# HERRIMAN CITY

# WATER SYSTEM IMPACT FEE FACILITY PLAN

**June 2024**

**Prepared for:**

HERRIMAN CITY

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# EXECUTIVE SUMMARY – IFFP (WATER)

The purpose of an impact fee facilities plan (IFFP) is to identify demands placed upon City facilities by future development and evaluate how these demands will be met by the City. The IFFP is also intended to outline the improvements which may be funded through impact fees.

## WHY IS AN IFFP NEEDED?

The IFFP provides a technical basis for assessing updated impact fees throughout the City. This document addresses the future infrastructure needed to serve the City. The existing and future capital projects documented in this IFFP will ensure that level of service standards are maintained for all existing and future residents who reside within the service area. Local governments must pay strict attention to the required elements of the Impact Fee Facilities Plan which are enumerated in the Impact Fees Act.

## PROJECTED FUTURE GROWTH

To evaluate the use of existing capacity and the need for future capacity, it is first necessary to calculate the demand associated with existing development and projected growth. Using available information for existing development and growth projections from the City's Water Master Plan, projected growth in system demand is summarized in Table ES-1. Growth in the table excludes the population and growth estimates for the "Olympia" service area which is treated as a separate service area.

**Table ES-1**
**Peak Day Demand Projections for City Service Area**

| Item | Culinary Indoor Water Use | Culinary Outdoor Water Use | Total Culinary | Seconary Water Service Potential Use[1] | Total Water Service |
|---|---|---|---|---|---|
| 2010 Population (most recent census) | 21,785 | 21,785 | -- | 0 | 21,785 |
| 2010 Peak Day Demand (mgd)[2] | 2.61 | 0 | 11.43 | 0 | 11.43 |
| 2024 Population Estimate | 68,861 | | | | |
| 2024 Estimated Peak Day Demand (mgd) | 4.85 | 18.51 | 23.36 | 6.54 | 29.90 |
| 2024 Estimated Peak Day Demand (gpm) | 3,367 | 12,857 | 16,224 | 4,541 | 20,766 |
| 2034 Population | 105,655 | | | | |
| 2034 Estimated Peak Day Demand (mgd) | 7.33 | 29.44 | 36.77 | 7.77 | 44.53 |
| 2034 Estimated Peak Day Demand (gpm) | 5,087 | 20,445 | 25,531 | 5,393 | 30,924 |
| 10-Year Population Growth | 36,794 | | | | |
| Increase in Peak Day Demand Placed Upon Existing Facilities by New Development (10-year growth) (mgd) | 2.48 | 10.93 | 13.40 | 1.23 | 14.63 |
| Increase in Peak Day Demand Placed Upon Existing Facilities by New Development (10-year growth) (gpm) | 1,720 | 7,587 | 9,307 | 851 | 10,159 |

1 – This is the estimated potential secondary water demand for installed secondary service connections. This is the hypothetical use for installed connections.

2 – 2010 data is included in this table as a baseline for when the secondary water system was not operating.

## LEVEL OF SERVICE

Level of service is defined in the Impact Fees Act as "the defined performance standard or unit of demand for each capital component of a public facility within a service area." To improve the accuracy of this analysis, this impact fee facility plan has divided the system into five different components (water rights, production, pumping, storage, and transmission). Existing and proposed levels of service are summarized for each of these categories in Table ES-2.

**Table ES-2**
**Existing and Proposed Level of Service**

| | Existing Level of Service[1] | Proposed Level of Service |
|---|---|---|
| **Water Rights** | | |
| Indoor Water Right (acre-ft/gpm of peak demand) | 1.290 | 1.290 |
| Outdoor Water Right (acre-ft/gpm of peak demand) | 0.703 | 0.489 |
| **Production Capacity** | | |
| Production Capacity (gpm/ gpm of peak demand) | 1.14 | 1.00 |
| **Pumping Capacity** | | |
| Pumping Capacity (gpm/ gpm of peak demand) | 1.00 | 1.00 |
| **Storage (gallons/ gpm of peak demand)[1]** | | |
| Indoor Use (gallons / gpm of peak demand) | 981 | 720 |
| Outdoor Use (gallons / gpm of peak demand) | 1,585 | 1,008 |
| **Transmission and Distribution** | | |
| Culinary Peak Hour (or instantaneous) Demand Pressure (psi) / Percent of Transmission System that Meets the Standard | 45 / 99.6% | 45 / 100% |
| Minimum Available Fire Flow at 20 psi during Peak Day Demand (gpm)[2] / Percent of Transmission System that Meets the Standard | 1,500 / 98.4% | 1,500 / 100% |
| Culinary Maximum Pipe Velocity (feet per second) / Percent of Transmission System that Meets the Standard | 7.0 / 99.6% | 7.0 / 100% |
| Secondary Peak Hour Demand Pressure (psi) / Percent of Transmission System that Meets the Standard | 40 / 98.2% | 40 / 100% |
| Secondary Maximum Pipe Velocity (feet per second) / Percent of Transmission System that Meets the Standard | 7.0 / 99.7% | 7.0 / 100% |

[1] Does not include fire storage volumes in calculation.
[2] This value represents the standard requirement for newer residential connections. In some cases, the Unified Fire Authority may allow fire flows as low as 1,000 gpm for historic homes. For commercial properties, required fire flow may be higher than 1,500 gpm with a residual of 20 psi.

In most cases, the City's existing level of service exceeds the proposed level of service which indicates there is some excess capacity in the existing system. However, each component in the system must be evaluated individually. Costs for projects to cure current deficiencies will not be included as part of the impact fee.

## EXISTING CAPACITY AVAILABLE TO SERVE FUTURE GROWTH

Since the existing system has five different components (water rights, production capacity, pumping capacity, storage, and transmission), each of these components must be evaluated individually to analyze excess capacity. The value of excess capacity is further evaluated as part of the Impact Fee Analysis (IFA).

### Water Rights

Table ES-3 summarizes the estimated volume and percentage of existing water rights available to meet future demands.

**Table ES-3**
**Excess Capacity – Water Rights**

| Type of Water Rights | Existing Rights (acre-ft) | Existing Annual Use (acre-ft) | Use by 10-Year Growth (acre-ft) | Use By Growth Beyond 10 Years (acre-ft) | Percent Use By Existing | Percent Available to 10-Year Growth | Percent Available to Growth Beyond 10 Years |
|---|---|---|---|---|---|---|---|
| Wells/Springs - Indoor | 658 | 362 | 185 | 110 | 55.1% | 28.1% | 16.8% |
| JVWCD - Indoor | 2,934* | 4,458 | 2,278 | 1,359 | 100.0% | 0.0% | 0.0% |
| Wells/Springs - Culinary Outdoor | 1,234 | 849 | 386 | 208 | 68.7% | 31.3% | 16.8% |
| JVWCD - Outdoor | 2,934* | 5,256 | 2,390 | 0 | 100.0% | 0.0% | 0.0% |
| Wells/Springs - Secondary | 4,719 | 595 | 179 | 186 | 12.6% | 3.8% | 83.6% |
| Welby Jacobs - Secondary | 2,628 | 1,625 | 237 | 766 | 61.8% | 9.0% | 29.1% |
| Total | 15,106 | 13,145 | 5,655 | 2,629 | | | |

*The City's existing contract is for 5,867 acre-ft which is assumed to be evenly divided between indoor and outdoor.

Table ES-3 indicates that the City has some excess water rights that represents value that may be purchased by future growth within the City.

### Production

Water production for existing users, 10-year growth, and buildout growth for each of the City's sources is listed in Table ES-4.

**Table ES-4**
**Excess Capacity – Production**

| Wells Springs/JVWCD Connections/Welby Jacobs Capacity[1] (mgd) | Existing Peak Day Use (mgd) | Peak Day Use 10-Year Growth (mgd) | Peak Day Use Growth Beyond 10-Years (mgd) | Percent Use By Existing | Percent Available to 10-Year Growth | Percent Available to Growth Beyond 10 Years |
|---|---|---|---|---|---|---|
| 51.4 | 30 | 13.0 | 8.2 | 59% | 25% | 16% |

[1] Capacity includes the physical connection capacity required at buildout, not necessarily current equipment capacity or contract capacity

Table ES-4 indicates that the City has some excess production capacity that represents value that may be purchased by future growth within the City.

### Pumping

Peak day demands for existing users, 10-year growth, and buildout growth for each of the City's existing booster station is listed in Table ES-5.

**Table ES-5**
**Excess Capacity – Pumping**

| Pump Station | Existing Capacity (gpm) | Existing Peak Day Demand (gpm) | 10-Year Peak Day Demand (gpm) | Buildout Peak Day Demand (gpm) | Percent Use By Existing | Percent Available to 10-Year Growth | Percent Available to Growth Beyond 10-Years |
|---|---|---|---|---|---|---|---|
| Blackridge Pump Station (Secondary) | 4,000 | 713 | 790 | 1,868 | 38.2% | 4.1% | 57.7% |
| 4000 West Pump Station – To Blackridge Reservoir (Secondary Zone 3) | 6,000 | 1,595 | 1,824 | 3,731 | 42.7% | 6.1% | 51.1% |
| 4000 West Pump Station – To Juniper Canyon (Secondary Zone 1-3) | 5,200 | 219 | 695 | 695 | 31.5% | 68.5% | 0.0% |
| Zone 4 Boosters (6400W & Hardlick) | 7,250 | 5,325 | 7,250 | 7,250 | 73.4% | 26.6% | 0.0% |
| Zone 5 booster (Lookout) | 1,500 | 203 | 203 | 273 | 74.5% | 0.0% | 25.5% |
| Cove (Zone 6W) | 1,800 | 522 | 1,065 | 1,272 | 41.1% | 42.7% | 16.3% |
| Zone 1E | 10,800 | 1,416 | 4,142 | 7,302 | 19.4% | 37.3% | 43.3% |
| Hi-Country Booster | 180 | 180 | 183 | 438 | 41.1% | 0.8% | 58.1% |
| **Total** | **36,730** | **10,173** | **16,153** | **22,829** | **44.6%** | **26.2%** | **29.2%** |

Table ES-5 indicates that the City has some excess pumping capacity that represents value that may be purchased by future growth within the City.

### Transmission

To calculate the percentage of existing capacity to be used by future growth in existing facilities, existing and future flows were examined in system model for each transmission pipeline. The calculated percentage of existing capacity in the culinary and secondary distribution system facilities in use by existing and future users is summarized in Table ES-6.

