PREPARED FOR:

GRANGER-HUNTER
IMPROVEMENT DISTRICT

PREPARED BY:

BOWEN COLLINS & ASSOCIATES

# WATER IMPACT FEE FACILITIES PLAN

MAY 2022

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# EXECUTIVE SUMMARY
# WATER IMPACT FEE FACILITIES PLAN

The purpose of an impact fee facilities plan is to identify demands placed upon Granger-Hunter Improvement District (District) facilities by future development and evaluate how these demands will be met by the District. 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 District. This document addresses the future infrastructure needed to serve the District. 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 District's Water Master Plan, projected growth in system demand is summarized in Table ES-1.

**Table ES-1**
**District Projections of Growth**

| Year | Total ERCs | Average Day (gpm) | Peak Day (gpm) |
|---|---|---|---|
| 2021 | 46,142 | 18,888 | 40,521 |
| 2031 | 49,053 | 19,638 | 42,139 |
| 2040 | 51,974 | 20,305 | 43,579 |
| 2050 | 55,814 | 21,072 | 45,236 |
| 2060 | 60,137 | 21,785 | 46,776 |

Demands are projected in terms of Equivalent Residential Connections (ERCs). An ERC represents the demand that a typical single family residence places on the system. The basis of an ERC for historical flow rates is summarized in Table ES-2.

**Table ES-2**
**Service Area Historic Flows and Definition of an ERC**

| Item | Value for Existing Conditions |
|---|---|
| Population | 132,107 |
| Equivalent Residential Connections (ERCs) | 46,142 |
| Average Day Flow (mgd) | 27.20 |
| Peak Day Flow (mgd) | 58.35 |
| **Flows per ERC** | |
| Average Day Flow (gpd/ERC) | 589.5 |
| Peak Day Flow (gpd/ERC) | 1,264.6 |

## 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". Summary values for both existing and proposed levels of service are contained in Table ES-3.

**Table ES-3**
**Existing Level of Service for Various System Requirements**

| | Existing Level of Service | Proposed Level of Service |
|---|---|---|
| **Production** | | |
| Production Yield – Average Day (gpd/ERC)[1] | 589.5 | 589.5 |
| Production Capacity (gpd/ERC)[1] | 1,264.6 | 1,264.6 |
| **Storage** | | |
| Storage (gallons/ERC) | 583.8[2] | 583.8[2] |
| **Conveyance (Transmission, Pumping, and Distribution)** | | |
| Peak Hour Demand Pressure (psi) / Percent of System that Meets the Standard | 50 / 99.7% | 50 / 100% |
| Minimum Available Fire Flow at 20 psi during Peak Day Demand (gpm) / Percent of System that Meets the Standard | 1,500[3] / 99.5% | 1,500[3] / 100% |
| **General Assets** | | |
| Adequacy of Existing Facilities to Serve Customers | Sufficient | Sufficient |

[1] Includes applicable redundancy for supply reliability.
[2] Does not include fire storage volumes in calculation.
3 Required fire flow indicated is for newer residential neighborhood. Fire flow may be lower or higher based on Fire Authority requirements.

## EXISTING CAPACITY AVAILABLE TO SERVE FUTURE GROWTH

Projected future growth will be met through a combination of available excess capacity in existing facilities and construction of additional capacity in new facilities. Defining existing system capacity in terms of a single number is difficult. To improve the accuracy of the analysis, the system was divided into four different components (production capacity, storage, transmission, and general assets). Excess capacity in each component of the system is summarized in Table ES-4.

**Table ES-4**
**Available Excess Capacity**

| Use Category | Well Production Percent Use | Storage Percent Use | Transmission Capacity Percent Use | General Assets Percent Use |
|---|---|---|---|---|
| Existing Use | 68.58% | 88.78% | 79.25% | 76.73% |
| Use By 10-Year Growth | 17.87% | 3.95% | 4.32% | 4.84% |
| Use By Growth Beyond 10 years | 13.55% | 7.27% | 16.44% | 18.43% |
| **Total** | **100.0%** | 100.00% | 100.00% | 100.0% |

