Culinary Water Master Plan

EAGLE MOUNTAIN, UT

July, 2025

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Table of Contents

List of Tables

List of Figures

Appendix

1.1 Introduction

Eagle Mountain City has seen significant growth over the past couple of decades and as a result the City has recognized the importance of planning for the future water needs of the City. The purpose of this master plan is to provide the City with direction for decision over the next 40 years and to evaluate the needed infrastructure through full buildout of the system.

A hydraulic model of the drinking water system was prepared in order to analyze the current and full buildout systems including interim models for 5 and 10-year improvements.

1.2 Definitions

CUWCD	Central Utah Water Conservancy District	gpm	gallons per minute
ERU	Equivalent Residential Units	PRV	Pressure Reducing Valve
DDW	Division of Drinking Water	LOS	Level of service
IFFP	Impact Fee Facilities Plan	SID	Special Improvement District
psi	pounds per square inch	IFC	International Fire Code

1.3 Equivalent Residential Connection (ERC/ERU)

For ease of calculations in water master plans, land uses other than residential are converted to ERU's. For this report, these values were calculated from actual water usage data provided by Eagle Mountain City from 2023. See Table 1 for the ERU conversions used for this IFFP.

Table 1. Equivalent Residential Connections Conversions

Type	ERC
Large Lots (Zone 4)	1.14
All other Residential	1.00
Commercial	12.83
Institutional	21.13
Condos	0.87
Industrial	18.90

1.4 Level of Service

The City has updated their system specific source and included a variability factor for the water demand requirements. These coupled with the State of Utah Division of Drinking Water (DDW) Rules, govern the minimum Level of Service (LOS) that Eagle Mountain City Water Department is required to provide. The current LOS within the water system is stated as follows:

Storage

- 577 gallons of storage per ERU for indoor and outdoor use
- 2,848 gallons per irrigated acre for outdoor use in Zone 4
- Emergency storage is based upon an assessment of risk and the desired degree of system dependability (percent after fire storage is considered).
- Fire storage for the largest building within the zone

Source

- 1,511 gallons per day of source capacity for indoor and outdoor use per ERU
- Per conversation with the DDW, safe yield of a well is assumed to be two thirds of the pump capacity

Minimum Water Pressure Requirements

- 40 psi during peak day demands
- 30 psi during peak instantaneous demands
- 20 psi during peak day demands with fire

Water Rights

- 0.53 acre-feet per ERU
- 2.5 acre-feet per irrigated acre

In addition to the State rule requirements, the City requires developments to maintain 30 psi at any moment during the modeled peak hour of the peak day scenario for new developments, assuming either Well 1 or Well 2 is out of service.

2.1 Existing System

Eagle Mountain City currently provides water to customers in Eagle Mountain and the White Hills area. For discussion purposes the City has been broken into 3 areas: the West, the North, and the South (or City Center). Projects have been constructed to connect the White Hills water system into the City's system. See Figure 1 for the location of each Service Area and Exhibit 3.1 for a map of the existing water system.

From the City's billing information, it was determined that there is currently a total of 15,152 equivalent residential connections which equates to a peak day flow of 17,273 gpm.

The City has a separate secondary system in the south part of the City that will remove some public outdoor use from the culinary system. The secondary system is currently also serving limited areas of residential irrigation however, most residential or commercial irrigation will continue to be served by the culinary system.

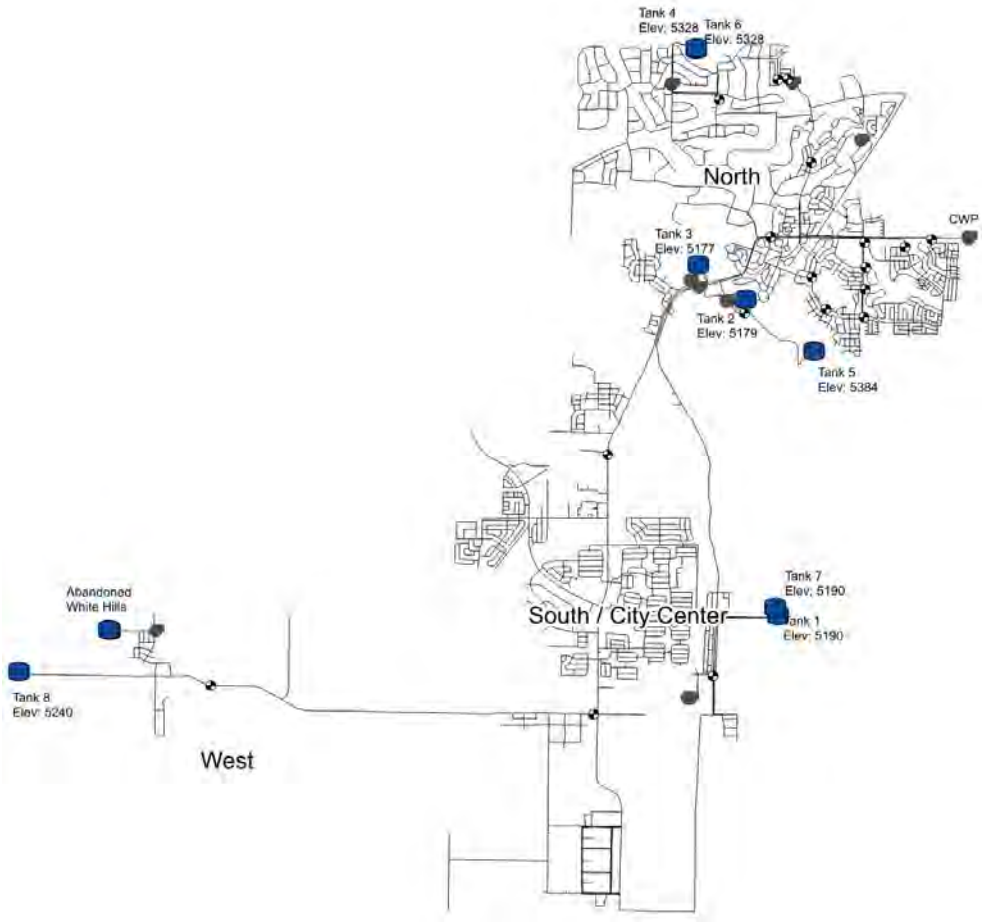


Figure 1. Eagle Mountain's Water System

The City is divided into nine pressure zones, including three zones in White Hills, with most of the current development occurring in Zone 1. See Table 5 for a list of the pressure zones and pressure elevations. The system is currently supplied by nine tanks, which are normally filled by five wells and water from the CWP pump station.

2.2.1 Existing Tanks

Currently, there are eight water storage tanks in Eagle Mountain City that provide the total storage capacity for the City's culinary water system with the new White Hills Tank now completed and an additional tank under design south of Tank 1. The new White Hills Tank, Tank 8 has replaced the two smaller existing tanks in the white hills service zone.

To convert the existing storage capacity of the individual tanks to ERU's, the DDW requires volumes for both fire and emergency storage to be determined. The fire storage for the City has been calculated based on the largest building in the City, which is equivalent to 360,000 gallons. The higher zones, White Hills, Tanks 4 and 6, and Tank 5 are at a higher pressure and will require adequate fire storage for the zones they serve.

Currently, the Upper White Hills Zone only has residential connections, and therefore, will require 1,500 gpm for 2 hours of fire storage. Although the Tyson plant can be fed from either Tanks 1 and 7 or the White Hills tanks, it currently has the additional fire storage in Tanks 1 and 7. However, because of its proximity to the new tank, after construction we recommend that the entirety of the Tyson plant's fire storage be allocated to the new White Hills Tank.

Because the higher zones can service the lower zones through PRVs, fire storage is available for the other zones. However, due to the distance of Zone 1 from other tanks, we recommended most of Zone 1 storage be accounted for in Tanks 1 and 7 and in the White Hills Tank. New tanks built in existing pressure zones are assumed to have enough fire storage unless larger buildings are constructed in the zone. New tanks built at higher elevations will be required to provide additional fire storage adequate for the buildout of its zone.

Each tank also needs additional storage set aside for emergencies. The DDW does not have a volume requirement for emergency storage. The DDW rule only states that "Emergency storage shall be considered during the design process. The amount of emergency storage shall be based upon an assessment of risk and the desired degree of system dependability." Per the Technical Memorandum on the Division of Drinking Water Sizing Requirements Study memo by Jones and DeMille, the emergency storage requirement has been set at 5% of the total tank volume.

After the fire and emergency storage, the remaining capacity in the tanks is the equalization storage. Equalization storage includes both indoor and outdoor storage needs. Per the system specific source

analysis, 584 gallons of storage is required for each ERU. See *Table 2* for a summary of each tank's ERU capacity.

Table 2. Existing Tank Storage Capacity

Tank	Total Volume (gal)	Fire Storage (gal)	Emergency Storage (gal)	Equilization Storage (gal)	ERU
ST-001/Tank 1	1,000,000	120,000	50,000	830,000	1,438.47
ST-002/Tank 2	1,000,000	90,000	50,000	860,000	1,490.47
ST-003/Tank 3	2,000,000	90,000	100,000	1,810,000	3,136.92
ST-004/Tank 4	600,000	120,000	30,000	450,000	779.90
ST-005/Tank 5	2,000,000	240,000	100,000	1,660,000	2,876.95
ST-006/Tank 6	2,500,000	120,000	125,000	2,255,000	3,908.15
ST-007/Tank 7	3,500,000	120,000	175,000	3,205,000	5,554.59
White Hills Tank		ABANDONED WITH TANK 8			
Tank 8	4,000,000	360,000	200,000	3,440,000	5,961.87
Total 2025	16,600,000	1,260,000	830,000	14,510,000	25,147

2.2.2 Existing Source

Currently, the City's system is served by six wells, however only one of either the White Hills Well and the Cooke Well can operate at a time. Additionally, the City has a Purchase Agreement with Central Utah Water Conservancy District (CUWCD) to purchase 15,000 acre-feet per year of water. In 2024, the City took approximately 5,000 ac-ft per year, during Peak day the City currently utilizes approximately 6,900 gpm. The City also has two additional wells under construction and upgrades at two of the existing wells. It is anticipated that Well 8 will be operational in August of 2025 and Well 7 sometime in 2026. See Table 2 for the monthly water production of each source.

Per the DDW, the safe yield of a well is two-thirds of the operating point of a pump. Table 3 summarizes the current available source and projected amount with current projects. Because all of the sources are in the same pressure zone and then pumped to the existing tanks or can flow to lower portions of the City, the City's source demands can be evaluated for the entire City together.

The ERU capacity was determined by adding the indoor and outdoor use ERU requirements and dividing it by the total source capacity.

Source	Current Source (gpm)	Current Safe Yield (gpm)	Projected Source (gpm)	Projected Safe yield (gpm)
Well 1	3200	2133.33	3200	2133.33
Well 2	2200	1466.67	2200	1466.67
Well 3	1700	1133.33	1700	1133.33
Well 5	3200	2133.33	4500	3000.00
Cooke well 1*	1400	933.33	1400	933.33
Cooke Well 2*	1400	933.33	3000	2000.00
Well 7	0		4000	2666.67
Well 8	0		3200	2133.33
CUWCD	7000	7000	7000	7000.00
Total	18700	14800	28800	21533.33

**Only one of the Cooke wells can operate at a time

Table 3. Existing Source Capacity

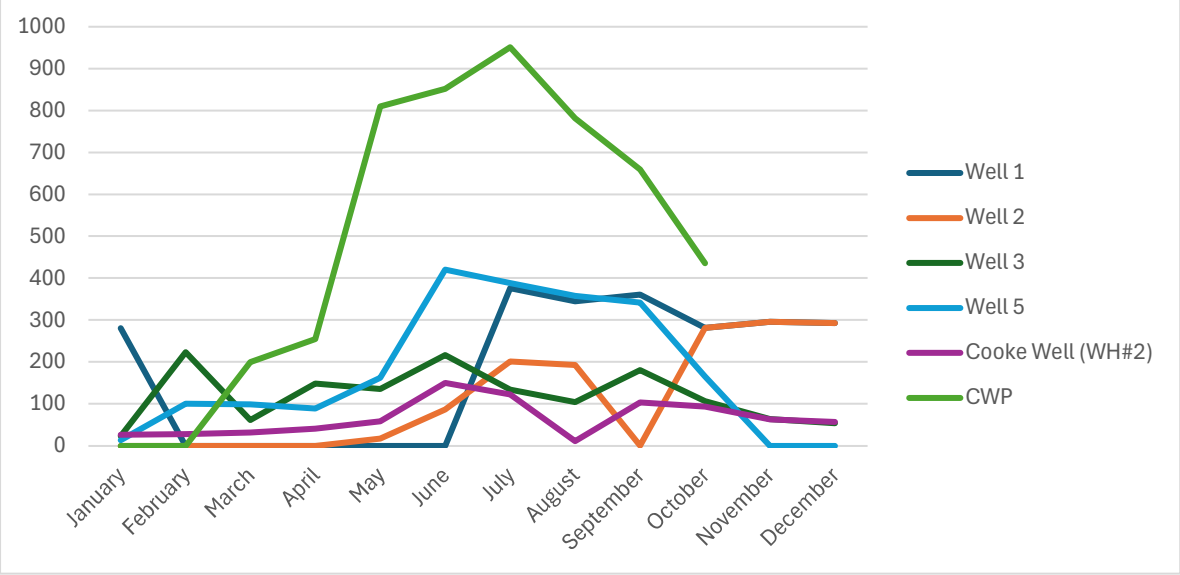


Figure 2. 2024 Water Use by Source (ac-ft)

2.2 Historic Water Usage

Over the last several decades the water use has increased along with the population, peaking in 2020. Since then, even though the population has continued to increase the annual water use has stayed steady. However, it should be noted that 2021-2023 were wetter than normal years so that may account for some of the water reduction. In 2024 the City used a total of 12,144 ac-ft/yr. See Figure 3 for the City's historical water Use.

