HURRICANE CITY
UTAH

Public Notice

The Hurricane City Council will hold a Public Hearing during their regular meeting at 147 N. 870 West on June 15, 2023 commencing at 6 p.m. to take comments on the following:

1. 2023-2024 Fiscal Year Budget
2. Proposed amendments to the 2022-2023 Fiscal Year Budget

If you would like to make comments, please plan to attend the meeting, email cindy@cityofhurricane.com, or provide written comments for the City Council's consideration by 3 p.m. the day of the meeting.

I hereby certify that the above notice was posted to the city website, (www.cityofhurricane.com) posted to the state public notice website, and at the following locations:
1. City office – 147 North 870 West, Hurricane, UT
2. The Post Office – 1075 West 100 North, Hurricane, UT
3. The library – 36 South 300 West, Hurricane, UT

_____ for the City Recorder

HURRICANE CITY
UTAH

Notice of Proposal for an Agricultural Protection Zone:

Notice is hereby given that Hurricane City has received a proposal to create an agricultural protection area on the following parcels:

H-3-2-3-344	**containing 5.01 acres.**
H-3-2-4-21011	**containing 4.86 acres.**
H-3-2-10-4471	**containing 22.71 acres.**
H-3-2-3-3315	**containing 8.57 acres.**

The proposal is available for inspection in the office of the Hurricane City Planning Department at 147 N. 870 West, Hurricane, Utah during regular business hours. Any person who may be affected by the establishment of the proposed agricultural protection area may, within 15 days of the date of this notice, file any written objections to the proposal or a written request to modify the proposal to exclude land from or add land to the proposed protection area.

This proposal has been submitted to the County Advisory Committee and the City Planning Commission for review and recommendations.

The City Council will hold a public hearing June 15, 2023 during their public meeting commencing at 6 p.m. at 147 N. 870 West, Hurricane, Utah to discuss and hear public comment on the proposal, the recommendations of the advisory committee and the planning commission, and any requests for modification of the proposal and any objections to the proposal.

HURRICANE CITY
UTAH

Public Notice

The Hurricane City Council will hold a Public Hearing during their regular meeting at 147 N. 870 West on June 15, 2023, commencing at 6 p.m. to take comments on the following:

1. Acceptance of a new impact fee facilities plans and enactment of new impact fees for secondary water.

A copy of the full impact fee facilities plans, and proposed fees is available in the Recorder's Office at the City Office, 147 N 870 West and in the Hurricane Branch of the Washington County library 36 S 300 West.

If you would like to make comments, please plan to attend the meeting, email cindy@cityofhurricane.com, or provide written comments for the City Council's consideration by 3 p.m. the day of the meeting

I hereby certify that the above notice was posted to the city website, (www.cityofhurricane.com) posted to the state public notice website, and at the following locations:
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_____ for the City Recorder

6/15/23

The City Council packet for adopting a new impact fee for secondary irrigation water.

This past year the Water Department has been working with Alpha Engineering and Zions Bank to create a new secondary irrigation water impact fee. Earlier this year we held a work meeting with the city council to discuss the new secondary water impact fee. This new fee Is necessary for new developments to help pay for their share of the improvements to service them.

On April 25th the secondary water impact fee was presented to the Water Board, they voted not to recommend this to the city council at that time. The Water Department and Alpha Engineering were given a list of questions that needed to be answered before the water board would recommend it to the city council for approval.

On May 27th during our water board meeting, the questions from the April meeting were read and discussed. The questions and answers are attached to this packet.

After this discussion a motion was made and seconded, there was a unanimous recommendation to present the new secondary water impact fee to the city council for approval.

Please look over the attached documents and read the questions and answers from the May 27th water board meeting.

Thank you.

Ken Richins

HURRICANE CITY SECONDARY WATER SYSTEM EXAMPLE IMPACT FEE SCHEDULE BASIS

10-YEAR GROWTH ESTIMATES

Projected Population Growth	9,951	persons
Population per Residentail Unit (RU) (Assumed)	2.5	
Projected Residential Unit Growth	3,980.4	
Projected Irrigation Acreage Growth (per IFFP, Table 9)	222.74	Acres
Projected Irrigation Square Footage Growth	9,702,554	Sq. Ft.

COSTS FOR NEW DEVELOPMENT		
New Development Area	222.74 acres	
	Cost [1]	*Cost/acre*
Construction Cost	$4,365,415	$19,598.70
Existing System Buy-in	$140,541	$630.96
Water Rights Buy-in	$423,258	$1,900.23
Consultant	$70,500	$316.51
Gross Costs	$4,999,714	$22,446.41
Credit for Benefit to Existing Development (see table, right)		-$6,388.54
Impact Costs		$16,057.87
		Cost/SF
		$0.37

CREDITS TO NEW DEVELOPMENT	
New Construction Benefit to Existing Development	$3,950,913
Term (years)	20
Annual Payment Amount	$197,546
NPV Discount Rate	5%

Year	*Net Present Value* [2]
2023	$7,593.26
2024	$6,949.15
2025	$6,348.48
2026	$5,787.82
2027	$5,263.99
5-Year Average Credit	$6,388.54

EXAMPLE IMPACT FEE SCHEDULE for YEAR 2025

Residential Standard [3]	*Description*	*Fee Basis*		*Impact Fee*
		Irrigated Area (Sq.Ft.)	*Cost/sf*	
RA-1	50,000 sf - 25,000 sf gross lot area 30% irrigated	7,500	$0.37	$2,775.00
RA-.5	25,000 sf - 15,000 sf gross lot area 30% irrigated	5,000	$0.37	$1,850.00
R1-15 / R1-10	15,000 sf - 8,000 sf gross lot area	3,500	$0.37	$1,295.00
R1-8 / R1-6	8,000 sf - 4,800 sf gross lot area	2,500	$0.37	$925.00
RM-1	6 units / acre 7260 sf/unit x 15% area irrigated	1,089	$0.37	$405.00 /unit
RM-2	10 units/acre 4356 sf/unit x 15% area irrigated	653	$0.37	$240.00 /unit
RM-3	15 units/acre 2904 sf/unit x 15% irrigated area	435	$0.37	$160.00 /unit
Non-Residential	Commercial, Industrial, Institutional Land Uses	Irrigated Area per Developmemt Plan	$0.37	Irrigated Area X $0.37 per Sq. Ft.

[1] Alpha Engineering, Hurricane City Secondary Water Impact Fee Facilities Plan, April 2023, Page 21 (Summary)

[2] Zion Public Finance, Draft Secondary Water Impact Fee Analysis, April 2023, Table 16.

[3] Hurricane Utah, Code of Ordinances / Title 10-Land Use Regulations

NOTE: When properties in the irrigation expansion area subdivide and Hurricane Canal Company shares are being used on the property, a secondary water impact fee credit will be issued for the equivalent value of the canal shares based on current fair market value. Hurricane City shall have first option to buy the remainder of the Hurricane Canal Company shares associated with the property at the current fair market value at the time of the transaction.

EXAMPLE: A 5-acre parcel is subdivided into nine 1/2 acre lots. Lots would meet RA-.5 standard with a secondary water impact fee of $1,850 for each lot, resulting in a total secondary impact fee of 9 x $1,850 = $16,650 for the development. If fair market value of a share of Hurricane Canal Company is $10,000, the required shares for credit would be $16,650 / $10,000 = 1.67 shares for the development. The amount of water shares would be adjusted based on the current cost of the shares. The City would have first option to buy the remaining shares used on the property at the fair market value ($10,000/share) at the time of the transaction.

ALPHA ENGINEERING

43 South 100 East, Suite 100
St George, Utah 84770

T 435.628.6500
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alphaengineering.com

June 2, 2023

Hurricane City Water Department
Attention: Ken Richins
646 West 600 North
Hurricane, Utah 84737

Re: Hurricane City Secondary Water Impact Fee – Water Board Follow Up

Dear Ken:

The proposed draft of the Secondary Water Impact Fee Facilities Plan (IFFP) and Impact Fee Analysis (IFA) were presented to the Hurricane City Water Board on April 25, 2023. Below are the follow up questions we noted from the Board. Their questions are in italics and the answers follow in Bold text:

1. *Will Hurricane City get the outdoor component of the WCWCD Impact fee for source? Need to make sure we are not double charging for source water.*

   Yes, Dayton Hall and Ken Richins were in a meeting with Zack Renstrom, General Manager of the Washington County Water Conservancy District on 5-22-2023. He reaffirmed that Hurricane City will collect the secondary water impact fee in the areas we have new developments with separate culinary and secondary water meters. The district will not charge their outside component impact fee for these services.

2. *What is the cost difference between culinary water and irrigation?*

   The current culinary water rate is $17.17 base rate, the first-tier rate is $1.13 per 1,000 gallons and the highest tier rate is $2.04 per 1,000 gallons. Pressurized irrigation is $12.00 for a base monthly fee.

3. *What are the legal ramifications of temporarily providing culinary water in leu of irrigation until irrigation is available?*

   We are not aware of any.