## REQUIRED SYSTEM IMPROVEMENTS

Beyond available existing capacity, additional improvements required to serve new growth are summarized in Table ES-5. To satisfy the requirements of state law, Table ES-5 provides 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-5**
**Project Costs Allocated to Projected Development, 10-year Planning Window**

| Project ID | Project | Total Project Cost | Percent to Existing | Percent to 10-Year Growth | Percent to Growth Beyond 10-Year | Cost to Existing | Cost to 10 Year Growth | Cost to Growth Beyond 10-Year |
|---|---|---|---|---|---|---|---|---|
| | **Transmission System Projects** | | | | | | | |
| P1 | Parkway Blvd / Bangerter Hwy | $1,270,000 | 0.00% | 95.32% | 4.68% | $0 | $1,210,597 | $59,403 |
| P2 | 3600 W/2400 S - Outside of Ridgeland PS | $560,000 | 0.00% | 95.32% | 4.68% | $0 | $533,806 | $26,194 |
| P3 | 3600 W/4400 S - Southeast portion of Zone 3E | $30,000 | 0.00% | 95.32% | 4.68% | $0 | $28,597 | $1,403 |
| P4 | 500 W/4700 S - JV #50 | $1,320,000 | 0.00% | 95.32% | 4.68% | $0 | $1,258,258 | $61,742 |
| P5 | 4800 W/4415 S - Tank Farm to Zone 2 | $200,000 | 0.00% | 95.32% | 4.68% | $0 | $190,645 | $9,355 |
| | ***Subtotal*** | **$3,380,000** | | | | **$0** | **$3,221,903** | **$158,097** |
| | **Production Projects** | | | | | | | |
| S1 | Iron/Manganese Removal Facility (w/1&17) | $11,000,000 | 68.58% | 17.87% | 13.55% | $7,544,268 | $1,965,495 | $1,490,237 |
| S2 | Iron/Manganese Removal Facility | $4,000,000 | 68.58% | 17.87% | 13.55% | $2,743,370 | $714,725 | $541,904 |
| S3 | Iron/Manganese Removal Facility | $4,000,000 | 68.58% | 17.87% | 13.55% | $2,743,370 | $714,725 | $541,904 |
| S4 | Drill New Well | $2,000,000 | 0.00% | 0.00% | 100.00% | $0 | $0 | $2,000,000 |
| S5 | Well House Construction | $2,750,000 | 0.00% | 0.00% | 100.00% | $0 | $0 | $2,750,000 |
| | ***Subtotal*** | **$23,750,000** | | | | **$13,031,009** | **$3,394,945** | **$7,324,046** |
| | **Storage Projects** | | | | | | | |
| ST1 | New Reservoir Construction | $9,350,000 | 43.62% | 19.83% | 36.55% | $4,078,613 | $1,854,121 | $3,417,265 |
| | ***Subtotal*** | **$9,350,000** | | | | **$4,078,613** | **$1,854,121** | **$3,417,265** |
| | **Total** | **$36,480,000** | | | | **$17,109,622** | **$8,470,970** | **$10,899,409** |

# WATER IMPACT FEE FACILITIES PLAN

## INTRODUCTION

Granger-Hunter Improvement District (GHID or District) has retained Bowen Collins & Associates (BC&A) to prepare an impact fee facilities plan (IFFP) for water supply and distribution provided by the District. The purpose of an IFFP is to determine the public facilities required to service development resulting from new development activity. The IFFP is also intended to outline the improvements which may be funded through impact fees.

Much of the analysis forming the basis of this IFFP has been taken from the previous sections of the District's latest Waster Master Plan. The reader should refer to the Water Master Plan for additional discussion of planning and evaluation methodology beyond what is contained here.

Requirements for the preparation of an IFFP are outlined in Title 11, Chapter 36a 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 at the proposed level of service
4. Identify demands placed upon existing public facilities by 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.

## 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 discusses the level of service being currently provided to existing users.

### Unit of Demand

The projected flow used to design and evaluate system components will vary depending on the nature of each component. For example, water supply is often evaluated based on average annual yields. Conversely, transmission pipelines must be designed based on peak hour flow. For the purposes of this analysis, it is useful to define these various demands in terms of Equivalent Residential Connections (ERCs). An ERC represents the demand that a typical single family residence places on the system with a recommended safety factor for supply reliability and redundancy as identified in the master plan. The basis of an ERC for historical flow rates is summarized in Table 1. Additional detail regarding the calculation of values used in the definition of an ERC are contained in the District's Water Master Plan.