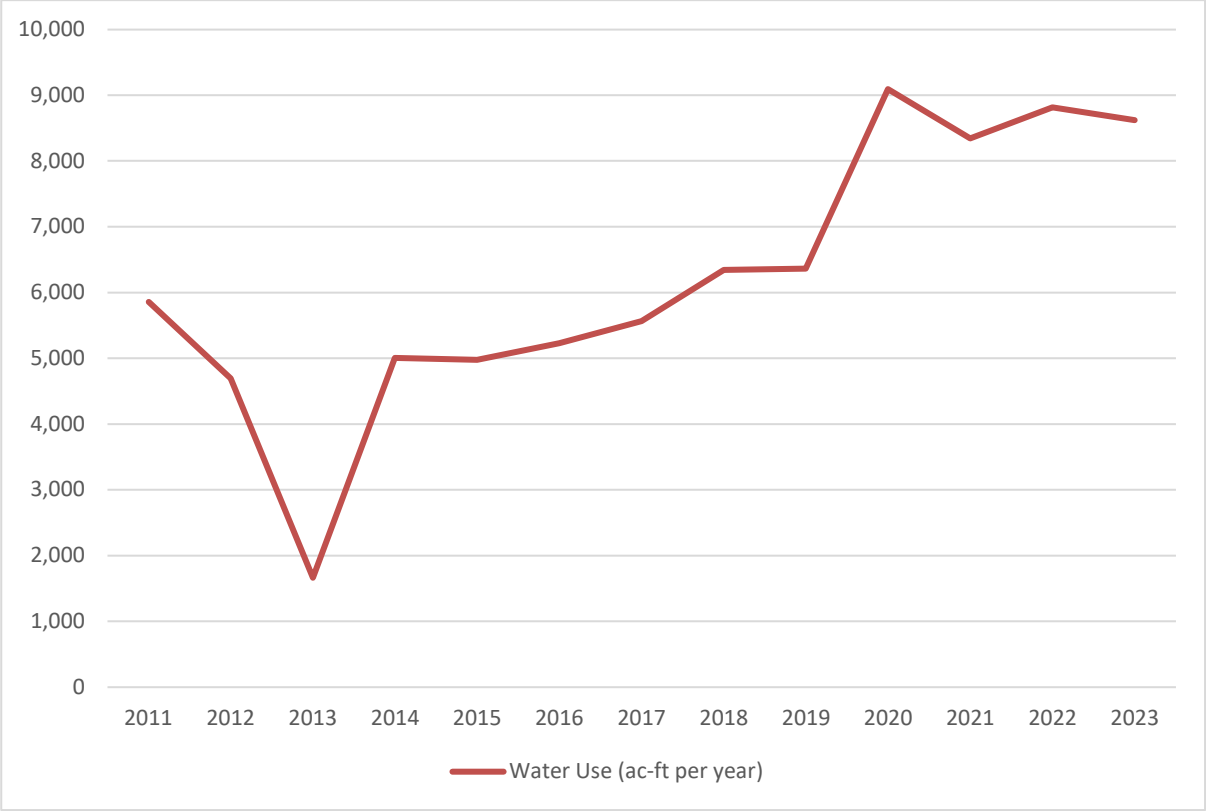
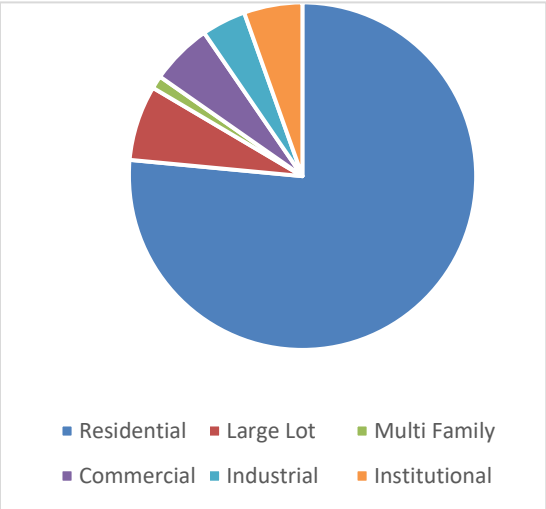


Figure 3. Annual Water Use

Currently most of the water serves residential connections, however, the system also includes:



- 78 commercial connections
- 38 industrial connections
- 45 institutional connections (schools and churches)
- Several open space connections

Figure 4. Water Use by Land Use

2.3 Existing Water Rights and Available Water

In 2020, Barr Engineering completed a study that projected that Eagle Mountain City is party to 30,198 ac/ft year of water rights. Which included 5031 ac/ft of rights that would require ownership deed and change applications as well as 14,300 ac/ft year from CUWCD. However, the study also states that Eagle Mountain City's potential reliable water supply is only 28,496 ac-ft/yr. To utilize the full amount additional wells and a new pump station from CWP will be required.

Every new development is now required to provide water rights in order to be allowed to develop. This will likely limit growth within the City.

2.4 Conservation

Utah's statewide conservation goal is to reduce water use per capita by 15% by 2030. To accomplish this goal, regional goals have been set considering a variety of different factors and public input. Eagle Mountain is part of the Provo River region which has a goal to reduce water usage by 19% over its 2015 water use numbers or an average water use per capita across the basin of 179 gallons per capita per day (gpcd).

In 2015 Eagle Mountain was using on average 163.6 gpcd so the City's goal is to reduce water to 139 gpcd. In 2023 and 2024, the City saw a reduction of at least 15% and met the current goals.

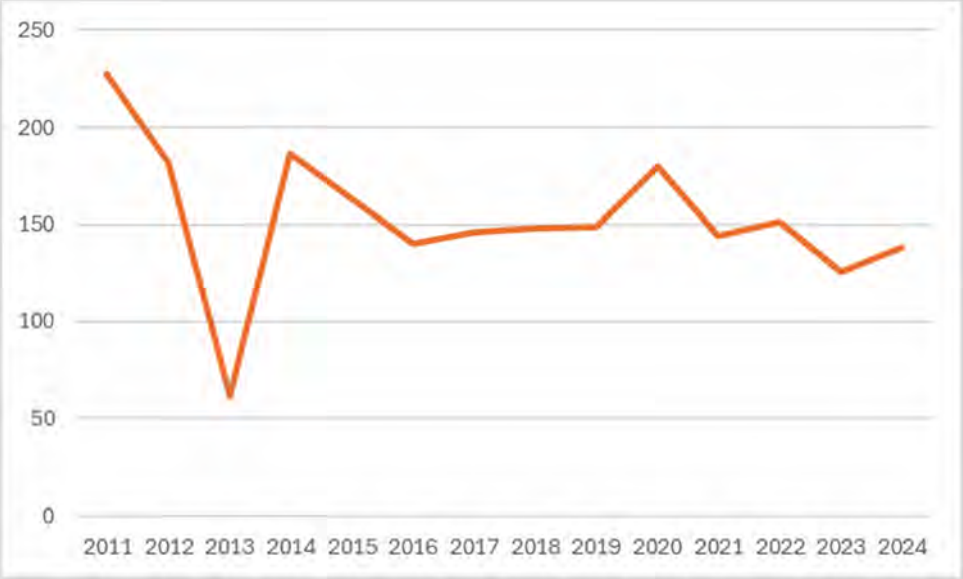


Figure 5.Water Use per Capita per day

By 2060 the water use goal will be to have reduced water use by 30%, therefore, the City should continue to implement additional water saving measures and continue with the current water conservation strategies in place, which include:

- **Water Rates** - Eagle Mountain Currently charges a base rate based on Meter Size and then an additional tiered water use rate based on water use and Land Use. Table 4 details the current tiered water rates

Table 4. Current Eagle Mountain Tiered Water Rates

	TIER 1		Tier 2		Tier 3		Tier 4	
	Quantiy (in thousands)	Rate (per 1000 gal)	Quantiy (in thousands)	Rate (per 1000 gal)	Quantiy (in thousands)	Rate (per 1000 gal)	Quantiy (in thousands)	Rate (per 1000 gal)
Residential	0-65	$ 1.38		$ 1.46	115-165	$ 1.52	Over 165	1.58
Large Residential	0-120	$ 1.38	120-170	$ 1.46	170-230	$ 1.52	Over 230	1.58
Commercial	0-170	$ 1.38	170-220	$ 1.46	Over 230	$ 1.52		
Institutional	0-500	$ 1.38	500-750	$ 1.46	Over 750	$ 1.52		
Industrial		$ 1.58		$ 1.58		$ 1.58		

- **Smart Irrigation Controls**- The City has recently upgraded all of its sprinkler heads to work off of smart timers which automatically adjust the water when it rains or if the temperatures drop.
- **Limiting Front lawn irrigation**- In 2023, Eagle Mountain approved measures to limit irrigation of front yards to 50% for new developments. Looking at 100 random lots throughout the city, this

saves an average of approximately 0.04 gpm on the peak flow rate or approximately 0.01 af/year per lot.

- **Limiting Irrigation Times:** City Code prohibits irrigating between the hours of 10:00 AM and 6:00 PM. This helps reduce the amount of evaporation thus reducing the overall irrigation need. First offense the water user will receive a written warning, the second offence the water service will be terminated and be subject to a $100 reconnection fee.

3.1 Growth Projections

Growth Projections

Eagle Mountain is growing rapidly and is among the fastest growing cities in the State. Per the Economic Development Master plan that was completed in 2023, it is assumed that the City will grow at an estimated 5,200 additional people each year. This is equivalent to an additional 1,410 residential connections every year. The city has a population of 75,000 or the equivalent of 20,194 residential connections(ERC). See Figure 6 for the projected growth.

Because of limited water rights (discussed in Section 2.3) it is anticipated that the number of ERC will be limited. Currently, any new development needs to provide water rights before it can be built. However, because the location of growth cannot be projected this master plan utilizes the full buildout projections that the Economic development plan makes.

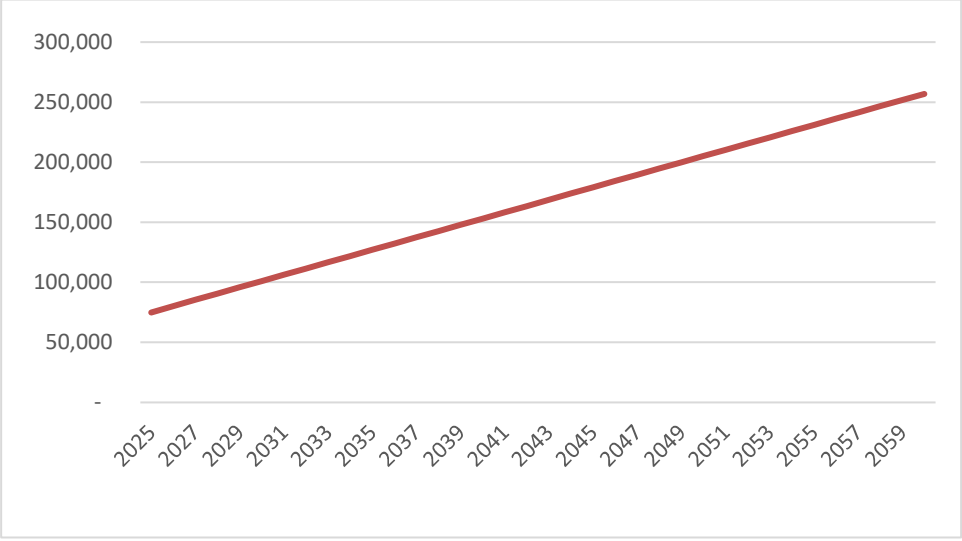


Figure 6. Population Projections

4.1 System Improvements

4.1.1 Pressure Zones

As stated earlier, Eagle Mountain City's water system is currently divided into nine pressure zones. At the City's full build out, an additional five pressure zones will be necessary. Within the City's water model, new pressure zones were created to maintain water pressures within a desired range of 70-120 psi. In some instances, this pressure range was expanded to eliminate the need for additional smaller pressure zones, but the minimum service levels were still maintained. See Figure 5 and Exhibit 3.5 for a summary of the pressure zones.

Table 5. Pressure Zones

Pressure Zone	Served from	HGL	40 psi Elevation	70 psi Elevation	120 psi elevation	140 psi elevation
Zone 1	Tank 1 and 7	5101	5008.6	4939.3	4823.8	4777.6
Ranches	PRVs	5070	4977.6	4908.3	4792.8	4746.6
Zone 3	Tank 3 and 4	5180	5087.6	5018.3	4902.8	4856.6
Zone 4	Tank 4 and 6	5320	5227.6	5158.3	5042.8	4996.6
Zone 5	PRVs	5370	5277.6	5208.3	5092.8	5046.6
Ox Bridge	PRVs	5231	5138.6	5069.3	4953.8	4907.6
Bridge	PRVs	5233.7	5141.3	5072	4956.5	4910.3
WH Mid	White Hills tanks	5300	5207.6	5138.3	5022.8	4976.6
WH Lower	PRVs	5198	5105.6	5036.3	4920.8	4874.6
Future Zone 6		4955	4862.6	4793.3	4677.8	4631.6
Future Zone 7		5540	5447.6	5378.3	5262.8	5216.6
Future Zone 8		5540	5447.6	5378.3	5262.8	5216.6
Future Zone 9		5750	5657.6	5588.3	5472.8	5426.6
Future Zone 10		5950	5857.6	5788.3	5672.8	5626.6

Most of the new pressure zones will be created in undeveloped areas on the eastern side of the City as development moves east into the Lake Mountain area. If some of these areas are determined to be unbuildable, some of the planned pressure zones may not be needed.