4. *Will the user be charged the culinary rate for the water metered through the irrigation meter until it is switched to irrigation?*

   The user rate will vary depending on the source and area. New homes in the irrigation expansion area will need to pay the culinary rate until irrigation water is delivered to them. Some areas will be served by well water that is not culinary grade. They will be able to pay the base rate only. Bottom-line if the water costs are for culinary grade quality, the City will need to charge the culinary rate, minus the irrigation base rate. The irrigation base rate will not be charged until they are supplied by secondary water. Meter usage for both the culinary and irrigation meters will be combined so the user is billed one base rate, then the tier will take effect, the same as if the user was being served by a single culinary water meter.

5. What is the lag time to provide irrigation service to those who are temporarily connected to the culinary system?

   Irrigation expansion area developments will be connected as soon as the new system is operating. Those being supplied by irrigation well water will be connected as soon as their systems are in place. Those being served by reuse water will be served as soon as reuse is available. The reason the city requires dual water systems in all the new developments is we are preparing for the future. Water is a limited resource, and we need to use culinary water for culinary use. Also, the cost to retrofit these developments with secondary water at a later date would be astronomical and the City would have to pay for it.

6. It was noted that we need to add a water acquisition credit to cover those who have water rights or shares that transfer them to the City at the time of connection.

   When properties in the irrigation expansion area subdivide and Hurricane Canal Company shares are being used on the property, a secondary water impact fee credit will be issued for the equivalent value of the canal shares based on current fair market value. Hurricane City shall have first option to buy the remainder of the Hurricane Canal Company shares associated with the property at the current fair market value at the time of the transaction.

   <u>Year 2025 Example:</u> A 5-acre parcel is subdivided into nine 1/2 acre lots. Lots would meet RA-.5 standard with a secondary water impact fee of $1,850 for each lot, resulting in a total secondary impact fee of 9 x $1,850 = $16,650 for the development. If fair market value of a share of Hurricane Canal Company is $10,000, the required shares for credit would be $16,650 / $10,000 = 1.67 shares for the development. The amount of water shares would be adjusted based on the current cost of the shares. The City would have first option to buy the remaining shares used on the property at the fair market value ($10,000/share) at the time of the transaction.

Let me know if we can provide any additional information.

Sincerely,

Glen E. Carnahan, P.E.
ALPHA ENGINEERING COMPANY

HURRICANE CITY
SECONDARY WATER SYSTEM
IMPACT FEE FACILITIES PLAN

DRAFT

June 2023

ALPHA ENGINEERING
43 South 100 East, Suite 100 • St George, Utah 84770
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Table of Contents

Section 1 Introduction

A. Scope

This Impact Fee Facilities Plan (IFFP) for the Hurricane City Secondary Water System is prepared to evaluate costs of future development of the irrigation system and outline the improvements which may be funded through impact fees. The IFFP will identify needed capital improvements to serve both existing development and future development within the City during the next 10 years (plan period). The IFFP will also evaluate the existing system for excess capacity and allocate the cost (value) of that excess capacity to future development.

Much of the information forming the basis of this IFFP has been taken from the Hurricane City Secondary Water System Capital Facilities Plan (August 2022 Update). The reader should refer to that document for additional discussion of planning and evaluation methodology beyond what is contained in this report.

B. Impact Fee Facilities Plan Requirements

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

1. Identify the existing level of service;
2. Establish a proposed level of service;
3. Identify any excess capacity in the existing system to accommodate future growth at the proposed level of service;
4. Identify demands placed upon existing public facilities by new development; and
5. Identify the means by which demands for new development will be met.

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

C. Background

The existing secondary water system in Hurricane City serves only a small core area of about 2.5 square miles within the city's 52.0 square mile boundary. In 2020, the city had 7,244 residential culinary water connections and 1,350 residential secondary water connections, with secondary service to about 19% of the population.

The existing secondary water system receives water from the Virgin River through the Quail Lake Feeder Pipeline. Irrigation water is drawn from the pipeline and pumped to a 3.0 million gallon desilting pond where settleable materials are removed from the water. The water then flows from the desilting pond through micro-screens and into the distribution system. During spring runoff and following storm events, high amounts of silt are carried in the water which causes operational and maintenance issues with the pumps, desilting pond and micro-screens. At times the City must shut down the system because of the high silt loads. Additionally, the desilting pond must be shut down for periodic cleaning and requires the system to be shut down.

Because of the operational problems with the existing source facilities (pumps, pond and screens), the City desires to construct new primary source facilities at a different location, and utilize the existing facilities for standby or supplemental operation. Near future expansion of the secondary water system will include construction of the new source facilities which will serve both existing and future demands.

Ultimately, the City-Wide secondary water system will have new primary source facilities that will include the proposed Warner Valley Reservoir, treated wastewater from the Ash Creek Wastewater Treatment Plant, and wells. These sources are long term projects, and the City must construct interim source facilities to serve existing and near-future demands. The interim source facilities may be retained for emergency operation. The Capital Facilities Plan provides a rational development concept for future facilities which will provide a build-out service strategy.

D. Demographics

1. Population Projection

The US Census Bureau estimates the 2020 population of Hurricane City to be 20,036 people. Table 1 shows the Washington County population projections by the Kem C. Gardner Policy Institute and the Hurricane City population projections by the Utah Geospatial Resource Center (UGRC). The UGRC projections are adjusted in Column 3 to correlate with the 2020 Census counts.

Annual growth in Hurricane City is projected to average about 3.7% from 2020 to 2040. For the planning period of 2022 to 2032 the population is projected to increase by 9951 persons.

The Capital Facilities Plan uses a mix of residential development types which includes existing single family, new single family, multi-family, planned community, mixed use, and rural single family units. The total residential units (RU) at build-out are estimated to be 67,088 which would lead to a build-out population of approximately 165,000, based upon 2.5 persons per RU.

Table 1. Population Growth Projections

End of Year	Washington County[1]		Hurricane City[2]		Hurricane City[3]	
	Population	10-Year Growth	Population	10-Year Growth	Population	10-Year Growth
2020	182,111		17,817		20,036	
2022					21,652	
2030	265,865	146%	26,536	149%	29,841	149%
2032					31,603	
2040	337,326	127%	36,854	139%	41,444	139%
2050	401,754	119%	50,685	138%	56,998	138%
2060	464,528	116%	58,604[4]	116%	65,903[4]	116%

[1] Kem C. Gardner Policy Institute, State and County Demographic and Economic Projections 2020-2060
[2] Utah Geospatial Resource Center (UGRC), Utah Small Area Demographic Projections 2019-2050
[3] Adjusted population by adding 2,219 persons to UGRC estimates to match 2020 Census, then apply UGRC increases
[4] UGRC 2050 population times Gardner increase

E. Units of Demand

For purposes of this analysis, outdoor water demands are based on irrigated acreage. Secondary water service may be provided to developments which vary greatly in irrigated area, ranging from parks to typical residential and from institutional/religious to commercial and mixed use. Impact fees should be assessed based on irrigated acreage

F. 2020 Secondary Water System

Existing residential development in the City is primarily low density and, for this analysis, it will be assumed that existing residential units will average 12,000 square feet gross lot area (includes streets and walkways) with 5,000 square feet of irrigated area. Future development is projected to include more high and moderate density housing with smaller irrigated areas.

In 2016, an infrared study of the service area determined that there were 340.2 total acres under irrigation. The study also determined there were 124.8 acres of bare developable land that was not irrigated. Aerial photography in 2015 shows approximately 38 acres of irrigated land in public/institutional/church land uses.

In 2016 when the infrared study was performed, there were 1210 total connections with an estimated 1182 being residential connections. Based on an average of 5,000 square feet of irrigation on a residential lot, approximately 135.67 irrigated acres were in residential land use. 38 irrigated acres were in developed commercial/institutional uses and the remaining 166.53 acres are assumed to be in agricultural land use.

Table 2 shows estimated irrigated land uses in 2016.

Table 2. 2016 Secondary System Land Uses

Description	Quantity
Residential Connections	1,182
Commercial/Institutional Connections	14
Agricultural Connections	14
Total Connections	1210
Acres Under Irrigation, Total	340.2
Average Residential Lot Size, Square Feet (Assumed)	12,000
Average Residential Lot Irrigation, Square Feet (Assumed)	5,000
Acres Residential Irrigation	135.67
Acres Commercial/Institutional/Church Irrigation	38
Acres Irrigated, Non-Agricultural	173.67
Acres Irrigated, Agricultural	166.53
Acres Not Irrigated, Developable	124.80
Acres Available for Development, Total	291.33

In 2020, there were 1350 residential connections on the secondary water system, with 168 connections added since 2016. Based on an average lot size of 12,000 square feet with 5,000 square feet irrigated, about 46.28 acres were removed from agricultural use and 19.28 acres of residential irrigation were added to the existing system. 313.20 total acres were irrigated by the existing system in 2020, comprised of 154.96 acres in residential land use, 38 acres in commercial/institutional/church land use, and 120.24 acres in agricultural land use. Table 3 shows estimated irrigated land uses in 2020.

Table 3. 2020 Secondary System Land Uses

Description	Quantity
Residential Connections	1,350
Commercial/Institutional	14
Agricultural Connections	14
Total Connections	1,378
Connections Added, 2016 to 2020	168
Average Residential Lot Size, Square Feet (Assumed)	12,000
Acres Removed from Irrigation	46.28
Average Residential Lot Irrigation, Square Feet (Assumed)	5,000
Acres Added to Irrigation	19.28
Acres Residential Irrigation	154.96
Acres Commercial/Institutional/Church Irrigation	38
Acres Irrigated, Non-Agricultural	192.96
Acres Irrigated, Agricultural	120.24
Acres Under Irrigation, Total	313.20
Acres Not Irrigated, Developable	124.80
Acres Available for Development, Total	245.04

Section 2 Impact Fee Facilities Plan

A. Existing Level of Service

From the Capital Facilities Master Plan, the 2020 Level of Service in the existing service area is summarized in Table 4.

