

WASHINGTON COUNTY
WATER CONSERVANCY DISTRICT

2017 REGIONAL WATER IMPACT
FEE FACILITIES PLAN & ANALYSIS

Contents

Executive Summary	2
Introduction.....	2
Impact Fee Facilities Plan and Impact Fee Analysis	2
Level of Service	2
Excess Capacity Used by New Development.....	3
Building Facilities for New Development.....	3
Funding Construction of Facilities Used by New Development	3
Impact Fee Calculation	4
UCA 11-36a-301(1): Impact Fee Facilities Plan.....	4
UCA 11-36a-302(1)(a)(i-ii): Existing and Proposed Service Level.....	4
UCA 11-36a-302(1)(a)(iii): Excess Capacity.....	5
UCA 11-36a-302(1)(a)(iv): Demand on Existing Facilities	6
UCA 11-36a-302(1)(a)(v): Meeting Growth Demands	7
UCA 11-36a-302(2): Funding Sources of System Improvements.....	9
UCA 11-36a-303(1): Impact Fee Analysis.....	11
UCA 11-36a-304(1)(a): Excess Capacity and New Development	11
UCA 11-36a-304(1)(b): System Improvements and New Development	12
UCA 11-36a-302(1)(c): Relation of Anticipated Impacts to Anticipated Development Activity	13
UCA 11-36a-304(2)(a): Cost of Existing Facilities with Excess Capacity	13
UCA 11-36a-304(2)(b): Cost of Future System Improvements.....	14
UCA 11-36a-304(2)(c): Financing Sources for System Improvements.....	14
UCA 11-36a-304(2)(d)-(e): New Development’s Contribution to Financing and Costs of System Improvements ...	15
UCA 11-36a-304(2)(f): Development Credit to Offset Impact Fee.....	15
UCA 11-36a-304(2)(g): Extraordinary Costs of Serving Development	15
UCA 11-36a-304(2)(h): Time-Value Comparison	16
UCA 11-36a-304(1)(d)(i): Proportionate Share of Existing Facilities Costs	16
UCA 11-36a-304(1)(d)(ii): Proportionate Share of Costs of Impacts on Future System Improvements	17
UCA 11-36a-304(1)(e): Impact Fee Calculation	18
UCA 11-36a-306: Certification of Impact Fee Analysis	20
UCA-36a-306(1): Certification of Impact Fee Facilities Plan	20
UCA 36a-306(2): Certification of Impact Fee Analysis	20
Appendices	Error! Bookmark not defined.

Executive Summary

Introduction

In compliance with the Utah Impact Fees Act, Utah Code Ann. § 11-36a-101, *et seq.* (the “Act”), Washington County Water Conservancy District (District) commissioned Applied Analysis and Zions Public Finance, Inc. (Consultants) to prepare the following Regional Water Impact Fee Facilities Plan (IFFP) and Impact Fee Analysis (IFA) for the 10-year planning window spanning 2017 to 2026. This executive summary gives an overview and is intended to summarize the documents in a way that is understandable to a lay person.¹

The District provides water to communities throughout Washington County with facilities it has constructed. The District’s facilities are interconnected to create the District’s system which connects with the city-owned systems in each community. The District delivers water to the cities, who in turn deliver it to individual homes, businesses, and other institutions in their communities through their own systems.

The District’s system has some capacity that is not currently being used. This capacity can supply some water that will be needed by anticipated population growth and new development over the next ten years. However, to supply the communities in Washington County with enough water to meet the demand created by population growth and the construction of additional homes, businesses, and institutions, the District must build more facilities and expand its capacity.

These new facilities will enable the District to provide the communities with the water supply and treatment that will be used by new development as the communities grow, but the new facilities must be paid for. The Act allows the District to charge an impact fee as a condition of development approval to pay for facilities that new development requires. To charge the impact fee, the District must comply with the Act, which requires an IFFP and an IFA.

Impact Fee Facilities Plan and Impact Fee Analysis

As required by the Act, the IFFP describes the facilities needed to serve new development. The IFA describes how the fee to pay for these facilities was calculated. The IFFP and the IFA address some, but not all, of the same factors.

Level of Service

The IFFP first addresses how much water the District’s system must provide for each home, business, or institution—this is called the “level of service.” The Utah State Division of Drinking Water has established rules that all public water systems must comply with to determine how much water the systems must be able to provide.

One of those rules addresses how much water a system must provide for indoor use (water used indoors for drinking, bathing, flushing toilets, washing clothes and dishes, etc.) and for outdoor use (water used for watering lawns, irrigating gardens, washing cars, etc.). Because homes, businesses, and institutions all need different amounts of water, the rule breaks down the amount needed into what is called an “equivalent residential connection.” This term means the amount of water provided to the average residential home. A business or institution, or even a home with a bigger yard, may need more water than one equivalent residential connection, but this is the basic starting unit for calculating how much water is needed.

¹ Section 11-36a-502 of the Act requires a summary of the IFFP, and section 11-36a-303 requires a summary of the IFA.

The rule requires the District to provide each equivalent residential connection with 0.45 acre-feet per year for indoor use. For outdoor use, the rule requires the amount to be calculated based on the geographical zone in which the use occurs. The communities the District serves are located in the hottest zone in Utah (Zone 6), which requires the District to provide each equivalent residential connection 0.44 acre-feet per year for outdoor use. This includes a safety factor (the rule recommends applying one), since water users could end up using more water because of factors like leaky pipes, overwatering lawns and gardens, overspray onto sidewalks, and watering outside the irrigation season (April 1 to October 31).