4.1.2 Storage Capacity Improvements

By the year 2060, the City will require over 40.8 million gallons of equalization storage. If the growth rate follows projections, additional storage will generally be required every three years. See Table 6 for the additional storage required and the estimated year the additional storage will be needed.

Table 6. Storage Improvements Required Through 2060

Year	Population	growth	growth rate	ERU	Required Equilization Storage (gal)	Available Equilization Storage (gal)	Excess/ Deficiency (gal)	Added Storage (gal)
2025	75,000	5200	6.93%	20,194.54	11,652,247	14,510,000	2,857,753	3,320,535
2026	80,200	5200	6.48%	21,503.91	12,407,754	14,510,000	2,102,246	
2027	85,400	5200	6.09%	22,813.28	13,163,262	14,510,000	1,346,738	
2028	90,600	5200	5.74%	24,122.65	13,918,769	18,310,000	4,391,231	4,000,000
2029	95,800	5200	5.43%	25,432.02	14,674,276	18,310,000	3,635,724	
2030	101,000	5200	5.15%	26,741.39	15,429,784	18,310,000	2,880,216	
2031	106,200	5200	4.90%	28,050.76	16,185,291	18,310,000	2,124,709	
2032	111,400	5200	4.67%	29,360.14	16,940,798	18,310,000	1,369,202	
2033	116,600	5200	4.46%	30,669.51	17,696,306	22,110,000	4,413,694	4,000,000
2034	121,800	5200	4.27%	31,978.88	18,451,813	22,110,000	3,658,187	
2035	127,000	5200	4.09%	33,288.25	19,207,320	22,110,000	2,902,680	
2036	132,200	5200	3.93%	34,597.62	19,962,827	22,110,000	2,147,173	
2037	137,400	5200	3.78%	35,906.99	20,718,335	25,435,000	4,716,665	3,500,000
2038	142,600	5200	3.65%	37,216.36	21,473,842	25,435,000	3,961,158	
2039	147,800	5200	3.52%	38,525.74	22,229,349	25,435,000	3,205,651	
2040	153,000	5200	3.40%	39,835.11	22,984,857	25,435,000	2,450,143	
2041	158,200	5200	3.29%	41,144.48	23,740,364	28,760,000	5,019,636	3,500,000
2042	163,400	5200	3.18%	42,453.85	24,495,871	28,760,000	4,264,129	
2043	168,600	5200	3.08%	43,763.22	25,251,379	28,760,000	3,508,621	
2044	173,800	5200	2.99%	45,072.59	26,006,886	28,760,000	2,753,114	
2045	179,000	5200	2.91%	46,381.96	26,762,393	32,085,000	5,322,607	3,500,000
2046	184,200	5200	2.82%	47,691.34	27,517,900	32,085,000	4,567,100	
2047	189,400	5200	2.75%	49,000.71	28,273,408	32,085,000	3,811,592	
2048	194,600	5200	2.67%	50,310.08	29,028,915	32,085,000	3,056,085	
2049	199,800	5200	2.60%	51,619.45	29,784,422	35,410,000	5,625,578	3,500,000
2050	205,000	5200	2.54%	52,928.82	30,539,930	35,410,000	4,870,070	
2051	210,200	5200	2.47%	54,238.19	31,295,437	35,410,000	4,114,563	
2052	215,400	5200	2.41%	55,547.56	32,050,944	38,735,000	6,684,056	3,500,000
2053	220,600	5200	2.36%	56,856.94	32,806,452	38,735,000	5,928,548	
2054	225,800	5200	2.30%	58,166.31	33,561,959	38,735,000	5,173,041	
2055	231,000	5200	2.25%	59,475.68	34,317,466	38,735,000	4,417,534	
2056	236,200	5200	2.20%	60,785.05	35,072,973	38,735,000	3,662,027	
2057	241,400	5200	2.15%	62,094.42	35,828,481	41,110,000	5,281,519	2,500,000
2058	246,600	5200	2.11%	63,403.79	36,583,988	41,110,000	4,526,012	
2059	251,800	5200	2.07%	64,713.16	37,339,495	41,110,000	3,770,505	
2060	257,000	5200	2.02%	66,022.53	38,095,003	41,110,000	3,014,997	

4.1.2a Storage Capacity South of Unity Pass

The area south of Unity Pass is currently served by two tanks totaling 4,500,000 gallons of storage. By themselves, these tanks can provide service to approximately 6,900 ERC. The current system

has approximately 5,615 connections. Although this is more than what the two tanks can serve, tanks in White Hills and north of Unity Pass can service this area as well.

In addition, a new 4 million gallon tank is currently being designed in this zone which will be able to supply an additional 5,921 ERC.

4.1.2b Storage Capacity North of SR-73

The area north of SR-73 is fed from two tanks, a 600,000-gallon tank and a 2.5-million-gallon tank. It is estimated that 1,134 connections currently exist north of SR-73. The storage in this zone is enough for 4,600 ERC.

4.1.2c Storage Capacity Zone 5

Currently, Tank 5 doesn't have any lots connected to it. This tank currently serves the main zone, but once lots are connected in this zone it will have the ability to serve 2,863 ERC.

4.1.2d Storage Capacity White Hills

Currently, White Hills is fed from two small tanks, with a combined total storage volume of 679,500 gallons. A new 4 million gallon tank is now in operation. With Tank 8 in operation the White Hills tanks have been abandoned. Per the Firefly West system IFFP, an additional tank will be required in the next 10 years to provide additional storage for the area.

4.1.3 Source Capacity Improvements

Because the City system is currently below the required source capacity of 21,190 gpm reliable source, several projects are in the design/construction stages to alleviate the shortages. These source improvements include improvements to Well 5 and the White Hills Wells and the construction of two new wells, Well 7 and Well 8. In total, the current projects should add approximately 10,900 gpm of new source capacity which will be constructed over the next couple of years.

Even with these projects, as a result of the rapid growth, the City will still be just below its source requirement and the City will need to continue with ongoing source projects. See *Table 7* for the anticipated source requirements and timing. It should be noted that when constructing a well, the ultimate capacity is uncertain until the well is built. Therefore, if a constructed well does not provide the anticipated capacity, multiple smaller wells will need to be constructed over the same time frame to achieve the necessary source requirement.

Although full buildout shows locations of future wells, this study did not include the hydrogeological evaluation needed to know whether there is adequate water supply to support a well. In addition, as discussed in Section 2.3, the aquifers cannot support the full buildout, and therefore, it is not possible to build all the wells listed in Table 7.

Table 7. Source Improvements Required Through 2060

Year	Population	growth	growth rate	ERU	Required Source (gpm)	Available Source (gpm)	Excess/ Deficiency (gpm)	Amount Added (gpm)
2025	75,000	5200	6.93%	20,194.54	21,190	19,800	(1,390)	4,067
2026	80,200	5200	6.48%	21,503.91	22,564	22,466	(98)	2,666
2027	85,400	5200	6.09%	22,813.28	23,938	22,466	(1,472)	
2028	90,600	5200	5.74%	24,122.65	25,312	25,466	154	3,000
2029	95,800	5200	5.43%	25,432.02	26,686	28,466	1,780	3,000
2030	101,000	5200	5.15%	26,741.39	28,060	35,466	7,406	7,000
2031	106,200	5200	4.90%	28,050.76	29,434	35,466	6,032	
2032	111,400	5200	4.67%	29,360.14	30,808	35,466	4,658	
2033	116,600	5200	4.46%	30,669.51	32,182	35,466	3,284	
2034	121,800	5200	4.27%	31,978.88	33,556	35,466	1,910	
2035	127,000	5200	4.09%	33,288.25	34,930	38,466	3,536	3,000
2036	132,200	5200	3.93%	34,597.62	36,303	38,466	2,163	
2037	137,400	5200	3.78%	35,906.99	37,677	41,466	3,789	3,000
2038	142,600	5200	3.65%	37,216.36	39,051	41,466	2,415	
2039	147,800	5200	3.52%	38,525.74	40,425	41,466	1,041	
2040	153,000	5200	3.40%	39,835.11	41,799	44,466	2,667	3,000
2041	158,200	5200	3.29%	41,144.48	43,173	44,466	1,293	
2042	163,400	5200	3.18%	42,453.85	44,547	47,466	2,919	3,000
2043	168,600	5200	3.08%	43,763.22	45,921	47,466	1,545	
2044	173,800	5200	2.99%	45,072.59	47,295	50,466	3,171	3,000
2045	179,000	5200	2.91%	46,381.96	48,669	50,466	1,797	
2046	184,200	5200	2.82%	47,691.34	50,043	54,466	4,423	4,000
2047	189,400	5200	2.75%	49,000.71	51,417	54,466	3,049	
2048	194,600	5200	2.67%	50,310.08	52,791	54,466	1,675	
2049	199,800	5200	2.60%	51,619.45	54,165	54,466	301	
2050	205,000	5200	2.54%	52,928.82	55,539	58,466	2,927	4,000
2051	210,200	5200	2.47%	54,238.19	56,912	58,466	1,554	
2052	215,400	5200	2.41%	55,547.56	58,286	58,466	180	
2053	220,600	5200	2.36%	56,856.94	59,660	62,466	2,806	4000
2054	225,800	5200	2.30%	58,166.31	61,034	62,466	1,432	
2055	231,000	5200	2.25%	59,475.68	62,408	62,466	58	
2056	236,200	5200	2.20%	60,785.05	63,782	66,466	2,684	4000
2057	241,400	5200	2.15%	62,094.42	65,156	66,466	1,310	
2058	246,600	5200	2.11%	63,403.79	66,530	69,566	3,036	3100
2059	251,800	5200	2.07%	64,713.16	67,904	69,566	1,662	
2060	257,000	5200	2.02%	66,022.53	69,278	69,566	288	

4.1.3a Source Capacity South of Unity Pass

The current system has a bottleneck that limits the flow from north of Unity Pass into the City Center. Therefore, this area has also been evaluated separately. It is estimated that the area currently has 5,615 connections and requires 6,401 gpm of source capacity.

The area can utilize approximately 4,500 gpm from the area north of Unity Pass, which has the majority of the system's existing source capacity. The area is also fed from Well 1, which has a safe yield of 2,133 gpm

Therefore, under normal operations the City has the required source capacity it needs to meet the demand of the area. Well 8 is currently under construction which will help provide the required source capacity for the continued growth and redundancy in the area.

The area can also be fed from the White Hills Wells, which currently have a maximum capacity of 1,400 gpm. The capacity of these wells is planned to be expanded. One of the two wells would be planned to operate as a redundant source to the White Hills Zone until additional supply can be pulled from CUWCD Pump Station #2 and provide redundancy to the area.

In addition, several projects have been evaluated to increase the flow from the City's main sources to the City Center. The projects will continue to add redundancy to the area and provide additional supply to help meet the demands of the projected growth.

4.1.3b Source Capacity North of SR-73

The area north of SR-73 is fed from two pump stations that lift water from the main City source into this area's two storage tanks. It is estimated that 1,134 connections exist north of SR-73. Because these lots are typically larger, we have assumed that each lot utilizes approximately 1.23 gpm/lot. This equates to a total flow for the area of 1,395 gpm. The two pump stations can pump 1,457 gpm. Both of the pump stations include a backup pump and should be able to keep up with estimated demand.

During July 2024, the area struggled to keep up with demand. After further evaluation, it appears that water being pumped to this zone is being discharged to other areas of the city, utilizing supply that is needed for this zone.

Because the pumps operate continuously during the summer, a new pump station is currently under construction and is planned to be operational by the beginning of June 2026.

4.1.3c Source Capacity Zone 5

Currently, the pump station that serves Zone 5 does not feed lots, and therefore, has enough capacity to serve the Zone. Once lots are connected to the Zone or the connection from Tank 5 to

Lake Mountain Road is made, a pump and PRV should be adjusted to ensure that the capacity is being utilized by the Zone.

4.1.3d Source Capacity White Hills

Currently, the two White Hills Wells each have a capacity of 1,400 gpm however only one can operate at a time. Per the Firefly IFFP, they will be expanding the Cooke well to 2,500 gpm. With the additional anticipated growth in the Firefly IFFP, these wells will be over capacity. The Draft Firefly Master Plan anticipates using water from the CUWCD to address the shortfall but makes no recommendation on how that flow will reach this area. Firefly will need to provide a solution before exceeding the capacity of the Cooke wells

An additional well has been recommended to help alleviate the shortfall.

4.1.4 Distribution Improvements

Currently, the largest bottleneck in the system is getting water over Unity Pass. Several projects will be needed to take all of the available source in the area.

As the Second CUWCD pump station is built the Distribution system along SR-73 will become the new bottleneck area and several capacity improvements will be needed along that stretch to deliver water from the northeast of the City to the southwest where it is anticipated that most of the growth will occur.

With the addition of Well 8, 3,000 ft of 16” line will need to be installed from this new well connecting into the line in Pole Canyon Blvd west of the power line and heading east up to the proposed tank along Pole Canyon Blvd east of Lake Mountain Road. The line heading west will require a PRV station, the line heading to the tank will need to tie into the higher pressure line.

Beyond these areas of concern, water lines will be required to provide water for undeveloped areas as they grow. See Exhibit 3.2 for the full buildout map of the system and Appendix B for a list of the proposed projects through buildout.

5.0 Conclusion and Recommendations

Like many communities in the west, Eagle Mountain City is growing rapidly with limited resources to acquire and expand its water system to meet the growing needs. The improvements recommended in Section 4.1 were outlined based on projected growth rates and anticipated locations of future development. Since growth rates and location of growth may vary from projections, some of the recommended improvements may be needed sooner or later than anticipated.

