CULINARY WATER IMPACT FEE ANALYSIS

BONA VISTA WATER IMPROVEMENT DISTRICT
FEBRUARY 2023

LEWIS YOUNG ROBERTSON & BURNINGHAM, INC

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IMPACT FEE ANALYSIS CERTIFICATION

LYRB certifies that the attached impact fee analysis:

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

- does not include:
  - costs of operation and maintenance of public facilities;
  - 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;
  - 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;
  - offsets costs with grants or other alternate sources of payment; and,

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

LYRB makes this certification with the following caveats:

1. If all or a portion of the IFFP or Impact Fee Analysis are modified or amended, this certification is no longer valid.
2. All information provided to LYRB is assumed to be correct, complete, and accurate. This includes information provided by the District as well as outside sources.

DEFINITIONS

The following acronyms or abbreviations are used in this document:

AF: Acre Foot

ERC: Equivalent Residential Connections

GAL: Gallons

GPM: Gallons per Minute

GPD: Gallons per Day

IFA: Impact Fee Analysis

IFFP: Impact Fee Facilities Plan

LOS: Level of Service

LYRB: Lewis Young Robertson and Burningham, Inc.

MG: Million Gallons

SECTION 1: EXECUTIVE SUMMARY

The purpose of the Culinary Impact Fee Analysis ("IFA") is to fulfill the requirements established in Utah Code Title 11 Chapter 36a, the "Impact Fees Act" and to assist Bona Vista Water Improvement District (the "District") assess the impacts future growth will have on the culinary water system. This document will address the appropriate impact fees the District may charge to new growth to maintain the existing level of service ("LOS"). JUB Engineers completed the Culinary Water Capital Facilities Plan Update, which includes the Impact Fee Facilities Plan (referenced as the "IFFP" in this document), updated November 2022.

The following paragraphs briefly summarize the impact fee analysis:

- **Impact Fee Service Area:** The service area for culinary water impact fees includes all areas within the District boundaries. This document identifies existing and future capital projects that will serve new development through the IFFP planning horizon.
- **Demand Analysis:** The demand units utilized in this analysis are based on equivalent residential connections (ERCs) generated from non-residential and residential land-use types. ERCs is expected to reach 39,624 units by 2032. This represents an increase of 17,288 ERCs from 2022.
- **Level of Service:** The adopted LOS for water rights is .34 acre-feet ("af") per ERC. The LOS for the source component is 600 gallons per day per ERC (GPD/ERC) and 265 gallons/ERC for storage (plus fire flow and irrigation storage). The distribution level of service is based on 0.4 GPM/ERC based on peak instantaneous demand.
- **Excess Capacity:** Based on the adopted LOS capered to the 2022 ERCs, there is excess capacity related to existing water rights, storage, and distribution infrastructure. As a result, this analysis includes a buy-in component for future growth.
- **Capital Facilities Analysis:** Future source, storage, and distribution facilities are included in the IFFP and deemed necessary to maintain the LOS into the future. These new facilities will supplement the excess capacity identified above. Approximately $60M in future capital costs are included in this analysis.
- **Funding of Future Facilities:** This analysis assumes future growth-related facilities will be funded on a pay-as-you-go basis, utilizing impact fees and utility fee revenues to bridge any funding gaps.

PROPOSED CULINARY WATER IMPACT FEE

The table below illustrates the appropriate buy-in component, future facilities cost and professional expenses related to new growth as defined in previous sections of this analysis.

TABLE 1.1: CALCULATION OF PROPORTIONATE IMPACT FEE

INFRASTRUCTURE CATEGORY	VALUE IN IFFP	% TO GROWTH IN IFFP HORIZON	COST TO GROWTH	ERCS SERVED	FEE PER ERC
Buy-In					
Source Buy-In	$231,097	0%	$0	17,288	$0
Storage Buy-In	$2,595,408	63%	$1,634,121	17,288	$95
Distribution Buy-In	$18,265,881	27%	$5,010,388	17,288	$290
Future Facilities					
Source Future Projects	$40,010,594	100%	$40,010,594	17,288	$2,314
Storage Future Projects	$4,223,255	90%	$3,790,315	17,288	$219
Distribution Future Projects	$26,628,737	63%	$16,896,119	17,288	$977
Professional Expense	$48,900	100%	$48,900	17,288	$3
Total	**$92,003,872**		**$67,390,437**		**$3,898**

The IFFP recommends assessing impact fees based on Drainage Fixture Unit (DFU) calculations which is representative of water usage, especially for the larger connection sizes. The IFFP recommends the following method of calculating impact fees in the District (for additional details, See Appendix A):

- For Single-Family Residential, 1 ERC equals 21 Drainage Fixture Units
- Multi-Family Residential = 0.82% of 1 ERC
- All other uses (Commercial, Industrial, Institutional) be calculated by dividing the total number of proposed Fixture Units by 21 to determine the number of ERC's (rounded to the nearest 1/10th). This number will then be multiplied by the single-family impact fee.

