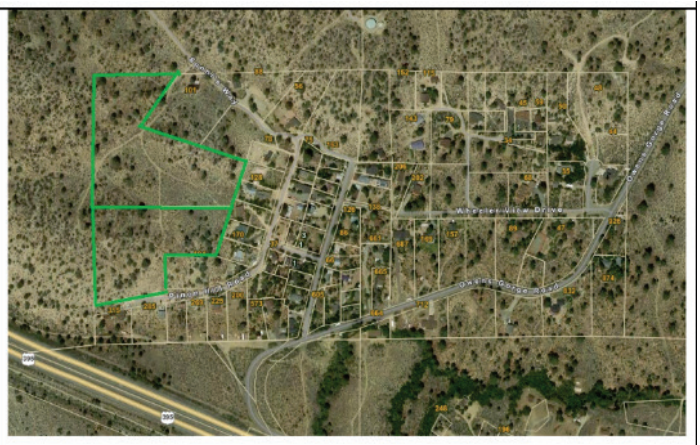
## 4) Aspen Springs ER

| | |
|---|---|
| **Aspen Springs ER**<br>APN: 062-040-019<br>Acres: 37.6<br>Unit Potential: 20-30<br>LUD: Estate Residential<br>Income Level: Moderate<br><br>Large Estate Residential parcel in Aspen Springs. Parcel could be a candidate for specific plan development. Possible constraints include steep slopes, water service, and riparian area on the east side of the property. |  |

## 5) Aspen Springs Mixed Use

| | |
|---|---|
| **Aspen Springs Mixed Use**<br>APN: 062-040-010<br>Acres: 36.0<br>LUD: Mixed Designation<br>Income Level: Moderate<br><br>Candidate for mixed development in Aspen Springs, including housing. Constraints include water service and potential steep slopes on the east side of the property. |  |

## 6) Sunny Slopes SFR

| | |
|---|---|
| **Sunny Slopes SFR**<br>APN: 062-060-001, 062-070-010<br>Acres: 12.8<br>Unit Potential: 11<br>LUD: Single-Family Residential<br>Income Level: Moderate<br><br>Two adjacent single-family residential (SFR) parcels in Sunny Slopes, totaling just shy of 13 acres. Access would likely require agreement from Inyo National Forest. |  |

# Appendix B

Full Capacity Calculations

***Table 5B: Water Capacity Analysis for Average Day Demand for Mountain Meadows MWC***
*(See Table 5 in Section 2 of report)*

| # | Mountain Meadows MWC – Average Day | Demand/Use (gpd) | Unit Count | Remaining Capacity (gpd) | Remaining Capacity (households) |
|---|---|---|---|---|---|
| **1** | Current system capacity | | | 648,000 | |
| **2** | Use rate per household | 628 | | | |
| **3** | **Current service connections** | | **121** | | |
| **4** | Current Demand | 76,030 | | 571,970 | 910 |
| **5** | **Vacant Residential parcels** | | **52** | | |
| **6** | Current + Vacant Demand | 108,704 | | 539,296 | 858 |
| **7** | **Key Sites Potential Units** | | **331** | | |
| **8** | Current + Vacant + Key Sites | 316,512 | | 331,488 | 527 |
| **9** | **Added ADU + JADU** | | 173 | | |
| **10** | Current + ADU & JADU | 184,674 | | 463,326 | 738 |

**Table Line Notes**

1. Current system capacity at 450 gpm, the maximum flow, over 24 hours. This capacity is applicable to both average and maximum-day demand.
2. The use rate per household for an average-day is based on the annual water production reported in 2022 divided by the number of connections per California Drinking Water Watch.
4. Current demand is determined by multiplying the use rate per connection by the number of households, which is also equal to the total annual production divided by 365 days/yr.
5. It is assumed that each vacant residential parcel can support one single-family residence, which would equate to one household each.
7. The potential units for key sites are as determined as shown in the 2019 Mono County Housing Element.
9. It is assumed that each ADU on a property would use approximately 65% of the current use rate per household, and a JADU would use approximately 35% of the current use rate per household. If every current parcel added one ADU and one JADU, the household/residence count in terms of water use would be equal to two times the use rate per household.

***Table 6B: Water Capacity Analysis for Maximum Day Demand for Mountain Meadows MWC***
*(See Table 6 in Section 2 of report)*

| # | Mountain Meadows MWC – Maximum Day | Demand/Use (gpd) | Unit Count | Remaining Capacity (gpd) | Remaining Capacity (households) |
|---|---|---|---|---|---|
| **11** | Current system capacity | | | 648,000 | |
| **12** | Use rate per household | 1,885 | | | |
| **13** | Current service connections | | 121 | | |
| **14** | Current Demand | 228,090 | | 419,910 | 223 |
| **15** | Vacant Residential parcels | | 52 | | |
| **16** | Current + Vacant Demand | 326,112 | | 321,888 | 171 |
| **17** | Key Sites – Potential Units | | 331 | | |
| **18** | Current + Vacant + Key Sites | 950,061 | | -302,061 | -160 |
| **19** | **Added ADU + JADU** | | 173 | | |
| **20** | Current + ADU & JADU | 554,195 | | 93,805 | 50 |

**Table Line Notes**

11. Current system capacity at 450 gpm, the maximum flow, over 24 hours. This capacity is applicable to both average and maximum-day demand.
12. The use rate per household for the maximum day is estimated as 3 times the average day use rate.
14. Current demand is determined by multiplying the use rate per connection by the number of households, which is also equal to the total annual production divided by 365 days/yr.
15. It is assumed that each vacant residential parcel can support one single-family residence, which would equate to one household each.
16. Note that while negative values for remaining capacity are not possible, the values are shown for illustrative purposes to quantify the potential shortfall in water production for future scenarios.
17. The potential units for key sites are as determined as shown in the 2019 Mono County Housing Element.
19. It is assumed that each ADU on a property would use approximately 65% of the current use rate per household, and a JADU would use approximately 35% of the current use rate per household. If every current parcel added one ADU and one JADU, the household/residence count in terms of water use would be equal to two times the use rate per household.

***Table 7B: Sewer Capacity Analysis for Average Day Demand for Hilton Creek CSD***
*(See Table 7 in Section 2 of report)*

| # | Hilton Creek CSD – Average Day | Sewer Discharge (gpd) | Unit Count | Remaining Capacity (gpd) | Remaining Capacity (households) |
|---|---|---|---|---|---|
| **1** | Current system capacity | | | 176,000 | |
| **2** | Discharge rate per household | 121 | | | |
| **3** | Current sewer connections | | 373 | | |
| **4** | Current Discharge | 45,000 | | 131,000 | 1083 |
| **5** | Vacant Residential parcels | | 52 | | |
| **6** | Current + Vacant Discharge | 51,292 | | 124,708 | 1031 |
| **7** | Key Sites – Potential Units | | 331 | | |
| **8** | Current + Vacant + Key Sites | 91,343 | | 84,657 | 700 |
| **9** | **Added ADU + JADU** | | 425 | | |
| **10** | Current + Vacant ADU & JADU | 96,425 | | 73,150 | 604 |

**Table Line Notes**

2. The discharge rate per household is based on the discharge reported by the CSD divided by the number of connections.
4. Current discharge is determined by multiplying the discharge rate per household by the number of sewer connections.
5. It is assumed that each vacant residential parcel can support one single-family residence, which would equate to one household each.
7. The potential units for key sites are as determined as shown in the 2019 Mono County Housing Element.
9. It is assumed that each ADU on a property would use approximately 65% of the current use rate per household, and a JADU would use approximately 35% of the current use rate per household. If every current parcel added one ADU and one JADU, the household/residence count in terms of water use would be equal to two times the use rate per household.

***Table 8B: Sewer Capacity Analysis for Maximum Day Demand for Hilton Creek CSD***
*(See Table 8 in Section 2 of report)*

| # | Hilton Creek CSD – Maximum Day | Demand/Use (gpd) | Unit Count | Remaining Capacity (gpd) | Remaining Capacity (households) |
|---|---|---|---|---|---|
| **11** | Current system capacity | | | 176,000 | |
| **12** | Discharge rate per household | 363 | | | |
| **13** | Current sewer connections | | 373 | | |
| **14** | Current Discharge | 135,000 | | 41,000 | 113 |
| **15** | Vacant Residential parcels | | 52 | | |
| **16** | Current + Vacant Discharge | 154,275 | | 21,725 | 59 |
| **17** | Key Sites – Potential Units | | 331 | | |
| **18** | Current + Vacant + Key Sites | 274,029 | | -98,029 | -270 |
| **19** | **Added ADU + JADU** | | 425 | | |
| **20** | Current + Vacant ADU & JADU | 289,275 | | -113,275 | -312 |

**Table Line Notes**

12. The discharge rate per household for the maximum day is estimated as three times the average day discharge.
14. Current discharge is determined by multiplying the discharge rate per household by the number of sewer connections.
15. It is assumed that each vacant residential parcel can support one single-family residence, which would equate to one household each.
16. Note that while negative values for remaining capacity are not possible, the values are shown for illustrative purposes to quantify the potential shortfall in sewer treatment for future scenarios.
17. The potential units for key sites are as determined as shown in the 2019 Mono County Housing Element.
19. The total number of households/residences includes current households and potential households for currently vacant properties but does not include potential households for key site residential units.

March 2024

# Special District Needs Assessment Report

## June Lake

*for—*

**Mono County Community Development**


**Prepared For:**

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# Tables



# Figures



# Appendices



# List of Acronyms

| Acronym | Description |
|---|---|
| AC | Acre |
| ADUs | Accessory dwelling units |
| AFA | Acre-feet annually |
| CSD | Community Service District |
| Demand | Average daily use |
| FPD | Fire Protection District |
| Gal | gallons |
| gpd | Gallons per day |
| gpm | Gallons per minute |
| Hwy | Highway |
| JADU | Junior accessory dwelling unit |
| JLFPD | June Lake Fire Protection District |
| JLPUD | June Lake Public Utility District |
| NFPA | National Fire Protection Association |
| psi | Pounds per square inch |
| PUD | Public Utility District |
| PVC | Polyvinyl chloride |
| SFR | Single-family residence |
| SR | State route |

# Section 1. Introduction

California Housing Element law requires local governments to adequately plan to meet their existing and projected housing needs, including their share of the regional housing need (Mono County Housing Element). In response to this law, Mono County has prepared the Mono County Housing Element, the most recent update adopted in 2019, covering the time frame of 2019 to 2027.

The Housing Element establishes the following goals to address housing in Mono County:

1) Increase Overall Housing Supply, Consistent with Mono County's Rural Character
2) Increase the Supply of Community Housing
3) Retain Existing Community Housing
4) Ensure All Other Needs Related to Housing are Met

Policies are included within the Housing Element in support of these goals, including policy 1.5 below:

> *1.5 Identify sites within or adjacent to existing communities where infrastructure limits development potential. Participate in the preparation of at least two grant applications by invitation of the infrastructure entities and assist those entities with understanding environmental regulations.*

This policy supports the evaluation of infrastructure barriers within Mono County, which is addressed within this Special Districts Needs Assessment Report. This report includes the analysis of utility infrastructure within June Lake as a whole and specifically for the key sites identified in the Housing Element.

The purpose of this report is to identify potential barriers to housing growth due to limitations within the water and sewer utilities in June Lake and specifically for the key site identified in the Housing Element.

June Lake Fire Protection District (JLFPD) has been included in the collection of operational, organizational and asset information and data to evaluate any specific barriers to development within the key sites. A summary of the findings can be found at the end of this report.

Special District Needs Assessment Reports have also been developed for the communities of Bridgeport, Crowley Lake, and Lee Vining.

## 1.1 Accessory Dwelling Units

Mono County housing policies and changes to state law incentivize the construction of ADUs. For purposes of the analysis, a conservative estimate of demand from ADU development is based on the theoretical highest intensity allowed. The current rate of ADU development is approximately 10% of new building permits in Mono County. Cost and site constraints are expected to limit this type of development overall.

***Table 1: Accessory Dwelling Unit Water Use and Sewer Discharge***

| Single-family dwelling unit equivalent 1.0 | ADU – 0.65 | JADU - 0.35 |
|---|---|---|
| 3 bedrooms | 2 bedrooms | 1 bedroom (conversion or addition) |
| 2 bathrooms + kitchen | 1 bath + kitchen | 1 bath + efficiency kitchen |

When considering ADUs in the community, the rate of use is estimated at 65% of the use of a single-family residence, and a Junior ADU (JADU) is estimated at 35% of the use of a single-family residence. This ratio is determined based on assumed plumbing fixtures in each unit. This assumes two bathrooms and a kitchen for a single-family unit, one bathroom and one kitchen for an ADU, and one bathroom and an efficiency kitchen for a JADU. Typically, an ADU uses less water and produces less effluent than a standard residence and we find from other communities' data that the above approximations are sound for planning purposes.

# Section 2. Capacity Analysis and Needs Assessment

## 2.1 Description

The community of June Lake is located along a five-mile stretch of State Route (SR) 158 (June Lake Loop), which intersects US Highway (Hwy) 395 approximately 15 miles north of the Town of Mammoth Lakes and 15 miles south of Lee Vining and Mono Lake. June Lake has a population of 611 within 114 households in the 2020 U.S. Census (Data.census.gov). The seasonal population of June Lake increases by approximately 2,500. There were 811 housing units according to the 2020 Census. There are approximately 1194 parcels in the district with 622 developed.