The current water system is short on source supplies and storage, even with the current projects, additional improvements will continue to be required to meet the LOS standards. Because of available water, the system will be limited on growth and water conservation measures will become more and more important.

Beyond the immediate improvements, Eagle Mountain City should begin planning strategic locations for additional storage projects and development of new water sources. As the City continues to experience rapid growth, we recommend that the Master Plan and Impact Fee Facility Plan be reviewed and updated every few years and the system model be kept up to date.

Appendix A

Exhibits

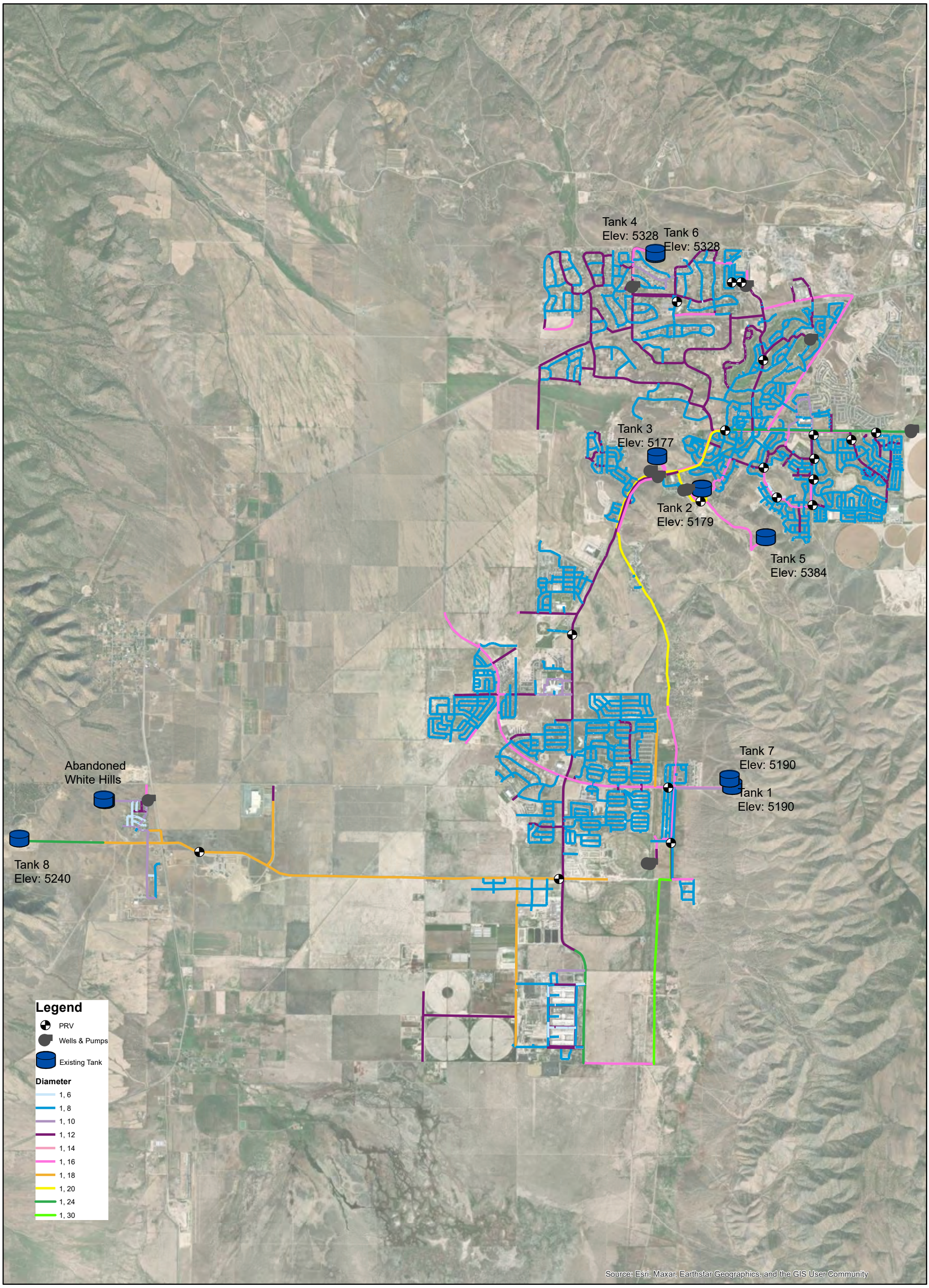


Figure 3.1 Existing Water System

PSOMAS

EAGLE MOUNTAIN

N

0 4,050 8,100 Feet

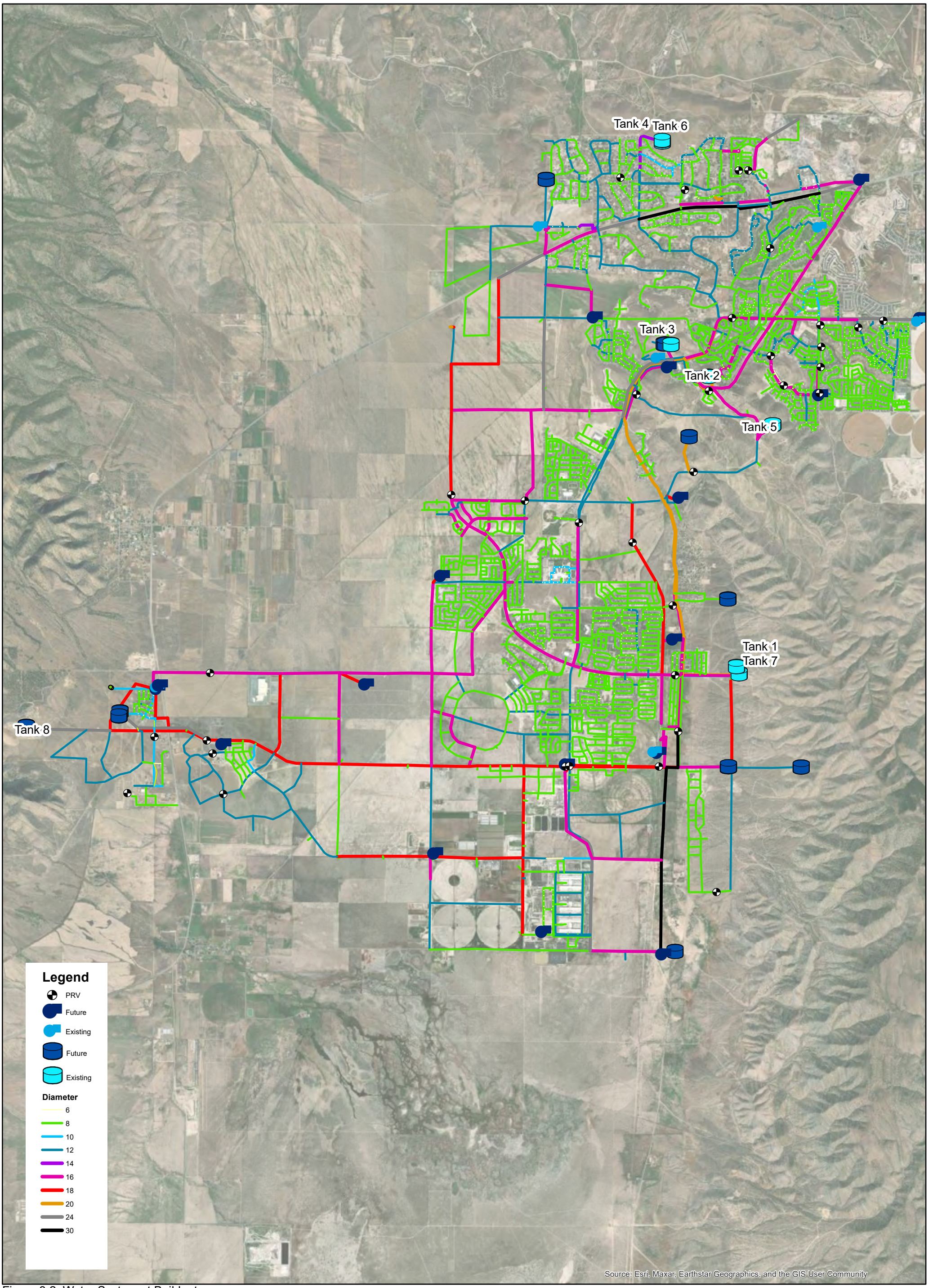


Figure 3.2 Water System at Buildout

PSOMAS

EAGLE MOUNTAIN

N

0 4,050 8,100 Feet

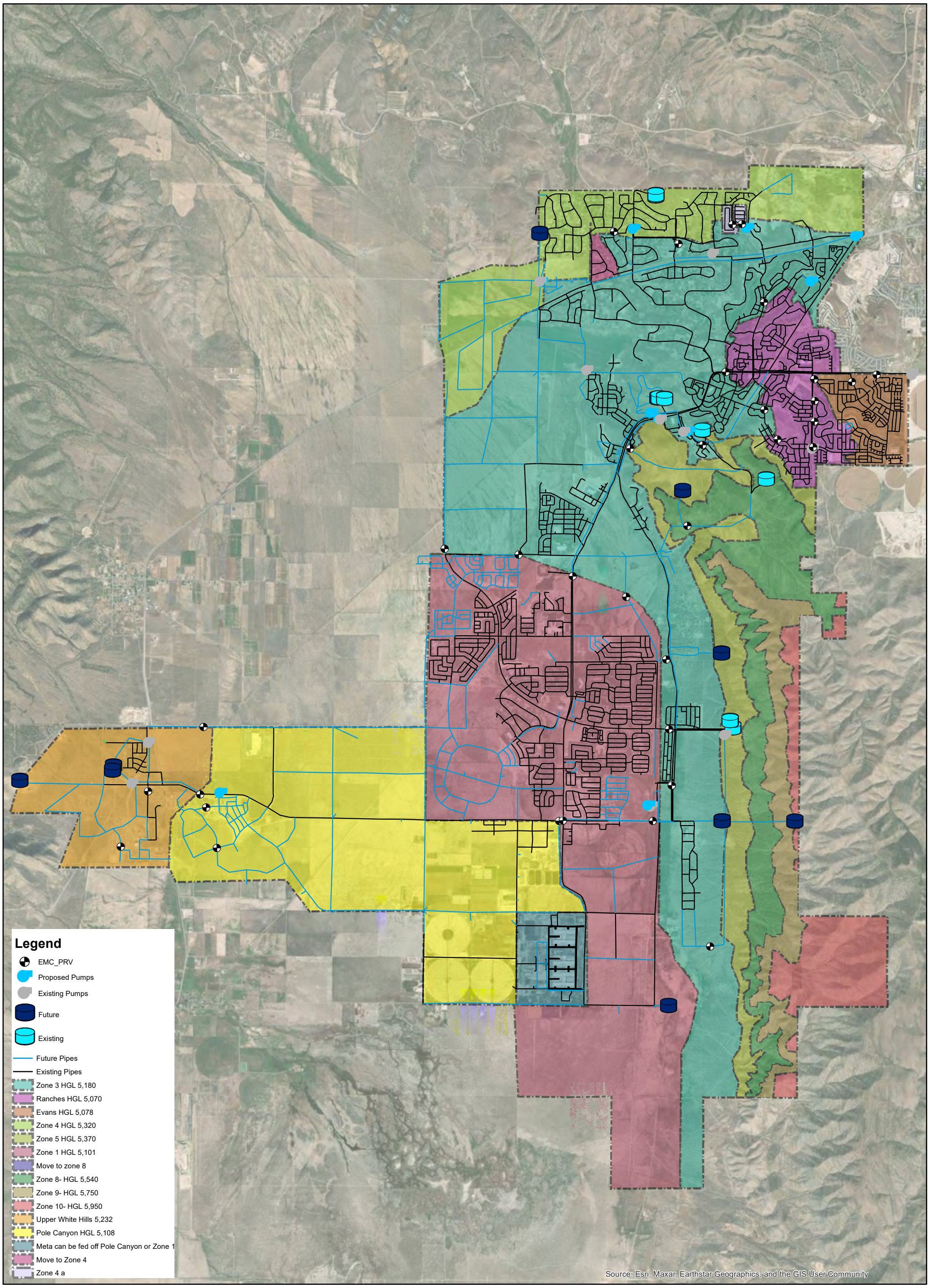


Figure 3.3 Pressure Zones

PSOMAS

EAGLE MOUNTAIN

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0 4,050 8,100 Feet

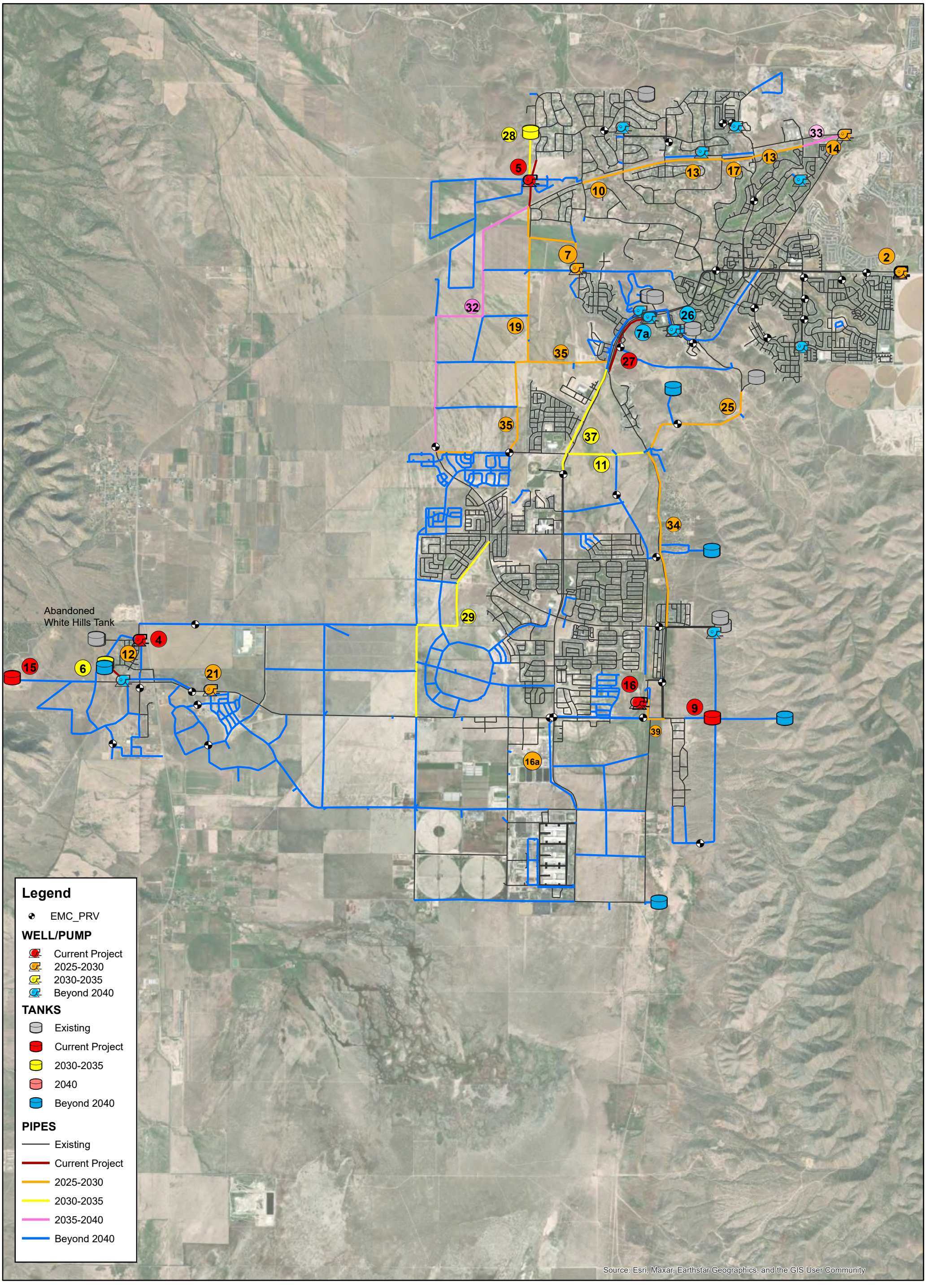

Figure 3.4 Recommended Projects

Appendix B

Recommended Project List

Appendix C

Results

- Peak Day Water Model Results
- Peak instant Water Model Results
- Available Fire Flow Model Results

EAGLE MOUNTAIN WATER PROJECT LIST

		Current Projects	Approximate year needed	Existing Road	System Project for Future Growth	Projected cost
7a	Source	Well 7 (Unity Pass)	2025	NA	Existing requirements	$ 5,800,000
16	Source	Well 8 (Adjacent to Well 1)	2025	NA	Existing requirements	$ 5,800,000
4	Source	White Hills Well Improvements	2025	NA	Existing requirements	$ 2,000,000
26	Source	Well 5 Improvements	2025	NA	Existing requirements	$ 2,000,000
15	Storage	4 MG White Hills Tank	2025	NA	Existing/ WH growth	$ 6,500,000
9	Storage	4MG Tank 9 (South of tank 1)	2026	NA	Future Growth	$ 6,500,000
5	System Capacity	Belle Street Booster	2025	Yes	Existing	$ 800,000
27	System Capacity	Pony Express Parallel line	2025	Yes	Existing requirement/redundancy/CWP water to City	$ 1,061,910
						$ 30,461,910

		Next 5 years (2025-2030)	Approximate year needed	Existing Road	System Project for Future Growth	
7	source	LoneTree Well (Well 9) (3000 gpm reliable source)	2028	NA	Future Growth	$ 5,800,000
21	source	WH well (3000 gpm reliable source)	2029	NA	Future Growth	$ 5,800,000
2	source	Remaining Capacity CWP (Only a contract ammendment no infrastructure)	2030	NA	Future Growth	$ -
34	System Capacity	Lake Mountian From Tank 5 connection to Eagle Mountain Blvd		Yes	Needed to utilize CWP	$ 3,394,364
10	System Capacity	Complete Line on SR-73 (24" & 30")	2028	Yes	Needed to utilize CWP	$ 2,386,459
35	System Capacity	Install Water Line from Pony Express to the Existing Line in Mid Valley Road	2028	No	Needed to utilize CWP, LoneTree and future CWP	$ 3,376,709
19	System Capacity	Water line in Airport Road	2028	Yes/no	Needed to utilize CWP, LoneTree and future CWP	$ 1,867,815
25	System Capacity	Tank 5 to Lake Mountain Road (this project will also require improvements to the booster that feeds tank 5	2030	No	Needed to utilize CWP	$ 1,775,862
14	source	North CWP	2030	NA	Future Growth	$ 10,300,000
13	System Capacity	Parallel line in SR73	2030	Yes	Needed to Utilize North CWP	$ 1,357,000
17	System Capacity	Parallel line in SR73	2030	Yes	Needed to Utilize North CWP	$ 411,240
12	ex Deffieciency	upgrade 6" white hills			Existing requirements	$ 500,000
16a	other	New public works (cost shared with Waste water)				$ 5,000,000
39	System Capacity	16" line from Well 1 to new tank	2026	Yes	Need to utilize Well 8	$ 817,560
						$ 42,787,009

		5-10 years (2030-2035)	Approximate year needed	Existing Road	System Project for Future Growth	
6	storage	WH Tank (4 MG)	2035	NA	Future Growth (Firefly) IFFP)	$ 6,800,000
28	storage	Tank West of Tank 4	20		Helps with New CWP	$ 6,800,000
37	System Capacity	12" Parallel line in Pony Express from lake mountain road to PRV		Yes	Future Growth	$ 959,241
29	System Capacity	Line from Eagle mountain Blvd to Pole Canyon		No	Future Growth	$ 2,690,274
11	System Capacity	Install 12" line between lake mountain and pony express	2030	N/A	Future Growth	$ 471,494
						$ 17,721,009

EAGLE MOUNTAIN WATER PROJECT LIST

		Beyond 10 years (2035-2040)	Approximate year needed	Existing Road	System Project for Future Growth	Projected cost
30	source	3000 gpm well (Pole Canyon Or City Center)	2035	NA	Future Growth	$ 5,800,000
38	source	3000 gpm well (Pole Canyon Or City Center)		NA	Future Growth	$ 5,800,000