The rule also recognizes that a different amount of water is used each day. There are days when the demand for water peaks. For example, for a home, water demand might be greatest on a weekend when the whole family is home at the same time, using the toilet, taking showers, washing dishes, doing several loads of laundry, watering the garden, and running through sprinklers. To account for this, the rule requires that the system facilities be sized so that they can provide for this greatest or peak demand, and the rule sets a peaking factor requiring the system to have capacity to provide twice as much as the rule requires be supplied on an average day.

The combined amount of 0.89 acre-feet per year—0.45 acre-feet per year for indoor use and 0.44 acre-feet per year for outdoor use—with a peaking factor of two, is the level of service the District has set for this IFFP. It is the same level of service the District has provided previously.

Excess Capacity Used by New Development

The IFFP next addresses whether the District's system has leftover water and treatment ability after serving all the current users already on the system. This is called "excess capacity." The district has determined that it has some limited excess capacity in its supply facilities (Table 2), and its treatment facilities (Table 3).

The IFA addresses how new development will consume the District's excess capacity, the cost of the existing facilities with excess capacity, and how new development will pay its share of the cost of the excess capacity. New development will consume all available excess capacity in existing facilities. However, it is only charged its share of the original cost of each facility without any interest. The acre-feet and corresponding percent-share of excess capacity remaining in the existing facilities is listed in Table 7 and Table 8. As part of the impact fee, new development will pay its proportionate share of the original cost of these existing facilities based on these percentages as shown in Table 12.

Building Facilities for New Development

The IFFP identifies the demands population growth and new development will impose on the District's existing facilities, and how the District will meet those demands. New development over the next ten years will use up all of excess capacity in existing supply and treatment facilities and still require additional water and treatment. The IFFP identifies future facilities necessary to meet this additional demand. The facilities are listed in Table 4 and Table 5.

Funding Construction of Facilities Used by New Development

The IFFP and IFA both identify the revenue sources that will be used to pay for the excess capacity in existing facilities and the construction of new facilities (Table 6). Existing facilities are funded through current revenue bonds. The impact fee will help repay new development's portion of current revenue bonds that finance existing facilities. The District will pay for future facilities necessitated by development with impact fees.

The IFA addresses new development's contributions to the costs and financing of existing facilities and future facilities. New development will use all the existing excess capacity and the vast majority of the capacity of future facilities. The impact fee is calculated to finance the costs of existing excess capacity and the portion of the future facilities capacity

consumed by new development. New development's proportionate shares of existing facility costs and future facility costs are shown in Table 12 and Table 13. Each home, business, or institution constructed in the next ten years will only pay its proportionate share of the future facility costs. The total cost for new facilities will be paid for by other new development over a much longer period of time.

The IFA also addresses whether other revenue sources will be used to fund excess capacity in existing facilities or the construction of facilities used by new development. The District does not expect any federal grants will be made to contribute to the cost of these facilities. Nor does it expect dedications of system improvements by development activity. Should these be received, they will be credited appropriately toward the proposed impact fee total.

The monthly water rates paid by customers and the district's portion of property taxes pay for operation, maintenance, repair and replacement costs of facilities rather than the construction of new facilities to serve new development. However, the District's Board of Trustees may determine that a portion of the costs that could otherwise be paid for by impact fees will be paid for by monthly water rates or property taxes.

Impact Fee Calculation

To calculate the impact fee, the cost per acre-foot for supply and treatment facilities is determined. These costs are multiplied by 0.89 acre-foot—the amount of water the Utah Division of Drinking Water requires to be supplied annually to one equivalent residential connection—to arrive at the total impact fee for one equivalent residential connection. Table 14, Table 15, and Table 16 show this calculation in detail.

UCA 11-36a-301(1): Impact Fee Facilities Plan

Section 11-36a-301(1) of the Utah Impact Fees Act (Act) requires an Impact Fee Facilities Plan (IFFP) be prepared to determine the public facilities required to serve demand created by new development activity. Applied Analysis and Zions Public Finance Inc. (Consultants) developed this IFFP based on information provided by the Washington County Water Conservancy District (District).

The public facilities this IFFP identifies are system improvements designed to service areas within the community at large. They consist of existing public facilities with excess capacity and future public facilities that are planned to meet the demands of growth. The following sections address existing and proposed levels of service, growth demands on existing supply, existing excess capacity and additional supply from proposed future public facilities.

UCA 11-36a-302(1)(a)(i-ii): Existing and Proposed Service Level

The existing level of service to each Equivalent Residential Connection (ERC) is shown in Table 1 below. The proposed level of service per ERC is identical to the existing level of service. Facilities are sized to accommodate peak demand double that of average demand by using a peaking factor of 2. The ERC is based on a single-family residence on a lot of 10,000 square feet or less with up to 5,000 square feet available for irrigation.

Table 1: Demand Detail

Demand per ERC	Acre-Feet/Year
Yearly Demand	
Indoor	0.45
Outdoor	0.44
Total	0.89
Peak Day Demand (Peaking Factor of 2x Yearly Demand)	1.78

In determining the facilities necessary to serve its customers, the District must comply with administrative rules promulgated by the Utah Division of Drinking Water. Under one of these rules governing source requirements:

Sources shall legally and physically meet water demands under two conditions:

- (a) The water system’s source capacity shall be able to meet the anticipated water demand on the day of highest water consumption, which is the peak day demand.
- (b) The water system’s source capacity shall also be able to provide one year’s supply of water, which is the average yearly demand.²

The Rule specifies requirements to provide for the peak day demand and average yearly demand for both indoor and outdoor water use. For indoor water use, water systems must be able to provide approximately 800 gallons per day to each ERC to meet the peak day demand, and 0.45 acre-feet per year to meet the average yearly demand.

