



Prepared for:



Prepared by:



Magna Water District Water IFFP & IFA

January 2026

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Water Impact Fee Facilities Plan

January 2026

Prepared for:



Prepared by:



EXECUTIVE SUMMARY

WATER IMPACT FEE FACILITIES PLAN

The purpose of an impact fee facilities plan is to identify demands placed upon 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
Peak Day Demand

Year	Total ERUs	Irrigated Acres	Peak Day Demand ¹ (mgd)	Peak Day Demand ¹ (gpm)
2025	10,710	1,040	14.39	9,995
2030	11,738	1,097	14.77	10,254
2035	12,751	1,151	15.19	10,547
2040	13,676	1,209	15.58	10,820
2045	14,662	1,256	16.08	11,164
2050	15,692	1,307	16.60	11,526
2055	16,841	1,362	17.17	11,921
2060	17,998	1,418	17.72	12,305
2065	19,160	1,474	18.26	12,678
2070	20,136	1,514	18.85	13,090
2075	21,162	1,551	19.42	13,485
2080	22,184	1,587	19.99	13,880
2085	23,207	1,623	20.56	14,276
2090	23,309	1,627	20.61	14,315

¹Total indoor and outdoor system demand

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

Table ES-2
Magna Service Area Historic Flows for Planning

Item	Value for Existing Conditions
Estimated Population	33,424
Equivalent Residential Units (ERUs)	10,710
Average Day Flow (mgd)	6.24
Average Day, Indoor Flow (mgd)	2.65
Peak Day Flow (mgd)	14.39
Peak Hour Flow (mgd)	23.03
Flows per ERU	
Average Day Flow (gpd/ERU)	582
Average Day, Indoor Flow (gpd/ERU)	247
Peak Day Flow (gpd/ERU)	1,344
Peak Hour Flow (gpm/ERU)	1.49

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.” Performance standards are those standards that are used to design and evaluate the performance of facilities. While the Impact Fees Act includes “defined performance standard” as part of the level of service definition, this report will make a subtle distinction between performance standard and level of service. The performance standard will be considered the desired minimum level of performance for each component, while the existing level of service will be the actual current performance of the component and the proposed level of service will be the proposed actual performance of the component in the future. Summary values for each of these categories are contained in Table ES-3.

Table ES-3
Performance Standards and Level of Service
for Various System Requirements

	Existing Performance Standard	Existing Level of Service	Proposed Performance Standard
Production Capacity			
Production Capacity (gpd/ERU) ¹	1,493	1,973	1,323
Storage			
Storage (gallons/ERU) ²	672	1,666	596
Conveyance (Transmission, Pumping, and Distribution)			
Culinary Peak Day Demand Pressure (psi) / Percent of System that Meets the Standard	40 / 100%	100%	40 / 100%
Culinary Peak Hour Demand Pressure (psi) / Percent of System that Meets the Standard	30 / 100%	100%	30 / 100%
Culinary Maximum Pipe Velocity (feet per second) / Percent of System that Meets the Standard	7 / 100%	99.9%	7 / 100%
Secondary Peak Hour Demand Pressure (psi) / Percent of System that Meets the Standard	30 / 100%	100%	30 / 100%
Minimum Available Fire Flow at 20 psi during Peak Day Demand (gpm) / Percent of System that Meets the Standard	1500 ³ / 100%	93.8%	1500 ³ / 100%
Maximum Pipe Velocity Peak Hour (feet per second)	10 / 100%	100%	7.0 / 100%
Administration and Service Buildings			
Available Space to Required Need Ratio	1.0	1.0	1.0

¹ This includes the District's recommended safety factor for reliability and redundancy for peak day demand of the culinary and secondary water systems. Proposed performance standard decreases slightly from existing as a result of conservation and more demand over which the reliability and redundancy safety factor is applied.

² Does not include fire flow storage, only equalization storage. Shown for services using culinary water for outdoor irrigation (the more common scenario currently).

³ Shown for typical residential need. Actual fire flow requirements for individual structures per fire code as documented in the Master Plan.

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 different components (production capacity, storage, conveyance, and administration & service buildings). Excess capacity in each component of the system is summarized in Tables ES-4.

Table ES-4
Excess Capacity Available in Existing Assets

Use Category	Production	Storage	Conveyance (Transmission and Pumping)	Administrative and Service Buildings
Existing	72.85%	44.51%	77.97%	55.90%
10-year Growth	14.27%	13.68%	6.06%	10.65%
Growth Beyond 10 Years	12.88%	41.81%	15.96%	33.45%
Total	100.00%	100%	100%	100%

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
Water Project Costs Allocated to Projected Development, 10-year Planning Window

Project No.	Construction Timeframe	Description	Project Cost	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
Culinary Storage Facilities									
CS-2	5-10	Zone 3 III Culinary	\$2,450,000	0.0%	34.1%	65.9%	\$0	\$834,274	\$1,615,726
Secondary Storage Facilities									
SS-1	0-5	Zone 3 Secondary & SD-23	\$1,847,000	32.2%	18.0%	49.9%	\$594,252	\$331,772	\$920,976
Booster Stations									
CBS-1	5-10	Zone 3 II Culinary	\$775,000	39.8%	19.8%	40.4%	\$308,260	\$153,608	\$313,131
SBS-3	0-5	Zone 2 II Secondary (8000 West)	\$200,000	3.4%	28.6%	68.0%	\$6,752	\$57,291	\$135,957
Source Production									
S-4	0-5	Well Field SCADA	\$700,000	99.2%	0.8%	0.0%	\$694,590	\$5,410	\$0
S-5	0-5	EDR 3rd Stage	\$3,000,000	99.2%	0.8%	0.0%	\$2,976,815	\$23,185	\$0
Culinary Distribution Improvements									
CD-1	0-5	Zone 3 Conveyance	\$397,000	0.0%	32.5%	67.5%	\$0	\$128,886	\$268,114
CD-5	0-5	Zone 3 Conveyance 33%	\$1,303,000	0.0%	32.5%	67.5%	\$0	\$423,017	\$879,983
CD-9	0-5	Zone 1 Conveyance	\$2,509,000	0.0%	49.0%	51.0%	\$0	\$1,229,837	\$1,279,163
CMC-1	0-5	8800 W, 3100 S to 2600 S Pipe Upsize	\$1,194,000	0.0%	49.0%	51.0%	\$0	\$585,263	\$608,737
CPZ-1	5-10	3000 S, 9200 W to 9000 W Zone Change	\$313,000	95.3%	0.9%	3.8%	\$298,395	\$2,738	\$11,866
CDE-1	0-5	Twain Dr & Thoreau Dr Dead-End	\$22,000	76.7%	11.4%	11.9%	\$16,881	\$2,509	\$2,610
CDE-2	0-5	Westbury Dr,8070 W & 8035 W	\$31,000	76.7%	11.4%	11.9%	\$23,787	\$3,535	\$3,677
		Subtotal Culinary Pipe	\$5,769,000						
Secondary Distribution Improvements									
SD-1	0-5	3100 S, Dayton St to 7900 W	\$973,000	3.4%	28.6%	68.0%	\$32,847	\$278,722	\$661,431
SD-2	0-5	3100 S, 7900 W to 7600 W	\$1,304,000	3.4%	28.6%	68.0%	\$44,021	\$373,539	\$886,440
SD-4	0-5	Kennecott Foothills Development	\$672,000	0.0%	27.1%	72.9%	\$0	\$181,817	\$490,183
SD-8	0-5	3100 S, 7600 W to 7200 W	\$1,143,000	68.9%	4.1%	26.9%	\$787,663	\$47,378	\$307,959
SD-14	5-10	SR201 Southside, 7600 W to 8400 W	\$964,000	0.0%	30.1%	69.9%	\$0	\$290,418	\$673,582
SD-15	5-10	8400 W, 2600 S to SR201	\$489,000	0.0%	30.1%	69.9%	\$0	\$147,318	\$341,682
SD-16	0-5	8000 W Booster Piping	\$1,122,000	3.4%	28.6%	68.0%	\$37,877	\$321,404	\$762,719
SD-22	0-5	Zone 3, 8200 W Pipe	\$784,000	31.7%	27.1%	41.2%	\$248,524	\$212,119	\$323,357
SD-24	5-10	Zone 1 Transmission at Golf Course	\$2,813,000	0.0%	30.1%	69.9%	\$0	\$847,454	\$1,965,546
SD-25	5-10	Zone 1 Kennecott Foothills	\$752,000	0.0%	30.8%	69.2%	\$0	\$231,737	\$520,263
SD-30	5-10	Belfast Dr Connection	\$798,000	83.1%	0.0%	16.9%	\$663,005	\$0	\$134,995
		Subtotal Secondary Pipe	\$11,814,000						
		Total	\$26,555,000				\$6,733,670	\$6,713,233	\$13,108,097