There are five (5) distinct communities along the June Lake Loop: June Lake Village west of June Lake and east of Gull Lake; West Village, west of Gull Lake, which includes the rodeo grounds and June Mountain Ski Area; Down Canyon; Silver Meadow, west of Down Canyon, and Pine Cliff, northwest of June Lake.

The June Lake Public Utility District (JLPUD) provides water and sewer services in June Lake, including 660 water and sewer connections. There are two separate water systems within JLPUD: the Village system and the Down Canyon system. The water and sewer systems' capacity, demand, and ability to meet the needs of additional housing is discussed in the following sections. Four key sites as identified in the 2019 Mono County Housing Element are analyzed in this report with respect to infrastructure opportunities and/or constraints and potential housing capacity. All key sites are within the Village water system area.

## 2.2 Water System

### *Demand*

In 2020, the water supplied by June Lake Public utility district (PUD) was 74.34 million gallons, equal to 228 Acre-ft annually (AFA). In 2020, the Village system supplied 43.79 million gallons (average 119,973 gpd), and the Down Canyon system supplied 30,550,000 gallons (average 83,699 gpd). Tables 2 and 3 below show the approximate use per day based on different criteria for each of the two water systems.

***Table 2: Water Use per Day, Village Water System***

| Criteria | Value | Use Rate per Day |
|---|---|---|
| **Population** | 240 | 500 gallons |
| **Connections** | 269 | 446 gallons |

***Table 3: Water Use per Day, Down Canyon Water System***

| Criteria | Value | Use Rate per Day |
|---|---|---|
| **Population** | 310 | 270 gallons |
| **Connections** | 380 | 220 gallons |

Please note, these values are bulk estimates, and do not exclude water used for firefighting, construction, water treatment backwash, etc. The maximum day water uses during 2020 occurred in July for both systems and was approximately 2.6 times higher than the average day demand for the Village System, and approximately 2.8 times higher than the average day demand for the Down Canyon system. As with many communities in Mono County, June Lake experiences a large seasonal population increase during the summer months, which leads to a much higher water demand in the summer than in other times of the year.

The projected water demand for additional housing development can be approached numerous ways, including applying standard use rates per new residence, with slightly lower rates per unit for multi-family housing than for single family homes. This method works well when potential development is specific, such as with a planned residential subdivision. Since average water use is known, while future development is unknown, this analysis uses average current water use to predict future use. Considerations that are likely to affect water demand per capita in a community can include the type and density of residential development, water service metering, commercial and industrial water use changes, seasonal population changes, landscaping changes, and water conservation efforts.

The Village water system is served by surface water from June Lake and one creek. The Down Canyon system is supplied by surface water from two creeks. The water supply is limited by diversion rights. The supply for the Village system is 594,566 gallons per day (gpd) and the Down Canyon system is limited to 406,000 gpd.

### *Storage*

The Village system includes a water storage capacity of 901,000 gallons in three separate storage tanks. The Down Canyon system includes a water storage capacity of 651,000 gallons in two separate tanks. The 2009 Municipal Service Review identifies the water storage as adequate to serve current domestic and fire flow needs in both systems, but not enough capacity at buildout. The number of connections has not significantly increased from the 2009 Municipal Service Review, so this conclusion is unchanged. The Water Master Plan recommends that both systems build 500,000-gallon reservoirs to meet future demands at buildout. The foregoing analysis will evaluate whether this statement that the storage is adequate is true. Although, during our review of significant data, including census data from the 2020 census, it was determined that there has not been significant growth, which would suggest that the system is not adequate to serve the current domestic and fire flow needs.

***Figure 1: June Lake PUD; Village and Down Canyon Water Systems and Key Sites***

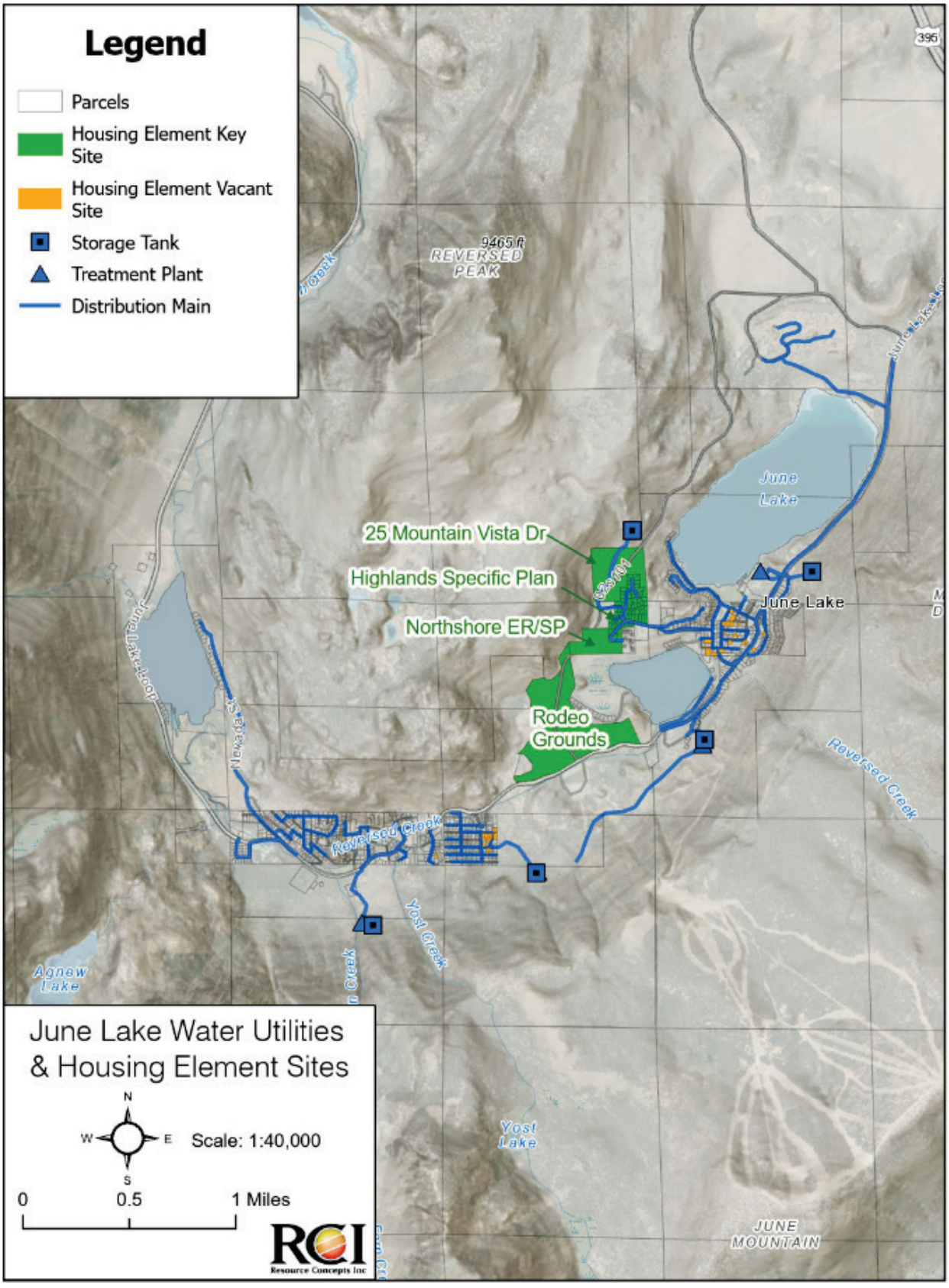


***Figure 2: June Lake PUD Village Water System***

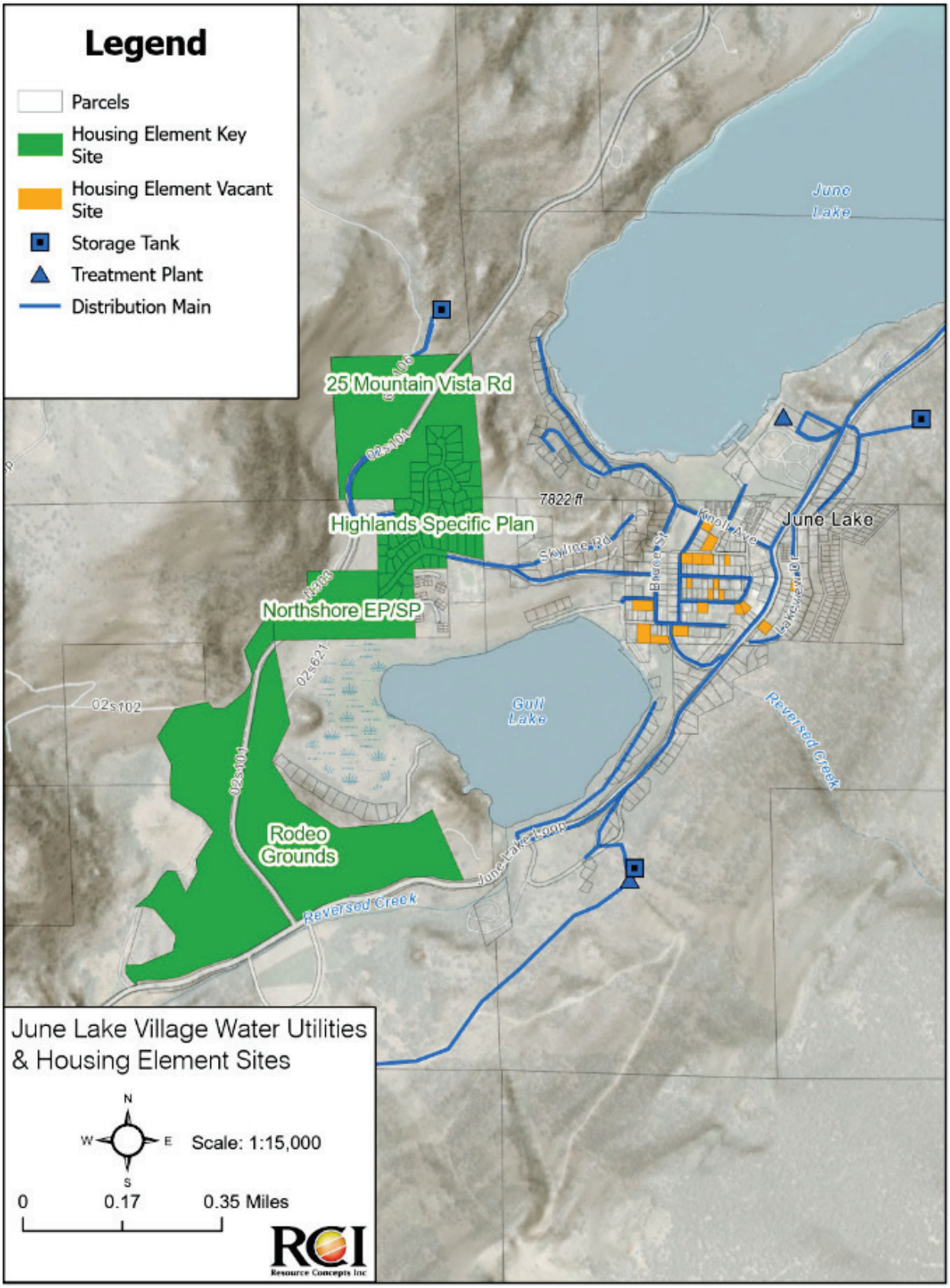
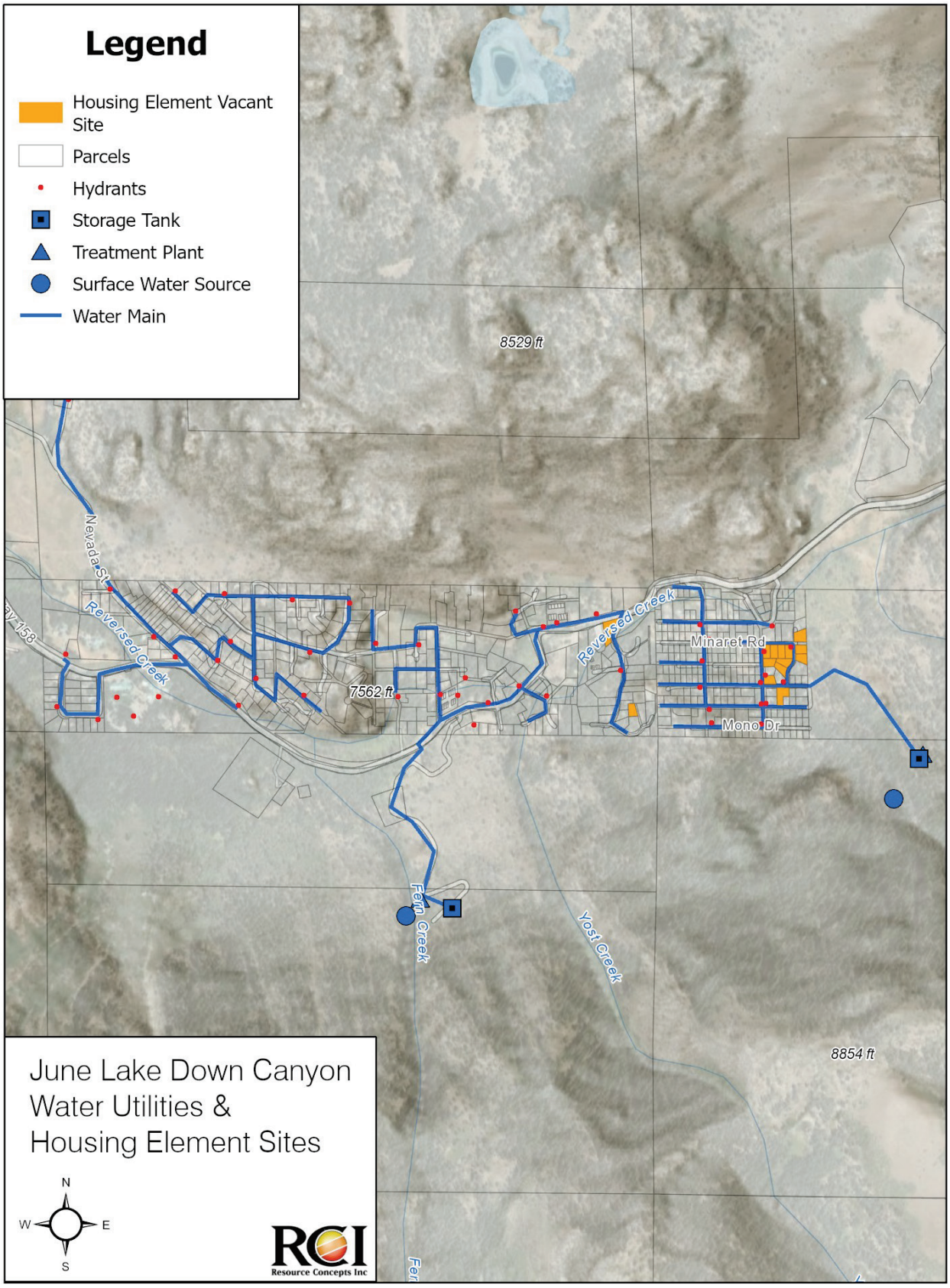