The Rule requires that for outdoor water use, the peak day and average yearly demands be based on the zone (specified in the rule) in which the water use occurs under the rule. The District’s service areas affected by this IFFP are in Zone 6. The Rule specifies that for each ERC in this zone, water systems must be able to supply 4.6 gallons per minute for each irrigated acre to meet the peak day demand, and 3.26 acre-feet per year for each irrigated acre to meet the average yearly demand. The Rule also recommends a safety factor to account for various factors such as evaporation, irrigation delivery method, overwatering, pipe leaks, and irrigation before and after the seasons. Accordingly, this analysis applies a safety factor of 20 percent to account for these various factors.

UCA 11-36a-302(1)(a)(iii): Excess Capacity

The District will use excess capacity in existing supply and treatment facilities to help meet the demands of new development during the planning window. To determine excess capacity, the District multiplied the number of ERCs already allocated to existing development by the level of service to determine allocated demand on facilities. Because the District’s system is interconnected, demand already allocated to existing development can be supplied by multiple facilities. The District assigned allocated demand to facilities based on the most efficient operation of the entire system. The allocated demand assigned to each facility was subtracted from total capacity to determine excess capacity in each facility. Using that formula, the District determined that existing supply facilities have an excess capacity of 2,131 acre-feet from various existing sources as detailed in Table 2 below. Existing treatment facilities have an excess capacity of 6,721 acre-feet at the Quail Creek Water Treatment Plant (WTP) as shown in Table 3 below.

² Utah Administrative Code, Rule R309-510-7.

Table 2: Supply and Transmission Facility Capacity

Existing Facilities	Currently Allocated Capacity	Excess Capacity	Total Capacity ³
Cottam Wells	475	400	875
Kayenta Ence Wells	135	115	250
Quail Creek/Sand Hollow	26,920		26,920
Sand Hollow Wells	2,384	1,616	4,000
Regional City Resources	33,466		33,466
Total	63,380	2,131	65,511

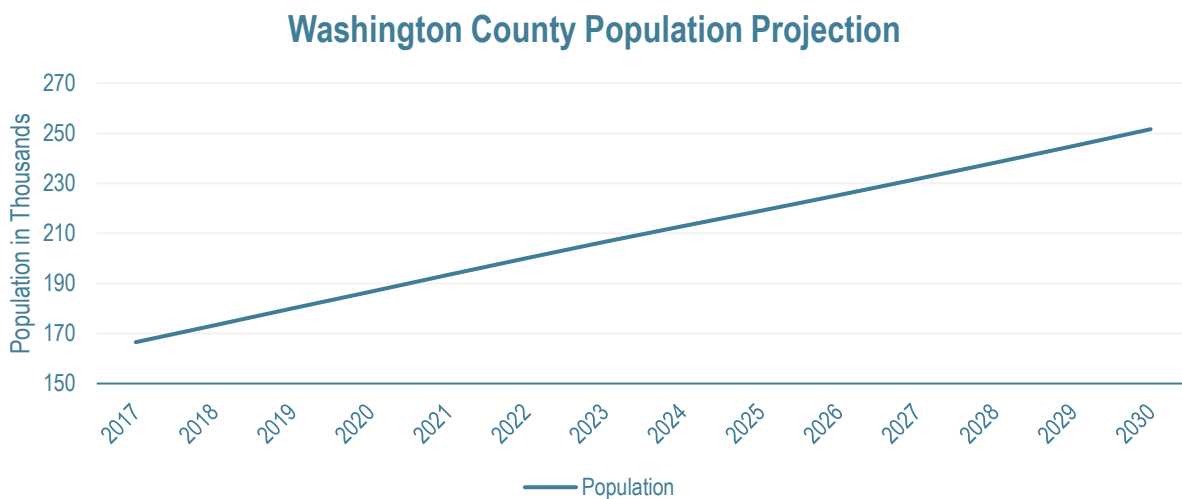
Table 3: Treatment Facility Capacity

Existing Facilities	Currently Allocated Capacity	Excess Capacity	Total Capacity
Quail Creek WTP (60 MGD)	26,833	6,721	33,554
Total	26,833	6,721	33,554

UCA 11-36a-302(1)(a)(iv): Demand on Existing Facilities

Washington County’s population is projected to grow from 166,534 in 2017, to 225,301 in 2026 as illustrated in Figure 1 below. To accommodate development associated with this projected growth, the District will need to supply 26,159 new ERCs. This need requires facilities that will provide an additional 23,281 acre-feet of water above that already allocated. Projected water demand is calculated by multiplying the currently allocated ERCs in Washington County by the population growth rate estimated by the *2017 University of Utah Economic and Demographic Projections* for Washington County, Utah. This method is used to help account for commercial and institutional ERCs that are not included in the population estimate.