IMPACT FEE FACILITIES PLAN

INTRODUCTION

Magna Water District (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 District's updated water master plan prepared by BC&A. The reader should refer to the master plan study for additional discussion of planning and evaluation methodology beyond what is contained here. Magna Water District intends to use its culinary water and secondary irrigation systems as equally important parts of its overall water delivery system. Because the secondary irrigation system will offset demands on the District's culinary water system components (pipes, storage tanks, pumps, etc.), all culinary water or secondary irrigation projects will be included in a combined water impact fee assessed by Magna Water District.

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 rights are 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 Units (ERUs). An ERU represents the demand that a typical single-family residence places on the system. The basis of an ERU using historical flow rates is summarized in Table 1. Additional detail regarding the calculation of values used in the definition of an ERU are contained in the District’s Water Master Plan.

Table 1
Magna Water District Service Area Historic Flows for Planning

Item	Value for Existing Conditions
Estimated Population	33,424
Equivalent Residential Units (ERUs)	10,710
Average Day Flow (mgd)	6.24
Average Day, Indoor Flow (mgd)	2.65
Peak Day Flow (mgd)	14.39
Peak Hour Flow (mgd)	23.03
Flows per ERU	
Average Day Flow (gpd/ERU)	582
Average Day, Indoor Flow (gpd/ERU)	247
Peak Day Flow (gpd/ERU)	1,344
Peak Hour Flow (gpm/ERU)	1.49

Performance Standard

Performance standards are those standards that are used to design and evaluate the performance of facilities. While the Impact Fees Act includes “defined performance standard” as part of the level of service definition, this report will make a subtle distinction between performance standard and level of service. The performance standard will be considered the desired minimum level of performance for each component, while the existing level of service will be the actual current performance of the component. Thus, if the existing level of service is less than the performance standard it is a deficiency. If it is greater than the performance standard it may indicate excess capacity. This section discusses the existing performance standards for the District. A subsequent section will consider existing level of service relative to these standards.

To improve the accuracy of the analysis, this impact fee facilities plan has divided the system into different components:

- Production Capacity
- Storage
- Conveyance (Transmission, Distribution, and Pumping)
- Administrative and Service Buildings

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. For peak day demands, the District requires a 10 percent source redundancy requirement for culinary and a 2,000 gpm buffer for secondary irrigation. This source redundancy is to account for mechanical failures amongst its various water sources. For annual demands, the District requires a 10 percent source buffer for culinary water and a 671 acre-foot buffer for secondary water related to the reliability of canal shares and other sources as a result of drought, contamination, and other longer-term interruptions to supply.

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. Based on the historic usage, the equalization storage for culinary demands in the District was calculated to be 25 percent of average peak day demands.
2. **Fire Flow Storage:** Fire flow storage is the amount of water needed to combat fires occurring in the distribution system. Required fire flow 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 or a fire suppression system engineer. Storage requirements vary between 180,000 gallons and 540,000 gallons depending on facilities within the service area of the tank.
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. For the District, the critical scenario appears to be providing water during a power outage during the peak day. The level of service established for existing customers is to provide 6 hours of peak day demand of emergency storage.

In addition to these baseline requirements, the combined operational and emergency storage can be no less than the average day demand per State of Utah requirements. Storage requirements are calculated for the system as a whole and for each individual zone.

Conveyance. 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 District tries to maintain pressure between 60 psi and 120 psi for the full range of demands (peak hour and to static conditions). Where topography would require a large number of pressure reducing valves (terrain slopes greater than 5 percent) to maintain pressures in that range, the District should be capable of maintaining at least 40 psi during peak day demand and 30 psi during peak hour demand, which is consistent with State standards (State of Utah Administrative Rule R309-105-9).
4. Fire flow demands on the culinary system may range between 1,000 gpm and 4,000 gpm depending on specific fire suppression requirements as specified by the District's Fire Marshal (Unified Fire Authority). In no case does the District allow residual fire flow pressure to drop below State of Utah minimum requirements (20 psi) during peak day demand.

The performance standard defines the level of service the District has established to satisfy District and/or State performance requirements. For culinary water, this standard has been based on current District standards and requirements of the State of Utah Division of Drinking Water.

Administrative and Service Buildings. In addition to the water system needs, Magna Water District personnel need to be able to provide administrative and service 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. It is proposed that both existing and future users pay for these facilities in proportion to their overall use in the system. Thus, the level of service provided by the facility will be the same for existing and new users. The District's existing facilities are expected to be satisfactory to provide space for personnel through 2065 (i.e. there is some excess space available today that is available for additional personnel to fill in the future to support the needs of future users through approximately 2065). This assumes that the Little Valley service area will likely require additional admin / maintenance facilities.

Existing Level of Service

Existing level of service has been divided into the same components as identified for the system performance standard (production capacity, storage, conveyance, and administrative and service buildings). Existing level of service values are summarized in Table 2. For comparison purposes, Table 2 also includes a summary of the existing performance standards.

Table 2
Existing Performance Standards and Level of Service
for Various System Requirements

	Existing Performance Standard	Existing Level of Service
Production Capacity		
Production Capacity (gpd/ERU) ¹	1,493	1,973
Storage		
Storage (gallons/ERU) ²	672	1,666
Conveyance (Transmission, Pumping, and Distribution)		
Culinary Peak Day Demand Pressure (psi) / Percent of System that Meets the Standard	40 / 100%	100%
Culinary Peak Hour Demand Pressure (psi) / Percent of System that Meets the Standard	30 / 100%	100%
Culinary Maximum Pipe Velocity (feet per second) / Percent of System that Meets the Standard	7 / 100%	99.9%
Secondary Peak Hour Demand Pressure (psi) / Percent of System that Meets the Standard	30 / 100%	100%
Minimum Available Fire Flow at 20 psi during Peak Day Demand (gpm) / Percent of System that Meets the Standard	1500 ³ / 100%	93.8%
Maximum Pipe Velocity Peak Hour (feet per second)	10	100%
Administration and Service Buildings		
Available Space to Required Need Ratio	1.0	1.79

¹This includes the District's recommended safety factor for reliability and redundancy for peak day demand of the culinary and secondary water systems.