***Figure 3: June Lake PUD Down Canyon Water System***



### *Distribution*

The water distribution piping in the Village system is fairly old, with much of the piping installed in the late 1930s. The system includes approximately 47,000 feet of pipeline, predominantly ductile iron and steel, with some newer PVC portions, and includes pipe diameters between 1 and 10-inches. The water distribution piping in the Down Canyon system is newer, comprised of approximately 42,000 feet of pipeline ranging in size from 1 to 10-inches. The average age of pipes in the system is approximately 35 years.

### *Quality/Treatment*

There are two water treatment plants within each of the two water systems to treat the surface water. The Master Water Plan for June Lake includes the recommendation to add a 200-gpm expansion membrane filtration skid to the June Lake Water Plant to meet the maximum day demand projection in the Village system.

### *Pressure and Fire Flow*

There are currently fire hydrants in June Lake in areas served by June Lake PUD systems. Fire flow volume and pressure available throughout the community are unknown currently. This presents an opportunity for capital projects to determine and verify the pressure and flow zones.

### *Capacity Analysis*

In analyzing the current and potential future capacity in the water system, both the average day use and maximum day use are considered for both water systems. Efforts to promote water conservation would have a direct impact on the remaining water capacity for additional housing. June Lake PUD has a water conservation ordinance in place, as well as water metering.

Tables 4 to 7 are a representation of demand created by certain potential development scenarios. The tables use a unit of usage in gallons per day per household, as shown in Tables 2 and 3. This unit is then applied to equivalent household units that may be developed given vacant lots within the service area, possible development of the key sites, and then finally assuming the addition or development of a single ADU, plus a JADU at each existing single-family household. The Remaining Capacity column represents. the capacity derived from the sum of Demand for each subject scenario subtracted from system capacity The number of households shown in parentheses represents the equivalent number of additional households that may be served by the system.

If there is a negative number in the Remaining Capacity column, it represents that for that development scenario, the system is inadequate to provide adequate flow. Note that Scenario 6, Full Build-Out, is shown as an aggregate, and not divided between the two water systems. The average and maximum day demand values for Scenario 6 are approximate values in between the use values for each system, and the capacity is the sum of both systems. Note that the full build-out scenario considers key sites as they are currently zoned, and not necessarily as represented in key sites in the Housing Element. This aggregate scenario is shown in Tables 8 and 9.

***Table 4: Water Capacity Analysis for Average Day Demand for June Lake PUD - Village System***

| Development Scenario<br>Village System - Average Day Demand | Demand/ Use | Remaining Capacity (594,566 gpd system capacity) |
|---|---|---|
| **Scenario 1: Current Demand**<br>*(446 gpd Use Rate & 269 connections)* | 119,973 gpd | 474,593 gpd<br>(1,064 Households) |
| **Scenario 2: Development of Vacant Parcels & Current Demand**<br>*(446 gpd Use Rate & 72 Vacant Residential Parcels & Current Demand)* | 152,085 gpd | 442,481 gpd<br>(992 Households) |
| **Scenario 3: Development of Vacant Parcels & Key Sites & Current Demand**<br>*(446 gpd Use Rate & 72 Vacant Parcels + 1,132 Key Sites Units & Current Demand)* | 656,953 gpd | -62,387 gpd<br>(-140 Households) |
| **Scenario 4: Development of ADUs/JADUs & Current Demand**<br>*(446 gpd Use Rate & 269 ADUs/JADUs & Current Demand)* | 239,947 gpd | 354,619 gpd<br>(795 Households) |
| **Scenario 5: Development of Vacant Parcels & Key Sites & ADUs/JADUs & Current Demand**<br>*(446 gpd Use Rate & 72 Vacant Parcels + 1,132 Key Sites Units + 341 ADUs/JADUs & Current Demand)* | 809,039 gpd | -214,473 gpd<br>(-481 Households) |

***Table 5: Water Capacity Analysis for Maximum Day Demand for June Lake PUD - Village System***

| Development Scenario<br>Village System - Maximum Day Demand | Demand/ Use | Remaining Capacity (594,566 gpd system capacity) |
|---|---|---|
| **Scenario 1: Current Demand**<br>*(1,145 gpd Use Rate & 269 connections)* | 308,000 gpd | 286,566 gpd<br>(250 Households) |
| **Scenario 2: Development of Vacant Parcels & Current Demand**<br>*(1,145 gpd Use Rate & 72 Vacant Residential Parcels & Current Demand)* | 390,439 gpd | 204,127 gpd<br>(178 Households) |
| **Scenario 3: Development of Vacant Parcels & Key Sites & Current Demand**<br>*(1,145 gpd Use Rate & 72 Vacant Parcels + 1,132 Key Sites Units & Current Demand)* | 1,686,558 gpd | -1,091,992 gpd<br>(-954 Households) |
| **Scenario 4: Development of ADUs/JADUs & Current Demand**<br>*(1,145 gpd Use Rate & 269 ADUs/JADUs & Current Demand)* | 616,005 gpd | -21,439 gpd<br>(-80 Households) |
| **Scenario 5: Development of Vacant Parcels & Key Sites & ADUs/JADUs & Current Demand**<br>*(1,145 gpd Use Rate & 72 Vacant Parcels + 1,132 Key Sites Units + 341 ADUs/JADUs & Current Demand)* | 2,077,003 gpd | -1,482,437 gpd<br>(-1,295 Households) |

***Table 6: Water Capacity Analysis for Average Day Demand for June Lake PUD – Down Canyon System***

| Development Scenario<br>Down Canyon System - Average Day Demand | Demand/ Use | Remaining Capacity (406,000 gpd system capacity) |
|---|---|---|
| **Scenario 1: Current Demand**<br>*(220 gpd Use Rate & 380 connections)* | 83,699 gpd | 322,301 gpd<br>(1,463 Households) |
| **Scenario 2: Development of Vacant Parcels & Current Demand**<br>*(220 gpd Use Rate & 208 Vacant Residential Parcels & Current Demand)* | 129,513 gpd | 276,487 gpd<br>(1,255 Households) |
| **Scenario 3: Development of Vacant Parcels & Key Sites & Current Demand**<br>*(220 gpd Use Rate & 208 Vacant Parcels + 0 Key Sites Units & Current Demand)* | 129,513 gpd | 276,487 gpd<br>(1,255 Households) |
| **Scenario 4: Development of ADUs/JADUs & Current Demand**<br>*(220 gpd Use Rate & 380 ADUs/JADUs & Current Demand)* | 167,299 gpd | 238,701 gpd<br>(1,085 Households) |
| **Scenario 5: Development of Vacant Parcels & Key Sites & ADUs/JADUs & Current Demand**<br>*(220 gpd Use Rate & 208 Vacant Parcels + 0 Key Sites Units + 588 ADUs/JADUs & Current Demand)* | 258,720 gpd | 147,280 gpd<br>(669 Households) |

***Table 7: Water Capacity Analysis for Maximum Day Demand for June Lake PUD – Down Canyon System***

| Development Scenario<br>Down Canyon System - Maximum Day Demand | Demand/ Use | Remaining Capacity (406,000 gpd system capacity) |
|---|---|---|
| **Scenario 1: Current Demand**<br>*(623 gpd Use Rate & 380 connections)* | 236,600 gpd | 169,400 gpd<br>(272 Households) |
| **Scenario 2: Development of Vacant Parcels & Current Demand**<br>*(623 gpd Use Rate & 208 Vacant Residential Parcels & Current Demand)* | 366,107 gpd | 39,893 gpd<br>(64 Households) |
| **Scenario 3: Development of Vacant Parcels & Key Sites & Current Demand**<br>*(623 gpd Use Rate & 208 Vacant Parcels + 0 Key Sites Units & Current Demand)* | 366,107 gpd | 39,893 gpd<br>(64 Households) |
| **Scenario 4: Development of Vacant Parcels & Key Sites & ADUs/JADUs & Current Demand**<br>*(623 gpd Use Rate & 208 Vacant Parcels + 0 Key Sites Units + 588 ADUs/JADUs & Current Demand)* | 732,431 gpd | -326,431 gpd<br>(-524 Households) |
| **Scenario 5: Development of ADUs/JADUs & Current Demand**<br>*(623 gpd Use Rate & 380 ADUs/JADUs & Current Demand)* | 473,340 gpd | -67,340<br>(-108 Households) |

***Table 8: Water Capacity Analysis for Average Day Demand for June Lake PUD***

| Development Scenario<br>Combined System - Average Day Demand | Demand/ Use | Remaining Capacity (1,000,566 gpd combined capacity) |
|---|---|---|
| **Scenario 6: Full Build-Out – Current Development & ADUs & Maximum Density Development**<br>*(350 gpd Use Rate – Current Demand + ADUs/JADUs + Maximum Density Development of Current Vacant Parcels)* | 700,000 gpd | 300,566<br>(859 Households) |

***Table 9: Water Capacity Analysis for Maximum Day Demand for June Lake PUD***

| Development Scenario<br>Combined System - Average Day Demand | Demand/ Use | Remaining Capacity (1,000,566 gpd combined capacity) |
|---|---|---|
| **Scenario 6: Scenario 6: Full Build-Out – Current Development & ADUs & Maximum Density Development**<br>*(1,050 gpd Use Rate – Current Demand + ADUs/JADUs + Maximum Density Development of Current Vacant Parcels)* | 2,100,000 gpd | -1,099,434<br>(-1,047 Households) |

## 2.3 Sewer System

The sewer system in June Lake is comprised of approximately 13 miles of gravity sewer lines, approximately 11 miles of force main, 34 pumping stations, and a wastewater treatment plant. The current permitted capacity of the treatment plant is 1.0 million gallons per day. The JLPUD includes one sewer system, which is not separated like the water systems.

The current treatment volume is approximately 300,000 gallons per day, well below the maximum design capacity, which equates to an average day discharge of 455 gpd per connection. As with water demand, sewer disposal volumes are much greater in the warmer months and lower in the colder months.

### *Capacity Analysis*

The current system capacity of 1,000,000 gpd is based on the permitted discharge for the June Lake PUD sewer treatment plant. In analyzing the current and potential future capacity in the sewer system, both the average day discharge and maximum day discharge are considered. Because the system capacity, in households, is directly dependent upon the average water use per household, efforts to promote water conservation would have a direct impact on the remaining sewer capacity for additional housing. June Lake PUD has a water conservation ordinance in place, as well as water metering.

Tables 10 and 11 are a representation of discharge to the sewer system generated by each potential development scenario. The tables use a unit of discharge in households as 455 gallons per average day and 1,364 gallons per maximum day per household. This unit is then applied to equivalent household units that may be developed given vacant lots within the service area, possible development of the key sites, and then finally assuming the addition or development of a single ADU, plus a JADU, at each existing single-family household. The Remaining Capacity column represents the capacity derived from the sum of Discharge column at each subject scenario subtracted from system capacity. The number of households shown in parentheses represents the number of additional households that may be served by the system, or in some cases a representation of the shortage (net negative number). Note that the full build-out scenario considers key sites as they are currently zoned, and not necessarily as represented in key sites in the Housing Element.