**Table ES-6**
**Percentage Use by Existing and Future Users**

| Facility | Percent Use By Existing | Percent Available to 10-Year Growth | Percent Available to Growth Beyond 10-Years |
|---|---|---|---|
| Existing Culinary Pipes | 42% | 28% | 30% |
| Existing Secondary Pipes | 57% | 13% | 30% |

Table ES-6 indicates that the City has some excess transmission capacity that represents value that may be purchased by future growth within the City.

### Storage

The City owns and operates a large number of storage reservoirs. As identified in the master plan, there are no existing storage deficiencies. Tables ES-7 and ES-8 summarize storage capacity that is used by existing and may be used by 10-year growth within the City.

**Table ES-7**
**Excess Capacity – Secondary Storage**

| Zone | Existing Required Volume (MG) | 10-Year Required Volume (MG) | Growth Beyond 10-Year Required Volume (MG) | Percent Use By Existing | Percent Available to 10-Year Growth | Percent Available to Growth Beyond 10-Years |
|---|---|---|---|---|---|---|
| All Zones | 2.46 | 3.31 | 5.76 | 42.6% | 14.9% | 42.5% |

**Table ES-8**
**Excess Capacity – Culinary Storage**

| Zone | Existing Cumulative Required Volume (MG) | 10-Year Cumulative Required Volume (MG) | Growth Beyond 10-Year Required Volume (MG) | Percent Use By Existing | Percent Available to 10-Year Growth | Percent Available to Growth Beyond 10-Years |
|---|---|---|---|---|---|---|
| Zone - 1-2 | 4.70 | 5.55 | 6.72 | 78.4% | 21.6% | 0.0% |
| Zone - 3 | 1.30 | 1.90 | 2.79 | 89.9% | 10.1% | 0.0% |
| Zone - 4 | 1.86 | 1.92 | 3.03 | 61.5% | 1.9% | 36.6% |
| North Zone Fire Storage | 0.87 | 0.87 | 0.87 | | | |
| Zones 1N – 4 | **8.74** | **10.24** | **13.41** | **65.2%** | **11.2%** | **23.6%** |
| Zone - 5S Lookout | 0.15 | 0.15 | 0.20 | 74.5% | 0.0% | 25.5% |
| Zone 5S Fire Flow | **0.27** | **0.27** | **0.32** | **84.2%** | **0.0%** | **15.8%** |
| Zone – 5W | 0.24 | 0.24 | 0.34 | 70.6% | 0.3% | 29.1% |
| Zone - 6W Cove | 0.13 | 0.13 | 0.18 | 72.8% | 0.5% | 26.8% |
| Zone 5W -6W Fire Flow | **0.56** | **0.56** | **0.71** | **78.6%** | **0.3%** | **21.1%** |
| Zone 1E | 0.59 | 0.99 | 1.82 | 32.3% | 22.2% | 45.5% |
| **Total*** | **8.98** | **10.89** | **15.08** | **59.5%** | **12.7%** | **27.8%** |

Table ES-7 and ES-8 indicate that the City has some excess storage capacity that represents value that may be purchased by future growth within the City.

## REQUIRED SYSTEM IMPROVEMENTS

Beyond available existing capacity, additional improvements required to serve new growth are summarized in Tables ES-9 to ES-10. To satisfy the requirements of state law, Tables ES-9 to ES-10 provide a breakdown of the percentage of the project costs attributed to existing and future users. For future use, capacity has been divided between capacity to be used by growth within the 10-year planning window of this IFFP and capacity that will be available for growth beyond the 10-year window.

**Table ES-9**
**Culinary Water System Improvement Costs, 10-year Planning Window**

| Project No. | City Project Cost[1] | City Proportion of Cost[2] | Estimated Year of Construction | Percent to Existing | Percent to 10-Year | Percent to Growth Beyond 10-Year | Cost to Existing | Cost to 10-Year | Cost to Growth Beyond 10-Year |
|---|---|---|---|---|---|---|---|---|---|
| Planning Costs | $50,000 | 100.0% | 2028 | 40.0% | 60.0% | 0.0% | $0 | $30,000 | $0 |
| Zone 2E Tank | $6,504,000 | 100.0% | 2025 | 19.8% | 39.0% | 41.2% | $1,287,063 | $2,538,498 | $2,678,439 |
| Zone 3E Tank | $6,504,000 | 100.0% | 2025 | 22.5% | 45.2% | 32.3% | $1,461,853 | $2,939,007 | $2,103,141 |
| Zone 3N Tank | $3,250,000 | 46.4% | 2026 | 0.0% | 33.4% | 66.6% | $0 | $1,084,212 | $2,165,788 |
| Zone 5E Tank | $3,135,000 | 100.0% | 2030 | 0.0% | 69.2% | 30.8% | $0 | $2,169,773 | $965,227 |
| Zone 6E Tank | $2,181,000 | 100.0% | 2032 | 0.0% | 22.8% | 77.2% | $0 | $496,991 | $1,684,009 |
| Zone 6N Tank | $3,250,000 | 46.4% | 2028 | 52.4% | 3.8% | 43.8% | $1,702,049 | $123,424 | $1,424,526 |
| Zone 2E Pump S. | $1,004,000 | 100.0% | 2026 | 13.9% | 10.9% | 75.2% | $139,317 | $109,543 | $755,140 |
| Zone 3E Pump S. | $2,849,000 | 100.0% | 2026 | 13.0% | 21.3% | 65.7% | $371,560 | $606,415 | $1,871,025 |
| Zone 4N Pump S. | $1,278,000 | 100.0% | 2028 | 27.9% | 0.7% | 71.3% | $356,651 | $9,497 | $911,852 |
| Zone 4E Pump S. | $844,000 | 100.0% | 2030 | 0.0% | 20.8% | 79.2% | $0 | $175,257 | $668,743 |
| Zone 5E Pump S. | $844,000 | 100.0% | 2030 | 0.0% | 6.0% | 94.0% | $0 | $50,875 | $793,125 |
| Zone 6E Pump S. | $506,000 | 100.0% | 2032 | 0.0% | 22.8% | 77.2% | $0 | $115,304 | $390,696 |
| Zone 6N / 5N Pump S. | $686,000 | 45.6% | 2028 | 36.7% | 6.8% | 56.6% | $251,488 | $46,458 | $388,055 |
| CE1.02 | $18,000 | 8.6% | 2025 | 0.0% | 52.9% | 47.1% | $0 | $9,522 | $8,478 |
| CE1.03 | $20,000 | 8.6% | 2026 | 0.0% | 52.9% | 47.1% | $0 | $10,580 | $9,420 |
| CE1.05ph1 | $255,000 | 10.8% | 2028 | 0.0% | 38.7% | 61.3% | $0 | $98,685 | $156,315 |
| CE1.05ph2 | $255,000 | 10.8% | 2034 | 0.0% | 38.7% | 61.3% | $0 | $98,685 | $156,315 |
| CE2.04 | $116,000 | 10.8% | 2026 | 0.0% | 67.9% | 32.1% | $0 | $78,764 | $37,236 |
| CE2.05 | $95,000 | 18.5% | 2026 | 0.0% | 67.9% | 32.1% | $0 | $64,505 | $30,495 |
| CE3.01 | $391,000 | 100.0% | 2023 | 22.5% | 45.2% | 32.3% | $87,975 | $176,732 | $126,293 |
| CE3.02 | $582,000 | 22.0% | 2027 | 0.0% | 58.3% | 41.7% | $0 | $339,306 | $242,694 |
| CE3.03 | $152,000 | 18.0% | 2027 | 0.0% | 58.3% | 41.7% | $0 | $88,616 | $63,384 |
| CE3.04 | $820,000 | 22.0% | 2026 | 0.0% | 58.3% | 41.7% | $0 | $478,060 | $341,940 |

| Project No. | City Project Cost[1] | City Proportion of Cost[2] | Estimated Year of Construction | Percent to Existing | Percent to 10-Year | Percent to Growth Beyond 10-Year | Cost to Existing | Cost to 10-Year | Cost to Growth Beyond 10-Year |
|---|---|---|---|---|---|---|---|---|---|
| CE3.05 | $77,000 | 9.0% | 2027 | 0.0% | 58.3% | 41.7% | $0 | $44,891 | $32,109 |
| CE3.06 | $151,000 | 18.0% | 2026 | 29.0% | 29.3% | 41.7% | $43,790 | $44,243 | $62,967 |
| CE4.01 | $207,000 | 8.6% | 2030 | 0.0% | 78.0% | 22.0% | $0 | $161,460 | $45,540 |
| CE4.02 | $60,000 | 8.6% | 2028 | 0.0% | 78.0% | 22.0% | $0 | $46,800 | $13,200 |
| CW2.01ph1 | $80,000 | 6.2% | 2024 | 0.0% | 43.2% | 56.8% | $0 | $34,560 | $45,440 |
| CW2.01ph2 | $80,000 | 6.2% | 2025 | 0.0% | 100.0% | 0.0% | $0 | $80,000 | $0 |
| CW2.01ph3 | $80,000 | 6.2% | 2028 | 0.0% | 67.3% | 32.7% | $0 | $53,840 | $26,160 |
| CW2.02ph1 | $56,000 | 3.8% | 2025 | 0.0% | 67.3% | 32.7% | $0 | $37,688 | $18,312 |
| CW2.02ph2 | $56,000 | 3.8% | 2028 | 0.0% | 35.2% | 64.8% | $0 | $19,712 | $36,288 |
| CW2.03 | $2,309,000 | 100.0% | 2030 | 0.0% | 35.2% | 64.8% | $0 | $812,768 | $1,496,232 |
| CW3.01 | $417,000 | 13.6% | 2026 | 0.0% | 41.5% | 58.5% | $0 | $173,055 | $243,945 |
| CW3.04 | $1,206,000 | 18.5% | 2023 | 0.0% | 41.5% | 58.5% | $0 | $500,490 | $705,510 |
| CW4.01 | $448,000 | 20.9% | 2026 | 0.0% | 40.9% | 59.1% | $0 | $183,232 | $264,768 |
| CW4.01 | $448,000 | 20.9% | 2028 | 0.0% | 40.9% | 59.1% | $0 | $183,232 | $264,768 |
| CW4.03 | $155,000 | 18.5% | 2030 | 0.0% | 40.9% | 59.1% | $0 | $63,395 | $91,605 |
| CW4.04 | $10,000 | 3.8% | 2034 | 0.0% | 40.9% | 59.1% | $0 | $4,090 | $5,910 |
| CW5.01 | $296,000 | 30.0% | 2026 | 0.0% | 10.7% | 89.3% | $0 | $31,672 | $264,328 |
| CW6.01 | $535,000 | 45.6% | 2028 | 36.7% | 6.8% | 56.5% | $196,345 | $36,380 | $302,275 |
| **Total** | **$42,260,000** | | | | | | **$5,898,090** | **$14,450,218** | **$21,891,692** |

[1]2024 dollars. City Project Cost includes the estimated project cost times the City proportion of cost.