²Does not include fire flow storage, only equalization storage. Shown for services using culinary water for outdoor irrigation (the more common scenario currently).

³Shown for typical residential need. Actual fire flow requirements for individual structures per fire code as documented in the Master Plan.

In some cases, the District's performance standard is higher than the existing level of service and indicates there is some deficiency in the existing system. 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 (i.e. new users will not be required to pay to remediate existing deficiencies in the system).

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.

By definition, the proposed future level of service will be equal to the performance standard. No changes are proposed to the current performance standard and corresponding level of service. It will be noted that there is a small change in the value of the production capacity performance standard. This is not because the requirements have changed but because the portion of capacity required for redundancy changes slightly with the overall increase in system demand. Table 3 summarizes the proposed performance standards and level of service.

Table 3
Proposed Performance Standards and Level of Service
for Various System Requirements

	Proposed Performance Standard	Proposed Level of Service
Production Capacity		
Production Capacity (gpd/ERU) ¹	1,323	1,657
Storage		
Storage (gallons/ERU)	596	1,399
Conveyance (Transmission, Pumping, and Distribution)		
Culinary Peak Day Demand Pressure (psi) / Percent of System that Meets the Standard	40 / 100%	100%
Culinary Peak Hour Demand Pressure (psi) / Percent of System that Meets the Standard	30 / 100%	100%
Culinary Maximum Pipe Velocity (feet per second) / Percent of System that Meets the Standard	7 / 100%	100%
Secondary Peak Hour Demand Pressure (psi) / Percent of System that Meets the Standard	30 / 100%	100%
Minimum Available Fire Flow at 20 psi during Peak Day Demand (gpm) ² / Percent of System that Meets the Standard	1500 ² / 100%	100%
Maximum Pipe Velocity Peak Hour (feet per second)	7.0 / 100%	100%
Administration and Service Buildings		
Available Space to Required Need Ratio	1.0	1.0

¹ This includes the District's recommended safety factor for reliability and redundancy for peak day demand of the culinary and secondary water systems. Proposed performance standard decreases slightly from existing as a result of conservation and more demand over which the reliability and redundancy safety factor is applied.

² Shown for typical residential need. Actual fire flow requirements for individual structures per fire code as documented in the 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, the system has been divided into different components (production capacity, storage, conveyance, and administration & service buildings). 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

Over the last several years, the District has completed a number of treatment projects to enable the District to use reuse water as secondary irrigation water. The pump station to deliver this water came online in October 2024. This project was constructed to fill a redundancy gap in the District's system and to meet the needs of future growth. Excess capacity for production has therefore been divided between the District's other sources and the new reuse production capacity as listed in Table 4. Reuse has been primarily built to free up existing culinary supplies to meet new growth.

Table 4
Production Excess Capacity

Use Category	Culinary Wells & Treatment	Shallow Wells and Canal Shares	Reuse Project
Existing Use	99.2%	100.0%	0.0%
Use by 10-Year Growth	0.8%	0.0%	51.6%
Use by Growth Beyond 10 years	0.0%	0.0%	48.4%
Total	100%	100%	100%

Storage

The District owns and operates a number of storage reservoirs. Table 5 summarizes the storage volume in the District's existing reservoirs. The existing and projected future use of existing storage capacity is also summarized in Table 5. Total percent use of capacity has been weighted by the documented actual cost of capacity in each reservoir.

Since all new users will be connected to the proposed secondary irrigation system, new users will only occupy the "indoor water use" portion of storage in the District's culinary water storage tanks. Storage for "outdoor water use" will be provided by a new secondary irrigation storage tank. This has been accounted for in the percentages shown in Table 5 in order to avoid double charging new users for the capacity in the existing and future facilities.

Table 5
Existing Storage Facilities

Tank Service Area	Available Storage (gallons)	Existing Use	Use by 10-Year Growth	Use by Growth Beyond 10 Years
Culinary				
Zone 3 Tank	1,250,000	45.32%	18.62%	36.06%
4100 South & Bacchus	10,500,000	66.84%	0.00%	33.16%
3500 South & 7600 West	7,000,000	54.13%	2.32%	43.55%
Secondary				
Zone 3 Reservoir ¹		32.17%	17.96%	49.86%
Zone 2 Reservoir	6,270,000	83.07%	0.00%	16.93%
3500 South	5,050,000	94.79%	5.21%	0.00%

¹This reservoir is under construction, but the land was purchased previously.

Conveyance (Transmission, Pumping, and Distribution)

To calculate the percentage of existing capacity to be used by future growth in existing facilities, existing and future flows were examined in the system hydraulic computer 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. In gravity systems such as sewer and storm drain, it is usually possible to do an analysis of available capacity on a pipe by pipe basis. Unfortunately, this is often not the case with pressurized water systems. Identifying how much 10-year growth and growth beyond 10-year users utilize each distribution pipe can often vary significantly between operational scenarios because flows can reverse directions and loop through different paths as growth occurs and as new pipes are added to the water system. In these cases, the preferred method used to calculate excess capacity available for use by future flows is to treat all pipelines as an interrelated system and examine cumulative use of capacity as a whole. The process for this is as follows:

- 1. 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 available capacity for individual facilities. Where the 10-year growth flow exceeded the capacity of the facility (often identified where velocities exceed 7 ft/sec during peak hour demands), the available excess capacity is zero. By assigning a capacity of zero, this eliminated facilities where there is no excess capacity available to future users and facilities are scheduled to be replaced. This effectively eliminates existing pipes that are considered deficient either for existing use or 10-year growth and avoids double counting the capacity of these pipelines.
- 2. Identify Future Needed Capacity** – Based on projected growth as will be discussed subsequently, the percentage of needed capacity in the system is calculated for each of the growth windows (existing development, 10-year growth, and growth beyond 10 years).
- 3. Identify Proportional Value of Existing and Future Infrastructure** – Based on analysis contained in the District's master plan, the proportional value of infrastructure was developed for each of the growth windows. This is based on the value of existing installed infrastructure and the identified project costs of all recommended projects remaining to complete a system capable of conveying water and satisfying demands at buildout.
- 4. Determine the Portion to Needed Future Capacity Being Satisfied Through Existing**

Facilities – With the projected proportion use of future capacity and proportional value of existing and future facilities, it is possible to calculate the use of capacity in any group of facilities if it is assumed that all growth periods will use infrastructure in equal proportions. This is a reasonable assumption in any system such as Magna Water District where future growth consists of infill or growth that will rely on a large percentage of the existing distribution and transmission pipes. Based on this approach, the capacity for future users satisfied by future infrastructure can be subtracted from the total future capacity need with the remaining need for capacity satisfied through existing infrastructure.

Based on the method described above, the amount of excess capacity in existing transmission and pumping facilities available to accommodate future growth and the demands placed on the existing facilities by new development activity has been calculated. This is summarized in Table 6 which has been subdivided into subareas. Zones 1 and 2 are areas where most of the facilities are existing and there is little new infrastructure. Zone 3 represents a quickly developing area where there is a significant amount of new infrastructure.