***Table 10: Sewer Capacity Analysis for Average Day Demand for June Lake PUD***

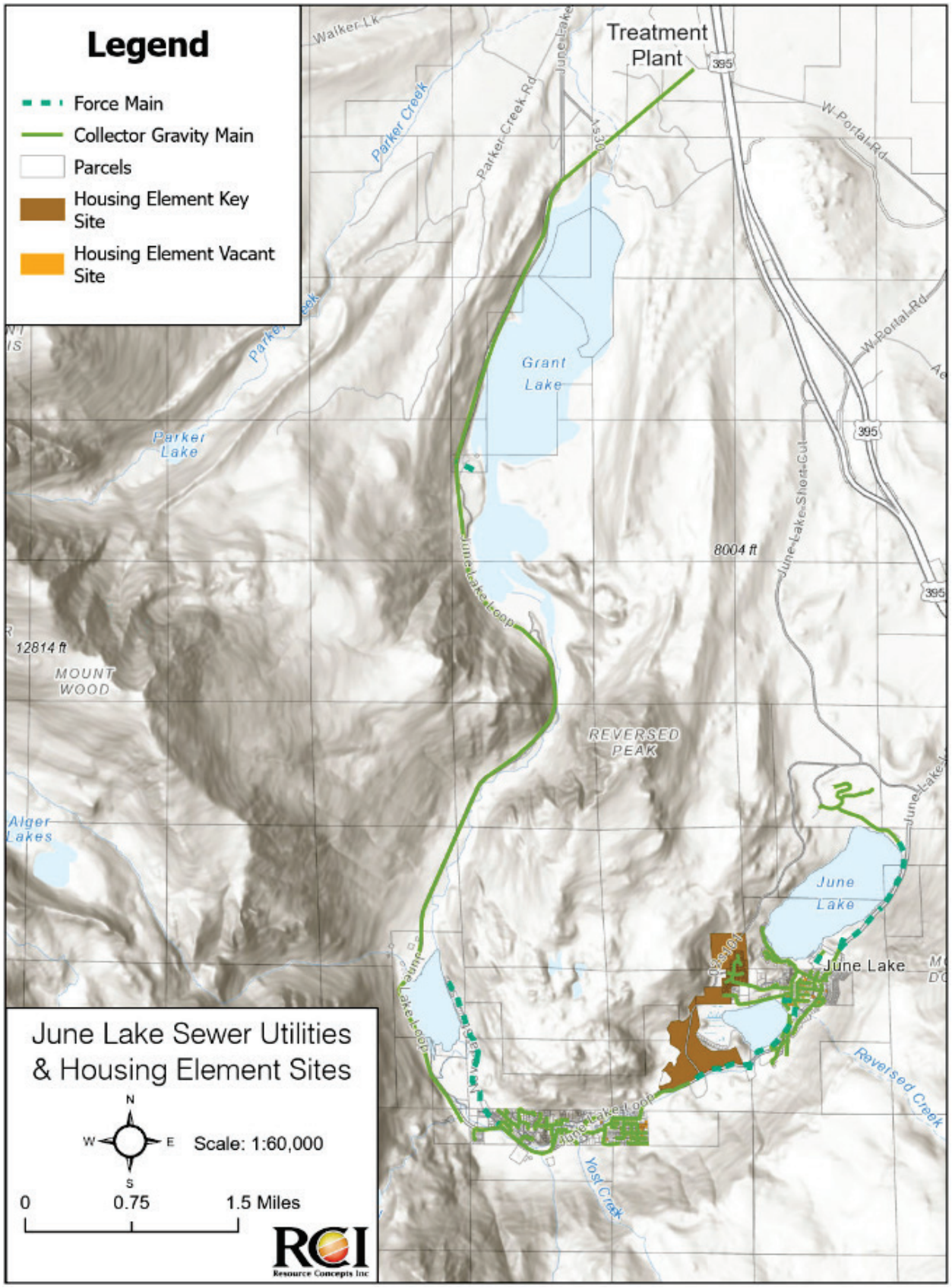
| Development Scenario<br>Average Day Discharge | Discharge | Remaining Capacity<br>(1,000,000 gpd<br>system capacity) |
|---|---|---|
| **Scenario 1: Current Discharge**<br>*(455 gpd Discharge Rate & 660 connections)* | 300,000<br>gpd | 700,000 gpd<br>(1,540 Households) |
| **Scenario 2: Development of Vacant Parcels & Current Discharge**<br>*(455 gpd Discharge Rate & 72 Vacant Residential Parcels & Current Discharge)* | 332,727<br>gpd | 667,273 gpd<br>(1,468 Households) |
| **Scenario 3: Development of Vacant Parcels & Key Sites & Current Discharge**<br>*(455 gpd Discharge Rate & 72 Vacant Parcels + 1,132 Key Sites Units & Current Discharge)* | 847,273<br>gpd | 152,727 gpd<br>(336 Households) |
| **Scenario 4: Development of Vacant Parcels & Key Sites & ADUs/JADUs & Current Discharge**<br>*(455 gpd Discharge Rate & 72 Vacant Parcels + 1,132 Key Sites Units +732 ADUs/JADUs & Current Discharge)* | 633,060<br>gpd | 366,940 gpd<br>(806 Households) |
| **Scenario 5: Development of ADUs/JADUs & Current Discharge**<br>*(455 gpd Discharge Rate & 660 ADUs/JADUs & Current Discharge)* | 600,300<br>gpd | 399,700 gpd<br>(878 Households) |
| **Scenario 6: Full Build-Out – Current Development & ADUs & Maximum Density Development**<br>*(455 gpd Discharge Rate – Current Discharge + ADUs/JADUs + Maximum Density Development of Current Vacant Parcels)* | 910,000<br>gpd | 90,000<br>(198 Households) |

***Table 11: Sewer Capacity Analysis for Maximum Day Demand for June Lake PUD***

| Development Scenario<br>Maximum Day Discharge | Discharge | Remaining Capacity<br>(1,000,000 gpd<br>system capacity) |
|---|---|---|
| **Scenario 1: Current Discharge**<br>*(1,364 gpd Discharge Rate & 660 connections)* | 900,000<br>gpd | 100,000 gpd<br>(73 Households) |
| **Scenario 2: Development of Vacant Parcels & Current Discharge**<br>*(1,364 gpd Discharge Rate & 72 Vacant Residential Parcels & Current Discharge)* | 998,182<br>gpd | 1,818 gpd<br>(1 Household) |
| **Scenario 3: Development of Vacant Parcels & Key Sites & Current Discharge**<br>*(1,364 gpd Discharge Rate & 72 Vacant Parcels + 1,132 Key Sites Units & Current Discharge)* | 2,541,818<br>gpd | -1,541,818 gpd<br>(-1,131 Households) |
| **Scenario 4: Development of Vacant Parcels & Key Sites & ADUs/JADUs & Current Discharge**<br>*(1,364 gpd Discharge Rate & 72 Vacant Parcels + 1,132 Key Sites Units +732 ADUs/JADUs & Current Discharge)* | 3,540,266<br>gpd | -2,540,266 gpd<br>(-2,596 Households) |
| **Scenario 5: Development of ADUs/JADUs & Current Discharge**<br>*(1,364 gpd Discharge Rate & 660 ADUs/JADUs & Current Discharge)* | 1,898,448<br>gpd | -898,448 gpd<br>(-659 Households) |
| **Scenario 6: Full Build-Out – Current Development & ADUs & Maximum Density Development**<br>*(1,364 gpd Discharge Rate – Current Discharge + ADUs/JADUs + Maximum Density Development of Current Vacant Parcels)* | 2,728,000<br>gpd | -1,728,000<br>(-1,267 Households) |

**General Sewer Conclusion.** The June Lake PUD sewer system has capacity to support a significant number of ADU/JADU units during the average day discharge but has only minimal capacity during maximum day discharge. This presents potential for a capacity improvement project.

***Figure 4: June Lake PUD Sewer System and Key Sites***



## 2.4 Fire Protection

### *Background*

Fire protection for June Lake is provided by the June Lake Fire Protection District (June Lake FPD). June Lake FPD responds to approximately 140 calls for service per year.

### *Staffing*

The June Lake FPD services are provided by an all-volunteer fire department with a part-time paid Chief. There are 19 firefighters and three emergency medical technicians. Firefighter training and incident response time are consistent with National Fire Protection Association (NFPA) standards for volunteer and rural departments.

### *Station*

June Lake FPD is served by two stations; Station 1 at 2380 SR 158 in the June Lake Village and Station 2 at 5126 SR 158 serving the Down Canyon area. Station 1 was constructed in 1963 and renovated in 1993. Station 2 was constructed in 2007.

Station 1 was damaged during the 2023 Winter Storm Emergency and the June Lake FPD has identified the need for major station improvements or replacement.

### *Apparatus*

June Lake FPD operates two Type 1 engines, one Type 2 engine, a water tender, and a rescue vehicle. The existing apparatus meet the need for immediate incident response.

### *Emergency access*

June Lake is topographically and seasonally constrained for major access routes. SR 158 is a dead-end road during the winter months. Northshore Road was developed as an alternative access to the June Lake Village to mitigate avalanche hazards. Generally, local roads are narrow throughout June Lake due to historic development as recreational cabin tracts in the 1920s. The Village area has a well-connected street grid.

The Down Canyon neighborhoods have the greatest access limitation due to narrow and dead-end road networks especially in the Aspen Road and Peterson Tract neighborhoods where the 2019 Mono County Multi Jurisdiction Hazard Mitigation Plan notes the need to create secondary emergency access.

### *Water supplies*

June Lake PUD provides hydrants in the Village and Down Canyon systems. Fire flows are adequate to serve existing development.

### *Ambulance and medical*

Mono County provides ambulance services to the June Lake served by Ambulance #2 serving June Lake and Mono Basin.

### *Conclusion*

JLFPD has identified renovation or replacement of Station #1 as a need to maintain or improve service.

## 2.5 Priority Sites

1) **Rodeo Grounds Specific Plan (Vacant Outskirts) – 789 Units**

   The previously proposed Rodeo Grounds Specific Plan is no longer a development plan as originally proposed. The property is still the largest private parcel within the PUD available for development. The property is not currently served by water or sewer infrastructure.

2) **Highlands Specific Plan (Partially Developed) – 39 Units**

   Many of the single-family residential properties included in the Highlands Specific Plan have already been developed. The current Highlands Specific Plan area does not include properties for multi-family development. Both water and sewer serve this area, and currently undeveloped single-family properties may be developed.

3) **Northshore Drive ER/SP (Vacant Outskirts) – Estimated 85 Units**

   With an assumed density of 6 units per acre, which is an approximate average of surrounding single-family and multi-family development, this property would support approximately 85 residential units.

4) **25 Mountain Vista Drive (Vacant Outskirts) – Estimated 121 Units**

   With an assumed density of 4 units per acre, which is an approximate average of surrounding single-family development, this property would support approximately 121 residential units.

## 2.6 Conclusions

The Village PUD water system has adequate production capacity only for the current plus vacant lot scenario for both average day and maximum day demands. The Down Canyon PUD water system has adequate production capacity for all scenarios during average day demand. When considering the maximum day demand, however, water production has the capacity to serve current development plus vacant development only. Any additional demands for lots or development considered at Key Sites or ADU and JADU cannot be met. The storage capacity for the system provides adequate fire protection water for the designated 2 hours at 1,500 gpm fire flow on top of maximum day demand. However, to supplement, the Water Master Plan recommends that both systems build 500,000-gallon reservoirs to meet future demands at buildout.

The consideration of any new wells or water sources is recommended as a possible Capital Improvement project and will be discussed in more detail in Phase 3 of this study.

The sewer system capacity in June Lake PUD is adequate for the current discharge plus vacant properties and a portion of key site development. Likewise, the current discharge plus vacant properties are covered with the current capacity, for the maximum day discharge treatment capacity.

## 2.7 Capacity Improvement Recommendation

This study concludes that for June Lake to consider additional development, and/or compliance with ADU provisions of the State Statutes, the following capital improvements might be considered:

1) Develop additional water sources and storage at both PUDs.
2) Evaluation of existing water distribution system lines and possible leaks due to age of systems. Possible replacement of water lines.
3) Construct distribution system connections from new water source to exiting systems.
4) Expand and improve treatment capacity to accommodate Key sites and ADU potential.

The above recommendations will be further investigated during Phase 3 of this study.

# Section 3. References

California Drinking Water Watch; https://sdwis.waterboards.ca.gov/PDWW/index.jsp ; accessed July - December 2023

California State Water Resources Control Board GeoTracker; geotracker.waterboards.ca.gov ; accessed June – December 2023

Mono County Housing Element; Mono County Community Development, 6th Cycle Update, 2019-2027; adopted November 5, 2019

Municipal Service Review and Sphere of Influence Recommendation; June Lake Public Utility District, Mono County, California; Mono County Local Agency Formation Commission; February 2009

Recommended Standards for Wastewater Facilities (Ten States Standards), 2004 Edition, Great Lakes-Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers

# Appendix A

Key Sites from Housing Element

## 1) Rodeo Grounds Specific Plan (Vacant Outskirts) – 789 Units

**Rodeo Grounds Specific Plan**

APN: 015-010-065

Acres: 81.5

Unit Potential: 789

Income Level: Low, Moderate, Above Moderate

Proposed Specific Plan included three elements: resort services, market-rate housing, and affordable housing. Specific Plan still requires approval prior to development.


## 2) Highlands Specific Plan (Partially Developed) – 39 Units

**Highlands Specific Plan**

Acres: 21.2

Unit Potential: 153 (39 SFR, 114 MFR)

Income Level: Moderate, Above Moderate

The Highlands Specific Plan allows for up to 39 single-family residential units (16 constructed as of January 2019) and 114 multi-family residential units.