[2] In undeveloped areas, the city's proportion of cost is based on increasing size for the master plan relative to the size required for developments.

**Table ES-10**
**Secondary Water System Improvement Costs, 10-year Planning Window**

| Project No. | City Project Cost[1] | City Proportion of Cost[2] | Estimated Year of Construction | Percent to Existing | Percent to 10-Year | Percent to Growth Beyond 10-Year | Cost to Existing | Cost to 10-Year | Cost to Growth Beyond 10-Year |
|---|---|---|---|---|---|---|---|---|---|
| Planning Costs | $50,000 | 100.0% | 2028 | 40.0% | 60.0% | 0.0% | $0 | $30,000 | $0 |
| Point of Diversion Purchase | $700,000 | 100.0% | 2028 | 0.0% | 100.0% | 0.0% | $0 | $700,000 | $0 |
| Zone 2 Storage | $5,814,000 | 100.0% | 2034 | 48.3% | 11.3% | 40.4% | $2,805,413 | $656,848 | $2,351,740 |
| Zone 4 - Cove Storage | $5,814,000 | 100.0% | 2026 | 38.2% | 4.1% | 57.7% | $2,218,977 | $240,670 | $3,354,353 |
| 4000 West - Juniper (1E) Pump S. | $231,000 | 100.0% | 2026 | 31.5% | 68.5% | 0.0% | $72,765 | $158,235 | $0 |
| Zone 1SE Pump S. | $675,000 | 100.0% | 2034 | 0.0% | 50.0% | 50.0% | $0 | $337,500 | $337,500 |
| Zone 3N Pump S. | $400,000 | 100.0% | 2030 | 0.0% | 9.0% | 91.0% | $0 | $36,029 | $363,971 |
| Future Well 1 Pump S. | $2,400,000 | 100.0% | 2027 | 0.0% | 21.8% | 78.2% | $0 | $523,978 | $1,876,022 |
| Future Well 2 Pump S. | $4,300,000 | 100.0% | 2028 | 0.0% | 21.8% | 78.2% | $0 | $938,795 | $3,361,205 |
| SW2.03ph1 | $1,689,000 | 100.0% | 2024 | 48.3% | 11.3% | 40.4% | $815,787 | $190,857 | $682,356 |
| SW2.03ph2 | $3,379,000 | 100.0% | 2024 | 48.3% | 11.3% | 40.4% | $1,632,057 | $381,827 | $1,365,116 |
| SW2.04 | $5,101,000 | 100.0% | 2024 | 48.3% | 11.3% | 40.4% | $2,463,783 | $576,413 | $2,060,804 |
| SW3.02ph1 | $252,000 | 18.5% | 2023 | 47.6% | 21.7% | 30.7% | $119,952 | $54,684 | $77,364 |
| SW3.02ph2 | $126,000 | 18.5% | 2023 | 47.6% | 21.7% | 30.7% | $59,976 | $27,342 | $38,682 |
| SW3.03 | $44,000 | 2.5% | 2024 | 47.6% | 21.7% | 30.7% | $20,944 | $9,548 | $13,508 |
| SW3.04 | $84,000 | 8.6% | 2024 | 47.6% | 21.7% | 30.7% | $39,984 | $18,228 | $25,788 |
| SW3.06 | $3,039,000 | 100.0% | 2024 | 47.6% | 21.7% | 30.7% | $1,446,564 | $659,463 | $932,973 |
| SW3.07 | $4,501,000 | 100.0% | 2024 | 47.6% | 21.7% | 30.7% | $2,142,476 | $976,717 | $1,381,807 |
| SW4.03 | $3,634,000 | 100.0% | 2024 | 32.3% | 5.5% | 62.2% | $1,173,782 | $199,870 | $2,260,348 |
| SW4.04 | $1,787,000 | 100.0% | 2024 | 38.2% | 4.1% | 57.7% | $682,634 | $73,267 | $1,031,099 |
| **Total** | **$44,020,000** | | | | | | **$15,695,093** | **$6,790,271** | **$21,514,636** |

[1]2024 dollars. City Project Cost includes the estimated project cost times the City proportion of cost.
[2] In undeveloped areas, the city's proportion of cost is based on increasing size for the master plan relative to the size required for developments.

# IMPACT FEE FACILITY PLAN (WATER)

## BACKGROUND

Herriman City (City) has retained Bowen Collins & Associates (BC&A) to prepare an impact fee facility plan (IFFP) for the water supply and distribution system provided by the City. The purpose of an IFFP is to identify demands placed upon City facilities by future development and evaluate how these demands will be met by the City. The IFFP is also intended to outline the improvements which may be funded through impact fees. The analysis forming the basis of this IFFP has been taken from the City's water system master plan prepared by BC&A.

Requirements for the preparation of an IFFP are outlined in Title 11, Chapter 36 of the Utah code (the Impact Fees Act). Under these requirements, an IFFP shall accomplish the following for each facility:

1. Identify the existing level of service
2. Establish a proposed level of service
3. Identify excess capacity to accommodate future growth
4. Identify demands of new development
5. Identify the means by which demands from new development will be met
6. Consider the following additional issues
    a. revenue sources to finance required system improvements
    b. necessity of improvements to maintain the proposed level of service
    c. need for facilities relative to planned locations of schools

The following sections of this report have been organized to address each of these requirements.

## 1.0 EXISTING LEVEL OF SERVICE 11-36A-302(1)(A)(I)

Level of service is defined in the Impact Fees Act as "the defined performance standard or unit of demand for each capital component of a public facility within a service area". This section identifies the existing level of service for water supply and distribution facilities. Before discussing the existing level of service, it is important to discuss the service area and unit of demand to be used in measuring level of service.

## 1.1 SERVICE AREA

This study considers two service areas within the corporate boundaries of the City, the main body of "Herriman", and the "Olympia" service area. The "Olympia" development that was annexed into the City in 2022 has a separate master development agreement with the City where they've committed to funding infrastructure for the Olympia development. Appendix A identifies the specific water infrastructure needed for the Olympia development and the percentage of costs that will be funded by Olympia likely through a public infrastructure district (PID). Any portion of costs funded by the PID will be excluded from this impact fee. Figure 1 identifies the City's service area with the Olympia area identified.

In addition to the Olympia service area, the City is considering approving a public infrastructure district (PID) in the east area of Herriman that may be adopted this year. As part of this IFFP, a separate table will document infrastructure that may be affected by the potential PID and the percentage of costs that would be allocated to the PID. The potential PID is shown on Figure 1.

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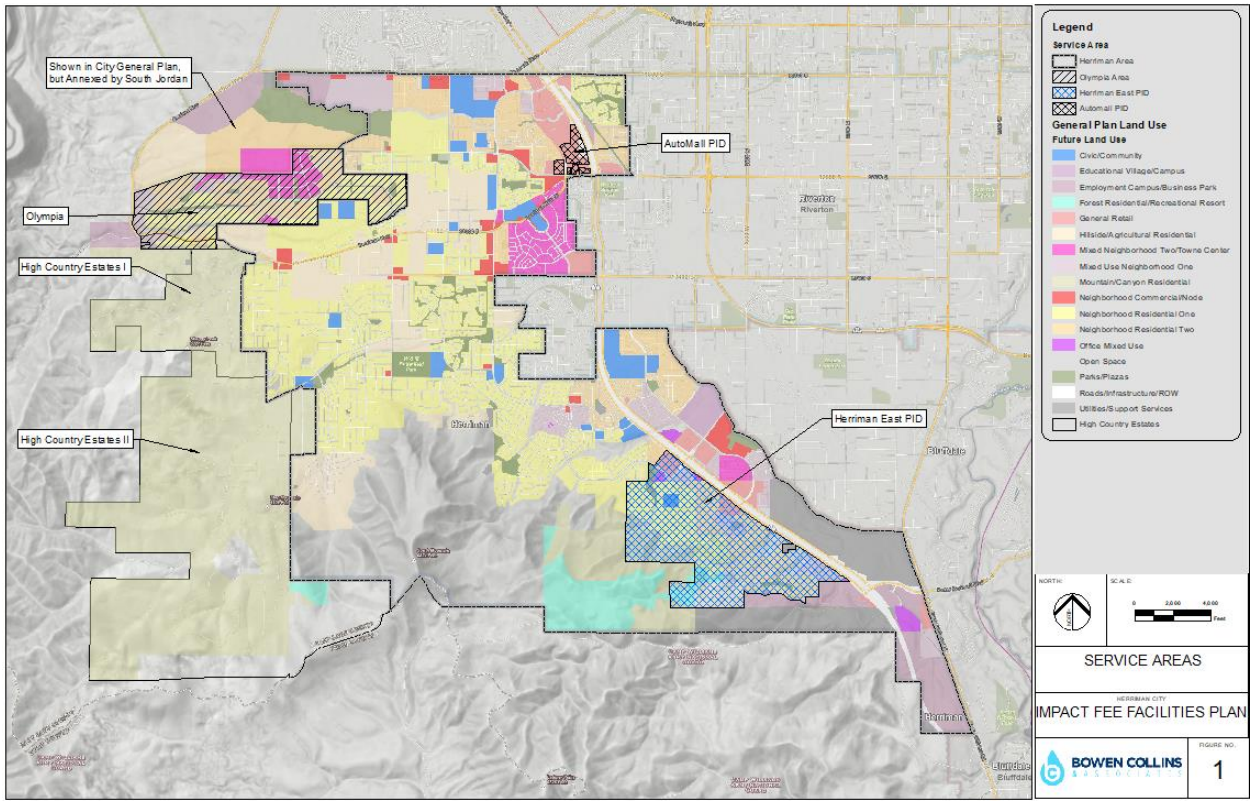
Figure 1 – Herriman City Service Areas


Shown in City General Plan, but Annexed by South Jordan
AutoMall PID
Olympia
High Country Estates I
High Country Estates II
Herriman East PID
Legend
Service Area
Herriman Area
Olympia Area
Herriman East PID
Automall PID
General Plan Land Use
Future Land Use
Civic/Community
Educational Village/Campus
Employment Campus/Business Park
Forest Residential/Recreational Resort
General Retail
Hillside/Agricultural Residential
Mixed Neighborhood Two/Towne Center
Mixed Use Neighborhood One
Mountain/Canyon Residential
Neighborhood Commercial/Node
Neighborhood Residential One
Neighborhood Residential Two
Office Mixed Use
Open Space
Parks/Plazas
Roads/Infrastructure/ROW
Utilities/Support Services
High Country Estates
NORTH:
SCALE:
SERVICE AREAS
HERRIMAN CITY
IMPACT FEE FACILITIES PLAN
BOWEN COLLINS
FIGURE NO.
1

## 1.2 UNIT OF DEMAND

The City historically used equivalent residential connection (ERCs) to define a unit of demand. ERCs were then used to identify the existing and proposed level of service and calculate impact fees. However, because the City has a secondary system that only partially covers the service area of the City, it is difficult to develop an "equivalent residential connection" that is representative of any specific service area. This is because a residential unit with access to secondary water will have significantly different culinary water demands than an area without secondary water. Lot sizes also vary widely and it is difficult to calculate an "average" demand per connection.