Table 6
Conveyance System Excess Capacity

Use Category	Zones 1 & 2	Zone 3
Existing Use	81.03%	48.71%
Use by 10-Year Growth	3.49%	30.67%
Use by Growth Beyond 10 years	15.48%	20.62%
Total	100%	100%

Administration and Service Buildings

As discussed under the existing and proposed level of service sections, Magna Water District's District Office has sufficient capacity through 2065 and has excess capacity for future growth as listed in Table 7. This assumes additional admin space will be required for the Little Valley service area.

Table 7
Administrative Excess Capacity

Use Category	District Area Percent Use
Existing Use	55.9%
Use by 10-Year Growth	10.6%
Use by Growth Beyond 10 years	33.5%
Total	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 Master Plan studies. Growth projections include consideration of developable area, zoning, the nature of surrounding development, designated open space and other factors. Future growth as projected in the District's Water Master Plan is shown in Table 8.

Table 8
Projected Magna Water District Water System Growth

Year	Total ERUs	Irrigated Acres	Peak Day Demand¹ (mgd)
2025	10,710	1,040	14.39
2030	11,738	1,097	14.77
2035	12,751	1,151	15.19
2040	13,676	1,209	15.58
2045	14,662	1,256	16.08
2050	15,692	1,307	16.60
2055	16,841	1,362	17.17
2060	17,998	1,418	17.72
2065	19,160	1,474	18.26
2070	20,136	1,514	18.85
2075	21,162	1,551	19.42
2080	22,184	1,587	19.99
2085	23,207	1,623	20.56
2090	23,309	1,627	20.61

¹Total indoor and outdoor system demand

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 Culinary Water and Secondary Irrigation Master Plans.

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 facilities were estimated using size data provided by the District and a hydraulic computer 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).

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. 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.

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

Project No.	Construction Timeframe	Description	Project Cost	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
Culinary Storage Facilities									
CS-2	5-10	Zone 3 III Culinary	\$2,450,000	0.0%	34.1%	65.9%	\$0	\$834,274	\$1,615,726
Secondary Storage Facilities									
SS-1	0-5	Zone 3 Secondary & SD-23	\$1,847,000	32.2%	18.0%	49.9%	\$594,252	\$331,772	\$920,976
Booster Stations									
CBS-1	5-10	Zone 3 II Culinary	\$775,000	39.8%	19.8%	40.4%	\$308,260	\$153,608	\$313,131
SBS-3	0-5	Zone 2 II Secondary (8000 West)	\$200,000	3.4%	28.6%	68.0%	\$6,752	\$57,291	\$135,957
Source Production									
S-4	0-5	Well Field SCADA	\$700,000	99.2%	0.8%	0.0%	\$694,590	\$5,410	\$0
S-5	0-5	EDR 3rd Stage	\$3,000,000	99.2%	0.8%	0.0%	\$2,976,815	\$23,185	\$0
Culinary Distribution Improvements									
CD-1	0-5	Zone 3 Conveyance	\$397,000	0.0%	32.5%	67.5%	\$0	\$128,886	\$268,114
CD-5	0-5	Zone 3 Conveyance 33%	\$1,303,000	0.0%	32.5%	67.5%	\$0	\$423,017	\$879,983
CD-9	0-5	Zone 1 Conveyance	\$2,509,000	0.0%	49.0%	51.0%	\$0	\$1,229,837	\$1,279,163
CMC-1	0-5	8800 W, 3100 S to 2600 S Pipe Upsize	\$1,194,000	0.0%	49.0%	51.0%	\$0	\$585,263	\$608,737
CPZ-1	5-10	3000 S, 9200 W to 9000 W Zone Change	\$313,000	95.3%	0.9%	3.8%	\$298,395	\$2,738	\$11,866
CDE-1	0-5	Twain Dr & Thoreau Dr Dead-End	\$22,000	76.7%	11.4%	11.9%	\$16,881	\$2,509	\$2,610
CDE-2	0-5	Westbury Dr,8070 W & 8035 W	\$31,000	76.7%	11.4%	11.9%	\$23,787	\$3,535	\$3,677
		Subtotal Culinary Pipe	\$5,769,000						
Secondary Distribution Improvements									
SD-1	0-5	3100 S, Dayton St to 7900 W	\$973,000	3.4%	28.6%	68.0%	\$32,847	\$278,722	\$661,431
SD-2	0-5	3100 S, 7900 W to 7600 W	\$1,304,000	3.4%	28.6%	68.0%	\$44,021	\$373,539	\$886,440
SD-4	0-5	Kennecott Foothills Development	\$672,000	0.0%	27.1%	72.9%	\$0	\$181,817	\$490,183
SD-8	0-5	3100 S, 7600 W to 7200 W	\$1,143,000	68.9%	4.1%	26.9%	\$787,663	\$47,378	\$307,959
SD-14	5-10	SR201 Southside, 7600 W to 8400 W	\$964,000	0.0%	30.1%	69.9%	\$0	\$290,418	\$673,582
SD-15	5-10	8400 W, 2600 S to SR201	\$489,000	0.0%	30.1%	69.9%	\$0	\$147,318	\$341,682
SD-16	0-5	8000 W Booster Piping	\$1,122,000	3.4%	28.6%	68.0%	\$37,877	\$321,404	\$762,719
SD-22	0-5	Zone 3, 8200 W Pipe	\$784,000	31.7%	27.1%	41.2%	\$248,524	\$212,119	\$323,357
SD-24	5-10	Zone 1 Transmission at Golf Course	\$2,813,000	0.0%	30.1%	69.9%	\$0	\$847,454	\$1,965,546
SD-25	5-10	Zone 1 Kennecott Foothills	\$752,000	0.0%	30.8%	69.2%	\$0	\$231,737	\$520,263
SD-30	5-10	Belfast Dr Connection	\$798,000	83.1%	0.0%	16.9%	\$663,005	\$0	\$134,995
		Subtotal Secondary Pipe	\$11,814,000						
		Total	\$26,555,000				\$6,733,670	\$6,713,233	\$13,108,097

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(15), 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 many of the projects identified in the table are required solely to meet future growth, some projects also provide a benefit to existing users.

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 proportionate utilization of the facility. These percentages have been calculated based on the projected utilization of each facility. A few additional notes regarding specific projects are as follows:

- **Zone 3 Secondary Storage.** This facility is under construction and will meet the storage requirements of many existing users currently supported via a variable frequency drive booster pump system.
- **Boosters.** The Zone 3 II Culinary booster will provide redundant capacity for Zone 3 and is considered a level of service upgrade for the area. It is necessary to supply the future tank that will support future fire flow demands at the north end of the foothill Zone 3. The Zone 2 secondary booster will help relieve an existing booster that is operating all pumps (has an existing deficiency).
- **Source Production Projects.** These projects are considered to increase the level of service for the District’s service area. Cost distribution for these two projects were calculated using the District’s existing, 10 year, and buildout ERUs.
- **Transmission Pipes.** There are a number of transmission pipelines in the secondary system that will also benefit existing users via additional looping and increased capacity. The capacity used by existing, 10-year, and buildout was calculated for proportionate use.

Basis of Construction Cost Estimates

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

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 excluded 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 or eliminate 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.

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; or
 - 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.



Andrew T. McKinnon, P.E.

Water Impact Fee Analysis

January 2026

Prepared for:



Prepared by:



EXECUTIVE SUMMARY

WATER IMPACT FEE ANALYSIS

The purpose of the impact fee analysis (IFA) is to calculate the allowable impact fee that may be assessed to new development in accordance with Utah Code.

WHY ASSESS AN IMPACT FEE?