### 3) Northshore Drive ER/SP (Vacant Outskirts) – Estimated 85 Units

| | |
|---|---|
| **Northshore Drive ER/SP**<br>APN: 015-300-005<br>Acres: 14.1<br>Income Level: Moderate, Above Moderate<br><br>Multiple-owner parcel designated as Estate Residential/Specific Plan. Possible location of future planned development. |  |

### 4) 25 Mountain Vista Drive (Vacant Outskirts) – Estimated 121 Units

| | |
|---|---|
| **25 Mountain Vista Drive**<br>APN: 015-010-055<br>Acres: 30.2<br>Income Level: Moderate, Above Moderate<br><br>Property is owned by Inyo National Forest. A land exchange could provide an appropriate site for affordable housing adjacent to the existing Highlands Specific Plan. |  |

# Appendix B

Full Capacity Calculations

***Table 4B: Water Capacity Analysis for Average Day Demand for June Lake PUD - Village System***
*(See Table 4 in Section 2 of report)*

| # | June Lake PUD – Village System Average Day | Demand/Use (gpd) | Unit Count | Remaining Capacity (gpd) | Remaining Capacity (households) |
|---|---|---|---|---|---|
| **1** | Current system capacity | | | 594,566 | |
| **2** | Use rate per household | 446 | | | |
| **3** | Current households | | 269 | | |
| **4** | Current Demand | 119,973 | | 474,593 | 1,064 |
| **5** | Vacant Residential parcels | | 72 | | |
| **6** | Current + Vacant Demand | 152,085 | | 442,481 | 992 |
| **7** | Key Sites – Potential Units | | 1132 | | |
| **8** | Current + Vacant + Key Sites | 656,953 | | -62,387 | -140 |
| **9** | Added ADU & JADUs | | 341 | | |
| **10** | Current + Vacant + ADU & JADU | 304,172 | | 290,394 | 651 |

**Table Line Notes**

1. Current system capacities are determined by the maximum allowed diversion rates. The capacities are applicable to both average and maximum day demand.
2. The use rate per household for an average day is based on the annual water production reported in 2020 divided by the number of system connections.
4. Current demand is determined by multiplying the use rate per household by the number of households.
5. It is assumed that each vacant residential parcel can support one single-family residence, which would equate to one additional household each.
7. The potential units for key sites are as determined as shown in the 2019 Mono County Housing Element.
9. It is assumed that each ADU on a property would use approximately 65% of the current use rate per household, and a JADU would use approximately 35% of the current use rate per household. If every current parcel added one ADU and one JADU, the household/residence count in terms of water use would be equal to two times the use rate per household. This cell is the same as the current households plus the vacant parcels.
10. The Demand/Use evaluates the ability of the system to serve potential increased density of ADU/JADU development added to the currently entitled lots.

***Table 5B: Water Capacity Analysis for Maximum Day Demand for June Lake PUD - Village System***
*(See Table 5 in Section 2 of report)*

| # | June Lake PUD – Village System Maximum Day | Demand/Use (gpd) | Unit Count | Remaining Capacity (gpd) | Remaining Capacity (households) |
|---|---|---|---|---|---|
| **11** | Current system capacity | | | 594,566 | |
| **12** | Use rate per household | 1,145 | | | |
| **13** | Current households | | 269 | | |
| **14** | Current Demand | 308,000 | | 286,566 | 250 |
| **15** | Vacant Residential parcels | | 72 | | |
| **16** | Current + Vacant Demand | 390,439 | | 204,127 | 178 |
| **17** | Key Sites – Potential Units | | 1,132 | | |
| **18** | Current + Vacant + Key Sites | 1,686,558 | | -1,091,992 | -954 |
| **19** | Added ADU & JADUs | | 341 | | |
| **20** | Current + Vacant + ADU & JADU | 698,445 | | -103,879 | -91 |

**Table Line Notes**

11. Current system capacities are determined by the maximum allowed diversion rates. The capacities are applicable to both average and maximum day demand.
12. The use rate per household for maximum day is based on the maximum day water production reported in 2020 divided by the number of system connections.
14. Current demand is determined by multiplying the use rate per household by the number of households.
15. It is assumed that each vacant residential parcel can support one single-family residence, which would equate to one additional household each.
17. The potential units for key sites are as determined as shown in the 2019 Mono County Housing Element.
18. Note that while negative values for remaining capacities are not possible, the values are shown for illustrative purposes to quantify the potential shortfall in water production for future scenarios.
19. It is assumed that each ADU on a property would use approximately 65% of the current use rate per household, and a JADU would use approximately 35% of the current use rate per household. If every current parcel added one ADU and one JADU, the household/residence count in terms of water use would be equal to two times the use rate per household. This cell is the same as the current households plus the vacant parcels.
20. **The Demand/Use evaluates the ability of the system to serve potential increased density of ADU/JADU development added to the currently entitled lots. In this case it shows that the system capacity can serve 179 of the 341 potential equivalent ADU/JADU households.**

***Table 6B: Water Capacity Analysis for Average Day Demand for June Lake PUD – Down Canyon System***
*(See Table 6 in Section 2 of report)*

| | June Lake PUD – Down Canyon System Average Day | Demand/Use (gpd) | Unit Count | Remaining Capacity (gpd) | Remaining Capacity (households) |
|---|---|---|---|---|---|
| **1** | Current system capacity | | | 406,000 | |
| **2** | Use rate per household | 220 | | | |
| **3** | Current households | | 380 | | |
| **4** | Current Demand | 83,699 | | 322,301 | 1,463 |
| **5** | Vacant Residential parcels | | 208 | | |
| **6** | Current + Vacant Demand | 129,513 | | 276,487 | 1,255 |
| **7** | Key Sites – Potential Units | | 0 | | |
| **8** | Current + Vacant + Key Sites | 129,513 | | 276,487 | 1,255 |
| **9** | Added ADU & JADUs | | 588 | | |
| **10** | Current + Vacant + ADU & JADU | 258,720 | | 147,280 | 669 |

**Table Line Notes**

See footnotes for Table 4B above

***Table 7B: Water Capacity Analysis for Maximum Day Demand for June Lake PUD – Down Canyon System***
*(See Table 7 in Section 2 of report)*

| # | June Lake PUD – Down Canyon System Maximum Day | Demand/Use (gpd) | Unit Count | Remaining Capacity (gpd) | Remaining Capacity (households) |
|---|---|---|---|---|---|
| **11** | Current system capacity | | | 406,000 | |
| **12** | Use rate per household | 623 | | | |
| **13** | Current households | | 380 | | |
| **14** | Current Demand | 236,600 | | 169,400 | 272 |
| **15** | Vacant Residential parcels | | 208 | | |
| **16** | Current + Vacant Demand | 366,107 | | 39,893 | 64 |
| **17** | Key Sites – Potential Units | | 0 | | |
| **18** | Current + Vacant + Key Sites | 366,107 | | 39,893 | 64 |
| **19** | Added ADU & JADUs | | 588 | | |
| **20** | Current + ADU & JADU | 603,064 | | -197,064 | -316 |

**Table Line Notes**

11. Current system capacities are determined by the maximum allowed diversion rates. The capacities are applicable to both average and maximum day demand.
12. The use rate per household for maximum day is based on the maximum day water production reported in 2020 divided by the number of system connections.
14. Current demand is determined by multiplying the use rate per household by the number of households.
15. It is assumed that each vacant residential parcel can support one single-family residence, which would equate to one additional household each.
17. The potential units for key sites are as determined as shown in the 2019 Mono County Housing Element.
19. It is assumed that each ADU on a property would use approximately 65% of the current use rate per household, and a JADU would use approximately 35% of the current use rate per household. If every current parcel added one ADU and one JADU, the household/residence count in terms of water use would be equal to two times the use rate per household.
20. This line evaluates the current household demand and the potential of ADU/JADU housing at the buildout in the line above. **The Demand/Use evaluates the ability of the system to serve potential increased density of ADU/JADU development added to the currently improved lots. In this case it shows that the system capacity can serve 271 of the 588 potential equivalent ADU/JADU households.**

***Table 10B: Sewer Capacity Analysis for Average Day Demand for June Lake PUD***
*(See Table 10 in Section 2 of report)*

| # | June Lake PUD – Average Day | Sewer Discharge (gpd) | Unit Count | Remaining Capacity (gpd) | Remaining Capacity (households) |
|---|---|---|---|---|---|
| **1** | Current system capacity | | | 1,000,000 | |
| **2** | Discharge rate per connection | 455 | | | |
| **3** | Current service connections | | 660 | | |
| **4** | Current Discharge | 300,000 | | 700,000 | 1,540 |
| **5** | Vacant Residential parcels | | 72 | | |
| **6** | Current + Vacant Discharge | 332,727 | | 667,273 | 1,468 |
| **7** | Key Sites – Potential Units | | 1,132 | | |
| **8** | Current + Vacant + Key Sites | 847,273 | | 152,727 | 336 |
| **9** | Added ADU & JADUs | | 732 | | |
| **10** | Current +Vacant + ADU & JADU | 666,120 | | 333,880 | 733 |

**Table Line Notes**

2. The discharge rate per connection is based on the discharge reported by the PUD divided by the number of service connections.
4. Current discharge is as reported by the PUD to the State Water Resources Control Board.
5. It is assumed that each vacant residential parcel can support one single-family residence, which would equate to one service connection each.
7. The potential units for key sites are as determined as shown in the 2019 Mono County Housing Element.
9. It is assumed that each ADU on a property would discharge approximately 65% of the current rate per household, and a JADU would discharge approximately 35% of the current rate per household. If every current parcel added one ADU and one JADU, the household/residence count in terms of sewer discharge would be equal to two times the discharge rate per household
10. This line evaluates the current household demand and the potential of ADU/JADU housing at the buildout in the line above. **The Demand/Use evaluates the ability of the system to serve potential increased density of ADU/JADU development added to the currently entitled lots. In this case it shows that the system capacity can serve all of the potential 732 equivalent ADU/JADU households, with the ability for 733 more equivalent households (future development).**

***Table 11B: Sewer Capacity Analysis for Maximum Day Demand for June Lake PUD***
*(See Table 11 in Section 2 of report)*

| | June Lake PUD – Maximum Day | Demand/Use (gpd) | Unit Count | Remaining Capacity (gpd) | Remaining Capacity (households) |
|---|---|---|---|---|---|
| **11** | Current system capacity | | | 1,000,000 | |
| **12** | Discharge rate per connection | 1,364 | | | |
| **13** | Current service connections | | 660 | | |
| **14** | Current Discharge | 900,000 | | 100,000 | 73 |
| **15** | Vacant Residential parcels | | 72 | | |
| **16** | Current + Vacant Discharge | 998,182 | | 1,818 | 1 |
| **17** | Key Sites – Potential Units | | 1,132 | | |
| **18** | Current + Vacant + Key Sites | 2,541,818 | | -1,541,818 | -1,131 |
| **19** | Added ADU & JADUs | | 732 | | |
| **20** | Current + ADU & JADU | 1,898,688 | | -898,688 | -1392 |

**Table Line Notes**

12. The discharge rate per household for maximum day is estimated as three times the average day discharge.

14. Current discharge is as reported by the PUD to the State Water Resources Control Board.

15. It is assumed that each vacant residential parcel can support one single-family residence, which would equate to one service connection each.

17. The potential units for key sites are as determined as shown in the 2019 Mono County Housing Element.

19. It is assumed that each ADU on a property would discharge approximately 65% of the current rate per household, and a JADU would discharge approximately 35% of the current rate per household. If every current parcel added one ADU and one JADU, the household/residence count in terms of sewer discharge would be equal to two times the discharge rate per household.

20. This line evaluates the current household demand and the potential of ADU/JADU housing at the buildout in the line above. **The Demand/Use evaluates the ability of the system to serve potential increased density of ADU/JADU development added to the currently improved lots. In this maximum day - case it shows that the system capacity can serve only 73 potential equivalent ADU/JADU households (see line 14).**

* Note that while negative values for remaining capacity are not possible, the values are shown for illustrative purposes to quantify the potential shortfall in sewer treatment for future scenarios.

March 2024

# Special District Needs Assessment Report

## Lee Vining

*for—*

**Mono County Community Development**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# List of Acronyms

| Acronym | Description |
|---|---|
| AC | Acre |
| ADUs | Accessory dwelling units |
| AFA | Acre-feet annually |
| APN | Assessor's Parcel Number |
| CSD | Community Service District |
| Demand | Average daily use |
| FPD | Fire Protection District |
| Gal | gallons |
| gpd | Gallons per day |
| gpm | Gallons per minute |
| Hwy | Highway |
| JADU | Junior accessory dwelling unit |
| LVFPD | Lee Vining Fire Protection District |
| LVPUD | Lee Vining Public Utility District |
| NFPA | National Fire Protection Association |
| psi | Pounds per square inch |
| PUD | Public Utility District |
| PVC | Polyvinyl chloride |
| sq ft | Square feet |
| SR | State route |

# Section 1. Introduction

California Housing Element law requires local governments to adequately plan to meet their existing and projected housing needs, including their share of the regional housing need (Mono County Housing Element). In response to this law, Mono County has prepared the Mono County Housing Element, the most recent update adopted in 2019, covering the time frame of 2019 to 2027.

The Housing Element establishes the following goals to address housing in Mono County:

1) Increase Overall Housing Supply, Consistent with Mono County's Rural Character
2) Increase the Supply of Community Housing
3) Retain Existing Community Housing
4) Ensure All Other Needs Related to Housing are met

Policies are included, within the Housing Element, in support of these goals, including policy 1.5 below:

> *1.5 Identify sites within or adjacent to existing communities where infrastructure limits development potential. Participate in the preparation of at least two grant applications by invitation of the infrastructure entities and assist those entities with understanding environmental regulations.*

This policy supports the evaluation of infrastructure barriers within Mono County, which is addressed within this Special Districts Needs Assessment Report. This report includes the analysis of utility infrastructure within Lee Vining as a whole and specifically for the key site identified in the Housing Element.