Figure 1: Population Projection⁴

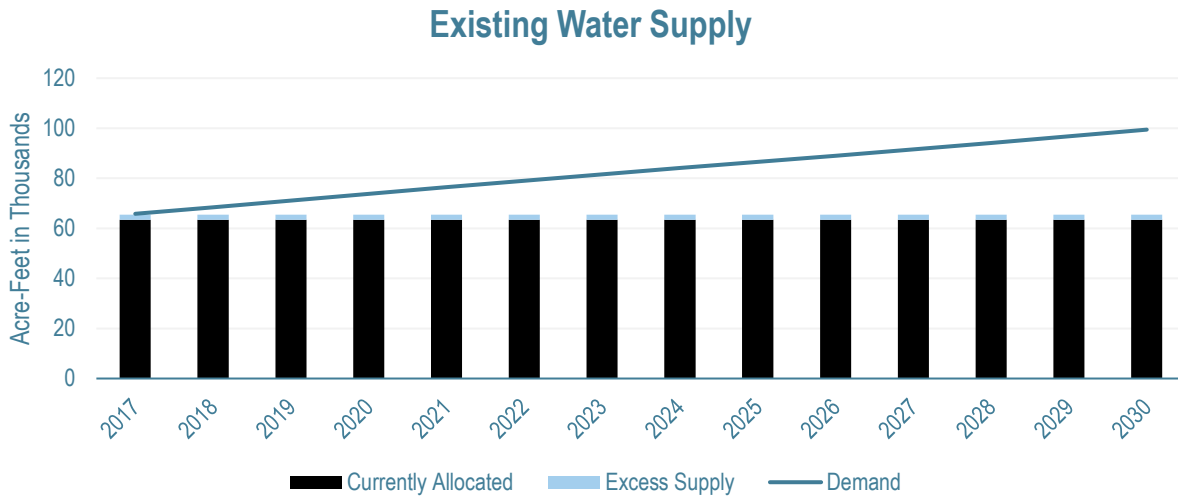


³ MWH 2016 Water Needs Assessment.

⁴ University of Utah 2017 Demographic and Economic Projections.

The existing supply currently allocated and excess water supply amounts are compared to projected water demand in Figure 2 below. With no additional supply, existing sources will fall short of demand around 2018.

Figure 2: Existing Supply



UCA 11-36a-302(1)(a)(v): Meeting Growth Demands

To meet growth demands, the District will develop a number of projects within the 10-year planning window. The 2016 *Water Needs Assessment* prepared by MWH Global identifies water supply projects. The Water Needs Assessment uses the Utah Governor’s Office of Planning and Budget population projections to calculate the water supply needed to meet the demands of growth and identifies projects capable of meeting those demands over a 50-year planning window. The District evaluated these projects and the anticipated timing of each to determine the facilities needed within the relevant IFFP planning period. The size and timing of each facility were determined using a peak-to-average-demand ratio of 2 to meet the requirements of Rule R309-510. These sizing requirements are imposed to allow delivery of all water demanded by water customers during periods of peak demand. Table 4 below outlines the additional supply provided by each planned project as well as the anticipated year of completion.⁵

⁵The District determined the Warner Valley Reservoir is outside the 10-year planning window due to the length of time it will likely require to obtain the necessary federal permits and the higher costs of treating water through current reverse osmosis technology. However, this project remains on the District’s long-term planning horizon. The municipalities that are parties to the Regional Water Supply Agreement have approved it, and it is anticipated that it will become more cost-effective as reverse osmosis technology improves over time.

Table 4: Planned Supply and Transmission Facilities⁶

Planned Supply and Transmission Facilities	Project Year	Additional Supply (acre-feet) ⁷
Ash Creek Project	2019	2,840
Cottam Wells	2019	600
Diamond Valley Well	2019	400
Lake Powell Pipeline	2024	82,249
Pintura Well	2019	600
Sand Hollow Regional Pipeline Project	2018	. ⁸
Sand Hollow Wells	2019	3,000
Sullivan Wells	2019	750
Water Rights	When Available	. ⁹
Total		90,439

Table 5: Planned Treatment Facilities

Planned Treatment Facilities	Project Year	Treatment Capacity (acre-feet)
Quail Creek WTP Ozone Addition	2021	-
Quail Creek WTP Expansion (80 MGD)	2021	11,201
Sand Hollow WTP	2023	11,201
Sand Hollow Arsenic WTP	2018	1,680
Total		24,082

The District expects new supply and transmission facilities to contribute up to 90,439 acre-feet of additional supply per year by 2026, enough to accommodate projected demand through the end of the planning window as depicted in Figure 3 below. The District expects new treatment facilities to yield an additional 24,082 acre-feet of treated water per year by 2026, enough to accommodate projected demand through the end of the planning window. The future facilities are sized to account for the peaking factor of 2.

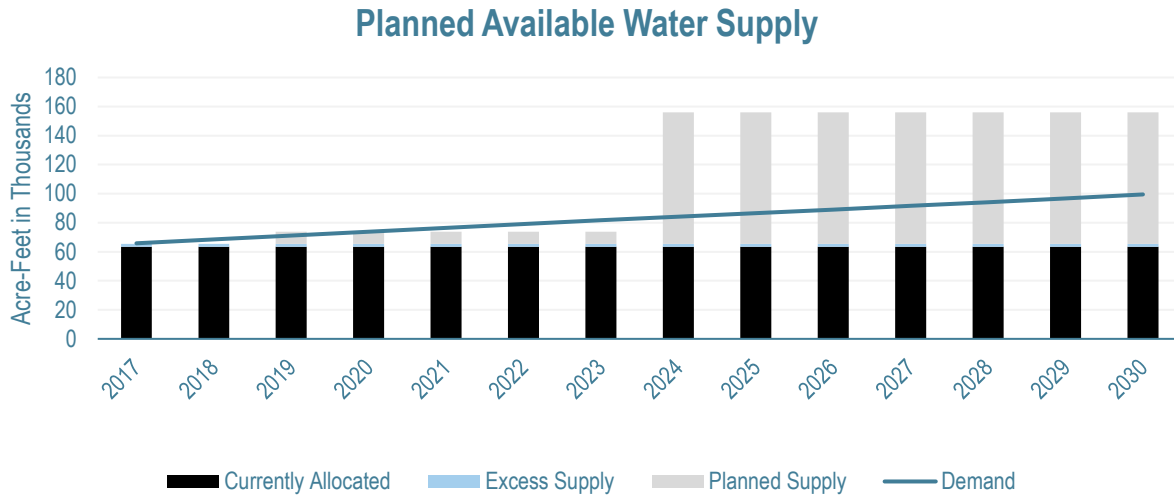
The Quail Creek WTP Ozone Addition replaces older water treatment techniques at the Quail Creek WTP and will be applied to all water treated at the facility. Only the share of the Ozone Addition proportional to the existing excess and planned capacity at the Quail Creek WTP, or the portion attributable to new growth, is considered in this analysis.