Until new development utilizes the full capacity of existing facilities the District can assess an impact fee to recover its cost of latent capacity available to serve future development. The general impact fee methodology divides the available capacity of existing and future capital projects between the number of existing and future users. Capacity is measured in terms of Equivalent Residential Connection, or ERC, which represents the demand that a typical single-family residence places on the system.

HOW ARE IMPACT FEES CALCULATED?

A fair impact fee is calculated by dividing the cost of existing and future facilities by the amount of new growth that will benefit from the unused capacity. Only the capacity that is needed to serve the projected growth within the next ten years is included in the fee. Costs used in the calculation of impact fees include:

- New facilities required to maintain (but not exceed) the proposed level of service identified in the IFFP; only those expected to be built within ten years are considered in the final calculations of the impact fee.
- Historic costs of existing facilities that will serve new development
- Cost of professional services for engineering, planning, and preparation of the impact fee facilities plan and impact fee analysis

Costs not used in the impact fee calculation

- Operational and maintenance costs
- Cost of facilities constructed beyond 10 years in the future
- Cost associated with capacity not expected to be used within 10 years
- Cost of facilities funded by grants, developer contributions, or other funds which the District is not required to repay
- Cost of renovating or reconstructing facilities which do not provide new capacity or needed enhancement of services to serve future development

IMPACT FEE CALCULATION

Impact fees for this analysis were calculated by dividing the proportional cost of facilities required to service 10-year growth by the amount of growth expected over the next 10-years (based on ERCs). This is done for each of the major system components. Calculated impact fees by component are summarized in Table ES-1.

Table ES-1
Water Impact Fee Calculation per ERC

System Components	Total Cost of Component	% Serving 10-year Growth	Cost Serving 10-year Growth	10-year ERCs Served	Cost Per ERC
Existing Facilities – Admin Building	\$5,452,116	10.65%	\$580,627	2,041	\$284.55
Production					
Existing Facilities	\$36,109,471	14.27%	\$5,154,108	2,041	\$2,525.89
Existing Facility Interest Costs	\$1,229,066	14.27%	\$175,432	2,041	\$85.97
10-year Projects	\$3,700,000	0.77%	\$28,595	2,041	\$14.01
10-Year Project Interest Costs	\$0	0.00%	\$0	2,041	\$0.00
Credit for User Fees Paid Toward Existing					(\$463.12)
Subtotal	\$41,038,537		\$5,358,135		\$2,163
Storage					
Existing Facilities	\$16,812,602	13.68%	\$2,300,413	2,041	\$1,127.37
Existing Facility Interest Costs	\$0	0.00%	\$0	2,041	\$0.00
10-year Projects	\$4,297,000	27.14%	\$1,166,046	2,041	\$571.45
10-Year Project Interest Costs	\$0	0.00%	\$0	2,041	\$0.00
Credit for User Fees Paid Toward Existing					0
Subtotal	\$21,109,602		\$3,466,459		\$1,698.82
Conveyance					
Existing Facilities	\$41,516,160	6.06%	\$2,517,442	2,041	\$1,233.73
Existing Facility Interest Costs	\$2,313,853	6.06%	\$140,307	2,041	\$68.76
10-year Projects	\$18,558,000	29.74%	\$5,518,591	2,041	\$2,704.51
10-Year Project Interest Costs	\$0	0.00%	\$0	2,041	\$0.00
Credit for User Fees Paid Toward Existing					(\$268.35)
Subtotal	\$62,388,012		\$8,176,340		\$3,738.66
Studies	\$74,949	81.65%	\$56,942	2,041	\$27.91
Total	\$130,063,217		\$17,638,503		\$7,913

The total impact fee per ERC can be calculated by adding up the fee for each system component. This is separate from any additional charges levied by the District for hookup costs or for other reasonable permit and application fees.

RECOMMENDED IMPACT FEE

The total calculated impact fee per ERC with the appropriate user fee credits is summarized in Table ES-2. This is the legal maximum amount that may be charged as an impact fee. A lower amount may be adopted if desired, but a higher fee is not allowable under the requirements of Utah Code.

Table ES-2
Recommended Impact Fee, per ERC

Maximum Allowable Impact Fee (Per ERC, by Year)						
	2026	2027	2028	2029	2030	2031
Base Impact Fee	\$8,644.16	\$8,644.16	\$8,644.16	\$8,644.16	\$8,644.16	\$8,644.16
User Fee Credit	\$731.47	\$632.88	\$550.93	\$474.16	\$405.06	\$347.48
Total Overall Fee	\$7,912.69	\$8,011.28	\$8,093.23	\$8,169.99	\$8,239.10	\$8,296.68

IMPACT FEE ANALYSIS

INTRODUCTION

Magna Water District (District) has retained Bowen Collins & Associates (BC&A) to prepare an impact fee analysis (IFA) for its culinary water system and secondary irrigation system based on a recently completed impact fee facilities plan (IFFP). An impact fee is a one-time fee, not a tax, imposed upon new development activity as a condition of development approval to mitigate the impact of the new development on public infrastructure. The purpose of an IFA is to calculate the allowable impact fee that may be assessed to new development in accordance with Utah Code.

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

1. Identify the impact of anticipated development activity on existing capacity
2. Identify the impact of anticipated development activity on system improvements required to maintain the established level of service
3. Demonstrate how the impacts are reasonably related to anticipated development activity
4. Estimate the proportionate share of:
 - a. Costs of existing capacity that will be recouped
 - b. Costs of impacts on system improvements that are reasonably related to the new development activity
5. Identify how the impact fee was calculated
6. Consider the following additional issues
 - a. Manner of financing improvements
 - b. Dedication of system improvements
 - c. Extraordinary costs in servicing newly developed properties
 - d. Time-price differential

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

IMPACT ON SYSTEM - 11-36a-304(a)(b)

Growth within the District's service area, and projections of water demand resulting from said growth is discussed in detail in the District's Water Master Plan and IFFP. For the purposes of impact fee calculation, growth in the system has been expressed in terms of equivalent residential connections (ERCs). An ERC represents the demand that a typical single-family residence places on the system. Projected growth in ERCs for the District water system is summarized in Table 1.

Table 1
Service Area ERC Projections

Year	Total ERCs
2025	10,710
2030	11,738
2035	12,751
2040	13,676
2045	14,662
2050	15,692
2055	16,841
2060	17,998
2065	19,160
2070	20,136
2075	21,162
2080	22,184
2085	23,207
2090	23,309

As indicated in the table, projected growth for the 10-year planning window of this impact fee analysis is 2,041 ERCs. To maintain the established level of service, projected future growth will be met through a combination of available excess capacity in existing facilities and construction of additional capacity in new facilities. Use of excess capacity and required system improvements are detailed in the IFFP.

RELATION OF IMPACTS TO ANTICIPATED DEVELOPMENT - 11-36a-304(1)(c)

To satisfy the requirements of state law, it is necessary to show that all impacts identified in the impact fee analysis are reasonably related to the anticipated development activity. This has been documented in detail in the Impact Fee Facilities Plan. In short, only that capacity directly associated with demand placed upon existing system facilities by future development has been identified as an impact of the development. The steps completed to identify the impacts of anticipated development are as follows.