The purpose of this report is to identify potential barriers to housing growth due to limitations within the water and sewer utilities in Lee Vining and specifically for the key site identified in the Housing Element. Special District Needs Assessment Reports have also been developed for the communities of Bridgeport, Crowley Lake, and June Lake.

## 1.1 Accessory Dwelling Units

Mono County housing policies and changes to state law incentivize the construction of ADUs. For purposes of the analysis, a conservative estimate of demand from ADU development is based on the theoretical highest intensity allowed. The current rate of ADU development is approximately 10% of new building permits in Mono County. Cost and site constraints are expected to limit this type of development overall.

***Table 1: Accessory Dwelling Unit Water Use and Sewer Discharge***

| Single-family dwelling unit equivalent 1.0 | ADU – 0.65 | JADU - 0.35 |
|---|---|---|
| 3 bedrooms | 2 bedrooms | 1 bedroom (conversion or addition) |
| 2 bathrooms + kitchen | 1 bath + kitchen | 1 bath + efficiency kitchen |

When considering ADUs in the community, the rate of use is estimated at 65% of the use of a single-family residence, and a Junior ADU (JADU) is estimated at 35% of the use of a single-family residence. This ratio is determined based on assumed plumbing fixtures in each unit. This assumes two bathrooms and a kitchen for a single-family unit, one bathroom and one kitchen for an ADU, and one bathroom and an efficiency kitchen for a JADU. Typically, an ADU uses less water and produces less effluent than a standard residence and we find from other communities' data that the above approximations are sound for planning purposes.

# Section 2. Lee Vining

## 2.1 Description

The community of Lee Vining is located along US Highway (Hwy) 395, just north of the intersection with State Route (SR) 120, southwest of Mono Lake and 15 miles south of Bridgeport. Lee Vining had a year-round population of 217 people within 60 households based on the 2020 U.S. Census (https://data.census.gov/). The Lee Vining Public Utility District (Lee Vining PUD) estimates an additional seasonal population of approximately 300 people based on increased use of lodging and businesses (Lee Vining PUD Electronic Annual Report).

The Lee Vining PUD provides water and sewer service to the Lee Vining townsite, including approximately 100 water and sewer connections. The water and sewer systems and the ability to meet the needs of additional housing are discussed in the following sections. One key site, as identified in the 2019 Mono County Housing Element, is included in this analysis with respect to infrastructure opportunities and/or constraints and potential housing capacity.

## 2.2 Water System

### *Demand*

In 2020, the water supplied by Lee Vining PUD was 21.4 million gallons, equal to 65.755 Acre-Feet Annually (AFA). Based on that use, the average daily usage is 58,630 gallons. Table 2 below shows the approximate use per day based on different criteria.

***Table 2: Water Use per Day, Lee Vining PUD***

| Criteria | Value | Use Rate per Day |
|---|---|---|
| **Population** | 217 | 270 gallons |
| **Connections** | 100 | 586 gallons |
| **Households** | 60 | 977 gallons |

Please note these values are bulk estimates, and may include water used throughout the system for firefighting, construction, water treatment backwash, etc. The maximum daily water usage during 2020 occurred on July 3, which is consistent with season irrigation and higher visitor use. Water service connections are not metered, and users are charged a monthly flat fee for water service. As with many communities in Mono County, Lee Vining experiences a large seasonal population increase during the summer months, that together with seasonal landscape irrigation, leads to a much higher water demand in the summer than in other times of the year.

The projected water demand for additional housing development can be approached numerous ways, including applying standard use rates per new residence, with slightly lower rates per unit for multi-family housing than for single family homes. This method works well when potential development is specific, such as with a planned residential subdivision. Since average water use is known, while future development is unknown, this analysis uses average current water use to predict future use. Considerations that are likely to affect water demand per capita in a community can include the type

and density of residential development, water service metering, commercial and industrial water use changes, seasonal population changes, and water conservation efforts.

### *Source*

The Lee Vining PUD water system is served by a spring in Lee Vining Canyon, which produces 0.5 cubic feet per second (cfs), which is equal to 225 gpm and 324,000 gpd, and is piped via gravity flow to two 180,000-gallon storage tanks near the ranger station. The PUD has long-term plans of drilling and adding a well to the system but has not been able to acquire adequate funding for the project. Because the system relies on a single water source, the system is vulnerable to a water shortage should there be an interruption of production or access to the spring. Additionally, spring sources can be more vulnerable to contamination, reduced production due to drought, and negative effects from wildfire.

> **The *Tioga Mobil Mart well and tank **was not used** as a source of supply nor considered as a potential redundancy tie-in for any of the Lee Vining PUD service area. It is assumed, for this analysis of capacity versus demand, that the Housing Element property might be served by Lee Vining PUD from the current system(s). The Tioga Mobil Mart system is shown on Figure 1 for information only and to illustrate proximity to the Housing Element key site.*

### *Storage*

The system includes a water storage capacity of 360,000 gallons in two separate storage tanks located along SR 120, approximately 1 mile southwest of the intersection with US Hwy 395. As shown in Table 3, the current daily water production plus storage volume is more than sufficient to meet the average day demand and fire flow. The capacity is also able to meet the maximum day demand, but not sufficient to provide water for the maximum day demand plus fire flow (with two hours of fire flow, which is the duration required by fire codes for the typical construction type and size within the community). With maximum-day demand, the current supply and storage volume can support less than two hours of fire flow at 1500 gpm.

***Table 3: Sample Water Supply Demand Based on Spring Production***

| Supply and Demand | Basis of Calculation | Quantity (gpd)) |
|---|---|---|
| Daily water production | 225 gpm over 24 hrs | 324,000 |
| Maximum storage volume | 360,000 gal | 360,000 |
| **Total Supply & Capacity** | | **684,000** |
| **Average Day Demand** | | 58,630 |
| Maximum day demand | Based on 2020 use | 528,237[1] |
| Fire flow | 1500 gpm for 2 hrs | 180,000 |
| **Total Maximum Demand** | **Max day + Fire Flow** | **708,237** |
| | **Excess Supply per day** | **-24,237** |

[1] The Maximum day demand, which was reported by Lee Vining PUD in July of 2020, was unreasonably high, therefore value in the table is based on a factor of 3 applied to the average day demand.

***Figure 1: Lee Vining PUD Water System Overview***

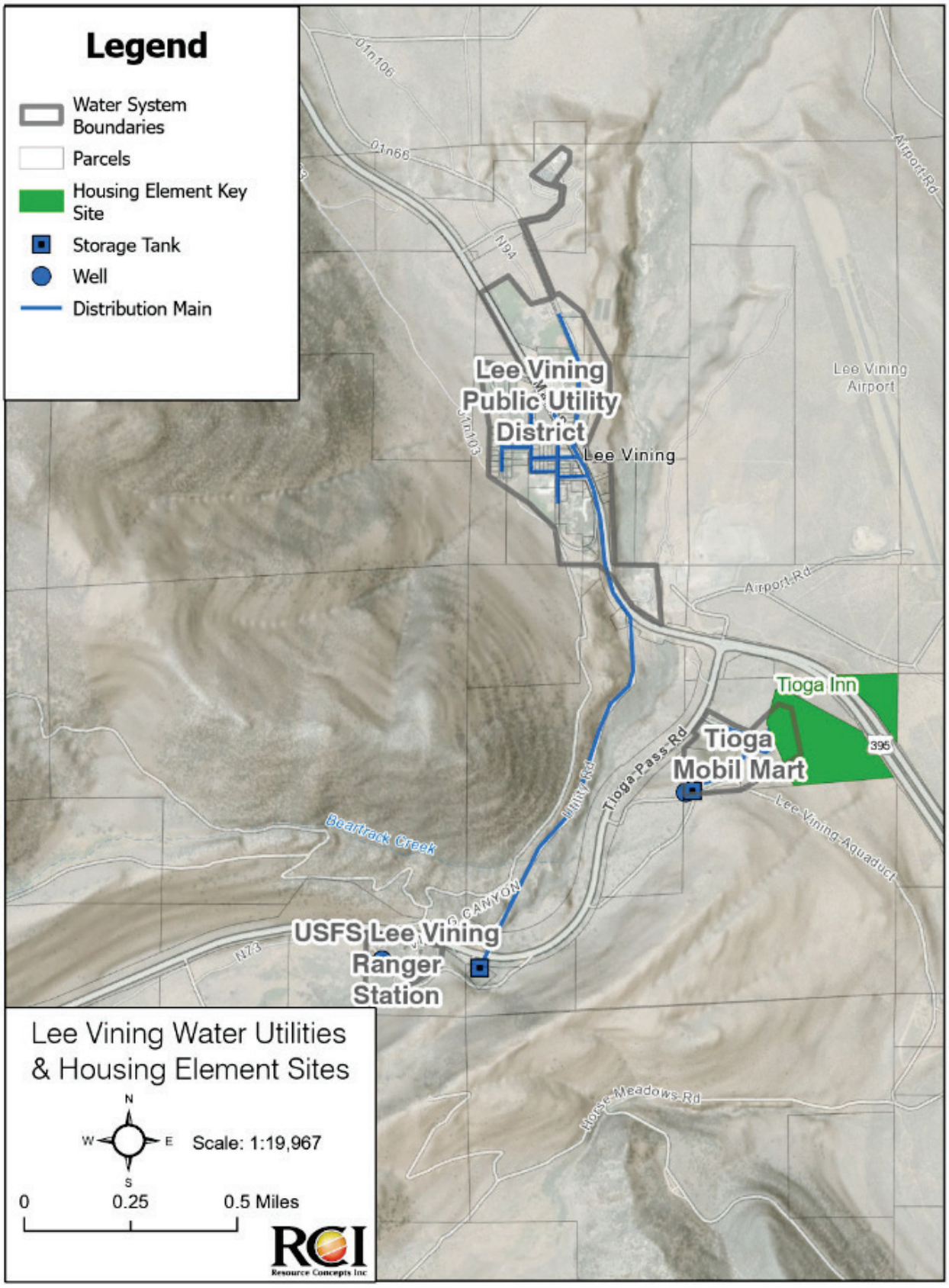
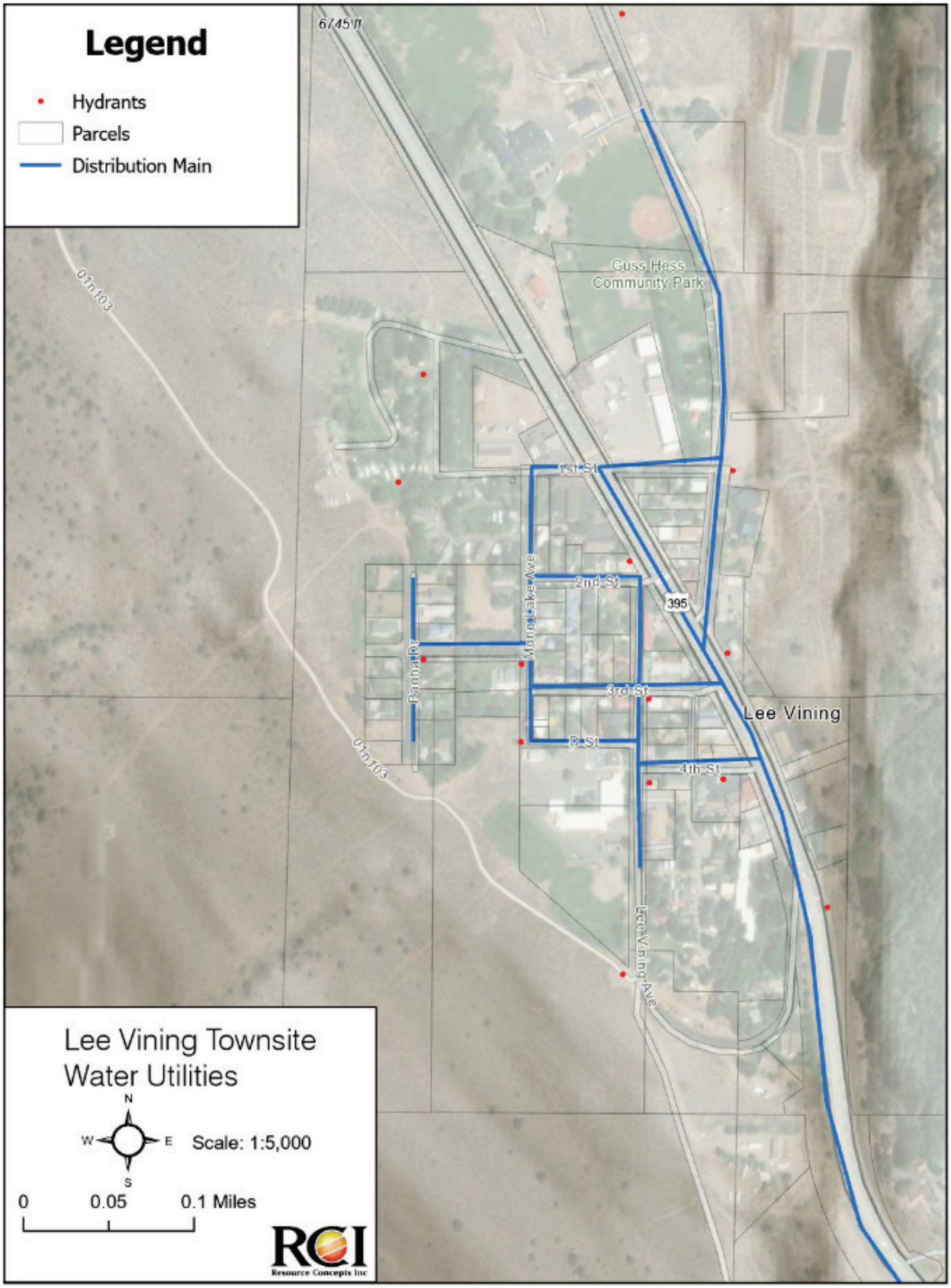


***Figure 2: Lee Vining PUD Water System Within Lee Vining***



### *Distribution*

The water distribution system in Lee Vining includes pipe diameters between 1 and 8 inches. The water mains within the community are 6-inches in diameter.