⁷ MWH 2016 Water Needs Assessment.

⁸ Sand Hollow Regional Pipeline will transmit water from the Sand Hollow Wells and Reservoir and does not increase supply.

⁹ Water Rights refers to legal rights for the use of water for projects. The District plans to acquire water rights as they become available.

Figure 3: Planned Supply¹⁰



UCA 11-36a-302(2): Funding Sources of System Improvements

The funding sources for system improvements¹¹ that will be used to meet the demands of new development must be considered. Table 6 below shows these system improvements and the funding sources of each. No grants or dedications of system improvements have been made or are anticipated. Other funding sources are not anticipated.

¹⁰Although the full capacity of Lake Powell Pipeline will be available once constructed, it is not anticipated to operate at full capacity within the planning window. Development costs of the Lake Powell Pipeline factor proportionately into the impact fee.

¹¹ System improvements consist of future facilities and existing facilities with excess capacity, including acquisition of water rights necessary to meet growth demands.

Table 6: System Improvements Funding Sources

Existing Facilities	Bonds	Grants	Dedications	Proposed Impact Fee
Cottam Wells	2009 Bond	None	None	Yes
Kayenta Ence Wells	2004 & 2007 Bonds	None	None	Yes
Sand Hollow Wells	2009 Bond	None	None	Yes
Quail Creek WTP	2012 Bond	None	None	Yes
Quail Creek WTP Expansion	2012 Bond	None	None	Yes
Future Facilities	Bond Financing	Grants	Dedications	Proposed Impact Fee
Ash Creek Project	Anticipated 50%	None	None	Yes
Cottam Wells		None	None	Yes
Diamond Valley Well		None	None	Yes
Lake Powell Pipeline		None	None	Yes
Pintura Well		None	None	Yes
Quail Creek WTP Expansion (80 MGD)	Anticipated 100%	None	None	Yes
Quail Creek WTP Ozone Addition	Anticipated 100%	None	None	Yes (40%)
Sand Hollow Regional Pipeline	Anticipated 50%	None	None	Yes
Sand Hollow Arsenic WTP		None	None	Yes
Sand Hollow Wells		None	None	Yes
Sand Hollow WTP	Anticipated 100%	None	None	Yes
Sullivan Wells		None	None	Yes
Water Rights		None	None	Yes

UCA 11-36a-303(1): Impact Fee Analysis

Section 11-36a-303(1) of the Act requires that an Impact Fee Analysis (IFA) be prepared for any proposed impact fee. The Consultants developed this IFA based on information the District provided. The following sections address the impact of new development on excess capacity and new capacity of system improvements¹² with regard to usage and financing.

UCA 11-36a-304(1)(a): Excess Capacity and New Development

Existing water supply and treatment facilities with excess capacity are identified in Table 7 and Table 8 below. Figure 4 below shows that demand driven by anticipated new development will exhaust existing excess capacity as early as 2019.

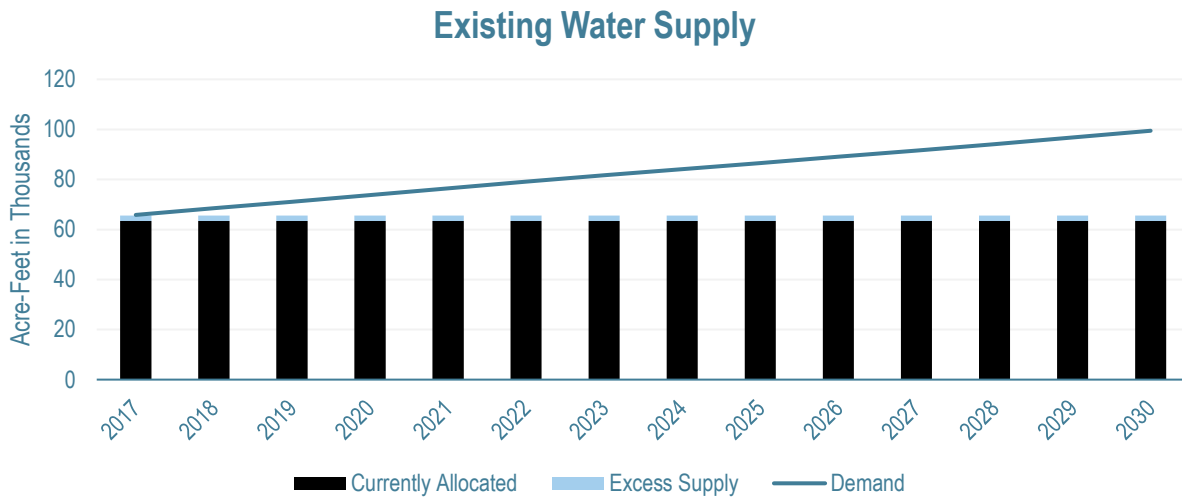
Table 7: Excess Supply Capacity (acre-feet)

Existing Facilities	Excess Capacity (acre-feet)	Total Capacity (acre-feet)	Excess Capacity %
Cottam Wells	400	875	45.71%
Kayenta Ence Wells	115	250	46.00%
Sand Hollow Wells	1,616	4,000	40.40%
Total	2,131	5,125	

Table 8: Excess Treatment Capacity (acre-feet)

Existing Facilities	Excess Capacity (acre-feet)	Total Capacity (acre-feet)	Excess Capacity %
Quail Creek WTP (60 MGD)	6,721	33,604	20.00%
Total	6,721	33,604	

Figure 4: Existing Supply



¹² As with the IFFP, the public facilities identified in this IFA are system improvements designed to provide services to service areas within the community at large. They consist of existing public facilities with excess capacity and future public facilities that are planned to meet the demands of growth.