1. **Existing Demand** – The demand existing development places on the system was estimated based on historic demand records.
2. **Existing Capacity** – The capacities of existing facilities were calculated based on the level of service criteria established for each type of facility in the Impact Fee Facilities Plan.
3. **Existing Deficiencies** – Existing deficiencies in the system were looked for by comparing defined levels of service against calculated capacities. Where existing deficiencies existed, projects were identified to eliminate the deficiencies. Costs associated with existing deficiencies were not assigned to impacts of development.
4. **Future Demand** - The demand future development will place on the system was estimated based on development projections as discussed in the Impact Fee Facilities Plan.

5. **Future Demand Use of Existing Capacity** – Whenever possible, excess capacity in existing facilities has been used to serve future demands. Where this occurs, the amount of capacity used by future growth has been calculated as described in detail in the Impact Fee Facilities Plan.
6. **Future Deficiencies** – Where excess capacity is inadequate to meet projected demands, future deficiencies in the system were identified using the same established level of service criteria used for existing demands.
7. **Recommended Improvements** – Needed system improvements were identified to meet demands associated with future development.

PROPORTIONATE SHARE ANALYSIS - 11-36a-304(d)

A comprehensive proportionate share analysis associated with anticipated future development and its impact on the system was completed as part of the Impact Fee Facilities Plan. A summary of that analysis is contained here with additional discussion of the costs of facilities impacted by growth.

Excess Capacity to Accommodate Future Growth

Defining existing system capacity in terms of a single number is difficult. To improve the accuracy of the analysis, the system has been divided into four different components (production, storage, conveyance, administrative and service buildings). As part of the Impact Fee Facilities Plan, the capacity used by each type of user was analyzed in detail. Based on the analysis, the calculated percentage of existing capacity in system facilities used by existing users, growth during the 10-year planning window, and growth beyond the 10-year planning window is summarized in Tables 2 - 5.

Table 2
Use of Existing Production Capacity

Use Category	Cost of Culinary Wells & Treatment	Cost of Culinary Shallow Wells & Canal Shares ¹	Cost of Reuse Project ²	Total Production Costs
Existing Use	\$26,304,469	\$0	\$0	\$26,304,469
Use by 10-Year Growth	\$205,002	\$0	\$4,949,105	\$5,154,108
Use by Growth Beyond 10 years	\$0	\$0	\$4,650,895	\$4,650,895
Total	\$26,509,471	\$0	\$9,600,000	\$36,109,471

¹canal shares have been predominantly contributed by developers and shallow well costs were not separated from transmission costs in District records.

²Reuse costs are split 80% to secondary and 20% to treatment.

Table 3
Use of Existing Storage Capacity

Tank Service Area	Cost of Existing Storage	Existing Use	Use by 10-Year Growth	Use by Growth Beyond 10 Years
Culinary				
Zone 3 III Tank (Land purchase)	\$2,726,089	0	\$928,288	\$1,797,801
Zone 3 Tank	\$3,350,786	\$1,518,631	\$623,782	\$1,208,373
4100 South & Bacchus	\$2,917,732	\$1,950,351	\$0	\$967,381
3500 South & 7600 West	\$2,135,961	\$1,156,096	\$49,620	\$930,245
Secondary				
Zone 3 Reservoir	\$3,761,585	\$1,210,249	\$675,683	\$1,875,652
Zone 2 Reservoir	\$1,478,057	\$1,227,893	\$0	\$250,164
3500 South	\$442,392	\$419,353	\$23,039	\$0
Total	\$16,812,602	\$7,482,573	\$2,300,413	\$7,029,616

Table 4
Use of Existing Conveyance Capacity

Use Category	Zones 1 & 2	Zone 3	Total
Existing Use	\$30,459,735	\$1,912,352	\$32,372,087
Use by 10-Year Growth	\$1,313,340	\$1,204,102	\$2,517,442
Use by Growth Beyond 10 years	\$5,817,090	\$809,540	\$6,626,630
Total	\$37,590,166	\$3,925,994	\$41,516,160

Table 5
Use of Existing Administrative/Service Capacity

Use Category	District Area Use
Existing Use	\$3,047,587
Use by 10-Year Growth	\$580,627
Use by Growth Beyond 10 years	\$1,823,902
Total	\$5,452,116

Existing System Infrastructure Costs

To calculate the actual cost of excess capacity in the existing system, BC&A first looked at the actual cost of all existing facilities. Table 6 lists the actual construction costs of existing components of the District's water system. These costs were obtained from a fixed asset detailed report for the District through fiscal year ending 2024 and only include facilities paid for by the District (i.e. excludes all infrastructure contributed by developers). Detailed costs for the facilities included in the table are contained in Appendix A.

Table 6
Existing Infrastructure Costs

Existing Infrastructure Type	Existing Infrastructure Cost	Percent to 10-Year Growth	Cost to 10-Year Growth
Production	\$36,109,471	14.27%	\$5,154,108
Storage	\$16,812,602	13.68%	\$2,300,413
Conveyance	\$41,516,160	6.06%	\$2,517,442
Administrative	\$5,452,116	10.65%	\$580,627

In this study, public facility costs already incurred by the District will be included in the impact fee only to the extent that new growth will be served by the previously constructed improvements.

Reimbursement Agreements

There are no current reimbursement agreements existing within the system that have not otherwise been incorporated into the existing system values.

Future Improvements

In addition to using available existing capacity, demand associated with projected future development will be met through the construction of additional capacity in new facilities. A primary focus of the Impact Fee Facilities Plan was the identification of projects required to serve new development. The results of the Impact Fee Facilities Plan are summarized in Table 7. Included in the table are the costs of each required project and the portion of costs associated with development.

Table 7
Impact Fee Eligible Capital Projects

Project No.	Description	Project Cost	Percent to 10-year	Cost to 10-Year
Culinary Storage Facilities				
CS-2	Zone 3 III Culinary	\$2,450,000	34.1%	\$834,274
Secondary Storage Facilities				
SS-1	Zone 3 Secondary & SD-23	\$1,847,000	18.0%	\$331,772
Booster Stations				
CBS-1	Zone 3 II Culinary	\$775,000	19.8%	\$153,608
SBS-3	Zone 2 II Secondary (8000 West)	\$200,000	28.6%	\$57,291
Source Production				
S-4	Well Field SCADA	\$700,000	0.8%	\$5,410
S-5	EDR 3rd Stage	\$3,000,000	0.8%	\$23,185
Culinary Distribution Improvements				
CD-1	Zone 3 Conveyance	\$397,000	32.5%	\$128,886
CD-5	Zone 3 Conveyance 33%	\$1,303,000	32.5%	\$423,017
CD-9	Zone 1 Conveyance	\$2,509,000	49.0%	\$1,229,837
CMC-1	8800 W, 3100 S to 2600 S Pipe Upsize	\$1,194,000	49.0%	\$585,263
CPZ-1	3000 S, 9200 W to 9000 W Zone Change	\$313,000	0.9%	\$2,738
CDE-1	Twain Dr & Thoreau Dr Dead-End	\$22,000	11.4%	\$2,509
CDE-2	Westbury Dr, 8070 W & 8035 W	\$31,000	11.4%	\$3,535
	Subtotal Culinary Pipe	\$5,769,000		\$2,375,786
Secondary Distribution Improvements				
SD-1	3100 S, Dayton St to 7900 W	\$973,000	28.6%	\$278,722
SD-2	3100 S, 7900 W to 7600 W	\$1,304,000	28.6%	\$373,539
SD-4	Kennecott Foothills Development	\$672,000	27.1%	\$181,817
SD-8	3100 S, 7600 W to 7200 W	\$1,143,000	4.1%	\$47,378
SD-14	SR201 Southside, 7600 W to 8400 W	\$964,000	30.1%	\$290,418
SD-15	8400 W, 2600 S to SR201	\$489,000	30.1%	\$147,318
SD-16	8000 W Booster Piping	\$1,122,000	28.6%	\$321,404
SD-22	Zone 3, 8200 W Pipe	\$784,000	27.1%	\$212,119
SD-24	Zone 1 Transmission at Golf Course	\$2,813,000	30.1%	\$847,454
SD-25	Zone 1 Kennecott Foothills	\$752,000	30.8%	\$231,737
SD-30	Belfast Dr Connection	\$798,000	0.0%	\$0
	Subtotal Secondary Pipe	\$11,814,000		\$2,931,906
	Total	\$26,555,000		\$6,713,233

All cost estimates contained in this IFA have been taken directly from the IFFP. The basis of these estimates are documented in the IFFP and are based on previous construction costs for similar projects.