The materials used in the water system include 30% plastic, with an average age of 10 years; 40% ductile iron, with an average age of 20 years; and 30% asbestos cement with an average age of 30 years.

### *Quality/Treatment*

The PUD's water is treated with chlorine at the storage tank and is tested regularly. No water quality issues have been identified.

### *Pressure and Fire Flow*

There are currently 21 fire hydrants in Lee Vining, spread throughout the community. The flow volume and pressure available throughout the community is currently unknown. As discussed in the Storage section, the water storage available for firefighting during maximum day demand is less than 2 hours at 1,500 gpm, (a typical flow volume required for single-family residential development). The need to identify system flow and pressure zones presents an opportunity for analysis and targeted capital improvement project to assure adequate fire-flow and pressure.

### *Capacity Analysis*

In analyzing the current and potential future capacity in the water system, both the average day use and maximum day use are considered. The capacity of the water system is determined by the flow rate from the source well, which results in a supply of 324,000 gpd. Because the system capacity in households is directly dependent upon the average use per household, efforts to promote water conservation can have a direct impact on the remaining capacity for additional housing and other development.

Tables 4 and 5 are a representation of demand created by certain potential development scenarios. The tables use one unit of usage in households as 977 gallons per day (gpd) per household as shown in Table 2. This unit is then applied to equivalent household units that may be developed given vacant lots within the service area, possible development of the key site, and then finally assuming the addition or development of a single ADU, plus a JADU at each existing single-family household. The Remaining Capacity column represents the capacity remaining based on the sum of demand for each scenario subtracted from the system capacity. The number of households shown in parentheses represents the number of additional households that may be served by the system at the current use rate. Refer to Appendix B for alternate capacity analysis tables and full data notes. Note that the full build-out scenario considers key sites as they are currently zoned, and not necessarily as represented in key sites in the Housing Element.

***Table 4: Water Capacity Analysis for Average Day Demand for Lee Vining PUD***

| Development Scenario<br>Average Day Demand | Demand/ Use | Remaining Capacity (324,000 gpd system capacity) |
|---|---|---|
| **Scenario 1: Current Demand**<br>*(977 gpd Use Rate & 60 connections)* | 58,630 gpd | 265,370 gpd<br>(272 Households) |
| **Scenario 2: Development of Vacant Parcels & Current Demand**<br>*(977 gpd Use Rate & 4 Vacant Residential Parcels & Current Demand)* | 62,538 gpd | 261,462 gpd<br>(268 Households) |
| **Scenario 3: Development of Vacant Parcels & Key Sites & Current Demand**<br>*(977 gpd Use Rate & 4 Vacant Parcels + 100 Key Sites Units & Current Demand)* | 160,238 gpd | 163,762 gpd<br>(168 Households) |
| **Scenario 4: Development of Vacant Parcels & Key Sites & ADUs/JADUs & Current Demand**<br>*(977 gpd Use Rate & 4 Vacant Parcels + 100 Key Sites Units +64 ADUs/JADUs & Current Demand)* | 222,766 gpd | 101,234 gpd<br>(104 Households) |
| **Scenario 5: Development of ADUs/JADUs & Current Demand**<br>*(977 gpd Use Rate & 60 ADUs/JADUs & Current Demand)* | 117,250 gpd | 206,750 gpd<br>(212 Households) |
| **Scenario 6: Full Build-Out – Current Development & ADUs & Maximum Density Development**<br>*(977 gpd Use Rate – Current Demand + ADUs/JADUs + Maximum Density Development of Current Vacant Parcels)* | 135,803 gpd | 188,197 gpd<br>(193 Households) |

***Table 5: Water Capacity Analysis for Maximum Day Demand for Lee Vining PUD***

| Development Scenario<br>Maximum Day Demand | Demand/ Use | Remaining Capacity (324,000 gpd system capacity) |
|---|---|---|
| **Scenario 1: Current Demand**<br>*(2,931 gpd Use Rate & 60 connections)* | 175,890 gpd | 148,110 gpd<br>(51 Households) |
| **Scenario 2: Development of Vacant Parcels & Current Demand**<br>*(2,931 gpd Use Rate & 4 Vacant Residential Parcels & Current Demand)* | 187,614 gpd | 136,386 gpd<br>(47 Households) |
| **Scenario 3: Development of Vacant Parcels & Key Sites & Current Demand**<br>*(2,931 gpd Use Rate & 4 Vacant Parcels + 100 Key Sites Units & Current Demand)* | 480,714 gpd | -156,714 gpd<br>(-53 Households) |
| **Scenario 4: Development of Vacant Parcels & Key Sites & ADUs/JADUs & Current Demand**<br>*(2,931 gpd Use Rate & 4 Vacant Parcels + 100 Key Sites Units +64 ADUs/JADUs & Current Demand)* | 668,298 gpd | -344,298 gpd<br>(-117 Households) |
| **Scenario 5: Development of ADUs/JADUs & Current Demand**<br>*(2,931 gpd Use Rate & 60 ADUs/JADUs & Current Demand)* | 351,750 gpd | -27,750 gpd<br>(-9 Households) |
| **Scenario 6: Full Build-Out – Current Development & ADUs & Maximum Density Development**<br>*(2,931 gpd Use Rate – Current Demand + ADUs/JADUs + Maximum Density Development of Current Vacant Parcels)* | 407,409 gpd | -83,409 gpd<br>(-28 Households) |

## 2.3 Sewer System

The sewer system in Lee Vining is comprised of approximately one mile of gravity sewer lines and wastewater treatment ponds. The system is completely gravity flow and does not include any force mains or pumping stations. A cursory review reveals that the system collection system is adequate and not the limiting factor in the sewer capacity. However, a complete system analysis and flow model was not conducted to evaluate current conditions, infiltration issues, required maintenance, etc. The current permitted capacity of the system for this analysis is 76,000 gallons per day.

The current treatment volume as reported by the State Water Resources Control Board GeoTracker is approximately 35,000 gallons per day (583 gpd per household), well below the maximum design capacity. The 2009 MSR states the district estimates 50,000 gallons per day. The flow as reported to the State Water Resources Control Board is used in the following capacity analysis. As with water demand, sewer disposal volumes are much greater in the warmer months and lower in the colder months, due in part to greater occupancy during the summer. Sewer demand follows seasonal peaks in summer due to greater visitation and use of lodging, businesses, and public facilities.

### *Capacity Analysis*

In analyzing the current and potential future capacity in the sewer system, both the average day discharge and maximum day discharge are considered. Because the system capacity in households is directly dependent upon the average water use per household, efforts to promote water conservation would have a direct impact on the remaining sewer capacity for additional housing.

Tables 6 and 7 are a representation of discharge to the sewer system generated by each potential development scenario. The tables use one unit of discharge in households as 583 gpd per household. This unit is then applied to equivalent household units that may be developed given vacant lots within the service area, possible development of the key site, and the addition or development of a single ADU, plus a JADU, at each existing single-family household. The Remaining Capacity column represents the capacity remaining based on the sum of discharge for each scenario subtracted from the system capacity. The number of households shown in parentheses represents the number of additional households that may be served by the system at the current discharge rate or in some cases, a representation of the shortage (net negative number). Refer to Appendix B for alternate capacity analysis tables and full data notes. Note that the full build-out scenario considers key sites as they are currently zoned, and not necessarily as represented in key sites in the Housing Element.

***Table 6: Sewer Capacity Analysis for Average Day Demand for Lee Vining PUD***

| Development Scenario<br>Average Day Discharge | Discharge | Remaining Capacity (76,000 gpd system capacity) |
|---|---|---|
| **Scenario 1: Current Discharge**<br>*(583 gpd Discharge Rate & 60 connections)* | 35,000 gpd | 41,000 gpd<br>(70 Households) |
| **Scenario 2: Development of Vacant Parcels & Current Discharge**<br>*(583 gpd Discharge Rate & 4 Vacant Residential Parcels & Current Discharge)* | 37,333 gpd | 38,667 gpd<br>(66 Households) |
| **Scenario 3: Development of Vacant Parcels & Key Sites & Current Discharge**<br>*(583 gpd Discharge Rate & 4 Vacant Parcels + 100 Key Sites Units & Current Discharge)* | 95,667 gpd | -19,667 gpd<br>(-34 Households) |
| **Scenario 4: Development of Vacant Parcels & Key Sites & ADUs/JADUs & Current Discharge**<br>*(583 gpd Discharge Rate & 4 Vacant Parcels + 100 Key Sites Units +64 ADUs/JADUs & Current Discharge)* | 133,000 gpd | -57,000 gpd<br>(-98 Households) |
| **Scenario 5: Development of ADUs/JADUs & Current Discharge**<br>*(583 gpd Discharge Rate & 60 ADUs/JADUs & Current Discharge)* | 69,980 gpd | 6,020 gpd<br>(10 Households) |
| **Scenario 6: Full Build-Out – Current Development & ADUs & Maximum Density Development**<br>*(583 gpd Discharge Rate – Current Discharge + ADUs/JADUs + Maximum Density Development of Current Vacant Parcels)* | 81,037 gpd | -5,037 gpd<br>(-9 Households) |

***Table 7: Sewer Capacity Analysis for Maximum Day Demand for Lee Vining PUD***

| Development Scenario<br>Maximum Day Discharge | Discharge | Remaining Capacity (76,000 gpd system capacity) |
|---|---|---|
| **Scenario 1: Current Discharge**<br>*(1,750 gpd Discharge Rate & 60 connections)* | 105,000 gpd | -29,000 gpd<br>(-17 Households) |
| **Scenario 2: Development of Vacant Parcels & Current Discharge**<br>*(1,750 gpd Discharge Rate & 4 Vacant Residential Parcels & Current Discharge)* | 112,000 gpd | -36,000 gpd<br>(-21 Households) |
| **Scenario 3: Development of Vacant Parcels & Key Sites & Current Discharge**<br>*(1,750 gpd Discharge Rate & 4 Vacant Parcels + 100 Key Sites Units & Current Discharge)* | 287,000 gpd | -211,000 gpd<br>(-121 Households) |
| **Scenario 4: Development of Vacant Parcels & Key Sites & ADUs/JADUs & Current Discharge**<br>*(1,750 gpd Discharge Rate & 4 Vacant Parcels + 100 Key Sites Units +64 ADUs/JADUs & Current Discharge)* | 399,000 gpd | -323,000 gpd<br>(-185 Households) |
| **Scenario 5: Development of ADUs/JADUs & Current Discharge**<br>*(1,750 gpd Discharge Rate & 60 ADUs/JADUs & Current Discharge)* | 210,000 gpd | -134,000 gpd<br>(-77 Households) |
| **Scenario 6: Full Build-Out – Current Development & ADUs & Maximum Density Development**<br>*(1,750 gpd Discharge Rate – Current Discharge + ADUs/JADUs + Maximum Density Development of Current Vacant Parcels)* | 243,250 gpd | -167,250 gpd<br>(-96 Households) |

***Figure 3: Lee Vining PUD Sewer System***

## 2.4 Fire Protection

### *Background*

Fire protection for Lee Vining and the surrounding area is provided by the Lee Vining Fire Protection District (LVFPD). The LVFPD serves a district area along the western shore of Mono Lake and the extended response areas along US Hwy 395 and SR 108. Peak call volumes occur during summer months associated with increased travel and visitation.

### *Staffing*

District services are provided by an all-volunteer fire department with a part-time paid Chief. There are 9 firefighters including 2 Emergency Medical Technicians. Firefighter training and incident response time are consistent with National Fire Protection Association (NFPA) standards for volunteer and rural departments.

### *Station*

The district is served by one station located at 55 Lee Vining Avenue in the Lee Vining townsite. The station has four bays, 3,000 square feet, and a training room. The station has adequate space for the existing older fleet of apparatus. The fire station parcel is small, without adequate area to expand the existing station. Most of the structures and population in the district are within the NFPA guidance response time of 14 minutes (NFPA 1720).

### *Apparatus*

LVFPD has four primary apparatuses that meet needs for initial responses including one Type 1 engine and a water tender.

### *Emergency Access*

The Lee Vining townsite has a well-connected street grid and immediate access to US Hwy 395. Secondary access improvements were proposed as conditions of approval for the Tioga Inn Community Housing Project.

### *Water supplies*

The Lee Vining townsite and the Mobil Mart water system have fire hydrants and adequate water supplies for existing development. Outside of the areas with hydrant systems are small resorts, campgrounds, and rural residences served by small water systems without fire connections or static water supplies on-site.