The IFFP addendum also indicates that the DFU shall not be reduced by 40% as permitted in the international Plumbing Code (IPC) since the total DFU number should be representative of the capacity of the site, consistent with the system design sizing for maximum capacity of the source, storage and distribution components.

NON-STANDARD CULINARY WATER IMPACT FEES

Under the Impact Fees Act the fee may be adjusted to more closely match the true impact that the land use will have upon public facilities.[1] This adjustment could result in a lower impact fee if the District determines that a particular user may create a different impact than what is standard for its land use. To determine the impact fee for a non-standard use, the District should use the following formula:

FORMULA FOR NON-STANDARD WATER IMPACT FEES:

Estimated ERCs * $3,898 = Impact Fee

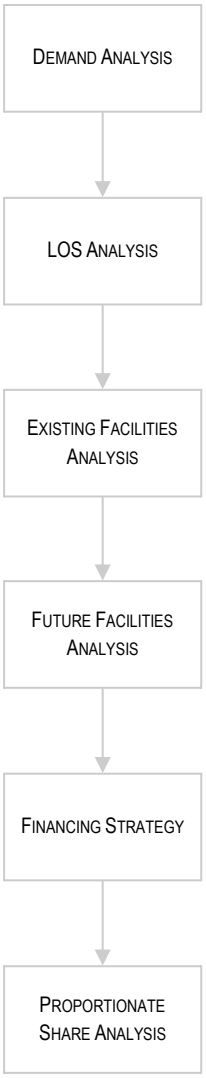
Other options have been investigated including dwelling units or square area for the basis of the impact fee. Some communities have modified the AWWA table information in an effort to assess larger projects with larger fees. Yet another option is that of using Drainage Fixture Unit (DFU) Calculations from the International Plumbing Code. We feel this option would be more representative of the water usage, especially for the larger connection sizes.

[1] 11-36a-402(1)(c)

SECTION 2: GENERAL IMPACT FEE METHODOLOGY

The purpose of this study is to fulfill the requirements of the Impact Fees Act regarding the establishment of an IFA.[2] The IFFP, completed by JUB Engineering, is designed to identify the demands placed upon the District's existing facilities by future development and evaluate how these demands will be met by the District, as well as the future improvements required to maintain the existing LOS. The purpose of the IFA is to proportionately allocate the cost of the new facilities and any excess capacity to new development, while ensuring that all methods of financing are considered. The following elements are important considerations when completing an IFA.

FIGURE 2.1: IMPACT FEE METHODOLOGY



DEMAND ANALYSIS

The demand analysis serves as the foundation for this analysis. This element focuses on a specific demand unit related to each public service – the existing demand on public facilities and the future demand as a result of new development that will impact system facilities.

LEVEL OF SERVICE ANALYSIS

The demand placed upon existing public facilities by existing development is known as the existing LOS. Through the inventory of existing facilities, combined with the growth assumptions, this analysis identifies the LOS which is provided to a community's existing residents and ensures that future facilities maintain these standards. Any excess capacity identified within existing facilities can be apportioned to new development. Any demand generated from new development that overburdens the existing system beyond the existing capacity justifies the construction of new facilities.

EXISTING FACILITY INVENTORY

In order to quantify the demands placed upon existing public facilities by new development activity, the analysis provides an inventory existing **system** facilities. The inventory of existing facilities is important to properly determine the excess capacity of existing facilities and the utilization of excess capacity by new development.

FUTURE CAPITAL FACILITIES ANALYSIS

The demand analysis, existing facility inventory and LOS analysis allow for the development of a list of capital projects necessary to serve new growth and to maintain the existing system. This list includes any excess capacity of existing facilities, as well as future **system improvements** necessary to maintain the level of service. Any demand generated from new development that overburdens the existing system beyond the existing capacity justifies the construction of new facilities.