Table 4. 2020 Level of Service

Description	2020 Secondary System Water Use	2020 Secondary System Level of Service (Non-Agricultural)
Irrigated Area, Total[1]	313.20 acres	
Irrigated Area, Non-Agricultural	192.96 acres	
Proration Rate: Non-Agricultural/Total	61.6%	
Annual Water Use, Total[2]	1,611.2 AF	
Peak Day Water Use, Total[2]	10.6 AF	
Peak Hour Flow, Total[2]	4,790 GPM	
Storage, Total[2]	3.00 MG	
Population	20,036	
Connections, Non-Agricultural	1,364	
Irrigated Area, Non-Agricultural	193.0 acres	
Annual Usage, Non-Agricultural	992.6 AF	**5.14 AF/acre**
Peak Day Demand, Non-Agricultural	6.53 AF	**7.66 gpm/acre**
Peak Hour Demand, Non-Agriculture	2,951 gpm	**15.29 gpm/acre**
Storage, Non-Agricultural	1.85 MG	**9,578 gal/acre**

[1] Table 3
[2] Hurricane City Secondary Water System Capital Facilities Plan, August 2022, Table 4

Storage in the existing system is provided in the 3.0 million gallon silt settling pond. Silt settling in this pond will be discontinued when new desilting and pump facilities are constructed, and the pond will then be used exclusively for storage.

B. Proposed Level of Service

The proposed City-Wide secondary water system is closely correlated with the Hurricane City General Plan and the Culinary Water System Mater Plan for projected population and land uses. Development of the City outside of the core area will consist of low, moderate, and high density housing areas, commercial/industrial areas, public areas, and open spaces. The proposed level of service for the aggregate City Wide System at build-out is summarized in Table 5.

Table 5. Proposed Level of Service (Build-Out City-Wide System)

Description	Build-Out Non-Ag Water Use	2020 Non-Ag Water Use	New Development Non-Ag Water Use	Build-Out Non-Ag Level of Service
Population	167,720[1]	20,036	147,684	
Residential Units	67,088[2]	1,364	65,724	
Irrigated Area (acres)	3,870.8[2]	193.0	3,677.9	
Annual Usage (AF)	11,345.6[2]	992.6	10,353.0	**2.81 AF/acre**
Peak Day Demand (MG)	23.34[2]	6.53	16.81	**3.17 gpm/acre**
Peak Hour Demand (gpm)	32,421[2]	2,951	29,470	**8.01 gpm/acre**
Storage (MG)	12.0	1.85	10.15	**2,760 gal/acre**

[1] Based on 2.5 Persons per Residential Unit

[2] Data from Build-Out Estimated Irrigation Usage Calculation (see appendix)

Aggregate irrigated area per Residential Unit (RU) is 2,438 square feet for new development, based on 65,724 projected new RUs.

Storage would be provided by tanks in individual pressure zones.

Proposed Level of Service in the Build-Out System is less than the existing Level of Service

C. Excess Capacity in Existing Facilities

For the secondary water system, facilities generally consist of 4 components:

1. Water Rights
2. Source Facilities (diversions, pumps, treatment, transmission pipelines, wells, etc.)
3. Storage Facilities
4. Distribution Facilities

1. Water Rights

Hurricane City currently owns water rights as summarized in Table 6.

Table 6. Water Rights

Description	Hurricane City Secondary System
Utah Water Right 81-2475	193.38 AF
Hurricane Canal Company Primary Shares 296.5 Shares @ 5.4 AF/Share	1,601.10 AF
Hurricane Canal Company Secondary Shares 35.537 Shares @ 1.5 AF/Share	53.31 AF
Total	1,847.79 AF

If 5% of the existing water rights remain perpetually in agricultural use (92.39 acre feet), 1,755.4 acre feet will be available for non-agriculture use. In 2020 there were 192.96 acres in non-agricultural irrigation (Table 3). At the current Level of Service of 5.14 acre feet/acre, 992.63 acre feet will be needed to serve the current non-agricultural irrigation demand.

Table 7. Excess Water Rights

Description	Acreage	Unit Use (AF/acre)	Quantity (acre feet)
Total Water Rights			1,847.79
Assume 5% Remains in Agriculture Use			92.38
2020 Irrigated Non-Agricultural Use	192.96	5.14	992.63
Water Rights Available for Future Development			762.76

It is estimated that there are about 125 acres of agricultural land currently being irrigated by the secondary water system (Table 3). This agricultural irrigation is requiring practically all of the water rights which are not being used for non-agricultural uses. The 762.76 acre feet of water rights currently used for agriculture will become available for new development as use changes from agriculture to non-agricultural.

2. Source Facilities

Existing source facilities consist of a pump system, desilting pond, and micro-screens. The current site arrangement requires the pumps to be located ahead of the settling process. The pumps must be shut off during spring runoff and following storm events when the river contains high sediment loads.

Additionally, the pond site is limited in area and cannot be expanded. The single pond must be drained for cleaning, which requires the source facilities to be shut down. The City desires to provide duplicity for the settling process.

Because of the operational problems and limited area to expand, the City plans to build new source facilities at a different location and utilize the existing source facilities in standby mode and for supplemental source, if needed.

Because the existing source facilities will no longer be the primary source component of the system, they will not be considered for excess capacity for the purposes of this report.

3. Storage Facilities

The existing settling pond is the only current storage on the secondary system. A new concrete storage tank will be constructed in the future at a more central location to serve the existing service area and the existing storage pond will provide only supplemental storage.

Because the existing pond will operate as supplemental storage it will not be considered for excess capacity for the purposes of this report.

4. Distribution Facilities

City Secondary Water System

The distribution system for the existing service area is shown in Figure 1. The distribution facilities consist of approximately 30.7 miles of piping ranging in size from 4" to 16" which cover most of the service area. There are no noted deficiencies in the existing distribution system.

It is estimated there are currently (2020) 245.04 acres available for development within the existing service area. As future non-agricultural development progresses, the total irrigated area will decrease from 313.20 acres (2020) to 242.74 acres at build-out as shown in Table 8.

Table 8. Existing Distribution System Irrigation at Build-Out

Description	Quantity
2020 Acres Under Irrigation[1]	313.20
2020 Acres Non-Agricultural Irrigation[1]	192.96
2020 Acres Available for Development[1]	245.04
Average Residential Lot Size, Square Feet (Assumed)	12,000
Lots Added to Service System, 2020 – Build-Out	890
Average Area Irrigated per Lot, Square Feet (Build-Out)[2]	2,438
Acres Added by Future Non-Agricultural Development	49.78
Build-Out Acres Under Irrigation (Existing System Only)	242.74

[1] Table 3

[2] Table 5

Because the existing distribution currently provides adequate service without any noted deficiencies and demands will decrease as the area develops, there is sufficient capacity (excess) to serve all future development on the existing system.

Canal Company Delivery System

The irrigation distribution facilities in the area south of Gould Wash are currently owned and operated by the Hurricane Canal Company. It is proposed that the City take over ownership and operation of the Canal Company's existing system between Gould Wash and 1500 South Street. This area is termed the "Annex Area".

Distribution facilities in this area are open ditches and low pressure irrigation pipes and will not be adequate for the pressures which will be required in the expanded system. The existing distribution facilities in this area will be abandoned and replaced by the City.

There is no excess capacity in the distribution facilities in the Annex Area because of the programmed abandonment.

D. New Development Demands on Existing Secondary Water System

1. Planning Period

The planning period for this Impact Fee Facilities Plan is the 10-year period from 2022 to 2032. Population projections indicate an increase of 9,951 persons during the planning period (Table 1). Assuming a 2.5 persons per residential unit and 2,438 square feet aggregate irrigation for each residential unit (Table 5), 3,980 new residential units will be constructed with 222.74 acres of irrigated landscape.

Build-out total irrigated area is projected to be 3,870.8 acres. With 192.96 existing non-agricultural irrigated acres and 222.78 irrigated acres added during the planning period, 3,455.06 acres will be added after the planning period.

Table 9. General Cost Proration Rates for Facilities

Description	Existing	10-Year Plan	Beyond 10-Years	Total
Irrigated Acreage (acres)	192.96	222.74	3,455.14	3,870.84
Cost Proration Rate for New Facilities Serving Combined Existing and New Development	4.985%	5.754%	89.261%	100%
Cost Proration Rate for New Facilities Serving New Development Only		6.056%	93.944%	100%

2. Existing Water Rights

Existing water rights total 1847.79 acre feet (2020). There are currently 762.76 acre feet that will become available for future growth as existing agricultural use changes to non-agricultural. It is projected that 11,346.6 acre feet will be required at build-out which will require acquisition of an additional 9,497.81 acre feet. The City is continuously seeking to acquire additional rights.

During the planning period, 222.74 irrigated acres will be developed with an annual demand of 627.00 acre feet, leaving 135.76 acre feet of the current rights available for development after the planning period.