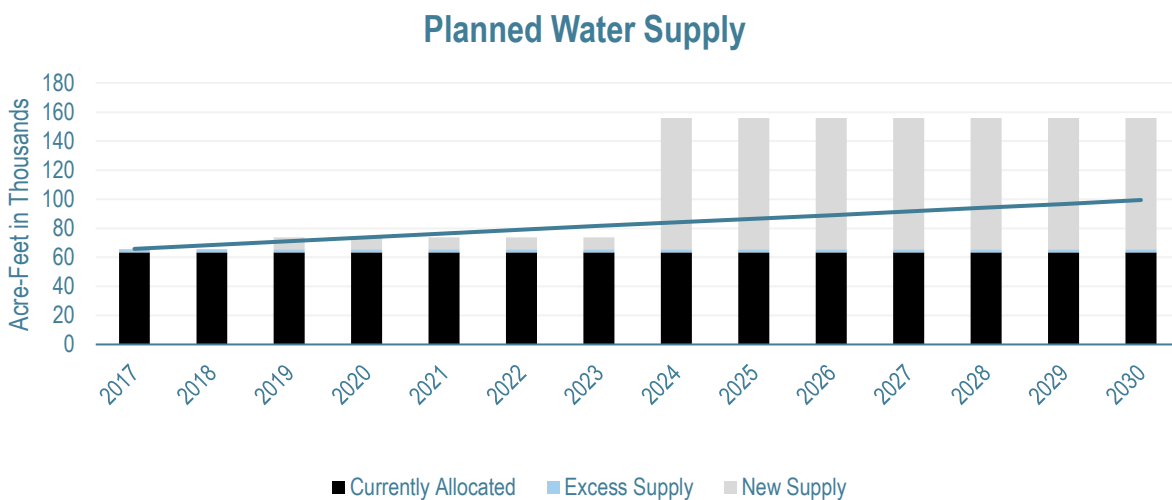
UCA 11-36a-304(1)(b): System Improvements and New Development

To maintain the established level of service shown in Table 1, the District plans to construct and acquire the future supply and treatment system improvements as shown in Table 9. Figure 5 shows the planned projects will produce enough supply to accommodate anticipated new development through 2026. The future system improvements are sized to account for the peaking factor of 2.

Table 9: Future System Improvements

Future System Improvements	Project Year	Additional Supply (acre-feet) ^{13,14}
Ash Creek Project	2019	2,840
Cottam Wells	2019	600
Diamond Valley Well	2019	400
Lake Powell Pipeline	2024	82,249
Pintura Well	2019	600
Quail Creek WTP Expansion (80 MGD)	2021	-
Quail Creek WTP Ozone Addition	2019	-
Sand Hollow Arsenic WTP	2018	-
Sand Hollow Regional Pipeline	2018	-
Sand Hollow Wells	2019	3,000
Sand Hollow WTP	2026	-
Sullivan Wells	2019	750
Water Rights	2026	-
Total		90,439

Figure 5: Planned Supply¹⁵



¹³ MWH 2016 Water Needs Assessment.

¹⁴ Some future system improvements do not provide additional supply but provide treatment of, transmission of, or legal water rights for future system improvements.

UCA 11-36a-302(1)(c): Relation of Anticipated Impacts to Anticipated Development Activity

The following sections demonstrate that the anticipated impacts to the District’s system are reasonably related to growth and development activity.

UCA 11-36a-304(2)(a): Cost of Existing Facilities with Excess Capacity

To calculate the cost of existing excess capacity, the original construction costs of each project with excess capacity were obtained, as shown in Table 10 below.

Table 10: Cost of Existing Facilities with Excess Capacity¹⁶

Existing Facilities	Original Capital Expense
Cottam Wells	\$3,080,734
Kayenta Ence Wells	\$582,099
Sand Hollow Wells	\$6,749,972
Quail Creek WTP (60 MGD)	\$33,081,366

¹⁶ Washington County Water Conservancy District 2016 Book Asset Detail.

UCA 11-36a-304(2)(b): Cost of Future System Improvements

The future system improvements listed below are anticipated to be constructed in the 10-year planning window. These system improvements include future facilities and expansions to current facilities necessitated by growth, as well as the acquisition of additional water rights. The projected capital expense estimates for each are listed in Table 11.

Some of the future system improvements are planned to be funded by issuing bonds which were modeled during the impact fee calculation. The calculations assume the bonds will be issued in the project year of each project and have 30-year terms, with 1% of the bond principal charged as issuance costs. The calculations also assume that the interest rate for the bonds will be 4%. This is typical for the type of municipal infrastructure bonds that will be issued. To adjust the financing costs of future facilities to 2017 dollars, the Consultants have used the average yearly adjustment in the Producer’s Price Index of Construction Materials¹⁷ from 1981 to 2017, which is 2.4%.

Table 11: Cost of Future System Improvements¹⁸

Future System Improvements	Projected Capital Expense¹⁹
Ash Creek Project	\$41,705,000
Cottam Wells	\$1,063,000
Diamond Valley Well	\$3,249,000
Lake Powell Pipeline	\$1,377,609,000
Pintura Well	\$3,350,000
Quail Creek Ozone Addition (proportionate)	\$14,524,000
Quail Creek WTP Expansion (80 MGD)	\$46,001,000
Sand Hollow Arsenic WTP	\$6,798,000
Sand Hollow Regional Pipeline	\$18,047,000
Sand Hollow Wells	\$8,977,000
Sand Hollow WTP	\$52,140,791
Sullivan Wells	\$2,718,000
Water Rights	\$5,000,000

UCA 11-36a-304(2)(c): Financing Sources for System Improvements

Table 6 above outlines the financing sources, including impact fees and current revenue bonds, of planned system improvements consisting of existing facilities with excess capacity and future facilities to meet the demands of growth.