**Table 1**
**Service Area Historic Flows and Definition of an ERC**

| Item | Value for Existing Conditions |
|---|---|
| Population | 132,107 |
| Equivalent Residential Connections (ERCs) | 46,142 |
| Average Day Flow (mgd) | 27.20 |
| Peak Day Flow (mgd) | 58.35 |
| **Flows per ERC** | |
| Average Day Flow (gpd/ERC) | 589.5 |
| Peak Day Flow (gpd/ERC) | 1,264.6 |

### Performance Standard

Performance standards are those standards that are used to design and evaluate the performance of facilities. This section discusses the existing performance standards for the District.

To improve the accuracy of the analysis, this impact fee facilities plan has divided the system into four different components (production capacity, storage, transmission, and general assets). Each of these components has its own set of performance standards:

**Production Capacity.** Water production must be adequate to satisfy demands on both an annual and peak day basis. Production of supplies must take into account seasonal limitations in supply availability and reductions in yield because of dry year conditions. Production capacity should include an appropriate safety factor to account for supply redundancy and reliability as defined in the Water Master Plan.

**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. As described in the Water Master Plan, minimum operational storage sizing recommendations have been based on 25 percent of peak day water demand[1].
2. **Fire Flow Storage*:*** 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.

[1] Note that this does not include the same source redundancy requirement as identified for production capacity above.

There primary governing fire authority in the District service area is the West Valley City Fire Department. Based on the requirements of the department, 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), and some buildings in the District require even greater fire flow. The fire flow required for each pressure zone is defined in the Water master plan with a maximum of 8,000 gpm for 4 hours (1,920,000 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, treatment plant failure, or other unexpected event. As described in the Water Master Plan minimum emergency storage sizing recommendations have been based on 6 hours (25 percent) of peak day water demand.

Total combined storage required is equal to 50 percent of peak day water demand plus fire flow. Storage requirements are calculated for the system as a whole and for each individual zone.

**Transmission and Distribution**. Based on input from District staff, the following criteria were used as the performance standards 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. The system should be capable of maintaining 50 psi during peak hour demand.
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 the fire authority.

### General Assets

In addition to the water system needs, Granger-Hunter Improvement District personnel need to be able to provide administrative, operation, and maintenance functions for the District to satisfy a level of service for customers. The District's current administrative and service facilities are composed of a number of different components, including office space, open storage space, maintenance bays, etc., and does not have a specific performance standard. However, it is expected that the District's existing facilities will be satisfactory to provide space for personnel through the District's buildout planning window. This means there is excess capacity available today available to support the needs of future users. Thus, it is proposed that both existing and future users pay for these facilities in proportion to their overall use in the system at buildout. This will result in the level of service provided by the facility being the same for existing and new users.

### Existing Level of Service Summary

Existing level of service has been divided into the same four components as identified for the system performance standard (production, storage, transmission, and general assets). Existing level of service values are summarized in Table 2 below.

**Table 2**
**Existing Level of Service for Various System Requirements**

| | Existing Level of Service |
|---|---|
| **Production** | |
| Production Yield – Average Day (gpd/ERC)[1] | 589.5 |
| Production Capacity (gpd/ERC)[1] | 1,264.4 |
| **Storage** | |
| Storage (gallons/ERC) | 583.8[2] |
| **Conveyance (Transmission, Pumping, and Distribution)** | |
| Peak Hour Demand Pressure (psi) / Percent of System that Meets the Standard | 50 / 99.7% |
| Minimum Available Fire Flow at 20 psi during Peak Day Demand (gpm) / Percent of System that Meets the Standard | 1,500[3] / 99.5% |
| **General Assets** | |
| Adequacy of Existing Facilities to Serve Customers | Sufficient |

[1] Includes applicable redundancy for supply reliability.
[2] Does not include fire storage volumes in calculation.
3 Required fire flow indicated is for newer residential neighborhood. Fire flow may be lower or higher based on Fire Authority requirements.

As shown in the table, only a small percentage of the system falls below the desired performance standard. In most cases, this is associated with limited locations in the existing system and excess capacity still may exist in other parts of the system. Excess capacity and curing of deficiencies will be discussed in subsequent sections of this report. Costs for projects to correct deficiencies that do not meet the required level of service will not be included as part of the impact fee as required by the Impact Fee Act.