To be more accurate, the City has elected to measure unit of demand in terms of peak day demand measured in gallons per minute (gpm). Impact fees will be charged on a $/gpm basis in the City's Impact Fee Analysis (separate document) after calculating the peak day demand from the connection. Each lot or average lot should be multiplied the amount of peak day demand based on the City's average residential connection and the calculated irrigation demand based on lot size and estimated irrigated area. Some allowances for smaller household sizes may be warranted for apartments and some multifamily developments. Projected water production requirements for different types of use are summarized in Table 1. The values in this table are based on historic water use patterns as documented in the City's water master plan. Because lot sizes vary significantly, it is not possible to calculate a single demand per ERC based on an "average single family" connection.

**Table 1**
**Unit of Demand - Water Production Requirements for Different Types of Water Use**

| | Unit of Demand |
|---|---|
| Average Day Indoor per Residential Connection (gpd / connection) | 186.0 |
| Peak Day Indoor Production per Residential Connection (gpd / connection) | 232.5 |
| Annual Outdoor Production[1] (acre-ft/irrigated acre) | 2.71 |
| Peak Day Outdoor Production[1] (gpm/irrigated acre) | 5.55 |

[1]Both culinary and secondary outdoor production requirements are estimated to be the same since all outdoor use is metered. This value assumes approximately 11.6 percent conservation from 2010 historic use.

## 1.3 LEVEL OF SERVICE CATEGORIES

To improve the accuracy of this analysis, this impact fee facility plan has divided the whole system into five different components (water rights, production, pumping, storage, and transmission). Each of these components is discussed in the following subsections. The existing level of service for each component is then identified in a table at the end of this section.

### Water Rights

Existing level of service for water rights can be defined as the volume of water currently available to serve demands in the City for both indoor and outdoor use. Although there are many issues that must be considered when performing a comprehensive evaluation of water rights (e.g. type, time, and place of use restrictions), the level of service for this component can best be summarized in terms of annual yield measured in acre-ft. The calculated yield must take into account seasonal limitations in supply availability and reductions in yield

because of dry year conditions. For canal shares, the available yield is defined as 20 percent less than average yield to accommodate drought conditions.

### Production

Existing level of service for production capacity can be defined as the peak flow rate of water that can currently be produced to serve demands in the City. The calculated flow rate is measured in gallons per minute (gpm) takes into account seasonal limitations in supply availability and reductions in yield because of dry year conditions.

### Pumping

Most of the City requires pumps to deliver water from lower pressure zones to higher pressure zones. Existing level of service for pumping capacity can be defined as the peak rate of flow available to deliver water to destination storage reservoirs measured in gpm. Because there are multiple pump stations, this level of service will vary by individual facility.

### Storage

Existing level of service for storage can be defined as the volume of storage available to serve demands in the City for both indoor and outdoor use. Storage volume is measured in gallons. Because there are multiple storage reservoirs, this level of service can vary by individual facility, but has been reported for overall storage as a whole.

### Transmission

There are a number of different ways in which system performance is measured in a transmission and distribution system. Existing level of service for transmission and distribution has been defined as follows.

1. System pressure during peak day demands measured in pounds per square inch (psi).
2. System pressure during peak hour demands measured in psi.
3. Available fire flow in the system while still maintaining greater than 20 psi residual pressure under peak day demand conditions.
4. Peak velocities in pipes during peak hour demand conditions.

Because there are thousands of transmission and distribution elements in this system, these levels of service will vary by individual facility.

## 1.4 EXISTING LEVEL OF SERVICE

Existing levels of service values for the five component categories are identified in Table 2 below. Each category defines a quantity of service per peak day of demand in gallons per minute (gpm) to identify how much capacity for each level of service will be needed per gpm.

**Table 2**
**Existing Level of Service**

| | Existing Level of Service[1] |
|---|---|
| **Water Rights** | |
| Indoor Water Right (acre-ft/gpm of peak demand) | 1.290 |
| Outdoor Water Right (acre-ft/gpm of peak demand) | 0.605 |
| **Production Capacity** | |
| Production Capacity (gpm/ gpm of peak demand) | 1.14 |
| **Pumping Capacity** | |
| Pumping Capacity (gpm/ gpm of peak demand) | 1.00 |
| **Storage (gallons/ gpm of peak demand)** [1] | |
| Indoor Use (gallons / gpm of peak demand) | 981 |
| Outdoor Use (gallons / gpm of peak demand) | 1,585 |
| **Transmission and Distribution** | |
| Culinary Peak Hour Demand Pressure (psi) / Percent of System that Meets the Standard | 45 / 99.6% |
| Minimum Available Fire Flow at 20 psi during Peak Day Demand (gpm)[2] / Percent of System that Meets the Standard | 1,500 / 98.4% |
| Culinary Maximum Pipe Velocity (feet per second) / Percent of System that Meets the Standard | 7.0 / 99.6% |
| Secondary Peak Hour Demand Pressure (psi) / Percent of System that Meets the Standard | 40 / 98.2% |
| Secondary Maximum Pipe Velocity (feet per second) / Percent of System that Meets the Standard | 7.0 / 99.7% |

[1] Does not include fire storage volumes in calculation.
[2] This value represents the standard requirement for residential connections. In some cases, the Unified Fire Authority may allow fire flows as low as 1,000 gpm for historic homes. For commercial properties, required fire flow may be higher than 1,500 gpm with a residual of 20 psi.

## 2.0 PROPOSED LEVEL OF SERVICE 11-36A-302(1)(A)(II)

The proposed level of service is the performance standard used to evaluate system needs in the future. The Impact Fee Act indicates that the proposed level of service may:

1. diminish or equal the existing level of service; or
2. exceed the existing level of service if, independent of the use of impact fees, the City implements and maintains the means to increase the level of service for existing demand within six years of the date on which new growth is charged for the proposed level of service.

As with existing level of service, this impact fee facility plan has divided the system into five different components (water rights, production capacity, pumping capacity, storage, and transmission) for the definition of proposed level of service:

### Water Rights

Water rights must be adequate to satisfy historical demands on both an annual and peak day basis. Water rights must take into account seasonal limitations in supply availability and reductions in yield because of dry year conditions.

### Production

Water production, which includes all sources and connections to wholesale providers required to produce water in the City, must be adequate to satisfy peak day demands. Water production must take into account seasonal limitations in supply availability and reductions in yield because of dry year conditions.

### Pumping

Most of the City requires pumps to deliver water from lower pressure zones to higher pressure zones. Pumping stations must be sized to deliver flow to destination storage reservoirs such that the level in the reservoirs at the end of a peak day of demand is the same as the level in the reservoir at the beginning of the day. In essence, pump stations must be sized to satisfy peak day demands in their respective service areas.

### Storage

Three major criteria are generally considered when sizing storage facilities for a water distribution system: operational or equalization storage, fire flow storage, and emergency or standby storage.

1. **Operational/Equalization Storage:** Operational/equalization storage is the storage required to satisfy the difference between the maximum rate of supply and the rate of demand during peak conditions. Sources, major transmission pipelines, and pump stations are usually sized to convey peak day demands to optimize the capital costs of infrastructure. During peak hour demands, storage is needed to meet the difference in source/conveyance capacity and the increased peak instantaneous demands. Because demands can vary from day to day, operational storage must be adequate to meet the average observed storage fluctuation in each zone with a safety

factor of 2.0. Based on the methodology described above and historic water use patterns, the proposed level of service for operational storage is equal to 25 percent of peak day demand.

2. **Fire Flow Storage (Culinary Only)*:*** Fire flow storage is the amount of water needed to combat fires occurring in the distribution system. This storage is calculated based on the fire flow rate for structures in each area of the system multiplied by a specified duration as required by the fire authority. For the City, the Unified Fire Authority is the governing fire authority. According to the fire authority, typical residential homes require a fire flow of 1,500 gpm for a duration of 2 hours (180,000 gallons). Typical commercial facilities require a fire flow of at least 2,000 gpm for a duration of 2 hours (240,000 gallons). For some buildings in the City, fire authorities require even greater fire flow. The maximum fire flow required in the system is 4,000 gpm for 4 hours (960,000 gallons).
3. **Emergency Storage:** Emergency or standby storage is the storage needed to meet demands in the event of an unexpected emergency situation such as a line break, mechanical or electrical failure of a pump station, or other unexpected event. The emergency or operation volume for reservoirs should be approximately equal to the required equalization volume (25 percent of peak day demand). To avoid duplication of emergency storage, storage in reservoirs in higher pressure zones may be considered for lower pressure zones as long as sufficient conveyance capacity is available to flow from the upper reservoirs to the lower reservoirs at required rates.

### Transmission

The following criteria were used as the proposed level of service for major conveyance facilities:

1. The system was evaluated for existing conditions and projected conditions at buildout. Each demand scenario included model runs at both peak day and peak hour demand.
2. Under peak day demand, the system must be capable of maintaining constant levels at all system tanks and reservoirs.
3. Pressure requirements:
    a. The culinary system should be capable of maintaining 50 psi during peak day demand and 45 psi during peak hour demand.
    b. The secondary system should be capable of maintaining 40 psi during peak hour demand.
    c. In general, the maximum pressure should not exceed 120 psi in distribution mains. In areas with surrounding terrain slopes in excess of 5 percent, pressures may be allowed to approach 150 psi as determined by the City Engineer. The maximum pressure should not exceed 150 psi when system pumps are on except on dedicated transmission mains. As a general guideline, fluctuations in pressure at system delivery points from when pumps are off to when pumps are on should not exceed 30 psi.