Water rights have been acquired through shares in the Hurricane Canal Company. A primary share of canal stock carries a right to 5.4 acre feet. The purchase costs for existing water shares are estimated by the Hurricane Canal Company in Table 10.

Table 10. Estimated Cost of Existing Hurricane Canal Company Shares

Period	Shares Purchased	Purchase Price	Cost
Pre-1980 Purchases	30	$ 1,000	$ 30,000
1980 to 1990 Purchases	140	$ 1,500	$ 210,000
1990 to 2000 Purchases	50	$ 5,000	$ 250,000
1980 to 1990 Trade	50	$2,000	$ 100,000
2000 to Present Purchases	62.037	$10,000	$ 620.370
Total	332.037		$ 1,210,370
Average Cost of Existing Share		$ 3,645	

The average cost over the last 50 years is estimated to be $ 3,645 per share based on Canal Company estimates.

An analysis of new development demands on existing water rights is shown in Table 11.

Table 11. Water Rights

Current Water Rights	Acreage	Unit Use	Quantity
Current Water Rights (AF)			1,847.80 AF
Assume 5% of Total Water Rights Remain in Agricultural Use (AF)			92.39 AF
Current Irrigated Non-Agriculture	192.96 acres	5.14 AF/acre	992.63 AF
Available for Future Use (AF)			762.76 AF
10-Year Buy-In	**Acreage**	**Unit Use**	**Quantity**
10-Year Irrigation Addition	222.74 acres	2.81 AF/acre	627.00 AF
Irrigation Shares @ 5.4 AF/share			116.11 Shares
Cost @ $ 3,645/Share			$ 423,258
Beyond 10-year Buy-In	**Acreage**	**Unit Use**	**Quantity**
Beyond 10-Year Water Rights Remaining			135.76 AF
Canal Company Shares @ 5.4 AF/Share			25.14 Shares
Cost @ $ 3,645/Share			$ 91,648
Build-Out Water Rights	**Acreage**	**Unit Use**	**Quantity**
Current Non-Ag Rights Required	192.96 acres	5.14 AF/acre	992.63 AF
New Development Rights Required	3,677.88 acres	2.81 AF/acre	10,352.97 AF
Total Water Rights Required			11,345.60 AF
Total Current Water Rights			1,847.79 AF
Additional Water Rights Needed			9,497.81 AF
Canal Company Shares @ 5.4 AF/Share			1,758.85 Shares
Cost @ $10,000/Share			$17,588,545

The City owns Water Right 81-2475 for 193.38 acre feet. The City is also programming additional wells which will add to the City owned water rights. However, it should be noted that the total firm water rights for the Hurricane Canal Company amount to only 12,000 acre feet. It is highly improbable that the full rights to 11,345.60 acre feet needed for build-out can be obtained as a significant number of current Canal Company shareholders will be unwilling to sell their shares. It is anticipated that a major portion of the water for build-out demands will have to be purchased from the Washington County Water Conservancy District.

3. Existing Source Facilities

New interim source facilities are programmed to replace the existing source facilities. The existing source facilities will be used in standby or supplemental operations and will not be the primary source once the new facilities are constructed. The new facilities will serve the existing service area and new development outside the existing service area.

The new source facilities will consist of duplicate settling ponds, pumps, and micro-screens which will be located near 1300 South Street and 1150 West. The facilities will be designed to meet current and future demands in the existing system and in the 'Annex Area' which will include substantial agricultural demand. Design criteria would provide capacity of 10,790 gallons per minute for Peak Day Demand and 13,915 gallons per minute for Peak Hour Demand. The irrigation demand in this area will decrease as agricultural land is converted to residential uses, resulting in excess capacity in the source facilities that may be used to serve additional new development outside the existing service area.

Costs for the new source facilities are allocated according to Table 9 proration rates as shown in Table 12.

Table 12. Prorated Costs of New Source Facilities to Replace Existing Source Facilities

Description	Existing	10-Year Plan Period	Beyond 10-Years	Total
Irrigated Acres at Build-Out Existing Service Area	192.96	222.74	3,455.14	3,870.84
Proration	4.985%	5.745%	89.261%	100%
Cost of New Source Facilities[1] (Replacing Existing)	$10,785,395			
Allocated Cost of Existing Distribution System	$537,652	$620,592	$9,627,152	$10,785,395

[1] See Project 3 Cost Estimates, Table 18.

4. Existing Storage Facilities

The existing 3.0 million gallon settling basin will be re-tasked when the new source facilities are constructed and will function only as supplemental storage for the existing system. For the purposes of this report, there will be no impact on existing storage facilities by new development.

A new concrete storage tank is programmed for the Hurricane Valley Pressure Zone at a more central location which will serve existing and new development.

Additional new storage tanks will be constructed in each pressure zone to serve the peak demands within the individual zones.

Costs for the new storage tank to serve the existing system and future development are allocated according to Table 9 proration rates as shown in Table 13.

Table 13. Prorated Costs of New Storage to Replace Existing Storage

Description	Existing	10-Year Plan Period	Beyond 10-Years	Total
Irrigated Acres at Build-Out Existing Service Area	192.96	222.74	3,455.14	3,870.84
Proration	4.985%	5.745%	89.261%	100%
Cost of New Storage Facilities[1] (Replacing Existing)	$8,660,772			
Allocated Cost of Existing Distribution System	$431,740	$498,341	$7,730,692	$8,660,722

[1] See Project 6 Cost Estimates, Table 18.

One storage tank exists in the Sand Hollow Pressure Zone that is used exclusively for irrigation of the Sand Hollow golf course. Integration of this tank into the City-Wide system is not expected within the planning period and it is not considered in this report. Future buy-in may be appropriate when and if it is integrated into the City-Wide System.

5. Existing Distribution Facilities

Existing System

There is excess capacity in the existing piping system in the current service area. No additional piping is required by new development.

Future irrigated acreage in the existing system is estimated in Table 14.

Table14. Existing System Build-Out Irrigation Estimates

Description	Quantity
Existing System	
2020 Non-Agricultural Irrigation Area (acres)[1]	192.96
Future Non-Agricultural Irrigated Area (acres)[2]	49.78
Irrigated Acres Developed in 10-Year Plan Period (6.056%)[3]	3.01
Irrigated Acres Developed beyond 10-Year Plan Period (93.944%)[3]	46.76

[1] Table 3

[2] Table 8

[3] Table 9

Table 15 shows the allocated costs of the existing irrigation system for new development buy-in.

Table 15. Prorated Costs of Existing Distribution System

Description	Existing	10-Year Plan Period	Beyond 10-Years	Total
Irrigated Acres at Build-Out Existing Service Area	192.96	3.01	46.79	242.74
Proration	79.493%	1.242%	19.265%	100%
Value of Existing Distribution Piping[1]	$11,316,400			
Allocated Cost of Existing Distribution System	$8,995,801	$140,541	$2,180,058	$11,316,400

[1] Capital Facilities Plan, Table 8 (excluding source and storage costs)

New development Buy-In costs for the existing distribution system are $140,541 for the 10-Year Plan Period and $2,180,058 beyond the 10-Year plan period.

Expanded Distribution System

It was previously noted that the City will take over the existing irrigation distribution facilities between Gould Wash and 1500 South Street which are currently owned and operated by the Hurricane Canal Company. This area is termed the "Annex Area". Distribution facilities in this area are open ditches and low-pressure irrigation pipes and will not be adequate for the pressures which will be required in the expanded system.

The City will construct new pipelines within the annex area to serve demands within that area. Additionally, the newly constructed pipelines will transport water from the new source facilities to the distribution system in the existing service area. The combined existing service area and annex area is termed the "Expanded System".

Table 16 shows the estimated irrigated acreage that will be developed in the Expanded Service Area.

Table16. Expanded System Irrigation Estimates

Description	Quantity
Existing System	
2020 Non-Agricultural Irrigation Area (acres)[1]	192.96
Future Non-Agricultural Irrigated Area (acres)[2]	49.78
Irrigated Acres Developed in 10-Year Plan Period (6.056%)[3]	3.01
Irrigated Acres Developed beyond 10-Year Plan Period (93.944%)[3]	46.76
Annex Area	
Total Gross Area in Annex Area (acres)	1612
Assume 5% Remains Undeveloped (acres)	80.6
Total Area Developed in Annex Area (acres)	1,531.4
Average Residential Lot Size, Square Feet (Assumed)	12,000
Future Lots Developed in Annex Area	5,559
Average Area Irrigated per Lot, Square Feet (Build-Out)[4]	2,438
Future Non-Agricultural Irrigated Area (acres)	311.08
Irrigated Acres Developed in 10-Year Plan Period (6.056%)[3]	18.84
Irrigated Acres Developed beyond 10-Year Plan Period (93.994%)[3]	292.24

[1] Table 3
[2] Table 8
[3] Table 9
[4] Table 5 comment

A cost sharing analysis of the distribution system for the Expanded System based on proportioned irrigated acreage is shown in Table 17.

Table 17. Prorated Costs of Expanded System Distribution Facilities

Description	Existing	10-Year Plan Period	Beyond 10-Years	Total
Irrigated Acres at Build-Out Existing Service Area	192.96	3.01	46.76	242.74
Irrigated Acres at Build-Out Annex Area		18.84	292.24	311.08
Irrigated Acres at Build-Out Total	192.96	21.85	339.00	553.81
Cost Proration Based on Total Acres at Build-Out	34.842%	3.946%	61.212%	100%
Cost of New Distribution Piping[1]	$7,902,667			
Allocated Cost of Expanded System Distribution Piping	$2,753,435	$311,850	$4,837,382	$7,902,667

[1] See Project 4 Cost Estimates, Table 18.