## 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 Fees 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 District 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.

In the case of this IFFP, no changes are proposed to the existing level of service for performance standards. Thus, future growth will essentially be evaluated based on the same performance standards level of service as identified for existing.

**Table 3**
**Proposed Level of Service for Various System Requirements**

| | Proposed Level of Service |
|---|---|
| **Production** | |
| Production Yield – Average Day (gpd/ERC)[1] | 589.5 |
| Production Capacity (gpd/ERC)[1] | 1,264.6 |
| **Storage** | |
| Storage (gallons/ERC) | 583.8[2] |
| **Conveyance (Transmission, Pumping, and Distribution)** | |
| Peak Hour Demand Pressure (psi) / Percent of System that Meets the Standard | 50 / 100% |
| Minimum Available Fire Flow at 20 psi during Peak Day Demand (gpm) / Percent of System that Meets the Standard | 1,500[3] / 100% |
| **General Assets** | |
| Adequacy of Existing Facilities to Serve Customers | Sufficient |

[1] Includes applicable redundancy for supply reliability.
[2] Does not include fire storage volumes in calculation.
3 Required fire flow indicated is for newer residential neighborhood. Fire flow may be lower or higher based on Fire Authority requirements.

It should be noted that demand per ERC in the system is expected to gradually diminish over time as a result of conservation activities. For simplicity, the values shown here are for current demands but all subsequent calculations include expected reductions through conservation as described in the Water Master Plan.

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

Projected future growth will be met through a combination of available excess capacity in existing facilities and construction of additional capacity in new facilities. Defining existing system capacity in terms of a single number is difficult. To improve the accuracy of the analysis, we have divided the system into the same four components used to define level of service (production capacity, storage, transmission, and general assets). The purpose of this breakdown is to consider the available capacity for each component individually. Excess capacity in each component of the system is as follows:

### Production Capacity

The Water Master Plan includes an analysis of available supply to service existing and projected demands. This analysis includes consideration of annual supply and peak production capacity. On an annual basis, the District has adequate water available to meet projected demand[2] but will require additional improvements relative to peak production. Thus, for the purpose of impact fees, evaluation of production capacity should be based on peak day demands.

Base demands in the District are supplied via contracts with Jordan Valley Water Conservancy District (JVWCD). JVWCD connections have a useable capacity of 29,992 gpm. Capital costs for JVWCD water are built into the contract and rate costs and are not included as part of the impact fee facilities plan. Thus, as additional demand is added to the system, it will be satisfied through increased use of the District's wells. Existing wells within the District have a reliable peak production capacity of 14,050 gpm. The excess portion of this capacity that is available for use is summarized in Table 4[3].

**Table 4**
**Excess Well Production Capacity**

| Use Category | Peak Day Demand w/ Conservation (gpm) | Demand on Wells (gpm) | Percent Use |
|---|---|---|---|
| Existing Use | 39,628 | 9,636 | 68.58% |
| Use by 10-Year Growth | 2,510 | 2,510 | 17.87% |
| Use by Projected Growth Beyond 10 years | 4,638 | 1,903 | 13.55% |
| **Total** | **46,776** | **14,050** | **100.0%** |

### Storage

The Water Master Plan includes an analysis of available storage to service existing and projected demands. This analysis indicates that the District has an existing deficiency in Zone 1, but excess capacity in all other zones. Correspondingly, excess storage has been examined based on needs outside the Zone 1 deficiency with the understanding that the Zone 1 deficiency will be addressed through a future project (see subsequent section on new infrastructure). Using this approach, the excess portion of existing storage capacity that is available for use is summarized in Table 5.

[2] The District may choose to expand its annual contract with JVWCD to optimize operational flexibility associated with its wells. However, this is not required from an annual capacity standpoint.
[3] As noted previously, this and all subsequent calculations have adjusted demands to reflect conservation within the 10-year planning window.