¹⁷ Published by the U.S. Bureau of Labor Statistics under the series ID WPUSI012011 and reproduced by the St. Louis Federal Reserve under the same series ID.

¹⁸ Engineer Quotes (Alpha Engineering, Carollo, MWH).

¹⁹ Ash Creek, Quail Creek Ozone, Quail Creek WTP (80 MGD), Sand Hollow WTP, and Sand Hollow Regional Pipeline include bond financing expenses.

The proportionate share of original construction costs that corresponds to the existing facilities with excess capacity that will serve new development will be paid for by impact fees, as indicated in Table 12 below.

User charges and general taxes finance operation, maintenance, repair and replacement costs of facilities. However, the District's Board of Trustees may determine that a set portion of the costs required to serve new development be paid by user charges and general taxes rather than by the full impact fee calculated in this analysis.

The District does not anticipate special assessments or federal grants.

UCA 11-36a-304(2)(d)-(e): New Development's Contribution to Financing and Costs of System Improvements

The District's current facilities provide sufficient water to existing customers to meet the established level of service. System improvements consisting of existing facilities with excess capacity have been funded by various bonds, some of which have been retired. Demand from new development will consume 100 percent of existing excess capacity and therefore will be expected to share the original costs of existing facilities proportionate to the existing excess capacity of those facilities.

New development will consume all capacity of future treatment system improvements except a portion of the Quail Creek Ozone Addition. The cost for this system improvement is only partially allocated to new development activity as indicated in Table 13.

Demand from new development within the 10-year planning window is anticipated to consume all additional capacity provided by future system improvements other than the Lake Powell Pipeline and the Sand Hollow WTP. Development costs of the Lake Powell Pipeline and the Sand Hollow WTP factor proportionately into the impact fee for the 10-year planning window. New development beyond the 10-year planning window is expected to finance the remaining portion from which it will benefit.

Because new development is expected to consume 100 percent of existing excess capacity and the vast majority of the capacity of future facilities, the impact fee is intended to finance the costs of all existing excess capacity and the portion of the future facilities' capacity that will be consumed by new development.

As noted in the preceding section, the District does not anticipate federal grants that will contribute to the costs of system improvements. User charges and general taxes finance the operation, maintenance, repair and replacement costs of facilities rather than the construction of system improvements necessitated by growth. However, the District's Board of Trustees may determine that a set portion of the costs required to serve new development be paid by user charges and general taxes rather than by the full impact fee calculated in this analysis.

UCA 11-36a-304(2)(f): Development Credit to Offset Impact Fee

The District does not anticipate dedications of system improvements, including public facilities, by development activity. Should any dedication occur, it would be entitled to a credit against impact fees calculated on an individual basis, taking into account the demands for system improvements that would be relieved inside or outside the proposed development.

UCA 11-36a-304(2)(g): Extraordinary Costs of Serving Development

The District does not anticipate incurring extraordinary costs to serve any of the newly developing properties under this Regional IFFP and IFA.

UCA 11-36a-304(2)(h): Time-Value Comparison

This analysis states the costs of future facilities in 2017 U.S. dollars, while using original construction costs for existing facilities with excess capacity.

In order to account for the timing of payments, the Consultants recommend that the portion of the impact fee attributable to future facilities be tied to the Producer’s Price Index of Construction Materials (PPI)²⁰ and adjusted yearly to account for inflation in construction costs of new facilities during the 10-year planning window. For the purposes of projecting the calculations into the future, the Consultants have assumed the same 2.4% yearly average of the month over month change in the index. However, this will change each year with the publication of PPI.

UCA 11-36a-304(1)(d)(i): Proportionate Share of Existing Facilities Costs

New development is expected to completely consume excess capacity at existing facilities well within the 10-year planning window. The proportionate share of costs, based on the proportion of excess to total capacity, is outlined in Table 12 below.

Table 12: Proportionate Share of Existing Facilities

Existing Facilities	Original Cost	Excess Share	Cost of Excess Capacity
Cottam Wells	\$3,080,734	45.71%	\$1,408,336
Kayenta Ence Wells	\$582,099	46.00%	\$267,766
Sand Hollow Wells	\$6,749,972	40.40%	\$2,726,989
Quail Creek WTP (60 MGD)	\$33,081,366	20.00%	\$6,616,273
Total			\$11,019,364

²⁰ Published by the U.S. Bureau of Labor Statistics under the series ID WPUSI012011 and reproduced by the St. Louis Federal Reserve under the same series ID.

UCA 11-36a-304(1)(d)(ii): Proportionate Share of Costs of Impacts on Future System Improvements

New development necessitates the vast majority of future system improvements planned in the next 10 years. The only future system improvement that is not necessitated entirely by new development is the Quail Creek Ozone Addition. New development will only pay its proportionate share of the Quail Creek Ozone Addition. The proportionate share of projected capital expenses for future system improvements is outlined in Table 13 below.

These future system improvements will need to be built to serve the population growth projected within the 10-year planning window. However, the total cost for new system improvements outlined below will not be paid for solely by new development within the planning window. New development within the planning window will only pay its proportionate share of the cost of these future system improvements as determined by the impact fee calculation per ERC. The remainder of the cost will be paid for by new development that occurs beyond the 10-year planning window and which will also benefit from some of these facilities.