City-Wide System

New piping will be required to extend service to all new development outside the Expanded System, except for the small area of the Marla Subdivision in the Elim development which has a private secondary water system. Costs for new distribution facilities should be prorated as shown in Table 9 for new development only.

E. Infrastructure Required to Meet Demands of New Development

The Build-Out secondary water system is shown in Figure 2. New infrastructure is required to meet all demands of new development, except for the distribution facilities in the existing system. The existing distribution piping is adequate to meet Build-Out demands that will be placed on those specific facilities. Due to operational deficiencies in the existing source and storage facilities, they are programmed to be utilized only in standby and supplemental capacities. New source and storage facilities will be constructed to meet existing demands and new development demands in the current service area.

Warner Reservoir, a final source facility, may not be available for several years. The wastewater reuse treatment system, which will also serve as a final source facility, is a programmed near-future source facility, but it will fulfill only part of the new demands in the west side of the City. The City intends to build two interim source facilities, one in the Hurricane Valley and one in the Dixie Springs vicinity, to meet near-future demands.

Additional water rights should be acquired to help meet new demands at Build-Out. The City is continuously working to acquire additional water rights through construction of new wells and by purchase of Hurricane Canal Company stock as it becomes available. It is anticipated that a major portion of the water required for new development will be purchased from the Washington County Water Conservancy District.

Programmed projects that the City intends to construct during the 10-Year planning period are shown on Figure 3. Table 18 is a list of the programmed projects with the prorated costs. Impact fees may be applicable to projects in the planning period for capital costs to provide service to new development.

Table 18. 10-Year Projects List

Project		Estimated Cost	Cost Proration			Allocated Cost		
			Existing System	10-Year Plan	Beyond 10-Year	Existing System	10-Year Plan	Beyond 10-Year
CONSTRUCTION PROJECTS								
1	**700 West Pipeline (100 N to 400 N)**	$ 228,086	100%			$ 228,086		
2	**2800 West Pipeline (100 N to 600 N)**	$ 404,724		6.06%	93.94%		$ 24,511	$ 380,213
3	**Hurricane Valley Raw Water Handling Facilities** (Table 12)							
3A	Property Acquisition for Settling Ponds and Pump Station	$ 1,720,000	4.99%	5.75%	89.26%	$ 85,742	$ 98,969	$ 1,535,289
3B	Dual 3 MG Settling Ponds	$ 4,319,722	4.99%	5.75%	89.26%	$ 215,338	$ 248,557	$ 3,855,827
3C	Pump System	$ 2,846,592	4.99%	5.75%	89.26%	$ 141,903	$ 163,793	$ 2,540,896
3D	24" Raw Waterline from 700 W to New Pond (1300S)	$ 1,899,081	4.99%	5.75%	89.26%	$ 94,669	$ 109,273	$ 1,695,139
	Subtotal	$ 10,785,395				$ 537,652	$ 620,592	$ 9,627,152
4	**East Distribution Main Pipelines (Expanded Area)** (Table 17)							
4A	1300 South Pipeline (1150 W to 180W)	$ 1,716,921	34.84%	3.95%	61.21%	$ 598,207	$ 67,752	$ 1,050,962
4B	1150 West Pipeline (400 S to 3000 S)	$ 3,414,153	34.84%	3.95%	61.21%	$ 1,189,554	$ 134,727	$ 2,089,872
4C	1100 West Pipeline (400 S to 100 N)	$ 663,616	34.84%	3.95%	61.21%	$ 231,216	$ 26,187	$ 406,212
4D	700 West Pipeline (400 S to 1300 S)	$ 1,090,734	34.84%	3.95%	61.21%	$ 380,032	$ 43,042	$ 667,660
4E	180 West Pipeline (580S to 1300 S)	$ 1,017,243	34.84%	3.95%	61.21%	$ 354,426	$ 40,142	$ 622,675
	Subtotal	$ 7,902,667				$ 2,753,435	$ 311,850	$ 4,837,382
5	**Rlington Parkway Pipelines (600 S to 3000 S)**							
5A	Rlington Parkway Pipeline (600 S to 1300 S)	$ 658,635		6.06%	93.94%		$ 39,888	$ 618,746
5B	Rlington Parkway Pipeline (1300 S to 2300 S)	$ 589,364		6.06%	93.94%		$ 35,693	$ 553,670
5C	Rlington Parkway Pipeline (2300S to 3000 S)	$ 928,548		6.06%	93.94%		$ 56,235	$ 872,313
5D	1300 S Pipeline (Pump Station to Rlington Parkway)	$ 554,791		6.06%	93.94%		$ 33,599	$ 521,192
	Subtotal	$ 2,731,337					$ 165,416	$ 2,565,921

Table 18(continued)

	Project	Estimated Cost	Cost Proration			Allocated Cost		
			Existing System	10-Year Plan	Beyond 10-Year	Existing System	10-Year Plan	Beyond 10-Year
6	**Hurricane Valley Zone Tank and Pipelines** (Table 13)							
6A	Property Acquisition	$ 750,000	4.99%	5.75%	89.26%	$ 37,388	$ 43,155	$ 669,458
6B	2.5 MG Concrete Tank	$ 6,919,044	4.99%	5.75%	89.26%	$ 344,914	$ 398,122	$ 6,176,008
6C	Tank Fill / Distribution Pipelines	$ 991,728	4.99%	5.75%	89.26%	$ 49,438	$ 57,064	$ 885,227
	Subtotal	$ 8,660,772				$ 431,740	$ 498,341	$ 7,730,692
7	**Westside Wells Development**	$ 100,000		6.06%	93.94%%		$ 6,056	$ 93,9446
8	**Wastewater Reuse System**							
8A	Sand Filtration and Disinfection	$ 13,104,000		6.06%	93.94%		$ 793,609	$ 12,310,391
8B	Reuse Water Pump System	$ 903,744		6.06%	93.94%		$ 54,733	$ 849,011
	Subtotal	$ 14,007,744					$ 848,342	$ 13,159,402
9	**West Distribution Main Pipelines**							
9A	1160 South/Elim Parkway Pipeline (WWTP to 3700 W)	$1,729,495		6.06%	93.94%		$ 104,742	$ 1,624,753
9B	3700 West Pipeline (Elim Parkway to 2300 South)	$ 790,451		6.06%	93.94%		$ 47,872	$ 742,579
9C	4640 W/Dixie Springs Rd Pipeline (SH Resort Pkwy to 5150 W)	$ 1,507,127		6.06%	93.94%		$ 91,275	$ 1,415,852
	Subtotal	$ 4,027,074					$ 243,889	$ 3,783,185
10	**Sand Hollow Feeder Raw Water Handling Facilities**							
10A	Property Acquisition for Settling Ponds and Pump Station	$ 750,000		6.06%	93.94%		$ 45,422	$ 704,578
10B	Dual 3 MG Settling Ponds	$ 4,319,722		6.06%	93.94%		$ 261,613	$ 4,058,109
10C	Pump System	$ 2,527,920		6.06%	93.94%		$ 153,097	$ 2,374,823
	Subtotal	$ 7,597,642					$ 460,131	$ 7,137,511

Table 18 (continued)

Project		Estimated Cost	Cost Proration			Allocated Cost		
			Existing System	10-Year Plan	Beyond 10-Year	Existing System	10-Year Plan	Beyond 10-Year
11	**Dixie Springs Zone Tank and Pipelines**							
11A	Property Acquisition	$ 750,000		6.06%	93.94%		$ 45,422	$ 704,578
11B	2.5 MG Concrete Tank	$ 3,741,111		6.06%	93.94%		$ 226,570	$ 3,514,541
11C	Tank Fill / Distribution Pipelines	$ 4,193,396		6.06%	93.94%		$ 253,962	$ 3,939,434
	Subtotal	$ 8,684,507					$ 525,954	$ 8,158,553
12	**3400 West Zone Pumps, Tank and Pipelines**							
12A	Property Acquisition	$ 750,000		6.06%	93.94%		$ 45,422	$ 704,578
12B	Pump System	$ 793,824		6.06%	93.94%		$ 48,076	$ 745,748
12C	500,000 Gallon Concrete Tank	$ 1,115,730		6.06%	93.94%		$ 67,571	$ 1,048,159
12D	Tank Fill / Distribution Pipelines	$ 2,238,721		6.06%	93.94%		$ 135,582	$ 2,103,139
	Subtotal	$ 4,898,275					$ 296,651	$ 4,601,624
13	**Sky Mountain Zone Pumps, Tank and Pipelines**							
13A	Property Acquisition	$ 750,000		6.06%	93.94%		$ 45,422	$ 704,578
13B	Pump System	$ 903,504		6.06%	93.94%		$ 54,718	$ 848,786
13C	500,000 Gallon Concrete Tank	$ 2,691,288		6.06%	93.94%		$ 162,991	$ 2,528,297
13D	Tank Fill / Distribution Pipelines	$ 1,660,300		6.06%	93.94%		$ 100,552	$ 1,559,748
	Subtotal	$ 6,005,091					$ 363,682	$ 5,641,409
					GRAND TOTALS	**$ 3,950,912**	**$ 4,365,415**	**$ 67,716,987**