4. If any major source fails or is off-line, the system must be capable of conveying water from the remaining sources to all points of demand (including the offline source) with demands equal to the production rate of the remaining sources. If any major transmission line fails or is off-line, the system must be capable of delivering water from other delivery points sufficient to satisfy average day demand conditions.
5. Per requirements of the State of Utah, the system must be able to meet fire flow demands and still maintain greater than 20 psi residual pressure in the distribution system under peak day demand conditions. Fire flow demands were set at 1,500 gpm for residential areas, with higher custom fire flows for a few other large structures as established by fire authorities and City planning personnel.
6. Velocities in pipes shall not exceed 7 ft/sec under peak hour demand conditions and 10 ft/sec under peak day demands with fire flow.

Table 3 identifies the proposed level of service for each component. For convenience in comparing values, the existing level of service for each component is also summarized in the table.

**Table 3**
**Proposed Level of Service**

| | Existing Level of Service[1] | Proposed Level of Service |
|---|---|---|
| **Water Rights** | | |
| Indoor Water Right (acre-ft/gpm of peak demand) | 1.290 | 1.290 |
| Outdoor Water Right (acre-ft/gpm of peak demand) | 0.605 | 0.489 |
| **Production Capacity** | | |
| Production Capacity (gpm/ gpm of peak demand) | 1.14 | 1.00 |
| **Pumping Capacity** | | |
| Pumping Capacity (gpm/ gpm of peak demand) | 1.00 | 1.00 |
| **Storage (gallons/ gpm of peak demand)[1]** | | |
| Indoor Use (gallons / gpm of peak demand) | 981 | 720 |
| Outdoor Use (gallons / gpm of peak demand) | 1,585 | 1,008 |
| **Transmission and Distribution** | | |
| Culinary Peak Hour (or instantaneous) Demand Pressure (psi) / Percent of Transmission System that Meets the Standard | 45 / 99.6% | 45 / 100% |
| Minimum Available Fire Flow at 20 psi during Peak Day Demand (gpm)[2] / Percent of Transmission System that Meets the Standard | 1,500 / 98.4% | 1,500 / 100% |
| Culinary Maximum Pipe Velocity (feet per second) / Percent of Transmission System that Meets the Standard | 7.0 / 99.6% | 7.0 / 100% |
| Secondary Peak Hour Demand Pressure (psi) / Percent of Transmission System that Meets the Standard | 40 / 98.2% | 40 / 100% |
| Secondary Maximum Pipe Velocity (feet per second) / Percent of Transmission System that Meets the Standard | 7.0 / 99.7% | 7.0 / 100% |

[1] Does not include fire storage volumes in calculation.
[2] This value represents the standard requirement for newer residential connections. In some cases, the Unified Fire Authority may allow fire flows as low as 1,000 gpm for historic homes. For commercial properties, required fire flow may be higher than 1,500 gpm with a residual of 20 psi.

In most cases, the City's existing level of service exceeds the proposed level of service which indicates there is some excess capacity in the existing system. However, each component in the system must be evaluated individually. Costs for projects to cure current deficiencies will not be included as part of the impact fee.

## 3.0 EXCESS CAPACITY TO ACCOMMODATE FUTURE GROWTH 11-36A-302(1)(A)(III)

Since the existing system has five different components (water rights, production capacity, pumping capacity, storage, and transmission), each of these components must be evaluated individually to analyze excess capacity.

### Water Rights

Annual source requirements for the Herriman City Service Area are projected in Table 4 below based on a projection of the estimated amount of Jordan Valley Water Conservancy District (JVWCD) water that will be needed to meet future demands. Available supply for each source type is also shown. Growth and capacity for the Olympia Service area is excluded from this table.

**Table 4**
**10-Year Projection of Annual Source Requirements**

| Year | Population | Springs[1] (acre-ft) | Culinary Wells[2] (acre-ft) | JVWCD[2] (acre-ft) | Total Culinary Use[4] (acre-ft) | Welby Jacobs[3] (acre-ft) | Secondary Wells[2] (acre-ft) | Total Water Use (acre-ft) (acre-ft) |
|---|---|---|---|---|---|---|---|---|
| 2024 | 67,689 | 111 | 3,198 | 5,211 | 8,520 | 1,793 | 544 | 10,857 |
| 2025 | 70,746 | 111 | 3,277 | 5,409 | 8,797 | 1,914 | 465 | 11,177 |
| 2026 | 73,751 | 111 | 3,238 | 5,547 | 8,896 | 1,918 | 504 | 11,319 |
| 2027 | 76,672 | 111 | 3,200 | 6,129 | 9,439 | 1,923 | 542 | 11,904 |
| 2028 | 79,479 | 111 | 3,161 | 6,702 | 9,974 | 1,927 | 581 | 12,482 |
| 2029 | 82,147 | 111 | 3,123 | 7,320 | 10,554 | 1,931 | 619 | 13,104 |
| 2030 | 84,653 | 111 | 3,084 | 7,798 | 10,994 | 1,936 | 658 | 13,587 |
| 2031 | 86,979 | 111 | 3,046 | 8,248 | 11,404 | 1,940 | 696 | 14,040 |
| 2032 | 89,112 | 111 | 3,046 | 8,625 | 11,781 | 1,940 | 696 | 14,417 |
| 2033 | 91,043 | 111 | 2,858 | 9,151 | 12,120 | 1,961 | 884 | 14,965 |
| 2034 | 92,767 | 111 | 2,782 | 9,524 | 12,417 | 2,080 | 960 | 15,457 |

[1] – Annual spring production based on average production from 2000 to 2018
[2] – Some of the culinary well use will be transitioning from culinary use to secondary use as more of the secondary system is supported by groundwater wells.
[3] – Values for these categories reflect potential secondary demands from existing connections with access to secondary service as discussed previously.

The quantity of JVWCD water needed within the City is based on JVWCD meeting most of growing culinary water demands in the City. Based on the historical water use patterns, Table 5 summarizes the amount of water rights required for indoor and outdoor use per thousand gallons per day of peak day demand.

**Table 5**
**Required Source per gpm of Peak Day Demand for Indoor / Outdoor Service**

| Water Use Type | Annual Volume Requirement | JVWCD (acre-ft/ gpm)[1] | Wells / Springs (acre-ft / gpm | Welby Jacobs (acre-ft/ gpm) | Welby Jacobs (shares/ gpm)[2] |
|---|---|---|---|---|---|
| Indoor | 1.290 | 0.810 | 0.480 | -- | |
| Outdoor Secondary | 0.489 | 0.000 | 0.124 | 0.364 | 0.455 |
| Outdoor Culinary | 0.489 | 0.485 | 0.003 | | |

1 – required JVWCD water based on the 2065 ratio of JVWCD use compared to annual demand.
2 – Reliable yield for each share of Welby Jacobs water is estimated to be 0.80 acre-ft/share to account for drought conditions.

Based on these projections, Table 6 summarizes the estimated volume and percentage of existing water rights available to meet future demands.

**Table 6**
**Excess Capacity – Water Rights**

| Type of Water Rights | Existing Rights (acre-ft) | Existing Annual Use (acre-ft) | Use by 10-Year Growth (acre-ft) | Use By Growth Beyond 10 Years (acre-ft) | Percent Use By Existing | Percent Available to 10-Year Growth | Percent Available to Growth Beyond 10 Years |
|---|---|---|---|---|---|---|---|
| Wells/Springs - Indoor | 658 | 362 | 185 | 110 | 55.1% | 28.1% | 16.8% |
| JVWCD - Indoor | 2,934 | 4,458 | 2,278 | 1,359 | 100.0% | 0.0% | 0.0% |
| Wells/Springs - Culinary Outdoor | 1,234 | 849 | 386 | 208 | 68.7% | 31.3% | 16.8% |
| JVWCD - Outdoor | 2,934 | 5,256 | 2,390 | 0 | 100.0% | 0.0% | 0.0% |
| Wells/Springs - Secondary | 4,719 | 595 | 179 | 186 | 12.6% | 3.8% | 83.6% |
| Welby Jacobs - Secondary | 2,628 | 1,625 | 237 | 766 | 61.8% | 9.0% | 29.1% |
| Total | 15,106 | 13,145 | 5,655 | 2,629 | | | |

### Production

Water production for existing users, 10-year growth, and buildout growth for each of the City's sources is listed in Table 7.

**Table 7**
**Excess Capacity – Production**

| Wells Springs/JVWCD Connections/Welby Jacobs Capacity[1] (mgd) | Existing Peak Day Use (mgd) | Peak Day Use 10-Year Growth (mgd) | Peak Day Use Growth Beyond 10-Years (mgd) | Percent Use By Existing | Percent Available to 10-Year Growth | Percent Available to Growth Beyond 10 Years |
|---|---|---|---|---|---|---|
| 47.6 | 30.0 | 11.0 | 6.4 | 64% | 23% | 13% |

[1] Capacity includes the physical connection capacity required at buildout, not necessarily current equipment capacity or contract capacity

## Pumping

Peak day demands for existing users, 10-year growth, and buildout growth for each of the City's existing booster station is listed in Table 8.

**Table 8**
**Excess Capacity – Pumping**

| Pump Station | Existing Capacity[1] (gpm) | Existing Peak Day Demand (gpm) | 10-Year Peak Day Demand (gpm) | Buildout Peak Day Demand (gpm) | Percent Use By Existing | Percent Available to 10-Year Growth | Percent Available to Growth Beyond 10-Years |
|---|---|---|---|---|---|---|---|
| Blackridge Pump Station (Secondary) | 4,000 | 713 | 790 | 1,868 | 38.2% | 4.1% | 57.7% |
| 4000 West Pump Station – To Blackridge Reservoir (Secondary Zone 3)[1] | 6,000 | 1,595 | 1,824 | 3,731 | 42.7% | 6.1% | 51.1% |
| 4000 West Pump Station – To Juniper Canyon (Secondary Zone 1-3)[1] | 5,200 | 219 | 695 | 695 | 31.5% | 68.5% | 0.0% |
| Zone 4 Boosters (6400W & Hardlick)[2] | 7,250 | 5,325 | 7,250 | 7,250 | 73.4% | 26.6% | 0.0% |
| Zone 5 booster (Lookout) | 1,500 | 203 | 203 | 273 | 74.5% | 0.0% | 25.5% |
| Cove (Zone 6W) | 1,800 | 522 | 1,065 | 1,272 | 41.1% | 42.7% | 16.3% |
| Zone 1E | 10,800 | 1,416 | 4,142 | 7,302 | 19.4% | 37.3% | 43.3% |
| Hi-Country Booster[2] | 180 | 180 | 183 | 438 | 41.1% | 0.8% | 58.1% |
| **Total** | **36,730** | **10,173** | **16,153** | **22,829** | **44.6%** | **26.2%** | **29.2%** |

[1] – Existing Capacity includes potential to expand with additional pumps in the future. The 4000 West pump station is expandable to 11,200 gpm.
[2] - All of the existing demand at the Hi-Country Booster Station comes from Hi-Country water users.