Table 13: Proportionate Share of Future System Improvements

Future System Improvements	Portion Attributable to New Development	Projected Capital Expense
Ash Creek Project	100%	\$41,705,000
Cottam Wells	100%	\$1,063,000
Diamond Valley Well	100%	\$3,249,000
Lake Powell Pipeline	100%	\$1,377,609,000
Pintura Well	100%	\$3,350,000
Quail Creek Ozone Addition	40%	\$14,524,000
Quail Creek WTP Expansion (80 MGD)	100%	\$46,001,000
Sand Hollow Arsenic WTP	100%	\$6,798,000
Sand Hollow Regional Pipeline	100%	\$18,047,000
Sand Hollow Wells	100%	\$8,977,000
Sand Hollow WTP	100%	\$56,428,129
Sullivan Wells	100%	\$2,718,000
Water Rights	100%	\$5,000,000
Total		\$1,585,469,129

UCA 11-36a-304(1)(e): Impact Fee Calculation

To calculate the portion of the impact fee attributable to supply and transmission facilities (supply facilities), the cost of existing supply facilities with excess capacity is added to the cost of future facilities necessary to meet the demands of growth to determine the total cost of supply facilities.²¹ The total cost of supply facilities is then divided by the yield (in acre-feet) of the total supply facilities to determine the cost of supply facilities per acre-foot of yield. This cost per acre-foot is multiplied by the level of service (0.89 acre-feet per ERC) to determine the portion of the impact fee attributable to supply facilities for one ERC.

To calculate the portion of the impact fee attributable to treatment facilities, the cost of existing treatment facilities with excess capacity is added to the cost of future facilities necessary to meet the demands of growth to determine the total cost of treatment facilities.²² The total cost of treatment facilities is then divided by the capacity (in acre-feet) of the treatment facilities to determine the cost of treatment facilities per acre-foot of capacity. This cost per acre-foot is multiplied by the level of service (0.89 acre-feet per ERC) to determine the portion of the impact fee attributable to treatment facilities for one ERC.

The costs per ERC of supply facilities and treatment facilities are added together to determine the total impact fee for one ERC.

Table 14: Supply and Transmission Facilities Portion of Impact Fee

	Impact Fee-Qualifying Costs	Yield (acre-feet)
Cost of Existing Excess Capacity in Supply Facilities	\$4,419,170	2,131
Cost of New Supply Facilities	\$1,461,718,340	90,439
Total Cost of Supply Facilities	\$1,466,137,510	92,570
Cost of Supply Facilities per Acre-Foot		\$15,838
Acre-Foot per ERC		0.89
Cost of Supply Facilities per ERC		\$14,096

Table 15: Treatment Facilities Portion of Impact Fee

	Impact Fee-Qualifying Costs	Capacity (acre-feet)
Cost of Existing Excess Capacity in Treatment Facilities	\$6,616,273	6,721
Cost of New Treatment Facilities	\$123,751,431	32,273
Total Cost of Treatment Facilities	\$130,367,704	38,994
Cost of Treatment Facilities per Acre-Foot Treated		\$3,343
Acre-Foot per ERC		0.89
Cost of Treatment Facilities per ERC		\$2,975

²¹ Supply and transmission facilities are sized to meet the peaking factor of 2. The total costs therefore include the cost necessary to size the facility to meet the peaking factor.

²² Treatment facilities are also sized to meet the peaking factor of 2, and the costs necessary to size the facility to meet the peaking factor are included in the total cost.

Table 16: Total Impact Fee

	Cost per ERC
Cost of Supply Facilities per ERC	\$14,096
Cost of Treatment Facilities per ERC	\$2,975
Total Cost per ERC	\$ 17,071

Impact fees will be assessed based on meter size of the connection as shown in Table 17. One ERC will be served by a ¾-inch meter or smaller. Residential connections normally only require one ERC.²³ Commercial connections may require more than one ERC.

Table 17: Meter Size

Meter Size (inches) ²⁴	ERCs ²⁵	Impact Fee
¾" or smaller	1.00	\$17,071
1"	2.16	\$36,874
1½"	7.17	\$122,401
2"	11.54	\$197,003

²³ One ERC is based on a single-family residence on a lot of 10,000 square feet or less with up to 5,000 square feet available for irrigation. If a lot is greater than 10,000 square feet, the fee will be adjusted proportionally to the additional area, unless a conservation easement is signed limiting landscaped area to 5,000 square feet.

²⁴ Water use for meter sizes greater than 2 inches will be evaluated individually to determine the number of ERCs. The impact fee will be assessed based on the number of ERCs determined.

²⁵ ERCs per meter size are representative of historic average annual water use for different meter sizes in the City of St. George.

UCA 11-36a-306: Certification of Impact Fee Analysis

The Act requires that the Consultants preparing the IFFP and IFA certify their analysis. The Consultants provide the required certification with the understanding that it is the District's intent to construct the projects proposed in the IFFP. If all or a portion of the IFFP or IFA are modified or amended, or if the assumptions utilized in this analysis change substantially, the IFFP and IFA should be reviewed and updated to reflect these changes.

UCA-36a-306(1): Certification of Impact Fee Facilities Plan

Applied Analysis and Zions Public Finance, Inc. certify that the foregoing IFFP:

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. cost 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 and every relevant respect with the Impact Fees Act

UCA 36a-306(2): Certification of Impact Fee Analysis

Applied Analysis and Zions Public Finance, Inc. certify that the foregoing IFA:

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. cost 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. offsets costs with grants or other alternate sources of payment; and
4. complies in each and every relevant respect with the Impact Fees Act

APPENDIX: WCWCD IFFP AND IFA CALCULATIONS