Table 19. Conceptual Impact Fee Schedule for Year 2025

Development Standard [1]	Description	Basis		Impact Fee
		Irrigated Area (Square Feet)	Unit Cost / Square Foot	
RA-1 (Table 10-14-2)	50,000 sf – 25,000 sf Gross Lot Area 30% of Area Irrigated	7,500	$ 0.37	$ 2,775.00
RA-.5 (Table 10-14-2)	25,000 sf – 15,000 sf Gross Lot Area 33% of Area Irrigated	5,000	$ 0.37	$ 1,850.00
R1-15 / R1-10 (Table 10-13-2)	15,000 sf – 8,000 sf Gross Lot Area	3,500	$ 0.37	$ 1,295.00
R1-8 / R1-6 (Table 10-13-2)	8,000 sf – 4,800 sf Gross Lot Area	2,500	$ 0.37	$ 925.00
RM-1 (Table 10-13-2)	6 Units/Acre → 7,260 sf/Unit 15% of Area Irrigated	1,089	$ 0.37	$ 405.00 per Unit
RM-2 (Table 10-13-2)	10 Units/Acre → 4,356 sf/Unit 15% of Area Irrigated	653	$ 0.37	$ 240.00 per Unit
RM-3 (Table 10-13-2)	15 Units/Acre → 2,904 sf/Unit 15% of Area Irrigated	435	$ 0.37	$ 160.00 per Unit
Agricultural/ Commercial/ Industrial	Non-Residential Land Uses	Actual Per Development Plan	$0.37	Irrigated Area x $ 0.37

[1] From Hurricane Utah, Code of Ordinances / Tile 10-Land Use Regulations

G. 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 City and its designees.

In accordance with Utah Code Annotated, 11-36a-306(1), Alpha Engineering makes the following certification:

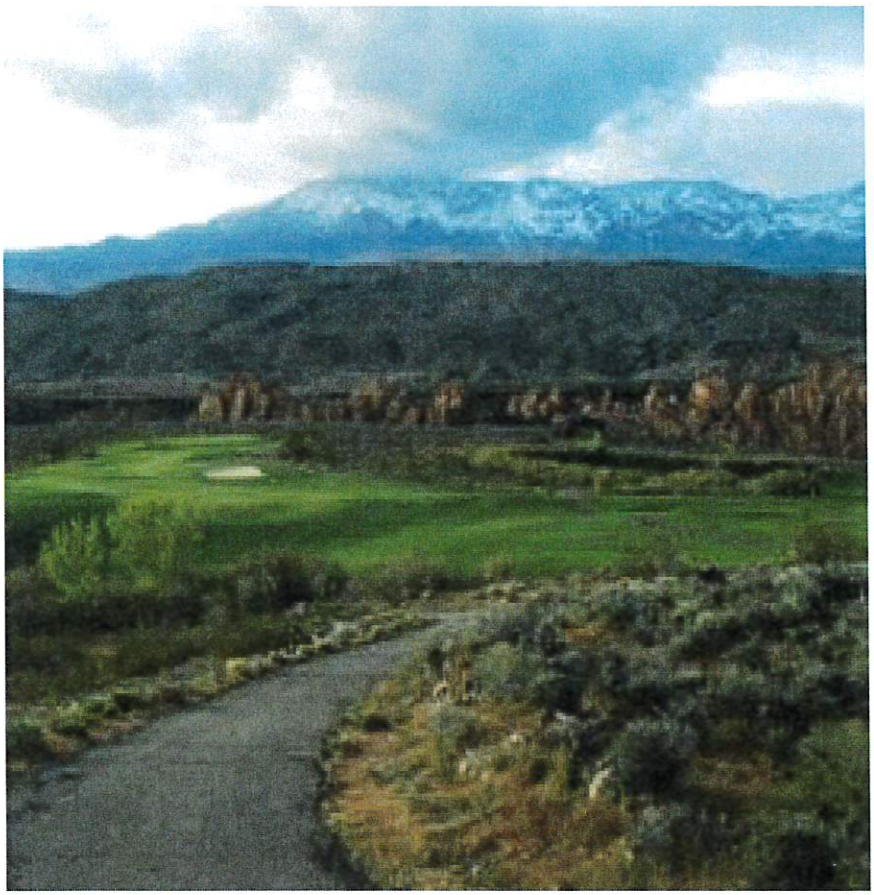
I certify that the attached impact fee facilities plan:

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;
    c. an expense for overhead, unless the expense is calculate 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.

_____

Glen E Carnahan, P.E.

APPENDIX



Hurricane City

DRAFT Secondary Water Impact Fee Analysis
April 2023

HURRICANE CITY
UTAH

ZIONS PUBLIC FINANCE, INC.

EXECUTIVE SUMMARY

An impact fee is a one-time fee imposed on new development activity to mitigate the impact of new development on capital facilities. In conjunction with this Impact Fee Analysis, Alpha Engineering prepared the *Hurricane City Secondary Water System Impact Fee Facilities Plan* (IFFP) dated April 2023. The IFFP forms the basis for this impact fee analysis.

The recommended impact fee structure presented in this analysis has been prepared to satisfy the Impact Fees Act, Utah Code Ann. § 11-36a-101 et. seq., and represents the maximum impact fees Hurricane City ("City") may assess. The City will be required to use revenue sources other than impact fees to fund any projects that constitute repair and replacement, cure any existing deficiencies, or increase the level of service for existing users.

Demand Growth

The City anticipates the growth of 222.74 irrigated acres over the next 10 years.

Secondary Water Service Levels

Level of service (LOS) defines the secondary water capital facility demands for the aggregate citywide secondary water system. The IFFP defines existing and proposed service levels as follows:

TABLE 1: SECONDARY WATER EXISTING AND PROPOSED SERVICE LEVELS

Description	Existing LOS	Proposed LOS
Annual Usage, Non-Agricultural	5.14 acre ft/acre	2.18 acre ft/acre
Peak Day Demand, Non-Agricultural	7.66 gpm/acre	3.17 gpm/acre
Peak Hour Demand, Non-Agricultural	15.29 gpm/acre	8.01 gpm/acre
Storage, Non-Agricultural	9,578 gal/acre	2,760 gal/acre

Source: Hurricane City Secondary Water System Impact Fee Facilities Plan, pp. 6-7

Service levels are expected to decline in the future. Impact fees can only be charged based on the level of service received by new development; in other words, fees can only be proportional to the benefit received.

Water Service Area

There is one service area for secondary water that encompasses the boundaries of Hurricane City. Secondary water impact fees are only charged to those properties with access to secondary water systems.

Excess Capacity

There is excess capacity in the City's water rights and distribution systems. The actual cost of total excess capacity in the distribution system that will be consumed by new development over the next 10 years is $140,541; total cost to be consumed after 10 years is $2,180,058. In addition, the City has excess capacity of 141.25 water shares, of which 116.11 will be consumed in the planning period, and 25.14 shares will be consumed after the planning period.

New Construction

Total new construction costs required by growth in new development over the next 10 years are projected to reach $4,365,415.

Secondary Water System Impact Fee Calculation

The gross impact fee, before credits are made, is $22,446.25 per irrigated acre. A credit must be made for the planned new projects that will benefit existing development. These credits are required to ensure that new development doesn't pay twice.

TABLE 2: GROSS IMPACT FEE PER IRRIGATED ACRE 2023 BEFORE CREDITS

Summary	
Excess Capacity	$2,531.03
New Construction	$19,598.70
Consultant Costs	$316.51
Subtotal Gross Fee per Irrigated Acre	**$22,446.25**

The gross fee is then reduced by the new construction (for projects benefitting existing development) as shown in Table 3.

TABLE 3: MAXIMUM IMPACT FEE PER IRRIGATED SF

Year	Cost per Year	Acres	Cost per Acre	NPV*	Max Fee per Irrigated Acre by Year	Max Fee per SF
2023	$197,546	192.96	$1,023.76	$7,593.26	$14,853.16	$0.34
2024	$197,546	208.35	$948.13	$6,949.15	$15,497.26	$0.36
2025	$197,546	224.97	$878.09	$6,348.48	$16,097.93	$0.37
2026	$197,546	242.92	$813.22	$5,787.82	$16,658.60	$0.38
2027	$197,546	262.30	$753.14	$5,263.99	$17,182.42	$0.39
2028	$197,546	283.22	$697.50	$4,774.05	$17,672.36	$0.41
2029	$197,546	305.81	$645.97	$4,315.25	$18,131.16	$0.42
2030	$197,546	330.21	$598.25	$3,885.05	$18,561.37	$0.43
2031	$197,546	356.55	$554.05	$3,481.05	$18,965.36	$0.44
2032	$197,546	384.99	$513.12	$3,101.05	$19,345.36	$0.44
2033	$197,546	415.70	$475.21	$2,742.98	$19,703.43	$0.45
2034	$197,546	448.86	$440.10	$2,404.92	$20,041.49	$0.46
2035	$197,546	484.67	$407.59	$2,085.06	$20,361.35	$0.47
2036	$197,546	523.33	$377.48	$1,781.73	$20,664.69	$0.47
2037	$197,546	565.07	$349.59	$1,493.33	$20,953.08	$0.48
2038	$197,546	610.15	$323.77	$1,218.41	$21,228.01	$0.49
2039	$197,546	658.82	$299.85	$955.56	$21,490.85	$0.49
2040	$197,546	711.38	$277.70	$703.49	$21,742.92	$0.50
2041	$197,546	768.12	$257.18	$460.97	$21,985.44	$0.50
2042	$197,546	829.40	$238.18	$226.84	$22,219.57	$0.51

*NPV = net present value discounted at 5 percent

Impact fees can be charged based on development type as shown in Table 4.