31	source	Adding another pump to the North CWP	2039	NA	Future Growth	$ 1,000,000
32	System Capacity	Line along Eagle mountain Blvd	2039	Yes	Future Growth (Needed to Utilize North CWP)	$ 4,000,000
33	System Capacity	Parallel line in SR73	2039	Yes	Future Growth (Needed to Utilize North CWP)	$ 1,019,784
37	System Capacity	12" Parallel line in Pony Express from lake mountain road to PRV		Yes	Future Growth	$ 566,587
16	System Capacity	12" Parallel line in Pony Express from PRV to Eagle Mountain BLvd		Yes	Future Growth	$ 1,129,068
						$ 19,315,439

Culinary Water Impact Fee Facility Plan

EAGLE MOUNTAIN, UT

July, 2025

Prepared for:
Eagle Mountain City
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Table of Contents

List of Tables

List of Figures

Appendix

1.1 Introduction

In November 2021, a Capital Facilities Plan (CFP) was completed for Eagle Mountain City titled, Eagle Mountain Impact Fee Facilities Plan, November 2021. Recently, Eagle Mountain has been experiencing enormous growth, growing from 13,118 Equivalent Residential Units (ERU) in 2021 to approximately 20,200 ERUs in 2024.

1.2 Definitions

CUWCD	Central Utah Water Conservancy District
ERU	Equivalent Residential Units
DDW	Division of Drinking Water
IFFP	Impact Fee Facilities Plan
psi	pounds per square inch
gpm	gallons per minute
PRV	Pressure Reducing Valve
LOS	Level of service
SID	Special Improvement District
IFC	International Fire Code

1.2.1 Equivalent Residential Connection (ERU)

For ease of calculations in water master plans, land uses other than residential are converted to ERU's. For this report, these values were calculated from actual water usage data provided by Eagle Mountain City from 2023. See Table 1 for the ERU conversions used for this IFFP.

Table 1. Equivalent Residential Connections Conversions

Type	ERC
Large Lots (Zone 4)	1.14
All other Residential	1.00
Commercial	12.83
Institutional	21.13
Condos	0.87
Industrial	18.90

1.3 Level of Service

The State of Utah Division of Drinking Water (DDW) Rules and the International Fire Code (IFC) govern the minimum Level of Service (LOS) that Eagle Mountain City Water Department is required to provide. The current LOS within the water system are stated as follows:

Storage

- 577 gallons of storage per ERU for indoor and outdoor use
- 2,848 gallons per irrigated acre for outdoor use in Zone 4
- Emergency storage is based upon an assessment of risk and the desired degree of system dependability (percent after fire storage is considered).
- Fire storage for the largest building within the zone

Source

- 1,511 gallons per day of source capacity for indoor and outdoor use per ERU
- Per conversation with the DDW, safe yield of a well is assumed to be two thirds of the pump capacity

Minimum Water Pressure Requirements

- 40 psi during peak day demands
- 30 psi during peak instantaneous demands
- 20 psi during peak day demands with fire

Water Rights

- 0.53 acre-feet per ERU
- 2.5 acre-feet per irrigated acre

In addition to the State rule requirements, the City requires developments to maintain 30 psi at any moment during the modeled peak hour of the peak day scenario for new developments, assuming either Well 1 or Well 2 is out of service.

2.1 Existing System

Eagle Mountain City currently provides water to customers in Eagle Mountain and the White Hills area. For discussion purposes the City has been broken into 3 areas: the West, the North, and the South (or City Center). Projects have been constructed to connect the White Hills water system into the City's system. See Figure 1 for the location of each Service Area and Exhibit 3.1 for a map of the existing water system.

From the City's billing information, it was determined that there is currently a total of 15,152 equivalent residential connections which equates to a peak day flow of 17,273 gpm.

The City has a separate secondary system in the south part of the City that will remove some public outdoor use from the culinary system. The secondary system is currently also serving limited areas of residential irrigation however, most residential or commercial irrigation will continue to be served by the culinary system.

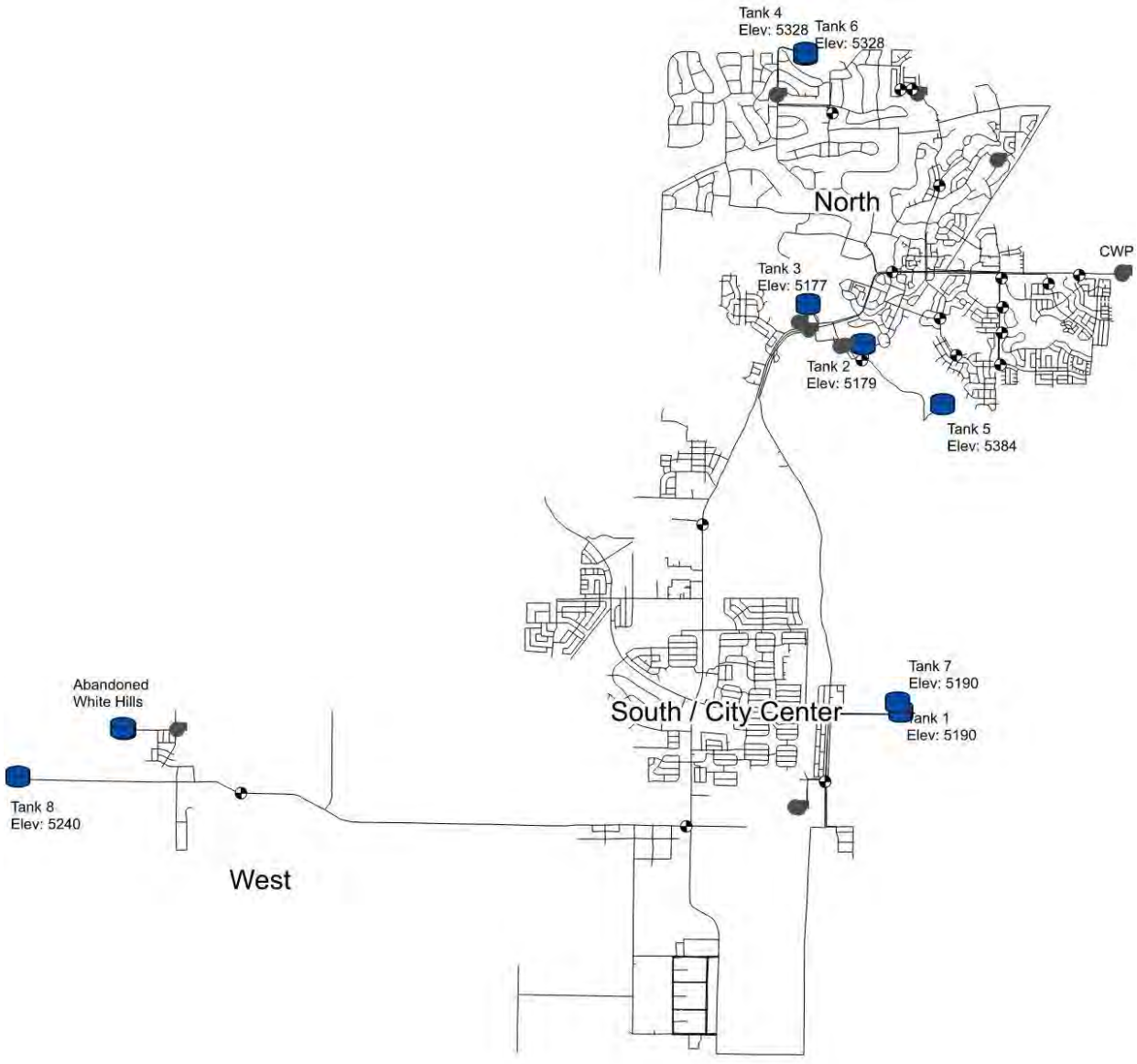

Figure 1. Eagle Mountain's Water System

The City is divided into eight pressure zones including three zones in White Hills, with most of the current development occurring in Zone 1. See Table 2 for a list of the pressure zones and pressure

elevations. The water for the pressure zones is currently supplied by nine tanks, which are normally filled by five wells and water from the CWP pump station.