Impact Fee Studies

Utah Code allows for the cost of planning and engineering associated with impact fee calculations to be recovered as part of an impact fee. The final impact fee will include the cost of this study and recommended planning projects in the next ten years as summarized in Table 8.

Table 8
Impact Fee Costs Associated with Studies per ERC

System Components	Total Cost of Component	% Serving 10-year Growth	Cost Serving 10-year Growth	10-year ERCs Served	Cost Per ERC
2025 Water Master Plan	\$54,022	67%	\$36,015	2,041	\$17.65
2025 IFFP & IFA	\$20,927	100%	\$20,927	2,041	\$10.26
Subtotal	\$74,949		\$56,942		\$27.91

IMPACT FEE CALCULATION - 11-36a-304(1)(e)

Using the information contained in the previous sections, impact fees can be calculated by dividing the proportional cost of facilities required to service 10-year growth by the amount of growth expected over the next 10-years. This is done for each of the major system components identified previously. Calculated impact fees by component are summarized in Table 9.

Table 9
Impact Fee Calculation per ERC

System Components	Total Cost of Component	% Serving 10-year Growth	Cost Serving 10-year Growth	10-year ERCs Served	Cost Per ERC
Existing Facilities – Admin Building	\$5,452,116	10.65%	\$580,627	2,041	\$284.55
Production					
Existing Facilities	\$36,109,471	14.27%	\$5,154,108	2,041	\$2,525.89
Existing Facility Interest Costs	\$1,229,066	14.27%	\$175,432	2,041	\$85.97
10-year Projects	\$3,700,000	0.77%	\$28,595	2,041	\$14.01
10-Year Project Interest Costs	\$0	0.00%	\$0	2,041	\$0.00
Credit for User Fees Paid Toward Existing					(\$463.12)
Subtotal	\$41,038,537		\$5,358,135		\$2,163
Storage					
Existing Facilities	\$16,812,602	13.68%	\$2,300,413	2,041	\$1,127.37
Existing Facility Interest Costs	\$0	0.00%	\$0	2,041	\$0.00
10-year Projects	\$4,297,000	27.14%	\$1,166,046	2,041	\$571.45
10-Year Project Interest Costs	\$0	0.00%	\$0	2,041	\$0.00
Credit for User Fees Paid Toward Existing					0
Subtotal	\$21,109,602		\$3,466,459		\$1,698.82
Conveyance					
Existing Facilities	\$41,516,160	6.06%	\$2,517,442	2,041	\$1,233.73
Existing Facility Interest Costs	\$2,313,853	6.06%	\$140,307	2,041	\$68.76
10-year Projects	\$18,558,000	29.74%	\$5,518,591	2,041	\$2,704.51
10-Year Project Interest Costs	\$0	0.00%	\$0	2,041	\$0.00
Credit for User Fees Paid Toward Existing					(\$268.35)
Subtotal	\$62,388,012		\$8,176,340		\$3,738.66
Studies	\$74,949	81.65%	\$56,942	2,041	\$27.91
Total	\$130,063,217		\$17,638,503		\$7,913

The total impact fee per ERC can be calculated by adding up the fee for each type of system component. This is separate from any additional charges levied by the District for hookup costs or for other reasonable permit and application fees.

Bonding Interest Costs

In addition to construction costs, Table 6 includes the cost of bond interest expense where applicable. This includes both historic interest costs on existing facilities where new growth will benefit from excess capacity and future interest costs for bonds required to build projects needed for growth as identified in the Impact Fee Facilities Plan. Similar to project construction costs, only that portion of interest expense associated with capacity for growth is included in the impact fee calculation. In the case of the Magna Water District wastewater system, the following bonds were included in the study:

- **2003 General Obligation Refunding Bond** – This bond was used for improvements to the build initial phases of the District’s secondary transmission and distribution system. The District started payments on this bond in the year 2004. The beginning bond balance was \$1,175,000 with 100 percent of this associated with water improvements. This bond was included in the table above under the Transmission Interest Costs category. Costs shown are actual costs that have been or will be incurred in association with this bond.
- **2007 General Obligation Refunding Bond** – This bond was used to fund improvements to the EDR system. The District started payments on this bond in the year 2009. The beginning bond balance was \$7,100,000 with 100 percent of this associated with water improvements. This bond was included in the table above under the Production Interest Costs category. Costs shown are actual costs that have been or will be incurred in association with this bond.
- **2013 General Obligation Refunding Bond** – This bond was a refunding of a previous bond used for improvements to the District’s wastewater treatment plant, minor sewer collection improvements, and improvements to the EDR system. The District started payments on this bond in the year 2014. The beginning bond balance was \$8,245,000 with 48.22 percent of this associated with water improvements. This bond was included in the table above under the Production Interest Costs category. Costs shown are actual costs that have been or will be incurred in association with this bond.
- **2017 General Obligation Refunding Bond** – This bond was a refunding of a previous bond used for improvements to the District’s wastewater treatment plant, minor sewer collection improvements, EDR treatment, and the water distribution system. The District started payments on this bond in the year 2017. The beginning bond balance was \$13,975,000 with 56.62 percent of this associated with water improvements. This bond was included in the table above under the Production Interest Costs and Transmission Interest Costs categories. Costs shown are actual costs that have been or will be incurred in association with this bond.
- **2019 General Obligation Refunding Bond** – This bond was a refunding of a previous bond used for improvements to the District’s wastewater treatment plant, minor sewer collection improvements, EDR treatment, and the water distribution system. The District started payments on this bond in the year 2019. The beginning bond balance was \$8,025,000 with 56.62 percent of this associated with water improvements. This bond was included in the table above under the Production Interest Costs and Transmission Interest Costs categories. Costs shown are actual costs that have been or will be incurred in association with this bond.
- **Future Water Bonds** – The District does not have any current plans to bond for any further water system improvements.

Credit for User Fees

Not all of the existing deficiencies identified in the plan can be paid for from existing cash reserves. As a result, the plan includes some bonding toward projects that have at least a portion of their costs that benefit existing users. In this situation, user fees will be used to pay for the bonds over their lifetime.