**Table 5**
**Excess Storage Capacity**

| Use Category | Needed Storage w/ Conservation (MG) | Needed Storage Less Zone 1 Deficit (MG) | Use of Existing Storage (MG) | Percent Use |
|---|---|---|---|---|
| Existing Use | 28.26 | 27.27 | 27.27 | 88.78% |
| Use by 10-Year Growth | 1.66 | 1.66 | 1.21 | 3.95% |
| Use by Projected Growth Beyond 10 years | 3.06 | 3.06 | 2.23 | 7.27% |
| **Total** | **32.99** | **32.00** | **30.72** | **100.0%** |

### 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. Because pipelines and pump stations are closely related within the operation of the system, these two components were grouped for the purposes of this analysis. 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 of pipelines 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 is zero. By definition, this corresponds to those facilities with deficiencies that are identified in the facilities plan. By assigning a capacity of zero, this eliminated double counting those facilities against new users.
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. 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 amount of excess capacity in existing facilities available to accommodate future growth and the demands placed on the existing facilities by new development activity has been calculated for each element in the system by BC&A. This is summarized in Table 6.

**Table 6**
**Transmission System Excess Capacity**

| Use Category | District Area Percent Use |
|---|---|
| Existing Use | 79.25% |
| Use By 10-Year Growth | 4.32% |
| Use By Growth Beyond 10 years | 16.44% |
| **Total** | 100.0% |

### General Assets

As discussed under the existing and proposed level of service sections, Granger-Hunter Improvement District's general assets have sufficient capacity through the District's long-term planning window. Thus, excess capacity can be simply calculated based on proportional use per ERC as shown in Table 7.

**Table 7**
**General Assets Excess Capacity**

| Use Category | District Area ERCs | District Area Percent Use |
|---|---|---|
| Existing Use | 46,142 | 76.73% |
| Use by 10-Year Growth | 2,911 | 4.84% |
| Use by Growth Beyond 10 years | 11,084 | 18.43% |
| **Total** | 60,137 | 100.0% |

## DEMANDS PLACED ON FACILITIES BY NEW DEVELOPMENT - 11-36A-302(1)(A)(IV)

Growth and new development in the District is discussed in the District's Water Master Plan. These growth projections are based on the most recent version of growth projections developed by the Wasatch Front Regional Council (WFRC), development plans submitted to the District, and planning guidance provided by West Valley City personnel. These projections include consideration of developable area, zoning, the nature of surrounding development, designated open space and other

factors. Additional information on growth projections is included in the Water Master Plan[4]. Future growth as projected in the Water Master Plan is shown in Table 8.

**Table 8**
**District Projections of Growth**

| Year | Total ERCs | Average Day (gpm) | Peak Day (gpm) |
|---|---|---|---|
| 2021 | 46,142 | 18,888 | 40,521 |
| 2031 | 49,053 | 19,638 | 42,139 |
| 2040 | 51,974 | 20,305 | 43,579 |
| 2050 | 55,814 | 21,072 | 45,236 |
| 2060 | 60,137 | 21,785 | 46,776 |

## INFRASTRUCTURE REQUIRED TO MEET DEMANDS OF NEW DEVELOPMENT - 11-36a-302(1)(a)(v)

To satisfy the requirements of state law, the effect of demand placed upon existing system facilities by future development was evaluated using the process outlined below. Each of the steps was completed as part of this plan's development. More description of the methodology used in the process outlined below can be found in the Water Master Plan.

1. **Existing Demand** – The demand existing development places on the District's system was estimated based on historic water use and flow records.
2. **Existing Capacity** – The capacities of existing system collection facilities were estimated using size data provided by the District and a hydraulic computer model. The capacities of existing production and pumping facilities were taken from the District's water system model.
3. **Existing Deficiencies** – Existing deficiencies in the system were looked for by comparing defined levels of service against calculated capacities.
4. **Future Demand** - The demand future development will place on the system was estimated based on development projections as discussed in a previous section.
5. **Future Deficiencies** - Future deficiencies in the collection system were identified using defined level of service and results from the computer model.
6. **Recommended Improvements** – Needed system improvements were identified to remedy existing deficiencies and meet demands associated with future development.

The steps listed above "identify demands placed upon existing public facilities by new development activity at the proposed level of service; and… the means by which the political subdivision or private entity will meet those growth demands" (Section 11-36a-302(1)(a) of the Utah Code).

[4] Note that the Water Master Plan includes multiple different growth scenarios. Projections contained here are based on the "Recommended Planning" scenario as this scenario has been used as the basis for capital facility planning in the master plan. This scenario covers growth associated with either lower density development patterns with little to no conservation savings or higher density development patterns with conservation.