2.2 Existing Project Funding

Several facilities in the existing system were funded using Special Improvement District (SID) Bonds, reimbursement agreements, and Revenue bonds however, these have currently all been paid off.

3.1 Planning Period and Growth Projections

Planning Period

To evaluate City growth and system improvements as part of this IFFP, a ten-year planning period will be used to identify specific system needs. To assist the City in long-range planning, additional anticipated projections to build out (year 2060) will also be evaluated.

Growth Projections

Eagle Mountain is growing rapidly and is among the fastest growing cities in the State. Per the Economic Development Master plan that was completed in 2023, it is assumed that the City will grow at an estimated 5,200 additional people each year. This is equivalent to an additional 1,410 residential connections every year. The City had a population of 75,000 or the equivalent of 20,194 residential connections. See Figure 2 for the projected population growth.

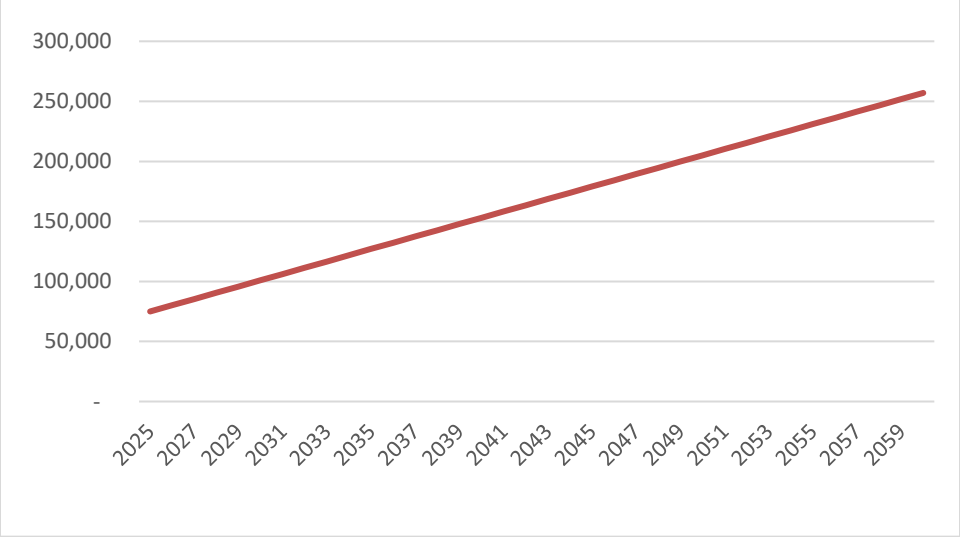

Figure 2. Population

3.2 System Improvements

3.2.1 Pressure Zones

As stated earlier, Eagle Mountain City's water system is currently divided into nine pressure zones. At the City's full build out, an additional five pressure zones will be necessary. Within the City's water model, new pressure zones were created to maintain water pressures within a desired range of 70-120 psi. In some instances, this pressure range was expanded to eliminate the need for additional smaller pressure zones, but the minimum service levels were still maintained. See Table 2 and Exhibit 3.5 for a summary of the pressure zones.

Table 2. Pressure Zones

Pressure Zone	Served from	HGL	40 psi Elevation	70 psi Elevation	120 psi elevation	140 psi elevation
Zone 1	Tank 1 and 7	5101	5008.6	4939.3	4823.8	4777.6
Ranches	PRVs	5070	4977.6	4908.3	4792.8	4746.6
Zone 3	Tank 3 and 4	5180	5087.6	5018.3	4902.8	4856.6
Zone 4	Tank 4 and 6	5320	5227.6	5158.3	5042.8	4996.6
Zone 5	PRVs	5370	5277.6	5208.3	5092.8	5046.6
Ox Bridge	PRVs	5231	5138.6	5069.3	4953.8	4907.6
Bridge	PRVs	5233.7	5141.3	5072	4956.5	4910.3
WH Mid	White Hills tanks	5300	5207.6	5138.3	5022.8	4976.6
WH Lower	PRVs	5198	5105.6	5036.3	4920.8	4874.6
Future Zone 6		4955	4862.6	4793.3	4677.8	4631.6
Future Zone 7		5540	5447.6	5378.3	5262.8	5216.6
Future Zone 8		5540	5447.6	5378.3	5262.8	5216.6
Future Zone 9		5750	5657.6	5588.3	5472.8	5426.6
Future Zone 10		5950	5857.6	5788.3	5672.8	5626.6

Most of the new pressure zones will be created in undeveloped areas on the eastern side of the City as development moves east into the Lake Mountain area. If some of these areas are determined to be unbuildable, some of the planned pressure zones may not be needed.

3.2.2 Storage Capacity Improvements

Currently, there are eight water storage tanks in Eagle Mountain City that provide the total storage capacity for the City's culinary water system with the new White Hills Tank now completed and an additional tank under design south of Tank 1. The new White Hills Tank, Tank 8 has replaced the two smaller existing tanks in the white hills service zone.

To convert the existing storage capacity of the individual tanks to ERU's, the DDW requires volumes for both fire and emergency storage to be determined. The fire storage for the City has been calculated based on the largest building in the City, which is equivalent to 360,000 gallons. The higher zones, White

Hills, Tanks 4 and 6, and Tank 5 are at a higher pressure and will require adequate fire storage for the zones they serve.

Currently, the Upper White Hills Zone only has residential connections and therefore will require 1,500 gpm for 2 hours of fire storage. Although the Tyson plant can be fed from either Tank 1 and 7 or the White Hills tanks, it currently has the additional fire storage in Tanks 1 and 7. However, because of its proximity to the new tank, after construction we recommend that the entirety of the Tyson plant's fire storage be allocated to the new White Hills Tank.

Because the higher zones can service the lower zones through PRVs, fire storage is available for the other zones. However, due to the distance of Zone 1 from other tanks, we recommended most of Zone 1 storage be accounted for in Tanks 1 and 7 and in the White Hills Tank.

Each tank also needs additional storage set aside for emergencies. The DDW does not have a volume requirement for emergency storage. The DDW rule only states that "Emergency storage shall be considered during the design process. The amount of emergency storage shall be based upon an assessment of risk and the desired degree of system dependability." Per the Technical Memorandum on the Division of Drinking Water Sizing Requirements Study memo by Jones and DeMille, the emergency storage requirement has been set at 5% of the total tank volume.

After the fire and emergency storage, the remaining capacity in the tanks is the equalization storage. Equalization storage includes both indoor and outdoor storage needs. Per the system specific source analysis, 584 gallons of storage is required for each ERU. See Table 3 for a summary of each tank's ERU capacity.

Tank	Total Volume (gal)	Fire Storage (gal)	Emergency Storage (gal)	Equilization Storage (gal)	ERU
ST-001/Tank 1	1,000,000	120,000	50,000	830,000	1,438.47
ST-002/Tank 2	1,000,000	90,000	50,000	860,000	1,490.47
ST-003/Tank 3	2,000,000	90,000	100,000	1,810,000	3,136.92
ST-004/Tank 4	600,000	120,000	30,000	450,000	779.90
ST-005/Tank 5	2,000,000	240,000	100,000	1,660,000	2,876.95
ST-006/Tank 6	2,500,000	120,000	125,000	2,255,000	3,908.15
ST-007/Tank 7	3,500,000	120,000	175,000	3,205,000	5,554.59
White Hills Tank		ABANDONED WITH TANK 8			
Tank 8	4,000,000	360,000	200,000	3,440,000	5,961.87
Total 2025	16,600,000	1,260,000	830,000	14,510,000	25,147

Table 3. Existing Tank Storage Capacity

By the year 2040, the City will require over a total of 24.5 million gallons of storage. If the growth rate follows projections, additional storage will generally be required every three years. See Table 4 for the additional storage required and the estimated year additional storage will be needed.

Table 4. Storage Improvements Required Through 2,040

Year	Population	ERU	Required Equilization Storage (gal)	Available Equilization Storage (gal)	Excess/ Deficiency (gal)	Added Storage (gal)
2025	75,000	20,194.54	11,652,247	14,510,000	2,857,753	3,320,535
2026	80,200	21,503.91	12,407,754	14,510,000	2,102,246	
2027	85,400	22,813.28	13,163,262	14,510,000	1,346,738	
2028	90,600	24,122.65	13,918,769	18,310,000	4,391,231	4,000,000
2029	95,800	25,432.02	14,674,276	18,310,000	3,635,724	
2030	101,000	26,741.39	15,429,784	18,310,000	2,880,216	
2031	106,200	28,050.76	16,185,291	18,310,000	2,124,709	
2032	111,400	29,360.14	16,940,798	18,310,000	1,369,202	
2033	116,600	30,669.51	17,696,306	21,160,000	3,463,694	3,000,000
2034	121,800	31,978.88	18,451,813	21,160,000	2,708,187	2,500,000
2035	127,000	33,288.25	19,207,320	21,160,000	1,952,680	
2036	132,200	34,597.62	19,962,827	21,160,000	1,197,173	
2037	137,400	35,906.99	20,718,335	24,485,000	3,766,665	3,500,000
2038	142,600	37,216.36	21,473,842	24,485,000	3,011,158	
2039	147,800	38,525.74	22,229,349	24,485,000	2,255,651	
2040	153,000	39,835.11	22,984,857	24,485,000	1,500,143	

3.2.2a Storage Capacity South of Unity Pass

The area south of Unity Pass is currently served by two tanks totaling 4,500,000 gallons of storage. By themselves, these tanks can provide service to approximately 6,900 ERC. The current system has approximately 5,615 connections. Although this is more than what the two tanks can serve, tanks in White Hills and north of Unity Pass can service this area as well.

In addition, a new 4MG tank, Tank 9, is currently being designed in this zone which will be able to supply an additional 5,921 ERC.

3.2.2b Storage Capacity North of SR-73

The area north of SR-73 is fed from two tanks, a 600,000 gallon tank and a 2.5 million gallon tank. It is estimated that 1,134 connections currently exist north of SR-73. The storage in this zone is enough for 4,600 ERC.

3.2.2c Storage Capacity Zone 5

Currently, Tank 5 doesn't have any lots connected to it. This tank currently serves the main zone, but once lots are connected in this zone it will have the ability to serve 2,863 ERC.

3.2.2d Storage Capacity White Hills

Currently, White Hills is fed from two small tanks, with a combined total storage volume of 679,500 gallons. A new 4-million-gallon tank is under construction. Per the Firefly West system IFFP, an additional tank will be required in the next 10 years to provide additional storage for the area.

3.2.3 Source Capacity Improvements

Currently, the City's system is served by five wells, one of which is not in operation due to water quality issues (Well 4). Additionally, the City has a Purchase Agreement with Central Utah Water Conservancy District (CUWCD) to purchase 15,000 acre-feet per year of water. During Peak day the City currently utilizes 6,865 gpm. The City also has two additional wells under construction and upgrades at two of the existing wells. It is anticipated that Well 8 will be operational in August of 2025 and Well 7 sometime in 2026.

Per the DDW, the safe yield of a well is two-thirds of the operating point of a pump. Table 5 summarizes the current available source and projected amount with current projects. Because all of the sources are in the same pressure zone and then pumped to the existing tanks or can flow to lower portions of the City, the City's source demands can be evaluated for the entire City together.

The ERU capacity was determined by adding the indoor and outdoor use ERU requirements and dividing it by the total source capacity.

Table 5.Existing Source Capacity

Source	Current Source (gpm)	Current Safe Yield (gpm)	Projected Source (gpm)	Projected Safe yield (gpm)
Well 1	3200	2133.33	3200	2133.33
Well 2	2200	1466.67	2200	1466.67
Well 3	1700	1133.33	1700	1133.33
Well 5	3200	2133.33	4500	3000.00
White Hills well 1	1400	933.33	1400	933.33
White hills Well 2	1400	933.33	3000	2000.00
Well 7	0		4000	2666.67
Well 8	0		3200	2133.33
CUWCD	7000	7000	7000	7000.00
Total	20100	15733.33	30200.00	22466.67

Because the City system is currently below the required source capacity of 21,190 gpm, several projects are in the design/construction stages to alleviate the shortages. These source improvements include improvements to Well 5 and the White Hills Wells and the construction of two new wells, Well 7 and Well 8. In total, the current projects should add approximately 10,400 gpm of new source capacity which will be constructed over the next couple of years.

Even with these projects, as a result of the rapid growth the City will still be below its source requirement and the City will need to continue with ongoing source projects. See Table 6 for the anticipated source requirements and timing. It should be noted that when constructing a well, the ultimate capacity is uncertain until the well is built. Therefore, if a constructed well does not provide the anticipated capacity, multiple smaller wells will need to be constructed over the same time frame to achieve the necessary source requirement.