TABLE 4: MAXIMUM IMPACT FEE PER IRRIGATED ACRE AND RESIDENTIAL UNIT

Development Standard	Description	Irrigated Acres (SF)	2023	2024	2025	2026	2027	2028
RA-1 (Table 10-14-2)	50,000 sf - 25,000 sf Gross Lot Area 30% of Area Irrigated	7,500	$2,557.36	$2,668.26	$2,771.68	$2,868.22	$2,958.41	$3,042.76
RA-0.5 (Table 10-14-2)	25,000 sf - 15,000 sf Gross Lot Area 33% of Area Irrigated	5,000	$1,704.91	$1,778.84	$1,847.79	$1,912.14	$1,972.27	$2,028.51
R1-15/R1-10 (Table 10-13-2)	15,000 sf - 8,000 sf Gross Lot Area	3,500	$1,193.44	$1,245.19	$1,293.45	$1,338.50	$1,380.59	$1,419.96
R1-8/R1-6 (Table 10-13-2)	8,000 sf - 4,000 sf Gross Lot Area	2,500	$852.45	$889.42	$923.89	$956.07	$986.14	$1,014.25
RM-1 (Table 10-13-2)	6 Units/Acre - 7,260 sf/Unit 15% of Area Irrigated	1,089	$371.33	$387.43	$402.45	$416.46	$429.56	$441.81
RM-2 (Table 10-13-2)	10 Units/Acre - 4,356 sf/Unit 15% of Area Irrigated	653	$222.66	$232.32	$241.32	$249.73	$257.58	$264.92
RM-3 (Table 10-13-2)	15 Units/Acre - 2,904 sf/Unit 15% of Area Irrigated	435	$148.33	$154.76	$160.76	$166.36	$171.59	$176.48
Agricultural/ Commercial /Industrial	Non-Residential Land Uses	Actual Irrigated Acres per Development	$0.34/sf	$0.36/sf	$0.37/sf	$0.38/sf	$0.39/sf	$0.41/sf

CHAPTER 1: OVERVIEW OF THE WATER IMPACT FEES

Summary

An impact fee is intended to recover the City's costs of building secondary water system capacity to serve new residential and non-residential development rather than passing these growth-related costs on to existing users through rates. The Utah Impact Fees Act allows only certain costs to be included in an impact fee so that only the fair cost of expansionary projects or existing unused capacity paid for by the City is assessed through an impact fee.

Costs to be Included in the Impact Fee

The impact fees proposed in this analysis are calculated based upon:

- Excess capacity in the City's secondary water system;
- New capital infrastructure that will serve new development; and
- Professional and planning expenses related to the construction of system improvements that will serve new development.

The costs that cannot be included in the impact fee are as follows:

- Costs for projects that cure system deficiencies;
- Costs for projects that increase the LOS above that which is currently provided;
- Operations and maintenance costs;
- Costs of facilities funded by grants or other funds that the City does not have to repay; and
- Costs of reconstruction of facilities that do not have capacity to serve new growth.

Utah Code Legal Requirements

Utah law requires that communities and special districts prepare an Impact Fee Analysis (IFA) before enacting an impact fee. Utah law also requires that communities/districts give notice of their intent to prepare and adopt an IFA. This IFA follows all legal requirements as outlined below. The City has retained Zions Public Finance, Inc. (ZPFI) to prepare this Impact Fee Analysis in accordance with legal requirements.

Notice of Intent to Prepare Impact Fee Analysis

A local political subdivision must provide written notice of its intent to prepare an IFA before preparing the Plan (Utah Code §11-36a-503). This notice must be posted on the Utah Public Notice website. The City has complied with this noticing requirement for the IFA by posting notice.

Preparation of Impact Fee Analysis

Utah Code requires that each local political subdivision, before imposing an impact fee, prepare an impact fee analysis. (Utah Code 11-36a-304).

Section 11-36a-304 of the Utah Code outlines the requirements of an impact fee analysis which is required to:

(1) An impact fee analysis shall:

(a) identify the anticipated impact on or consumption of any existing capacity of a public facility by the anticipated development activity;

(b) identify the anticipated impact on system improvements required by the anticipated development activity to maintain the established level of service for each public facility;

(c) demonstrate how the anticipated impacts described in Subsections (1)(a) and (b) are reasonably related to the anticipated development activity;

(d) estimate the proportionate share of:
  (i) the costs for existing capacity that will be recouped; and
  (ii) the costs of impacts on system improvements that are reasonably related to the new development activity; and

(e) identify how the impact fee was calculated.

(2) In analyzing whether or not the proportionate share of the costs of public facilities are reasonably related to the new development activity, the local political subdivision or private entity, as the case may be, shall identify, if applicable:

(a) the cost of each existing public facility that has excess capacity to serve the anticipated development resulting from the new development activity;

(b) the cost of system improvements for each public facility;

(c) other than impact fees, the manner of financing for each public facility, such as user charges, special assessments, bonded indebtedness, general taxes, or federal grants;

(d) the relative extent to which development activity will contribute to financing the excess capacity of and system improvements for each existing public facility, by such means as user charges, special assessments, or payment from the proceeds of general taxes;

(e) the relative extent to which development activity will contribute to the cost of existing public facilities and system improvements in the future;

(f) the extent to which the development activity is entitled to a credit against impact fees because the development activity will dedicate system improvements or public facilities that will offset the demand for system improvements, inside or outside the proposed development;

(g) extraordinary costs, if any, in servicing the newly-developed properties; and

(h) the time-price differential inherent in fair comparisons of amounts paid at different times.

Certification of Impact Fee Analysis

Utah Code states that an Impact Fee Analysis shall include a written certification from the person or entity that prepares the Impact Fee Analysis. This certification is included at the conclusion of this analysis.

CHAPTER 2: IMPACT FROM GROWTH UPON THE CITY'S FACILITIES AND LEVEL OF SERVICE

Utah Code 11-36a-304(1)(a)

Projected Water Demands

The table below shows irrigated acre growth projections which will place additional demand on the City's secondary water system. The City's secondary water system (year 2022) serves 192.96 non-agricultural irrigated acres. Irrigated are expected to grow to 415.70 acres by 2032, reflecting growth of 222.74 acres.

Water Service Area

Irrigated acres within Hurricane City are projected to grow as follows:

TABLE 5: GROWTH IN DEMAND

Year	Non-Ag Irrigated Acres
2022	192.96
2023	208.35
2024	224.97
2025	242.92
2026	262.30
2027	283.22
2028	305.81
2029	330.21
2030	356.55
2031	384.99
2032	415.70

Source: Hurricane City Secondary Water Impact Fee Facilities Plan

Existing and Proposed LOS Analysis

Level of service (LOS) defines the secondary water capital facility demands for the aggregate citywide secondary water system. The IFFP defines existing and proposed service levels as follows:

TABLE 6: SECONDARY WATER EXISTING AND PROPOSED SERVICE LEVELS

Description	Existing LOS	Proposed LOS
Annual Usage, Non-Agricultural	5.14 acre ft/acre	2.18 acre ft/acre
Peak Day Demand, Non-Agricultural	7.66 gpm/acre	3.17 gpm/acre
Peak Hour Demand, Non-Agricultural	15.29 gpm/acre	8.01 gpm/acre
Storage, Non-Agricultural	9,578 gal/acre	2,760 gal/acre

Source: Hurricane City Secondary Water System Impact Fee Facilities Plan, pp. 6-7

Service levels are expected to decline in the future. Impact fees can only be charged based on the level of service received by new development; in other words, by the benefit received.

CHAPTER 3: IMPACT ON CAPACITY FROM DEVELOPMENT ACTIVITY

Utah Code 11-36a-304(1)(b)(c)

Excess Capacity

Water Rights. The City has excess water rights that are sufficient to serve new development for the 10-year planning period of this study. The IFFP identifies the need for 116.11 water shares over the next 10 years at an actual cost of water shares that were purchased for an average of $3,645 per share. Over the next 10 years, the IFFP states that new development will consume 116.11 water shares of excess capacity at a total actual cost of $423,258.

TABLE7: SECONDARY WATER RIGHTS EXCESS CAPACITY

Period	Shares Purchased	Purchase Price	Cost
Pre-1980 Purchases	30	$10,000	$30,000
1980 to 1990 Purchases	140	$1,500	$210,000
1990 to 2000 Purchases	50	$5,000	$250,000
1980 to 1990 Trade	50	$2,000	$100,000
2000 to Present Purchases	62.037	$10,000	$620,370
Total	332.037		$1,210,370
Average Cost of Existing Share		$3,645	

Source: Hurricane City Secondary Water System Impact Fee Facilities Plan, p.11

Secondary Water Transmission/Distribution. There is excess capacity in the City's secondary water transmission/distribution system. New development will consume $140,541 of excess distribution capacity over the next 10 years.