For projects where this is the case, future users will pay for their portion of capacity via impact fees. They cannot also be expected to pay through user rates the portion of future bonds that will be used to build capacity or remedy deficiencies for existing users. This creates the need for a credit for future users. Calculation of this credit is summarized in Table 10 through Table 11. This table includes the following information:

- **Future Administrative Building Costs Paid Through User Fees** – This represents the total amount paid each year by the District toward the portion of future bonds used to increase the level of service for existing users (specifically, the New Public Works Facility).
- **Cost Per ERC** – This column takes the total amount paid and divides it by the number of ERCs projected for each year. This represents the amount paid in each year by each ERC through user rates.
- **Present Value Cost per ERC** – This column takes into account the time value of money assuming a rate of return of 3 percent annually.
- **Total User Fee Credit** – At the bottom of the table, the present value costs for all future years are added together to develop the total user fee credit.

It will be noted that, because the user fee credit is the summation of user fees paid toward existing deficiencies or for increasing the existing level of service in each year, a new user who joins the system in five or ten years will pay less in total user fees than someone who joins the system next year. Thus, the user fee credit will decrease over time. The appropriate user fee can be calculated by adding the present value cost for all years subsequent to a new user's connection to the system.

Table 10
Credit for User Fees Paid Toward Existing – Magna Water District Production

Year	ERCs	Total Bond Payment	Cost Per ERC	PV Cost Per ERC
2026	10,955	\$762,490	\$69.60	\$66.60
2027	11,166	\$632,008	\$56.60	\$51.83
2028	11,329	\$632,610	\$55.84	\$48.93
2029	11,605	\$630,713	\$54.35	\$45.57
2030	11,738	\$517,585	\$44.10	\$35.38
2031	11,990	\$518,409	\$43.24	\$33.20
2032	12,206	\$518,435	\$42.47	\$31.21
2033	12,323	\$518,826	\$42.10	\$29.61
2034	12,504	\$516,984	\$41.34	\$27.82
2035	12,751	\$517,882	\$40.62	\$26.15
2036	12,919	\$517,474	\$40.06	\$24.68
2037	13,053	\$518,904	\$39.75	\$23.44
2038	13,326	\$322,972	\$24.24	\$13.68
2039	13,615	\$126,295	\$9.28	\$5.01
2040	13,676	\$0	\$0.00	\$0.00
2041	13,911	\$0	\$0.00	\$0.00
2042	14,163	\$0	\$0.00	\$0.00
2043	14,224	\$0	\$0.00	\$0.00
Total User Fee Credit				\$463.12

Table 11
Credit for User Fees Paid Toward Existing – Magna Water District Conveyance

Year	ERCs	Total Bond Payment	Cost Per ERC	PV Cost Per ERC
2026	10,955	\$366,216	\$33.43	\$31.99
2027	11,166	\$367,319	\$32.90	\$30.12
2028	11,329	\$359,830	\$31.76	\$27.83
2029	11,605	\$325,620	\$28.06	\$23.53
2030	11,738	\$324,743	\$27.67	\$22.20
2031	11,990	\$325,626	\$27.16	\$20.85
2032	12,206	\$325,653	\$26.68	\$19.61
2033	12,323	\$326,071	\$26.46	\$18.61
2034	12,504	\$324,100	\$25.92	\$17.44
2035	12,751	\$325,061	\$25.49	\$16.42
2036	12,919	\$324,625	\$25.13	\$15.48
2037	13,053	\$326,155	\$24.99	\$14.73
2038	13,326	\$116,430	\$8.74	\$4.93
2039	13,615	\$116,079	\$8.53	\$4.60
2040	13,676	\$0	\$0.00	\$0.00
2041	13,911	\$0	\$0.00	\$0.00
2042	14,163	\$0	\$0.00	\$0.00
2043	14,224	\$0	\$0.00	\$0.00
Total User Fee Credit				\$268.35

Recommended Impact Fee

The total calculated impact fee is summarized in Table 12 and includes appropriate user fee credits applied to the fee. This is the legal maximum amount that may be charged as an impact fee. A lower amount may be adopted if desired, but a higher fee is not allowable under the requirements of Utah Code.

As discussed previously, the calculated user fee credit associated with the impact fees will decrease over time. As a result, the allowable impact fee will increase over time as shown in the table.

Table 12
Recommended Impact Fee, per ERC

Maximum Allowable Impact Fee (Per ERC, by Year)						
	2026	2027	2028	2029	2030	2031
Base Impact Fee	\$8,644.16	\$8,644.16	\$8,644.16	\$8,644.16	\$8,644.16	\$8,644.16
User Fee Credit	\$731.47	\$632.88	\$550.93	\$474.16	\$405.06	\$347.48
Total Overall Fee	\$7,912.69	\$8,011.28	\$8,093.23	\$8,169.99	\$8,239.10	\$8,296.68

Calculation of Non-Standard Impact Fees

The calculations presented previously have been based on a typical equivalent residential connection. The Impact Fee Enactment should include a provision that allows for calculation of a fee for customers other than typical residential connections. Consistent with the level of service standards established in the Impact Fee Facilities Plan, the following formula may be used to calculate an impact fee for a non-standard user based on the calculated daily total water use for an average residential connection.

$$\frac{\text{Estimated Average Daily Water Use}}{582 \text{ gallons per day}^1} \times \text{Impact Fee per ERC} = \text{Impact Fee}$$

¹ Based on average water use consumption (both indoor and outdoor) per ERC from historical Magna Water District records.

ADDITIONAL CONSIDERATIONS - 11-36a-304(2)**MANNER OF FINANCING - 11-36a-304(2)(a-e)**

As part of this Impact Fee Analysis, it is important to consider how each facility has been or will be funded. Potential infrastructure funding includes a combination of different revenue sources.

User Charges

Because infrastructure must generally be built ahead of growth, there often arises 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. Interfund loans should be considered in subsequent accounting of impact fee expenditures.

Special Assessments

Where special assessments exist, the impact fee calculation must take into account funds contributed. No special assessments exist.

Bonds

Where bonding will be required to finance impact fee eligible improvements, the portion of the bond cost and interest expense attributable to future growth may be added to the calculation of the impact fee.

General Taxes

If taxes are used to pay for infrastructure, they should be accounted for in the impact fee calculation. Specifically, any contribution made by property owners through taxes should be credited toward their available capacity in the system. In this case, no taxes are proposed for the construction of infrastructure.

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 has been removed from the system cost.

DEDICATION OF SYSTEM IMPROVEMENTS 11-36a-304(2)(f)

Developer exactions are not the same as grants. If a developer constructs a system improvement or dedicates land for a system improvement identified in the IFFP, or dedicates a public facility that is recognized to reduce the need for a system improvement, the developer may 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 may be required to reimburse the difference to the developer.

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.

EXTRAORDINARY COSTS - 11-36a-304(2)(g)

The Impact Fees Act indicates the analysis should include consideration of any extraordinary costs of servicing newly developed properties. In cases where one area of potential growth may cost significantly more to service than other growth, a separate service area may be warranted. No areas with extraordinary costs have been identified as part of this analysis.

TIME-PRICE DIFFERENTIAL - 11-36a-304(2)(h)

Utah Code allows consideration of time-price differential in order to create fairness for amounts paid at different times. To address time-price differential, this analysis includes adjustments for construction inflation for future construction projects. Per the requirements of the Code, existing infrastructure cost is based on actual historical costs without adjustment.

IMPACT FEE CERTIFICATION - 11-36a-306(2)

This IFA 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 IFA 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(2), Bowen Collins & Associates, makes the following certification:

I certify that the attached impact fee analysis:

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 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; or
 - 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 and every relevant respect with the Impact Fees Act.



Andrew T. McKinnon, P.E.

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