Table 6. Source Improvements Required Through 2,040

Year	Population	ERU	Required Source (gpm)	Available Source (gpm)	Excess/ Deficiency (gpm)	Amount Added (gpm)
2025	75,000	20,194.54	21,190	18,867	(2,324)	4,067
2026	80,200	21,503.91	22,564	21,533	(1,032)	2,666
2027	85,400	22,813.28	23,938	21,533	(2,405)	
2028	90,600	24,122.65	25,312	24,533	(779)	3,000
2029	95,800	25,432.02	26,686	27,533	847	3,000
2030	101,000	26,741.39	28,060	28,533	473	1,000
2031	106,200	28,050.76	29,434	34,533	5,099	6,000
2032	111,400	29,360.14	30,808	34,533	3,725	
2033	116,600	30,669.51	32,182	34,533	2,351	
2034	121,800	31,978.88	33,556	34,533	977	
2035	127,000	33,288.25	34,930	37,533	2,603	3,000
2036	132,200	34,597.62	36,303	37,533	1,229	
2037	137,400	35,906.99	37,677	40,533	2,855	3,000
2038	142,600	37,216.36	39,051	40,533	1,481	
2039	147,800	38,525.74	40,425	40,533	107	
2040	153,000	39,835.11	41,799	43,533	1,733	3,000

3.2.3a Source Capacity South of Unity Pass

The current system has a bottleneck that limits the flow from north of Unity Pass into the City Center. Therefore, this area has also been evaluated separately. It is estimated that the area currently has 5,615 connections and requires 6,401 gpm of source capacity.

The area can utilize approximately 4,500 gpm from the area north of Unity Pass, which has the majority of the system's existing source capacity. The area is also fed from Well 1, which has a safe yield of 2,133 gpm

Therefore, under normal operations the City has the required source capacity it needs to meet the demand of the area. Well 8 is currently under construction which will help provide the required source capacity for the continued growth and redundancy in the area.

The area can also be fed from the White Hills Wells, which currently have a maximum capacity of 1,400 gpm. The capacity of these wells is planned to be expanded. One of the two wells would be planned to operate as a redundant pump to the White Hills Zone

In addition, several projects have been evaluated to increase the flow from the City's main sources to the City Center. See Section 4.1 for a full list of these projects. The projects will continue to add redundancy to the area and provide additional supply to help meet the demands of the projected growth.

3.2.3b Source Capacity North of SR-73

The area north of SR-73 is fed from two pump stations that lift water from the main City source into this area's two storage tanks. It is estimated that 1,134 connections exist north of SR-73. Because these lots are typically larger, we have estimated that each lot utilizes approximately 1.23 gpm/lot for a total flow for the area of 1,395 gpm. The two pump stations can pump 1,457 gpm. Both of the pump stations include a backup pump and should be able to keep up with demand.

During July 2024, the area struggled to keep up with demand. After further evaluation, it appears that water being pumped to this zone is being discharged to other areas of the City, utilizing supply that is needed for this zone.

Because these pumps currently operate continuously during the summer, A new pump station is currently under design and is planned to be operational by the beginning of June 2026.

3.2.3c Source Capacity Zone 5

Currently, the pump station that pumps to the Zone 5 tank does not feed lots and therefore has enough capacity to serve the Zone. Once lots are connected to the Zone or the connection from Tank 5 to Lake Mountain Road is made, a pump and PRV should be adjusted to ensure that the capacity is being utilized by the Zone.

3.2.3d Source Capacity White Hills

Currently, the White Hills Wells have a capacity of 1,400 gpm which is served by two wells. Per the Firefly IFFP, one will be expanded to 3,100 gpm. With the additional anticipated growth in the Firefly IFFP, these wells will be over capacity. Once Capacity is reached Firefly will be required to come up with a solution for the additional source.

4.0 Current Projects

Since the 2021 IFFP, several projects have been completed or are under construction. They are summarized below:

1) A pump station that pumps water over Unity Pass to Tanks 1 and 7 has been constructed and is in operation.
2) A 4 MG tank in the White Hills Area. This tank is set at a higher elevation and will be able to serve the area better. This project will replace the existing White Hills Tanks (included as part of the Firefly Master Plan). (Project 15)
3) Upgrades to the White Hills Wells. It is anticipated that this will increase the source capacity to 5,200 gpm (included in the Firefly Master Plan) (Project 4).
4) The City has two new wells, Well 7 and Well 8, under design/construction. Well 7 is located near the new pump station at Unity Pass and Well 8 is adjacent to Well 1. (Project 7a and 16)
5) The City is in the process of increasing the capacity of Well 5. (Project 26)
6) A new 4 MG tank in the South Service Area south of Tanks 1 and 7 is under design. (Project 9)
7) An additional Zone 4 pump is under design. (Project 5)
8) A parallel Waterline from the new Unity Pass Pump station to Lake Mountain Road (Project 27)

4.1 Facilities Planning

As the City continues to grow, the water system will need to expand to keep up with the additional demand. From current land use and zoning maps, a City full build-out scenario was created and used to anticipate pipelines, PRV's, storage, and source projects that will be necessary. This scenario is summarized in Exhibit 3.2

The needed improvements for the planning period have been phased into 5-year increments: 2025-2030 and 2030-2035. To assist the City with long range planning, improvements beyond 2035 have also been included. See Exhibit 3.3 for locations of these projects. The projects needed by 2030 are described in this section. Costs for projects beyond 2030 are given in Appendix B.

In addition to the timing, budgetary project costs have been developed for the necessary improvements. These budgetary costs include materials, construction, engineering, legal, and right of way acquisitions.

These projects have been analyzed and the timing of the projects is determined based on best available data, current growth projections, and known development plans. If new development occurs in locations that were not anticipated in the model, or if growth occurs quicker than anticipated, some projects may need to be initiated sooner than the projections.

4.1.1 Years 2025-2030

In addition to the projects that have recently been completed, and those that are under construction (listed in Section 4.0), several other projects will be needed in the next 5 years. See Appendix B for a summary of cost for these improvements.

Water Source Projects

1) Construct a well North of Lone Tree Development (Project 7)
2) Construct a new well in White Hills (Project 21)
3) First phase of the CUWCD Pump station North of SR73 (6000 gpm) (Project 14)

Water Line Projects

4) Install a parallel 16-inch waterline along Lake Mountain Road from new waterline in Project 9 to Eagle Mountain Blvd (Project 34)
5) Complete the water line on SR-73 (24 & 30 inch) (Project 10)
6) Install a waterline from Pony Express to the west connecting south to the existing waterline in Mid-Valley Road (Project 35)
7) Install new waterline from the airport south to proposed waterline project described in Project 7. (Project 19)
8) A new waterline from Tank 5 to Lake Mountain Road (Project 25)
9) A 16” line from Well 8 to Tank 9 and PRV (Project 39)
10) Parallel waterlines in SR-73 (Project 13)
11) Parallel waterlines in SR-73 (Project 17)

Tank Projects.

4.1.2 Year 2030-2035

Water Line Projects

12) Waterline from existing PRV in Pony Express to Eagle Mountain Blvd (Project 35)
13) Install a parallel waterline along Pony Express from Lake Mountain to the existing PRV (Project 37)
14) Water line connecting Eagle Mountain Blvd to Pole Canyon along Lehi-Fairfield Road (Project 29)

Water Tank Projects

15) 4 MG tank west of Tank 4 with 16” waterline from suction side of pump (project 28)
16) 4 MG tank in White Hills (included in the Firefly Master Plan as a 2.5 MG tank) (Project 6)

5.0 Conclusion and Recommendations

Like many communities in the west, Eagle Mountain City is growing rapidly with limited resources to acquire and expand its water system to meet the growing needs. The improvements recommended in Section 4.1 were outlined based on projected growth rates and anticipated locations of future development. Since growth rates and location of growth may vary from projections, some of the recommended improvements may be needed sooner or later than anticipated.

The current water system is short on source supplies and storage and, even with the current projects, additional improvements will continue to be required to meet the LOS standards.

Beyond the immediate improvements, Eagle Mountain City should begin planning strategic locations for additional storage projects and development of new water sources. As the City continues to experience rapid growth, we recommend that the Master Plan and Impact Fee Facility Plan be reviewed and updated every few years and the system model be kept up to date.