Note that existing demand shown for secondary booster stations is based on the theoretical demand that would be placed on the secondary system by installed secondary water services. Many of the secondary connections that do not currently use secondary water create an additional burden on the culinary water system.

### Transmission

To calculate the percentage of existing capacity to be used by future growth in existing facilities, existing and future flows were examined in system model for each transmission pipeline. A summary of the results of this analysis are contained in the appendix of this report. The method used to calculate excess capacity available for use by future flows is as follows:

1. **Calculate Flows –** The peak flow in each facility was calculated in the model for both existing and future flows. The maximum capacity of each facility was also calculated. Defining an absolute maximum capacity in water system facility is difficult because capacity is a function of both pipeline size (with corresponding velocity) and required delivery pressure. In water distribution systems, however, a common design guideline is to limit velocities to less than 7 ft/sec. This has been used as the definition for maximum capacity in this analysis.
2. **Identify Available Capacity –** Where a facility has capacity in excess of projected flows at buildout, the available capacity in the facility was defined as the difference between existing flows and buildout flows. Where the facility has capacity less than projected flows at buildout, the available capacity in the facility was defined as the difference between existing flows and the facility's maximum capacity.
3. **Eliminate Facilities without Excess Capacity –** For the planning window period (in this case, 10 years), the projected growth in flow during the planning window was compared against the facility's available capacity. Where the future flow exceeded the capacity of the facility, the available excess capacity was assumed to be zero. By definition, this corresponds to those facilities with deficiencies that are identified in the water master plan. By assigning a capacity of zero, this eliminated double counting those facilities against new users. Any facility under an existing reimbursement agreement was also removed from the calculation since payment for excess capacity in these facilities is already dictated by agreement and will be considered as part of the impact fee analysis.
4. **Calculate Percent of Excess Capacity Used in Remaining Facilities –** Where the future flow was less than the capacity of the facility, the percent of excess capacity being used in each facility was calculated by dividing the growth in flow in the facility (future flow less existing flow) by the total capacity (existing flow plus available capacity).
5. **Calculate Excess Capacity for the System as a Whole –** Each pipeline in the system has a different quantity of excess capacity to be used by future growth. To develop an estimate of excess capacity on a system wide basis, the capacities of each of these pipelines and their contribution to the system as a whole must be considered. To do this, each pipeline must first be weighted based on its estimated cost. For this purpose, each pipeline has been weighted based on the product of its

diameter and length (which increase linearly with cost). For example, a pipe that is 27 inches in diameter and is 4,000 ft. long will cost proportionally more than a pipe that is 10 inches in diameter and 300 ft. long. The excess capacity in the system as a whole can then be calculated as the sum of the weighted capacity used by future growth divided by the sum of total weighted capacity in the system.

Based on the method described above, the calculated percentage of existing capacity in the culinary and secondary distribution system facilities in use by existing and future users is summarized in Table 9.

**Table 9**
**Percentage Use by Existing and Future Users**

| Facility | Percent Use By Existing | Percent Available to 10-Year Growth | Percent Available to Growth Beyond 10-Years |
|---|---|---|---|
| Existing Culinary Pipes | 42% | 28% | 30% |
| Existing Secondary Pipes | 57% | 13% | 30% |

*Note that existing customers that may convert to using secondary within the next 10-years have been included as "existing" for purposes of calculating percentages for impact fees.

## Storage

The City owns and operates a large number of storage reservoirs. As identified in the master plan, there are no existing storage deficiencies. Tables 10 and 11 summarize storage capacity that is used by existing and may be used by 10-year growth within the City.

**Table 10**
**Excess Capacity – Secondary Storage**

| Zone | Existing Required Volume (MG) | 10-Year Required Volume (MG) | Growth Beyond 10-Year Required Volume (MG) | Percent Use By Existing | Percent Available to 10-Year Growth | Percent Available to Growth Beyond 10-Years |
|---|---|---|---|---|---|---|
| All Zones* | 2.46 | 3.31 | 5.76 | 42.6% | 14.9% | 42.5% |

*Because there are no other existing storage reservoirs, all pressure zones rely on Blackridge for existing storage through gravity connections or VFD booster pumps. When additional storage reservoirs are constructed, Blackridge will remain the primary storage facility for secondary water due to its relatively large size (which includes some storage for Riverton City).

**Table 11**
**Herriman Service Area Excess Capacity – Culinary Storage**

| Zone | Existing Required Volume (MG) | 10-Year Required Volume (MG) | Growth Beyond 10-Year Required Volume (MG) | Percent Use By Existing | Percent Available to 10-Year Growth | Percent Available to Growth Beyond 10-Years |
|---|---|---|---|---|---|---|
| Zone - 1-2 | 4.70 | 5.55 | 6.72 | 78.4% | 21.6% | 0.0% |
| Zone - 3 | 1.30 | 1.90 | 2.79 | 89.9% | 10.1% | 0.0% |
| Zone - 4 | 1.86 | 1.92 | 3.03 | 61.5% | 1.9% | 36.6% |
| North Zone Fire Storage* | 0.87 | 0.87 | 0.87 | | | |
| Zones 1N – 4 | **8.74** | **10.24** | **13.41** | **65.2%** | **11.2%** | **23.6%** |
| Zone - 5S Lookout | 0.15 | 0.15 | 0.20 | 74.5% | 0.0% | 25.5% |
| Zone 5S Fire Flow | **0.27** | **0.27** | **0.32** | **84.2%** | **0.0%** | **15.8%** |
| Zone – 5W | 0.24 | 0.24 | 0.34 | 70.6% | 0.3% | 29.1% |
| Zone - 6W Cove | 0.13 | 0.13 | 0.18 | 72.8% | 0.5% | 26.8% |
| Zone 5W -6W Fire Flow | **0.56** | **0.56** | **0.71** | **78.6%** | **0.3%** | **21.1%** |
| Zone 1E | 0.59 | 0.99 | 1.82 | 32.3% | 22.2% | 45.5% |
| **Total*** | **8.98** | **10.89** | **15.08** | **59.5%** | **12.7%** | **27.8%** |

*Actual fire storage volume required in the City's North Zone is 960,000 gallons. However, a portion of this storage is reserved as part of the fire storage for the Olympia Development.

## 4.0 DEMANDS PLACED ON FACILITIES BY NEW DEVELOPMENT AT PROPOSED LEVEL OF SERVICE 11-36A-302(1)(A)(IV)

Use of existing facilities and the need for future facilities will increase as new development increases total water demand on the system. This section provides projections of the increase in future water demand on existing facilities resulting from projected development. Table 12 summarizes projections of peak day demand over the next 10 years.

**Table 12**
**Peak Day Demand Projections for City Service Area**

| Item | Culinary Indoor Water Use | Culinary Outdoor Water Use | Total Culinary | Secondary Water Service Potential Use[1] | Total Water Service |
|---|---|---|---|---|---|
| 2010 Population (most recent census) | 21,785 | 21,785 | -- | 0 | 21,785 |
| 2010 Peak Day Demand (mgd)[2] | 2.61 | 0 | 11.43 | 0 | 11.43 |
| 2024 Population Estimate | 68,861 | | | | |
| 2024 Estimated Peak Day Demand (mgd) | 4.85 | 18.51 | 23.36 | 6.54 | 29.90 |
| 2024 Estimated Peak Day Demand (gpm) | 3,367 | 12,857 | 16,224 | 4,541 | 20,766 |
| 2034 Population | 92,767 | | | | |
| 2034 Estimated Peak Day Demand (mgd) | 6.42 | 28.35 | 34.77 | 7.77 | 42.54 |
| 2034 Estimated Peak Day Demand (gpm) | 4,460 | 19,688 | 24,148 | 5,393 | 29,541 |
| 10-Year Population Growth | 23,906 | | | | |
| Increase in Peak Day Demand Placed Upon Existing Facilities by New Development (10-year growth) (mgd) | 1.57 | 9.84 | 11.41 | 1.23 | 12.64 |
| Increase in Peak Day Demand Placed Upon Existing Facilities by New Development (10-year growth) (gpm) | 1,093 | 6,831 | 7,924 | 851 | 8,775 |

1 – This is the estimated potential secondary water demand for installed secondary service connections. This is the hypothetical use for installed connections.
2 – 2010 data is included in this table as a baseline for when the secondary water system was not operating.

Table 12 includes 2010 population and peak day demands. This data has been used as a baseline for projections because Census data is available that year, and data from 2010 excludes interference related to operation of the City's secondary water system which was not active yet.

The projections of secondary demand include a qualifier that refers to "Potential Use". These demands have been calculated with the assumption that existing secondary service connections that are not currently connected to the City's secondary system have already been converted to using secondary. Because these connections already exist and have already paid impact fees, there will be no additional impact fees when these connections move from culinary to secondary service. Thus, for impact fee purposes, these connections can be treated as if they are already connected to the secondary system.

Based on these projections, Table 13 defines the annual supply required by new development for indoor and outdoor demands.

**Table 13**
**Annual Supply Requirement for City Service Area**

| Type of Demand | Culinary Indoor Water Service[1] (acre-ft/year) | Culinary Outdoor Water Service[2] (acre-ft/year) | Culinary Total (acre-ft/year) | Secondary Outdoor Water Service[2] (acre-ft/year) | Total Water Service (acre-ft/year) |
|---|---|---|---|---|---|
| 2024 Supply Requirements | 4,821 | 6,104 | 10,925 | 2,337 | 13,262 |
| 2034 Supply Requirements | 6,475 | 8,879 | 15,354 | 3,040 | 18,393 |
| Increase in Annual Supply Requirements Placed Upon Existing Facilities by New Development (10-year growth) | 1,654 | 2,775 | 4,429 | 703 | 5,132 |

1–Indoor demands require 0.896 acre-ft per 1,000 gpd of peak day demand based on a peaking factor of 1.25
2-Outdoor demands require 0.000339 acre-ft per 1,000 gpd of peak day demand based on a peaking factor of 3.3.

Based on these total demand projections, the new demand has been added to the City's culinary and secondary water distribution models to evaluate the "demands placed on facilities by new development". The distribution of growth within the models has been based on the City's population projections and distributions of growth based on the City's general plan densities and undeveloped areas. Additional information regarding growth and new development in the City can be found in the City's water master plan.