## 10-Year Improvement Plan

In the District's Water Master Plan, capital facility projects needed to provide service to various parts of the District at projected ten-year and buildout scenarios were identified. Most of these projects will need to be constructed in phases as development occurs. Only infrastructure to be constructed within a ten-year horizon will be considered in the calculation of these impact fees to avoid uncertainty surrounding improvements further into the future. Table 9 summarizes the components of projects identified in the Water Master Plan that will need to be constructed within the next ten years. Details associated with the costs used for each project are contained in the Water Master Plan.

## Project Cost Attributable to Future Growth

To satisfy the requirements of state law, Table 9 provides a breakdown of the capital facility projects and the percentage of the project costs attributed to existing and future users. As defined in Section 11-36a-102(16), the impact fee facilities plan should only include the proportionate share of "the cost of public facilities that are roughly proportionate and reasonably related to the service demands and needs of any development activity." While several of the projects identified in the table are required solely to meet future growth, some projects also provide a benefit to existing users. Projects that benefit existing users include those projects addressing existing capacity needs and maintenance related projects.

For most projects, the division of costs between existing and future users is easy because 100 percent of the project costs can be attributed to one category or the other (e.g. infrastructure needed solely to serve new development can be 100 percent attributed to new growth, while projects related to existing condition or capacity deficiencies can be 100 percent attributed to existing user needs). For projects needed to address both existing deficiencies and new growth or where a higher level of service is being proposed, costs have been divided proportionally between existing and future users based on their needs in the facility. These percentages have been calculated based on flows in each facility as calculated in the hydraulic model. A few additional notes regarding specific projects are as follows:

- **Transmission System Projects:** One unique aspects of pressured pipe systems such as water is that flow in any given pipe will change both direction and magnitude depending on system conditions. Variations in time of year, time of day, and system operational parameters will affect how much capacity is needed in each pipeline. Thus, for many water pipelines, the best approach to assessing usage of capacity is to look at needs as a whole and then allocate percentages equally to all projects based on overall needs. This has been done for projects in this analysis. After eliminating projects required strictly for maintenance or projects outside the 10-year planning window, the overall usage of capacity in the new projects was calculated as a whole. The proportional use of each development type was then assigned to all projects assuming the projects will all work in conjunction with one another to meet system needs.
- **Well Improvements.** Existing well capacity is adequate to meet existing demands and projected demands through the next 10 years. Thus, no portion of the planned new well is assigned to these categories. Conversely, iron and manganese removal projects at existing wells will directly benefit all users needing capacity associated with these wells. Correspondingly, costs associated with these projects have been assigned proportional to use of capacity in the existing wells.

**Table 9**
**Project Costs Allocated to Projected Development, 10-year Planning Window**

| Project ID | Project | Total Project Cost | Percent to Existing | Percent to 10-Year Growth | Percent to Growth Beyond 10-Year | Cost to Existing | Cost to 10 Year Growth | Cost to Growth Beyond 10-Year |
|---|---|---|---|---|---|---|---|---|
| | **Transmission System Projects** | | | | | | | |
| P1 | Parkway Blvd / Bangerter Hwy | $1,270,000 | 0.00% | 95.32% | 4.68% | $0 | $1,210,597 | $59,403 |
| P2 | 3600 W/2400 S - Outside of Ridgeland PS | $560,000 | 0.00% | 95.32% | 4.68% | $0 | $533,806 | $26,194 |
| P3 | 3600 W/4400 S - Southeast portion of Zone 3E | $30,000 | 0.00% | 95.32% | 4.68% | $0 | $28,597 | $1,403 |
| P4 | 500 W/4700 S - JV #50 | $1,320,000 | 0.00% | 95.32% | 4.68% | $0 | $1,258,258 | $61,742 |
| P5 | 4800 W/4415 S - Tank Farm to Zone 2 | $200,000 | 0.00% | 95.32% | 4.68% | $0 | $190,645 | $9,355 |
| | ***Subtotal*** | **$3,380,000** | | | | **$0** | **$3,221,903** | **$158,097** |
| | **Production Projects** | | | | | | | |
| S1 | Iron/Manganese Removal Facility (w/1&17) | $11,000,000 | 68.58% | 17.87% | 13.55% | $7,544,268 | $1,965,495 | $1,490,237 |
| S2 | Iron/Manganese Removal Facility | $4,000,000 | 68.58% | 17.87% | 13.55% | $2,743,370 | $714,725 | $541,904 |
| S3 | Iron/Manganese Removal Facility | $4,000,000 | 68.58% | 17.87% | 13.55% | $2,743,370 | $714,725 | $541,904 |
| S4 | Drill New Well | $2,000,000 | 0.00% | 0.00% | 100.00% | $0 | $0 | $2,000,000 |
| S5 | Well House Construction | $2,750,000 | 0.00% | 0.00% | 100.00% | $0 | $0 | $2,750,000 |
| | ***Subtotal*** | **$23,750,000** | | | | **$13,031,009** | **$3,394,945** | **$7,324,046** |
| | **Storage Projects** | | | | | | | |
| ST1 | New Reservoir Construction | $9,350,000 | 43.62% | 19.83% | 36.55% | $4,078,613 | $1,854,121 | $3,417,265 |
| | ***Subtotal*** | **$9,350,000** | | | | **$4,078,613** | **$1,854,121** | **$3,417,265** |
| | **Total** | **$36,480,000** | | | | **$17,109,622** | **$8,470,970** | **$10,899,409** |