Appendix A

Exhibits

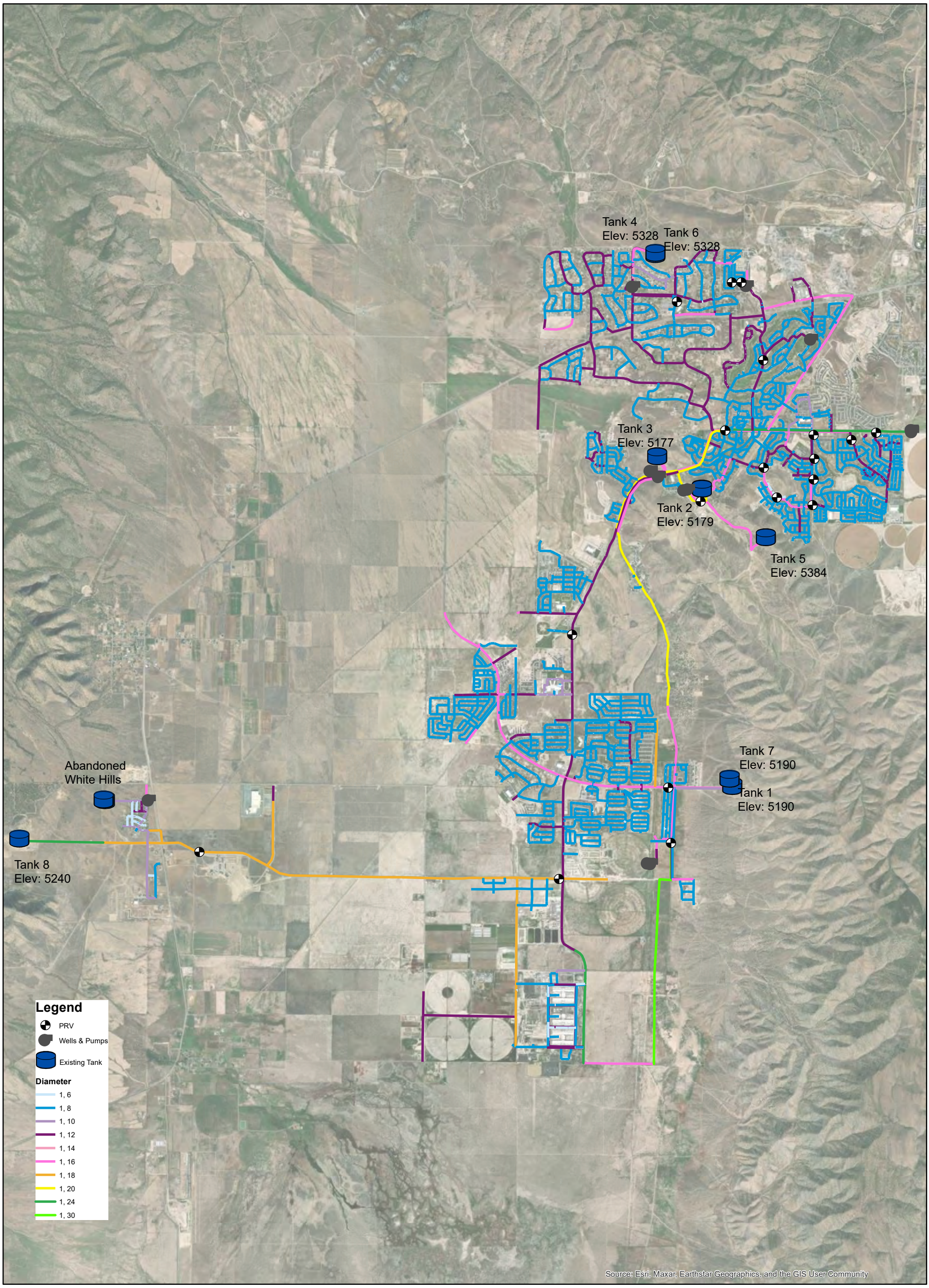

Figure 3.1 Existing Water System

PSOMAS

EAGLE MOUNTAIN

N

0 4,050 8,100 Feet

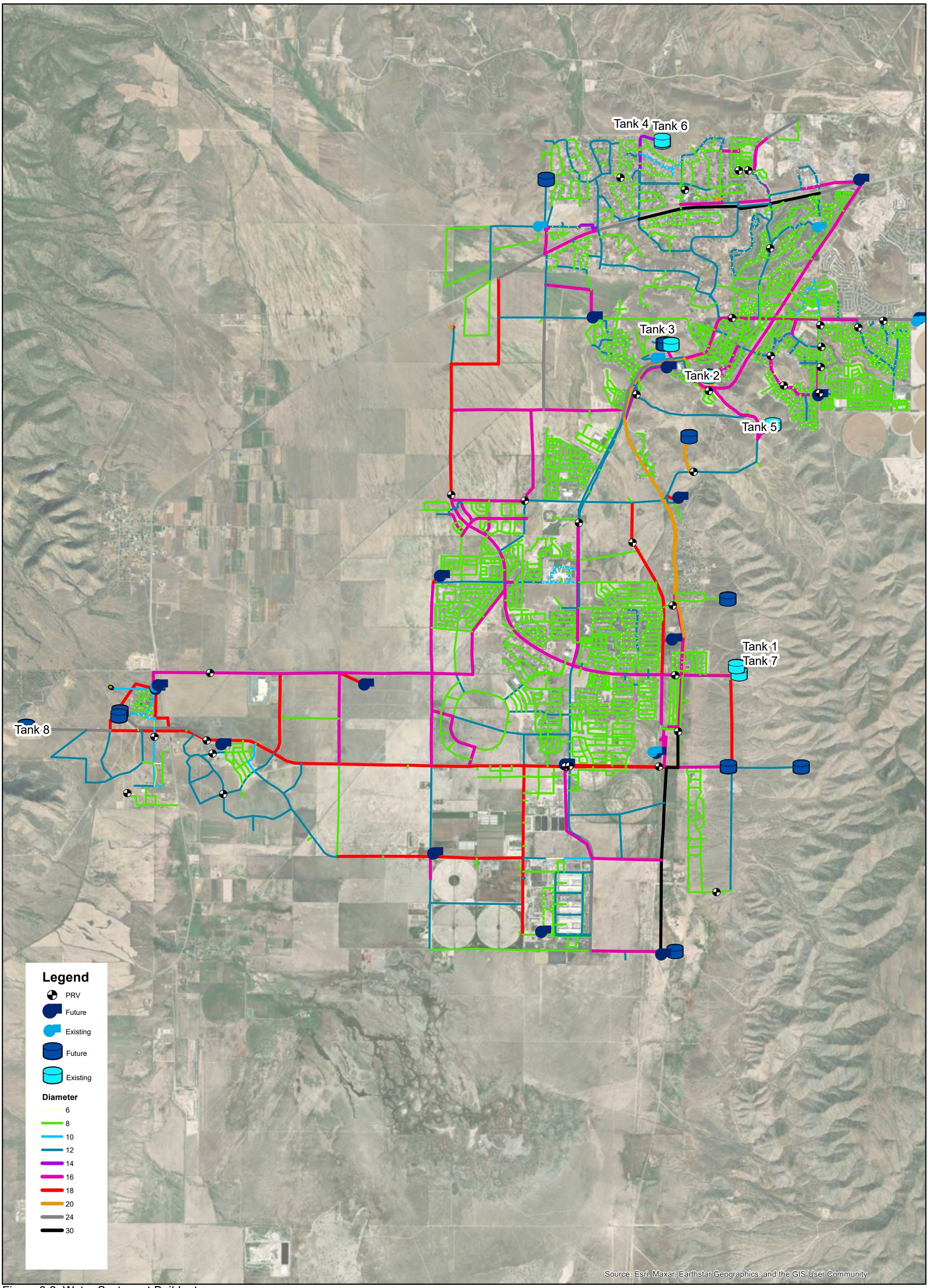

Figure 3.2 Water System at Buildout

PSOMAS

EAGLE MOUNTAIN

N

0 4,050 8,100 Feet

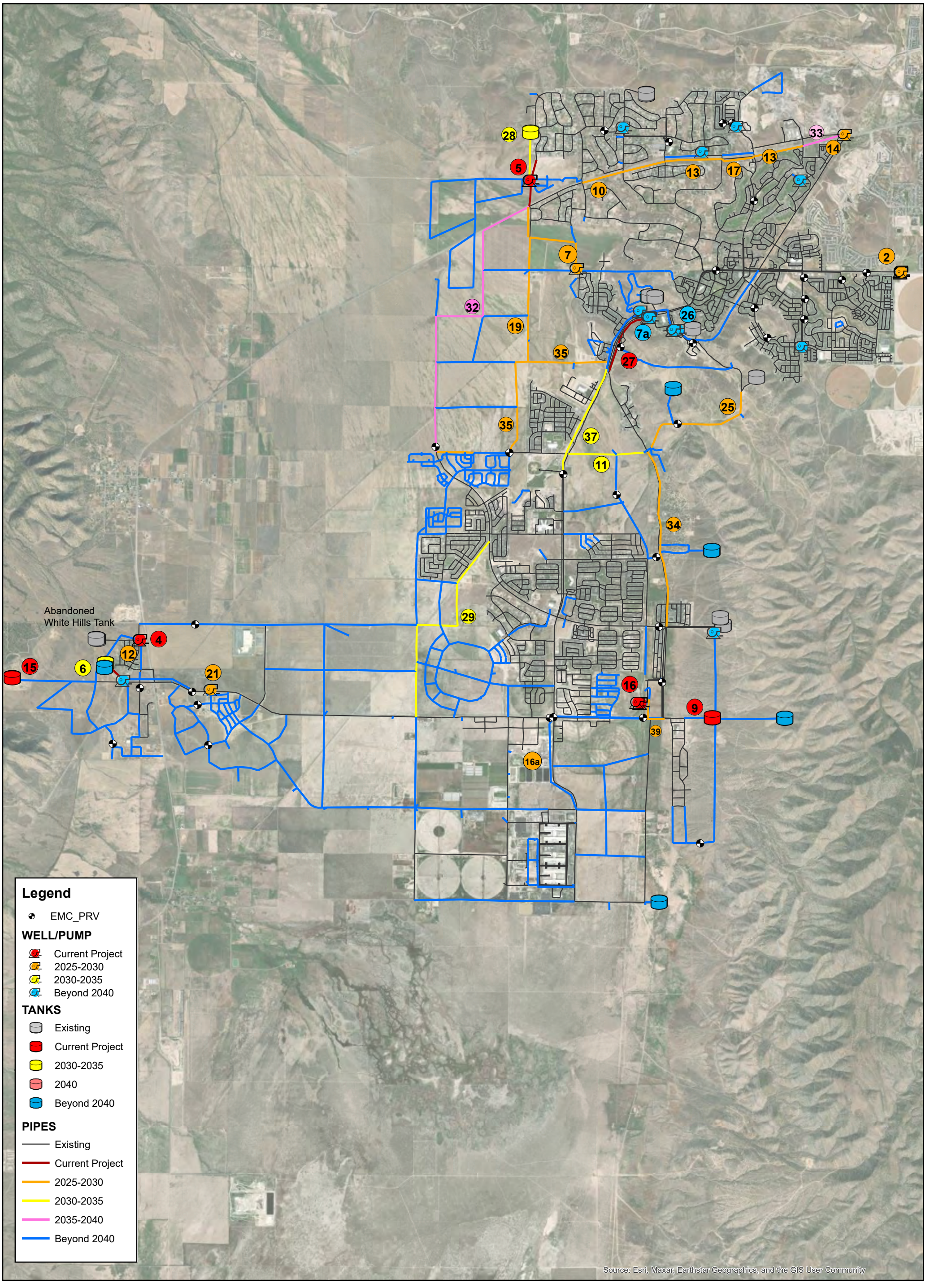

Figure 3.3 Recommended Projects

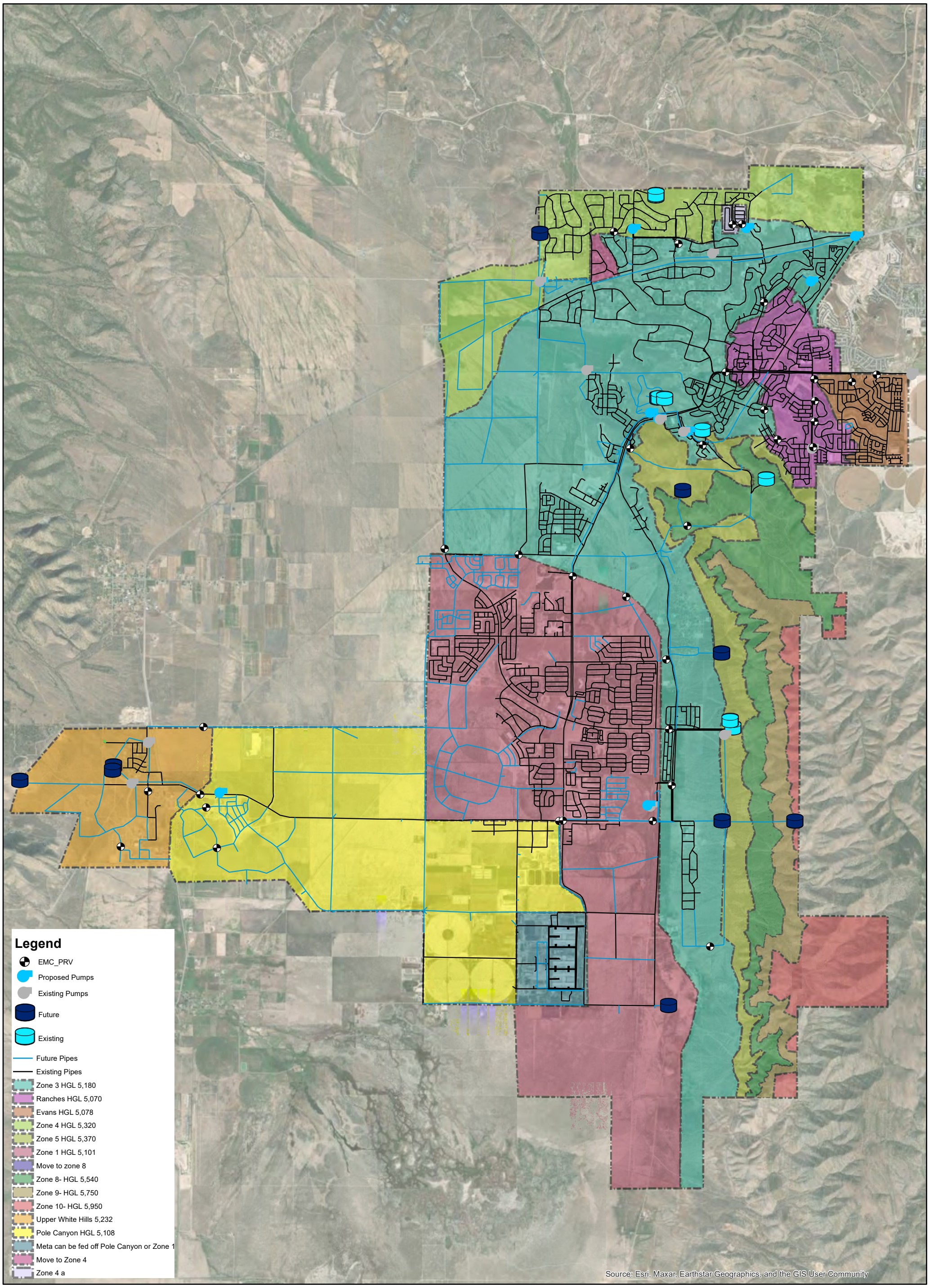

Figure 3.4 Pressure Zones

Appendix B

Buildout Project Cost

Years 2025-2030				
IFFP Project Number	Description	Cost	Amount used in the next 10 years	Cost to new development
Current Projects				
7a	3,000 gpm reliable source well (Well 7)	$ 5,500,000	100%	$ 5,500,000
7a	.75 ac well propoerty	$ 300,000	100%	$ 300,000
16	3,000 gpm reliable source well (Well 8)	$ 5,500,000	100%	$ 5,500,000
16	.75 ac well propoerty	$ 300,000	100%	$ 300,000
9	4MG Tank 9 (South of tank 1)	$ 6,500,000	100%	$ 6,500,000
15	4 MG White Hills Tank	$ 6,500,000	100%	$ 6,500,000
27	Pony Express Parallel Water line	$ 1,061,910	100%	$ 1,061,910
5	Belle Street Booster	$ 800,000	100%	$ 800,000
26	Well 5 Improvements	$ 2,000,000	100%	$ 2,000,000
4	Cooke Well Improvements	$ 2,000,000	100%	$ 2,000,000
7	3,000 gpm reliable source well (Well 9)	$ 5,500,000	100%	$ 5,500,000
7	.75 ac well propoerty	$ 300,000	100%	$ 300,000
21	White hills well	$ 5,500,000	100%	$ 5,500,000
21	.75 ac well propoerty	$ 300,000	100%	$ 300,000
34	Install Line along Lake Mountain Road from project 9 to Eagle Mountain Blvd	$ 3,394,364	90%	$ 3,054,928
10	Complete the waterline on SR73 (24&30 inch).	$ 2,386,459	60%	$ 1,431,875
35	Install Line from Pony Express to the west connecting south to the Line in Mid-valley road.	$ 2,376,709	80%	$ 1,901,368
35	Easement	$ 1,000,000	80%	$ 800,000
19	Water line in Airport Road	$ 1,867,815	50%	$ 933,908
25	A new water line from tank 5 to Lake Mountain Road	$ 1,175,862	100%	$ 1,175,862
25	Easement	$ 600,000	100%	$ 600,000
14	First Phase of CWP	$ 10,000,000.00	100%	$ 10,000,000.00
14	.75 ac well propoerty	$ 300,000.00	90%	$ 270,000.00
17	Parallel lines in SR-73	$ 411,240.00	70%	$ 287,868.00
13	Parallel lines in SR-73	$ 1,357,092.00	70%	$ 949,964.40
12	Upgrade White Hill 6" Waterline	$ 500,000	100%	$ 500,000
16a	New Public Works (cost shared with Waste Water)	$ 5,000,000	100%	$ 5,000,000
39	New Line from well 1 to tank 9	$ 817,560	100%	$ 817,560
	Total	$ 73,249,011	94%	$ 68,967,682

Years 2030-2035				
IFFP Project Number	Description	Cost	Amount used in the next 10 years	Cost to new development
11	Install 12" line between lake mountain and pony ex	$ 471,494.00	80%	$ 377,195.20
37	Install a Parallel line along Pony Express from Lake Mountain to the Existing PRV	$ 959,241.00	70%	$ 671,468.70
29	A new water line along Fairfield Lehi Road connecting Eagle Mountain Blvd to Pole Canyon	$ 2,690,274.12	70%	$ 1,883,191.88
28	4 MG tank west of Tank 4.	$ 6,500,000.00	100%	$ 6,500,000.00
28	1 acre tank property	$ 300,000.00	100%	$ 300,000.00
6	4MG TANK	$ 6,500,000.00	70%	$ 4,550,000.00
6	1 acre tank property	$ 300,000.00	70%	$ 210,000.00
		$ 17,721,009.12	82%	$ 14,491,855.78