## 5.0 INFRASTRUCTURE REQUIRED TO MEET DEMANDS OF NEW DEVELOPMENT 11-36A-302(1)(A)(V)

The City will satisfy the demands of new development by developing system improvement. System improvements required by new development through the next 10-years are identified in Exhibits 1 to 3 and Tables 14 and 15. Projects needed for growth beyond 10-years have not been included in this IFFP to avoid uncertainty surrounding improvements further into the future. In addition, projects intended to cure existing deficiencies or for operational or maintenance needs have not been included. Project costs include only those costs intended to be funded by the City. Project level costs in developing areas that are anticipated to be funded by developers have been omitted from the tables.

**Table 14**
**Culinary Water System Improvement Costs, 10-year Planning Window**

| Project No. | City Project Cost[1] | City Proportion of Cost[2] | Estimated Year of Construction | Percent to Existing | Percent to 10-Year | Percent to Growth Beyond 10-Year | Cost to Existing | Cost to 10-Year | Cost to Growth Beyond 10-Year |
|---|---|---|---|---|---|---|---|---|---|
| Planning Costs | $50,000 | 100.0% | 2028 | 40.0% | 60.0% | 0.0% | $0 | $30,000 | $0 |
| Zone 2E Tank | $6,504,000 | 100.0% | 2025 | 19.8% | 39.0% | 41.2% | $1,287,063 | $2,538,498 | $2,678,439 |
| Zone 3E Tank | $6,504,000 | 100.0% | 2025 | 22.5% | 45.2% | 32.3% | $1,461,853 | $2,939,007 | $2,103,141 |
| Zone 3N Tank | $3,250,000 | 46.4% | 2026 | 0.0% | 33.4% | 66.6% | $0 | $1,084,212 | $2,165,788 |
| Zone 5E Tank | $3,135,000 | 100.0% | 2030 | 0.0% | 69.2% | 30.8% | $0 | $2,169,773 | $965,227 |
| Zone 6E Tank | $2,181,000 | 100.0% | 2032 | 0.0% | 22.8% | 77.2% | $0 | $496,991 | $1,684,009 |
| Zone 6N Tank | $3,250,000 | 46.4% | 2028 | 52.4% | 3.8% | 43.8% | $1,702,049 | $123,424 | $1,424,526 |
| Zone 2E Pump S. | $1,004,000 | 100.0% | 2026 | 13.9% | 10.9% | 75.2% | $139,317 | $109,543 | $755,140 |
| Zone 3E Pump S. | $2,849,000 | 100.0% | 2026 | 13.0% | 21.3% | 65.7% | $371,560 | $606,415 | $1,871,025 |
| Zone 4N Pump S. | $1,278,000 | 100.0% | 2028 | 27.9% | 0.7% | 71.3% | $356,651 | $9,497 | $911,852 |
| Zone 4E Pump S. | $844,000 | 100.0% | 2030 | 0.0% | 20.8% | 79.2% | $0 | $175,257 | $668,743 |
| Zone 5E Pump S. | $844,000 | 100.0% | 2030 | 0.0% | 6.0% | 94.0% | $0 | $50,875 | $793,125 |
| Zone 6E Pump S. | $506,000 | 100.0% | 2032 | 0.0% | 22.8% | 77.2% | $0 | $115,304 | $390,696 |
| Zone 6N / 5N Pump S. | $686,000 | 45.6% | 2028 | 36.7% | 6.8% | 56.6% | $251,488 | $46,458 | $388,055 |
| CE1.02 | $18,000 | 8.6% | 2025 | 0.0% | 52.9% | 47.1% | $0 | $9,522 | $8,478 |
| CE1.03 | $20,000 | 8.6% | 2026 | 0.0% | 52.9% | 47.1% | $0 | $10,580 | $9,420 |
| CE1.05ph1 | $255,000 | 10.8% | 2028 | 0.0% | 38.7% | 61.3% | $0 | $98,685 | $156,315 |
| CE1.05ph2 | $255,000 | 10.8% | 2034 | 0.0% | 38.7% | 61.3% | $0 | $98,685 | $156,315 |
| CE2.04 | $116,000 | 10.8% | 2026 | 0.0% | 67.9% | 32.1% | $0 | $78,764 | $37,236 |
| CE2.05 | $95,000 | 18.5% | 2026 | 0.0% | 67.9% | 32.1% | $0 | $64,505 | $30,495 |
| CE3.01 | $391,000 | 100.0% | 2023 | 22.5% | 45.2% | 32.3% | $87,975 | $176,732 | $126,293 |
| CE3.02 | $582,000 | 22.0% | 2027 | 0.0% | 58.3% | 41.7% | $0 | $339,306 | $242,694 |
| CE3.03 | $152,000 | 18.0% | 2027 | 0.0% | 58.3% | 41.7% | $0 | $88,616 | $63,384 |
| CE3.04 | $820,000 | 22.0% | 2026 | 0.0% | 58.3% | 41.7% | $0 | $478,060 | $341,940 |

| Project No. | City Project Cost[1] | City Proportion of Cost[2] | Estimated Year of Construction | Percent to Existing | Percent to 10-Year | Percent to Growth Beyond 10-Year | Cost to Existing | Cost to 10-Year | Cost to Growth Beyond 10-Year |
|---|---|---|---|---|---|---|---|---|---|
| CE3.05 | $77,000 | 9.0% | 2027 | 0.0% | 58.3% | 41.7% | $0 | $44,891 | $32,109 |
| CE3.06 | $151,000 | 18.0% | 2026 | 29.0% | 29.3% | 41.7% | $43,790 | $44,243 | $62,967 |
| CE4.01 | $207,000 | 8.6% | 2030 | 0.0% | 78.0% | 22.0% | $0 | $161,460 | $45,540 |
| CE4.02 | $60,000 | 8.6% | 2028 | 0.0% | 78.0% | 22.0% | $0 | $46,800 | $13,200 |
| CW2.01ph1 | $80,000 | 6.2% | 2024 | 0.0% | 43.2% | 56.8% | $0 | $34,560 | $45,440 |
| CW2.01ph2 | $80,000 | 6.2% | 2025 | 0.0% | 100.0% | 0.0% | $0 | $80,000 | $0 |
| CW2.01ph3 | $80,000 | 6.2% | 2028 | 0.0% | 67.3% | 32.7% | $0 | $53,840 | $26,160 |
| CW2.02ph1 | $56,000 | 3.8% | 2025 | 0.0% | 67.3% | 32.7% | $0 | $37,688 | $18,312 |
| CW2.02ph2 | $56,000 | 3.8% | 2028 | 0.0% | 35.2% | 64.8% | $0 | $19,712 | $36,288 |
| CW2.03 | $2,309,000 | 100.0% | 2030 | 0.0% | 35.2% | 64.8% | $0 | $812,768 | $1,496,232 |
| CW3.01 | $417,000 | 13.6% | 2026 | 0.0% | 41.5% | 58.5% | $0 | $173,055 | $243,945 |
| CW3.04 | $1,206,000 | 18.5% | 2023 | 0.0% | 41.5% | 58.5% | $0 | $500,490 | $705,510 |
| CW4.01 | $448,000 | 20.9% | 2026 | 0.0% | 40.9% | 59.1% | $0 | $183,232 | $264,768 |
| CW4.01 | $448,000 | 20.9% | 2028 | 0.0% | 40.9% | 59.1% | $0 | $183,232 | $264,768 |
| CW4.03 | $155,000 | 18.5% | 2030 | 0.0% | 40.9% | 59.1% | $0 | $63,395 | $91,605 |
| CW4.04 | $10,000 | 3.8% | 2034 | 0.0% | 40.9% | 59.1% | $0 | $4,090 | $5,910 |
| CW5.01 | $296,000 | 30.0% | 2026 | 0.0% | 10.7% | 89.3% | $0 | $31,672 | $264,328 |
| CW6.01 | $535,000 | 45.6% | 2028 | 36.7% | 6.8% | 56.5% | $196,345 | $36,380 | $302,275 |
| **Total** | **$42,260,000** | | | | | | **$5,898,090** | **$14,450,218** | **$21,891,692** |

[1]2024 dollars. City Project Cost includes the estimated project cost times the City proportion of cost.

[2] In undeveloped areas, the city's proportion of cost is based on increasing size for the master plan relative to the size required for developments.

**Table 15**
**Secondary Water System Improvement Costs, 10-year Planning Window**

| Project No. | City Project Cost[1] | City Proportion of Cost[2] | Estimated Year of Construction | Percent to Existing | Percent to 10-Year | Percent to Growth Beyond 10-Year | Cost to Existing | Cost to 10-Year | Cost to Growth Beyond 10-Year |
|---|---|---|---|---|---|---|---|---|---|
| Planning Costs | $50,000 | 100.0% | 2028 | 40.0% | 60.0% | 0.0% | $0 | $30,000 | $0 |
| Point of Diversion Purchase | $700,000 | 100.0% | 2028 | 0.0% | 100.0% | 0.0% | $0 | $700,000 | $0 |
| Zone 2 Storage | $5,814,000 | 100.0% | 2034 | 48.3% | 11.3% | 40.4% | $2,805,413 | $656,848 | $2,351,740 |
| Zone 4 - Cove Storage | $5,814,000 | 100.0% | 2026 | 38.2% | 4.1% | 57.7% | $2,218,977 | $240,670 | $3,354,353 |
| 4000 West - Juniper (1E) Pump S. | $231,000 | 100.0% | 2026 | 31.5% | 68.5% | 0.0% | $72,765 | $158,235 | $0 |
| Zone 1SE Pump S. | $675,000 | 100.0% | 2034 | 0.0% | 50.0% | 50.0% | $0 | $337,500 | $337,500 |
| Zone 3N Pump S. | $400,000 | 100.0% | 2030 | 0.0% | 9.0% | 91.0% | $0 | $36,029 | $363,971 |
| Future Well 1 Pump S. | $2,400,000 | 100.0% | 2027 | 0.0% | 21.8% | 78.2% | $0 | $523,978 | $1,876,022 |
| Future Well 2 Pump S. | $4,300,000 | 100.0% | 2028 | 0.0% | 21.8% | 78.2% | $0 | $938,795 | $3,361,205 |
| SW2.03ph1 | $1,689,000 | 100.0% | 2024 | 48.3% | 11.3% | 40.4% | $815,787 | $190,857 | $682,356 |
| SW2.03ph2 | $3,379,000 | 100.0% | 2024 | 48.3% | 11.3% | 40.4% | $1,632,057 | $381,827 | $1,365,116 |
| SW2.04 | $5,101,000 | 100.0% | 2024 | 48.3% | 11.3% | 40.4% | $2,463,783 | $576,413 | $2,060,804 |
| SW3.02ph1 | $252,000 | 18.5% | 2023 | 47.6% | 21.7% | 30.7% | $119,952 | $54,684 | $77,364 |
| SW3.02ph2 | $126,000 | 18.5% | 2023 | 47.6% | 21.7% | 30.7% | $59,976 | $27,342 | $38,682 |
| SW3.03 | $44,000 | 2.5% | 2024 | 47.6% | 21.7% | 30.7% | $20,944 | $9,548 | $13,508 |
| SW3.04 | $84,000 | 8.6% | 2024 | 47.6% | 21.7% | 30.7% | $39,984 | $18,228 | $25,788 |
| SW3.06 | $3,039,000 | 100.0% | 2024 | 47.6% | 21.7% | 30.7% | $1,446,564 | $659,463 | $932,973 |
| SW3.07 | $4,501,000 | 100.0% | 2024 | 47.6% | 21.7% | 30.7% | $2,142,476 | $976,717 | $1,381,807 |
| SW4.03 | $3,634,000 | 100.0% | 2024 | 32.3% | 5.5% | 62.2% | $1,173,782 | $199,870 | $2,260,348 |
| SW4.04 | $1,787,000 | 100.0% | 2024 | 38.2% | 4.1% | 57.7% | $682,634 | $73,267 | $1,031,099 |
| **Total** | **$44,020,000** | | | | | | **$15,695,093** | **$6,790,271** | **$21,514,636** |