- **New Reservoir Construction.** As noted previously, even though the District has excess storage in other areas, there is an existing storage deficiency in Zone 1. The percentage of cost assigned to existing users for this project reflects this deficiency.

Table 8 does not include bond costs related to paying for impact fee eligible improvements. These costs are calculated as part of the impact fee analysis.

### Project Cost Attributable to 10-Year Growth

Included in Table 9 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.

### Basis of Construction Cost Estimates

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

## ADDITIONAL CONSIDERATIONS

## MANNER OF FINANCING - 11-36a-302(2)

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

### 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 District 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. If a developer constructs a system improvement or dedicates land for a system improvement identified in this IFFP, or dedicates a public facility that is recognized to reduce the need for a system improvement, the developer will be entitled to an appropriate credit against that particular developer's impact fee liability or a proportionate reimbursement.

If the value of the credit is less than the development's impact fee liability, the developer will owe the balance of the liability to the District. If the recognized value of the improvements/land dedicated is more than the development's impact fee liability, the District 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. Developers will be responsible for the construction of project improvements (i.e. improvements not identified in the impact fee facilities plan) without credit against the impact fee.

## NECESSITY OF IMPROVEMENTS TO MAINTAIN LEVEL OF SERVICE - 11-36a-302(3)

According to State statute, impact fees cannot be used to correct deficiencies in the District's system and must be necessary to maintain the proposed level of service established for all users. Only those facilities or portions of facilities that are required to maintain the proposed level of service for future growth have been included in this IFFP. Additionally, any portion of projects being used to cure existing deficiencies that will be paid for through future user rates will be accounted for through an impact fee credit to be calculated as part of the impact fee analysis. This will result in an equitable fee as future users will not be expected to fund any portion of the facilities that will benefit existing residents.

## SCHOOL RELATED INFRASTRUCTURE - Utah Code Annotated 11-36a-302(2)

As part of the noticing and data collection process for this plan, information was gathered regarding future school district and charter school development. Where the District is aware of the planned location of a school, required public facilities to serve the school have been included in the impact fee facility plan.

## NOTICING AND ADOPTION REQUIREMENTS - Utah Code Annotated 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 District during the 10-day noticing period for public review and inspection. Utah Code requires that the District must post a copy of the ordinance in at least three places. These places may include the District offices and the public libraries within the District's jurisdiction. Following the 10-day

noticing period, a public hearing will be held, after which the District may adopt, amend and adopt, or reject the proposed IFFP.

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

This IFFP has been prepared in accordance with Utah Code Title 11 Chapter 36a (the "Impact Fees Act"), which prescribes the laws pertaining to the imposition of impact fees in Utah. The accuracy of this IFFP relies in part upon planning, engineering, and other source data, provided by the District and its designees.

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

I certify that the attached impact fee facilities plan:

1. Includes only the costs 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. costs for 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; and
3. complies in each relevant respect with the Impact Fees Act.

_____

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