TABLE 8: SECONDARY WATER DISTRIBUTION SYSTEM EXCESS CAPACITY

Description	% of Total Capacity	Amount of Excess Capacity
Existing %	79.493%	$8,995,801
10 Years Plan	1.242%	$140,541
10 Years+ Plan	19.265%	$2,180,058
TOTAL		**$11,316,400**

Source: Hurricane City Secondary Water System Impact Fee Facilities Plan, p.14

CHAPTER 4: SYSTEM IMPROVEMENTS REQUIRED FROM DEVELOPMENT ACTIVITY

Utah Code 11-36a-304(1)(b)(c)

The means by which the City will meet growth demands include constructing the following projects as set forth in the Impact Fee Facilities Plan. This will occur through requiring new development to pay for its fair share of existing excess capacity consumed over the next 10 years as well as paying for its fair share of new construction projects.

The cost of new capital facility construction projects over the next 10 years total $4,365,415.

TABLE 9: NEW CONSTRUCTION IMPROVEMENTS

Item	Project	Estimated Cost	Existing System	10-Yr Plan	Beyond 10 Yrs
3	700 West Pipeline (100 N to 400 N)	$228,086	$228,086		
4	2800 West Pipeline (100 N to 600 N)	$404,724		$24,511	$380,213
5	Hurricane Valley Raw Water Handling Facilities	$10,785,395	$537,652	$620,592	$9,627,152
6	East Distribution Main Pipelines (Annex Area)	$7,902,667	$2,753,435	$311,850	$4,837,382
7	Rlington Parkway Pipelines (600 S to 3000 S)	$2,731,337		$165,416	$2,565,921
8	Hurricane Valley Zone Tank and Pipelines (Annex Area)	$8,660,772	$431,740	$498,341	$7,730,692
9	Westside Wells Development	$100,000		$6,056	$93,944
10	Wastewater Reuse System	$14,007,744		$848,342	$13,159,402
11	West Distribution Main Pipelines	$4,027,074		$243,889	$3,783,185
12	Sand Hollow Feeder Raw Water Handling Facilities	$7,597,642		$460,131	$7,137,511
13	Dixie Springs Zone Tank and Pipelines	$8,684,507		$525,954	$8,158,553
14	3400 West Zone Pumps, Tank and Pipelines	$4,898,275		$296,651	$4,601,624
15	Sky Mountain Zone Pumps, Tank and Pipelines	$6,005,091		$363,682	$5,641,409
	TOTAL	**$76,033,314**	**$3,950,913**	**$4,365,415**	**$67,716,988**

CHAPTER 5: PROPORTIONATE SHARE ANALYSIS

Maximum Legal Secondary Water Impact Fee

The Impact Fees Act requires the Impact Fee Analysis to estimate the proportionate share of the future and actual cost of existing system improvements that benefit new growth that can be recouped through impact fees. The impact fee for existing assets must be based on the actual costs while the fees for construction of new facilities must be based on reasonable future costs of the system.

The maximum impact fee includes buy-in costs for existing, excess capacity as well as the cost of construction of new facilities.

Buy-In to Existing, Excess Capacity

There is existing, excess capacity in water rights as well as in the transmission/distribution system. New development should be required to pay a buy-in fee for its fair share of the excess capacity consumed over the next 10 years. Actual costs have been used in this analysis.

TABLE 10: PROPORTIONATE SHARE ANALYSIS, WATER RIGHTS

Water Rights	Amount
Water Rights Cost per Share	$3,645
Shares Needed, 2022-2032	116.11
Cost Required, 2022-2032	$423,258
Growth in Irrigated Acres, 2022-2032	222.74
Cost per Irrigated Acre	**$1,900.23**

TABLE 11: PROPORTIONATE SHARE ANALYSIS, SECONDARY WATER TRANSMISSION/DISTRIBUTION

Source	Amount
Distribution, 10-Year Cost	$140,541
Growth in Irrigated Acres, 2022-2032	222.74
Cost per Irrigated Acre	**$630.96**

TABLE 12: SUMMARY BUY-IN COSTS

Summary	Amount
Water Rights	$1,900.23
Distribution	$630.96
Buy-In Cost per Irrigated Acre	**$2,531.20**

New Construction

Total new improvement costs attributable to new development over the next 10 years will reach $4,365,415.

TABLE 13: PROPORTIONATE SHARE ANALYSIS, NEW IMPROVEMENTS

Description	Amount
10 Year Cost	$4,365,415

Description	Amount
Growth in Irrigated Acres, 2023-2032	222.74
Cost per Irrigated Acre	**$19,598.70**

Consultant Costs

The Impact Fees Act allows for fees charged to include the reimbursement of consultant costs incurred in the preparation of the IFFP and IFA.

TABLE 14: PROPORTIONATE SHARE ANALYSIS – CONSULTANT COSTS

Consultant Costs	Amount
Alpha	$63,000
ZPFI	$7,500
Growth in Irrigated Acres, 2023-2033	222.74
Cost per Irrigated Acre	**$316.51**

Summary of Gross Fee

The gross impact fee, before credits are made, is $22,446.41 per irrigated acre. A credit must be made for the planned new projects that will benefit existing development. These credits are required to ensure that new development doesn't pay twice.

TABLE 15: GROSS IMPACT FEE PER IRRIGATED ACRE 2023 BEFORE CREDITS

Summary	
Excess Capacity	$2,531.20
New Construction	$19,598.70
Consultant Costs	$316.51
Subtotal Gross Fee per Irrigated Acre	**$22,446.41**

Credits Against Impact Fees

A total of $3,950,913 of new construction projects will benefit existing development. Therefore, credits must be made for these projects so that new development does not pay twice.

The gross fee is then reduced by the new construction (for projects benefitting existing development) as shown in Table 16.

TABLE 16: MAXIMUM IMPACT FEE PER IRRIGATED SF

Year	Cost per Year	Acres	Cost per Acre	NPV*	Max Fee per Irrigated Acre by Year	Max Fee per SF
2023	$197,546	192.96	$1,023.76	$7,593.26	$14,853.16	$0.34
2024	$197,546	208.35	$948.13	$6,949.15	$15,497.26	$0.36
2025	$197,546	224.97	$878.09	$6,348.48	$16,097.93	$0.37

Year	Cost per Year	Acres	Cost per Acre	NPV*	Max Fee per Irrigated Acre by Year	Max Fee per SF
2026	$197,546	242.92	$813.22	$5,787.82	$16,658.60	$0.38
2027	$197,546	262.30	$753.14	$5,263.99	$17,182.42	$0.39
2028	$197,546	283.22	$697.50	$4,774.05	$17,672.36	$0.41
2029	$197,546	305.81	$645.97	$4,315.25	$18,131.16	$0.42
2030	$197,546	330.21	$598.25	$3,885.05	$18,561.37	$0.43
2031	$197,546	356.55	$554.05	$3,481.05	$18,965.36	$0.44
2032	$197,546	384.99	$513.12	$3,101.05	$19,345.36	$0.44
2033	$197,546	415.70	$475.21	$2,742.98	$19,703.43	$0.45
2034	$197,546	448.86	$440.10	$2,404.92	$20,041.49	$0.46
2035	$197,546	484.67	$407.59	$2,085.06	$20,361.35	$0.47
2036	$197,546	523.33	$377.48	$1,781.73	$20,664.69	$0.47
2037	$197,546	565.07	$349.59	$1,493.33	$20,953.08	$0.48
2038	$197,546	610.15	$323.77	$1,218.41	$21,228.01	$0.49
2039	$197,546	658.82	$299.85	$955.56	$21,490.85	$0.49
2040	$197,546	711.38	$277.70	$703.49	$21,742.92	$0.50
2041	$197,546	768.12	$257.18	$460.97	$21,985.44	$0.50
2042	$197,546	829.40	$238.18	$226.84	$22,219.57	$0.51

*NPV = net present value discounted at 5 percent

Impact fees can be charged based on development type as shown in Table 17.

TABLE 17: MAXIMUM IMPACT FEE PER IRRIGATED ACRE AND RESIDENTIAL UNIT

Development Standard	Description	Irrigated Acres (SF)	2023	2024	2025	2026	2027	2028
RA-1 (Table 10-14-2)	50,000 sf - 25,000 sf Gross Lot Area 30% of Area Irrigated	7,500	$2,557.36	$2,668.26	$2,771.68	$2,868.22	$2,958.41	$3,042.76
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Agricultural/Commercial/Industrial	Non-Residential Land Uses	Actual Irrigated Acres per	$0.34/sf	$0.36/sf	$0.37/sf	$0.38/sf	$0.39/sf	$0.41/sf

Development Standard	Description	Irrigated Acres (SF)	2023	2024	2025	2026	2027	2028
		Development						

CERTIFICATION

Zions Public Finance, Inc. certifies that the attached impact fee analysis:

1. includes only the cost of public facilities that are:
    a. allowed under the Impact Fees Act; and
    b. actually incurred; or
    c. projected to be incurred or encumbered within six years after the day on which each impact fee is paid;

2. does not include:
    a. costs of operation and maintenance of public facilities; or
    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;

3. offset costs with grants or other alternate sources of payment; and

4. complies in each and every relevant respect with the Impact Fees Act.