[1]2024 dollars. City Project Cost includes the estimated project cost times the City proportion of cost.
[2] In undeveloped areas, the city's proportion of cost is based on increasing size for the master plan relative to the size required for developments.

### Cost Attributable to Future Growth

Tables 14 and 15 provide a breakdown of the capital facility projects and the percentage of the project costs attributed to existing and new development. Costs attributed to both existing and new development were divided proportionally between existing and new development based on their needs in the facility. These percentages have been calculated based on flows in each facility as calculated in the hydraulic model. As an example, consider the following project from Table 15:

- Zone 2E Tank – This project will provide equalization storage to newly developed areas that has heretofore been supplied from the Rosecrest Tank. Existing demand for this area equals approximately 373 gpm of peak day demand. 10-year peak day demand is approximately 1,109 gpm and buildout demands will be approximately 1,886 gpm. This corresponds to 19.8%, 39.0%, and 41.2% to existing, 10-year growth, and demand beyond 10-years respectively.

Tables 14 and 15 do not include bond costs related to paying for impact fee eligible improvements nor inflation costs. These costs are calculated as part of the impact fee analysis.

### Cost Attributable to 10-Year Growth

Included in Table 14 and Table 15 is a breakdown of capacity associated with growth both at full build-out and through the next 10-years. This is necessary because many of the projects identified in the table will be built with capacity to accommodate flows or service beyond the 10-year growth window. This has been done following the same general process as described above.

### Construction Cost Estimates

The costs of construction for projects to be completed within ten years have been estimated based on past City experience with projects of a similar nature and other projects outside of the City.

### Water Rights

The 10-year plan described above has focused exclusively on physical infrastructure required to meet the demands of new growth. As summarized previously in Table 6, the City has excess capacity in water rights to meet the demands of expected new growth with exceptions for needs to purchase water rights associated with specific points of diversion and/or related to demands in excess of the recently adopted Jordan Valley Water Conservancy District water budget. The additional water rights needed will vary depending on the type of use:

- **Culinary Water Use –** For now, the City has assumed that developers will provide water rights to JVWCD or pay a fee in lieu of to accommodate water demands in excess of the JVWCD water budget. The estimated purchase cost of underground water rights is expected to be $5,500/acre-ft.
- **Secondary Water Use –** The City has a large block of Welby Jacobs water that can be used by growth in secondary demand as summarized in Table 6. The City will need

to purchase water rights associated with any new points of diversion associated with groundwater purchases made by the City. It is assumed that points of diversion will include approximately 1 acre around each point of diversion and that the unit price of land is approximately $350,000/acre.

## ADDITIONAL CONSIDERATIONS

## 6.0 REVENUE SOURCES 11-36A-302(2)

The City may fund the infrastructure identified in this IFFP through a combination of different revenue sources.

### Annexation Agreements

The Olympia development that was annexed into Herriman has a separate infrastructure agreement with the City where they have committed to funding the Olympia infrastructure. Costs included in this impact fee exclude costs associated with Olympia infrastructure such that only costs attributable to the Herriman Service area are included in the IFFP costs.

### Public Infrastructure District

The City has two existing public infrastructure district (PID) and one proposed PID.

- Automall PID - All of the infrastructure that is proposed to be funded by the AutoMall PID is considered project level improvements and therefore has been excluded from this IFFP. This will eliminate the need to establish a local impact fee credit associated with the AutoMall PID.
- Olympia PID - The Olympia development also has a PID to fund facilities, but no costs or use of facilities in the Olympia development will be included in this IFFP.
- Herriman East PID - The proportion of cost estimate associated with the Herriman East PID is shown in Table 16 below. The exact proportion of cost has not yet been agreed upon. Once costs are finalized for the PID, a credit for any portion of the impact fee used to fund these projects will be calculated so that property owners do not pay an impact fee for the facilities and taxes over the life of the PID.

**Table 16**
**Herriman East PID Proportion of Costs**

| Project No. | Project Cost | PID Percentage of Costs | PID Total Cost |
|---|---|---|---|
| Zone 2E Tank | $6,504,000 | 38% | $2,471,520 |
| Zone 3E Tank | $6,504,000 | 82% | $5,333,280 |
| Zone 2E Pump S. | $1,004,000 | 66% | $662,640 |
| Zone 3E Pump S. | $2,849,000 | 66% | $1,880,340 |
| **Total** | | | **$10,347,780** |

### Federal and State Grants and Donations

Impact fees cannot reimburse costs funded or expected to be funded through federal grants and other funds that the City has received for capital improvements without an obligation to repay. Grants and donations are not currently contemplated in this analysis. If grants become available for constructing facilities, impact fees will need to be recalculated and an appropriate credit given. Any existing infrastructure funded through past grants will be removed from the system value during the impact fee analysis.

### Bonds

None of the costs contained in this IFFP include the cost of bonding. The cost of bonding required to finance impact fee eligible improvements identified in the IFPP may be added to the calculation of the impact fee. This will be considered in the impact fee analysis.

### Interfund Loans

Because infrastructure must generally be built ahead of growth, there often arise situations in which projects must be funded ahead of expected impact fee revenues. In some cases, the solution to this issue will be bonding. In others, funds from existing user rate revenue will be loaned to the impact fee fund to complete initial construction of the project and will be reimbursed later as impact fees are received. Consideration of potential interfund loans will be included in the impact fee analysis and should be considered in subsequent accounting of impact fee expenditures.

### Impact Fees

It is recommended that impact fees be used to fund growth-related capital projects as they help to maintain the proposed level of service and prevent existing users from subsidizing the capital needs for new growth. Based on this IFFP, an impact fee analysis will be able to calculate a fair and legal fee that new growth should pay to fund the portion of the existing and new facilities that will benefit new development.

### Developer Dedications and Exactions

Developer exactions are not the same as grants. Developer exactions may be considered in the inventory of current and future infrastructure. If a developer constructs a facility or dedicates land within the development, the value of the dedication is credited against that particular developer's impact fee liability.

If the value of the dedication/exaction is less than the development's impact fee liability, the developer will owe the balance of the liability to the City. If the value of the improvements dedicated is worth more than the development's impact fee liability, the City must reimburse the difference to the developer from impact fee revenues collected from other developments. It should be emphasized that the concept of impact fee credits pertains to system level improvements only. For project level improvement (i.e. projects not identified in the impact fee facility plan), developers will be responsible for the construction of the improvements without credit against the impact fee.

## 7.0 NECESSITY OF IMPROVEMENT TO MAINTAIN LEVEL OF SERVICE 11-36A-302(3)

According to State statute, impact fees cannot be used to correct deficiencies in the system and must be necessary to maintain the proposed level of service established for all users. Only those projects or portions of projects that are required to maintain the proposed level of service for future growth have been included in this IFFP. This will result in an equitable fee as future users will not be expected to fund any portion of the projects that will benefit existing residents.

## 8.0 NOTICING AND ADOPTION REQUIREMENTS 11-36A-502

The Impact Fees Act requires that entities must publish a notice of intent to prepare or modify any IFFP. If an entity prepares an independent IFFP rather than include a capital facilities element in the general plan, the actual IFFP must be adopted by enactment. Before the IFFP can be adopted, a reasonable notice of the public hearing must be published in a local newspaper at least 10 days before the actual hearing. A copy of the proposed IFFP must be made available in each public library within the City during the 10-day noticing period for public review and inspection. Utah Code requires that the City must post a copy of the ordinance in at least three places. These places may include the City offices and the public libraries within the City's jurisdiction. Following the 10-day noticing period, a public hearing will be held, after which the City may adopt, amend and adopt, or reject the proposed IFFP.

## 9.0 IMPACT FEE CERTIFICATION 11-36A-306(1)

This report has been prepared in accordance with Utah Code Title 11 Chapter 36a (the "Impact Fees Act"), which prescribes the laws pertaining to Utah municipal capital facilities plans and impact fee analyses. The accuracy of this report relies upon the planning, engineering, and other source data, which was provided by the City and their designees.

In accordance with Utah Code Annotated, 11-36a-306(1), Bowen Collins & Associates, makes the following certification:

I certify that this impact fee facility plan:

1. Includes only the cost of public facilities that are:
    a. allowed under the Impact Fees Act; and
    b. actually incurred; or
    c. projected to be incurred or encumbered within six years after the day on which each impact fee is paid;
2. Does not include:
    a. costs of operation and maintenance of public facilities;
    b. cost of qualifying public facilities that will raise the level of service for the facilities, through impact fees, above the level of service that is supported by existing residents;
    c. an expense for overhead, unless the expense is calculated pursuant to a methodology that is consistent with generally accepted cost accounting practices and the methodological standards set forth by the federal Office of Management and Budget for federal grant reimbursement; and
3. Complies in each relevant respect with the Impact Fees Act.

This certification is made with the following caveats:

1. All of the recommendations for implementations of the Impact Fee Facilities Plan (IFFP) made in the IFFP or in the impact fee analysis are followed in their entirety by the City.
2. If all or a portion of the IFFP or impact fee analysis is modified or amended, this certification is no longer valid.
3. All information provided in the preparation of this IFFP is assumed to be correct, complete and accurate. This includes information provided by the City and outside sources.

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