### *Ambulance and medical*

Mono County provides ambulance services to Lee Vining within the June Lake / Lee Vining response area with ambulance #2 dispatched from June Lake.

### *Conclusion*

LVFPD has identified the need for trained volunteers and fire station improvements as the primary needs to maintain or improve service.

## 2.5 Priority Sites

1) **Tioga Inn Specific Plan (Vacant Remote) – 100 Units**

The Tioga Inn Specific Plan (Tioga Community Housing) project was denied by the Mono County Board of Supervisors in 2021. Water and wastewater were proposed to be provided by an extension of the Tioga Gas Mart public water system and new package wastewater treatment plant. The project site is not within the Lee Vining PUD district boundary or sphere of influence for provision of services in the future. Lee Vining PUD does not propose to annex or provide services to the Tioga Inn site which would require application to and approval of Mono County Local Agency Formation Commission.

The Tioga Community Housing Final Subsequent Environmental Impact Report noted that the proposed project would double the existing demand of the Lee Vining PUD system resulting in the need to expand the Lee Vining PUD treatment system. Water mains with a minimum size of 6 inches in diameter would have to be extended to a minimum of approximately 2,600 feet (0.5 mile). The elevation of the Tioga Inn property is approximately 310 feet below the storage tanks, so the water pressure would likely be sufficient without pumping facilities. A sewer main would have to be extended approximately 4,000 feet (0.76 mile) to serve the property. The elevation of the site is higher than the wastewater treatment ponds, so the sewer should gravity flow from the site to the sewer treatment ponds.

## 2.6 Conclusions

The current water system has adequate production capacity for all scenarios during average day demand. When considering the maximum day demand, however, water production has the capacity to serve current development plus vacant lot development, plus an additional 47 residential units/households. The storage capacity for the system provides less than 2 hours of 1,500 gpm fire flow during maximum day demand. This scenario presents an opportunity for capital improvement such as an additional tank and/or exploring additional water sources such as a well. As discussed below, the best option would be to develop an additional, redundant, supply, as in a well.

Aside from production and storage values, the primary concern for the water system in Lee Vining is that there is a single water source with no backup. All community water systems should have at least two sources for drinking water for system redundancy. The consideration of a new well is recommended as a possible Capital Improvement project and will be discussed in more detail in Phase 3 of this study.

The sewer system capacity in Lee Vining is adequate for the current discharge plus vacant properties and a portion of key site development. None of the scenarios for the maximum day discharge are below the existing wastewater treatment capacity. This may indicate that the reported discharge is greater than the average discharge. The sewer capacity could be improved by expanding the disposal ponds with appropriate permitting.

## 2.7 Capital Improvement Recommendations

This study concludes that for Lee Vining to consider additional development, and/or compliance with ADU provisions of the State Statutes, the following capital improvements might be considered:

1) Develop a second and redundant source of domestic water supply, such as a new well to be used together with the existing spring.
2) As a part of item 1 above, construct additional storage (tanks) associated with a new water source to provide fire protection water storage.
3) Construct distribution system connections from new water source to existing systems.
4) Expanded disposal ponds for increase sewer capacity.
5) Key Sites Consideration. Expand the sphere of influence to include the Tioga Inn Specific Plan.
    a. Interconnect the water system and possibly combine with Tioga Mart system, construction an inter-tie with the water main that serves Lee Vining.
    b. Construct approximately 4000+ L.F. of sewer line to provide connection to Lee Vining PUD and expand disposal ponds.

The above recommendations will be further investigated during Phase 3 of this study.

# Section 3. References

California State Water Resources Control Board GeoTracker; https://geotracker.waterboards.ca.gov ; accessed June – December 2023

Mono County Housing Element; Mono County Community Development, 6th Cycle Update, 2019-2027; adopted November 5, 2019

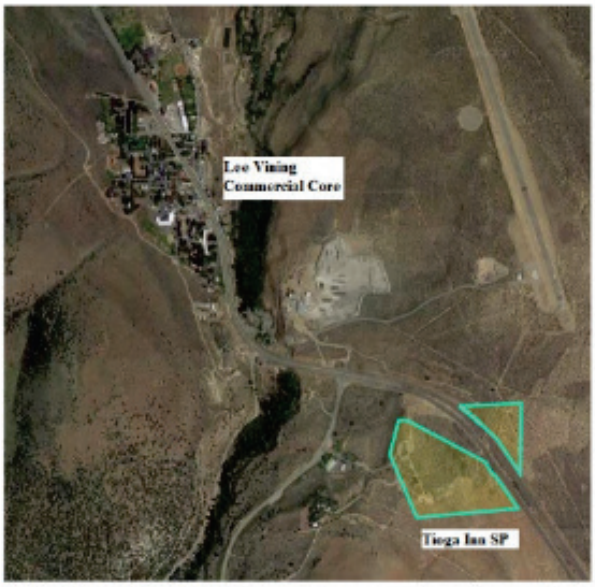
Municipal Service Review and Sphere of Influence Recommendation; Lee Vining Public Utility District, Mono County, California; Mono County Local Agency Formation Commission; February 2009

Recommended Standards for Wastewater Facilities (Ten States Standards), 2004 Edition, Great Lakes-Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers

# Appendix A

Key Sites from Housing Element

## 1) Tioga Inn Specific Plan (Vacant Remote) – 100 Units

| Key Sites | |
|---|---|
| **Tioga Inn Specific Plan**<br>APN: 021-080-025<br>Acres: 32.1<br>Unit Potential: 100<br>Income Level: Moderate<br><br>A 2019 Specific Plan Amendment is expected to allow for up to 150 additional workforce housing bedrooms, or approximately 100 units. The proposed workforce housing area is located along the southern property boundary, directly south of the promontory restaurant.<br><br>Impacts and constraints will be analyzed as part of Tioga Inn Specific Plan Amendment #3. |  |

# Appendix B

Full Capacity Calculations

***Table 4B: Water Capacity Analysis for Average Day Demand for Lee Vining PUD***
*(See Table 4 in Section 2 of report)*

| # | Lee Vining – Average Day | Demand/Use (gpd) | Unit Count | Remaining Capacity (gpd) | Available Capacity (households |
|---|---|---|---|---|---|
| **1** | Current system capacity | | | 324,000 | |
| **2** | Use rate per household | 977 | | | |
| **3** | Current households | | 60 | | |
| **4** | Current Demand | 58,630 | | 265,370 | 272 |
| **5** | **Vacant Residential parcels** | | 4 | | |
| **6** | Current + Vacant Demand | 62,538 | | 261,462 | 268 |
| **7** | **Add Key Sites – Potential Units** | | 100 | | |
| **8** | Current + Vacant + Key Sites | 160,238 | | 163,762 | 168 |
| **9** | Add ADU + JADU | | 64 | | |
| **10** | Current + Vacant + Key Sites + ADU & JADU | 222,766 | | 101,234 | 104 |

**Table Line Notes:**

1. Current system capacity at 225 gpm, the average spring flow, over 24 hours. This capacity is applicable to both average and maximum-day demand.
2. The use rate per household for an average day is based on the annual water production reported in 2020 divided by 356 and divided by the number of households identified in the 2020 Census (item 3).
4. Current demand is determined by multiplying the use rate per household by the number of households.
5. It is assumed that each vacant residential parcel can support one single-family residence, which would equate to one household each.
7. The potential units for key sites are as determined as shown in the 2019 Mono County Housing Element.
9. It is assumed that each ADU on a property would use approximately 65% of the current use rate per household, and a JADU would use approximately 35% of the current use rate per household. If every current parcel added one ADU and one JADU, the household/residence count in terms of water use would be equal to two times the use rate per household.

***Table 5B: Water Capacity Analysis for Maximum Day Demand for Lee Vining PUD***
*(See Table 5 in Section 2 of report)*

| # | Lee Vining – Maximum Day | Demand/Use (gpd) | Unit Count | Remaining Capacity (gpd) | Available Capacity (households) |
|---|---|---|---|---|---|
| **11** | Current system capacity | | | 324,000 | |
| **12** | Use rate per household | 2,931 | | | |
| **13** | Current households | | 60 | | |
| **14** | Current Demand | 175,890 | | 148,110 | 51 |
| **15** | **Vacant Residential parcels** | | 4 | | |
| **16** | Current + Vacant Demand | 187,614 | | 136,386 | 47 |
| **17** | **Add Key Sites – Potential Units** | | 100 | | |
| **18** | Current + Vacant + Key Sites | 480,714 | | -156,714 | -53 |
| **19** | Add ADU + JADU | | 64 | | |
| **20** | Current + Vacant + Key Sites + ADU & JADU | 668,298 | | -344,298 | -117 |

**Table Line Notes:**

11. Current system capacity at 225 gpm, the average spring flow, over 24 hours. This capacity is applicable to both average and maximum-day demand.
12. The use rate per household for maximum-day is determined as 3 times the average day use rate.
14. Current demand is determined by multiplying the use rate per household by the number of households.
15. It is assumed that each vacant residential parcel can support one single-family residence, which would equate to one household each.
16. Note that while negative values for remaining capacity are not possible, the values are shown for illustrative purposes to quantify the potential shortfall in water production for future scenarios.
17. The potential units for key sites are as determined as shown in the 2019 Mono County Housing Element.
19. It is assumed that each ADU on a property would use approximately 65% of the current use rate per household, and a JADU would use approximately 35% of the current use rate per household. If every current parcel added one ADU and one JADU, the household/residence count in terms of water use would be equal to two times the use rate per household.

***Table 6B: Sewer Capacity Analysis for Average Day Demand for Lee Vining PUD***
*(See Table 6 in Section 2 of report)*

| # | Lee Vining – Average Day | Sewer Discharge (gpd) | Unit Count | Remaining Capacity (gpd) | Remaining Capacity (households) |
|---|---|---|---|---|---|
| **1** | Current system capacity | | | 76,000 | |
| **2** | Discharge rate per household | 583 | | | |
| **3** | Current households | | 60 | | |
| **4** | Current Discharge | 35,000 | | 41.000 | 70 |
| **5** | Vacant Residential parcels | | 4 | | |
| **6** | Current + Vacant Discharge | 37,333 | | 38,667 | 66 |
| **7** | Key Sites – Potential Units | | 100 | | |
| **8** | Current + Vacant + Key Sites | 95,667 | | -19,667 | -34 |
| **9** | Total households/residences | | 64 | | |
| **10** | Current + Vacant + Key Sites + ADU & JADU | 133,000 | | -57,000 | -98 |

**Table Line Notes:**

2. The discharge rate per household is based on the discharge reported by the PUD divided by the number of households reported in the 2020 census.
4. Current discharge is as reported by the PUD to the State Water Resources Control Board.
5. It is assumed that each vacant residential parcel can support one single-family residence, which would equate to one household each.
7. The potential units for key sites are as determined as shown in the 2019 Mono County Housing Element.
9. This number of households/residences includes current households and potential households for currently vacant properties for the purpose of calculating the discharge for ADUs and JADUs. This does not include potential households for key site residential units, since the density of the key site is for multi-family or other use that will not support additional ADUS.
10. It is assumed that each ADU on a property would discharge approximately 65% of the current rate per household, and a JADU would discharge approximately 35% of the current rate per household. If every current parcel added one ADU and one JADU, the household/residence count in terms of sewer discharge would be equal to two times the discharge rate per household.

***Table 7B: Sewer Capacity Analysis for Maximum Day Demand for Lee Vining PUD***
*(See Table 7 in Section 2 of report)*

| # | Lee Vining – Maximum Day | Sewer Discharge (gpd) | Unit Count | Remaining Capacity (gpd) | Remaining Capacity (households) |
|---|---|---|---|---|---|
| **11** | Current system capacity | | | 76,000 | |
| **12** | Discharge rate per household | 1,750 | | | |
| **13** | Current households | | 60 | | |
| **14** | Current Discharge | 105,000 | | -29,000 | -17 |
| **15** | Vacant Residential parcels | | 4 | | |
| **16** | Current + Vacant Discharge | 112,000 | | -36,000 | -21 |
| **17** | Key Sites – Potential Units | | 100 | | |
| **18** | Current + Vacant + Key Sites | 287,000 | | -211,000 | -121 |
| **19** | Total households/residences | | 64 | | |
| **20** | Current + Vacant + Key Sites + ADU & JADU | 399,000 | | -323,000 | -185 |

**Table Line Notes:**

12. The discharge rate per household for maximum day is estimated as three times (3x) the average day discharge.

    Note that while negative values for remaining capacity are not possible, the values are shown for illustrative purposes to quantify the potential shortfall in sewer treatment for future scenarios

14. Current discharge is as reported by the PUD to the State Water Resources Control Board.

15. It is assumed that each vacant residential parcel can support one single-family residence, which would equate to one household each.

17. The potential units for key sites are as determined as shown in the 2019 Mono County Housing Element.

19. This number of households/residences includes current households and potential households for currently vacant properties for the purpose of calculating the discharge for ADUs and JADUs. This does not include potential households for key site residential units, since the density of the key site is for multi-family or other use that will not support additional ADUS.

20. It is assumed that each ADU on a property would discharge approximately 65% of the current rate per household, and a JADU would discharge approximately 35% of the current rate per household. If every current parcel added one ADU and one JADU, the household/residence count in terms of sewer discharge would be equal to two times the discharge rate per household.