FINANCING STRATEGY

This analysis must also include a consideration of all revenue sources, including impact fees, future debt costs, alternative funding sources and the dedication of system improvements, which may be used to finance system improvements.[3] In conjunction with this revenue analysis, there must be a determination that impact fees are necessary to achieve an equitable allocation of the costs of the new facilities between the new and existing users.[4]

PROPORTIONATE SHARE ANALYSIS

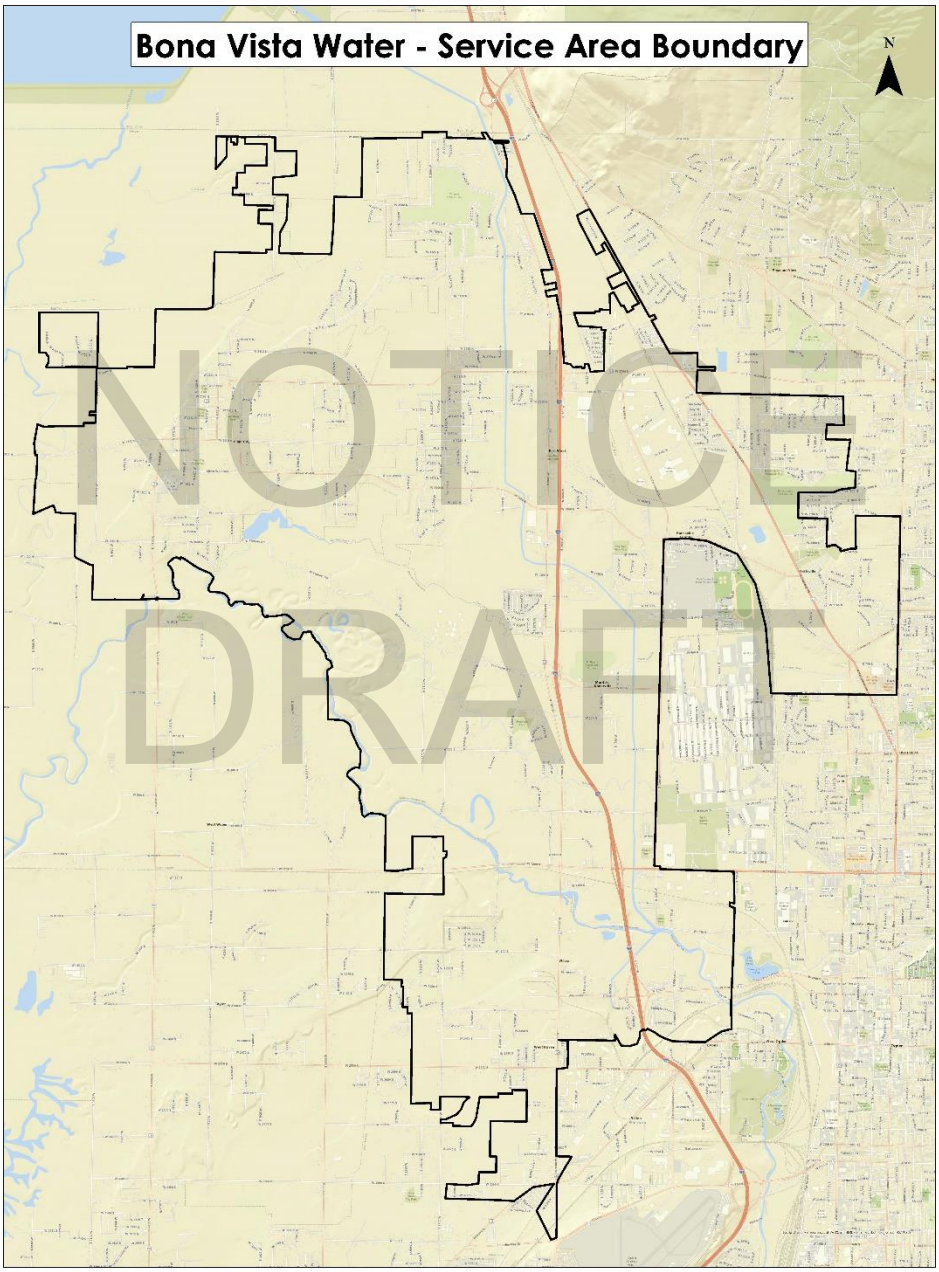
The written impact fee analysis is required under the Impact Fees Act and must identify the impacts placed on the facilities by development activity and how these impacts are reasonably related to the new development. The written impact fee analysis must include a proportionate share analysis, clearly detailing each cost component and the methodology used to calculate each impact fee. A local political subdivision or private entity may only impose impact fees on development activities when its plan for financing system improvements establishes that impact fees are necessary to achieve an equitable allocation of the costs borne in the past and to be borne in the future (UCA 11-36a-302).

[2] UC 11-36a-301,302,303,304
[3] UC 11-36a-302(2)
[4] UC 11-36a-302(3)

SECTION 3: OVERVIEW OF SERVICE AREA, DEMAND, AND LOS

SERVICE AREAS

Utah Code requires the impact fee enactment to establish one or more service areas within which impact fees will be imposed.[5] The impact fees identified in this document will be assessed to a single, district-wide service area. It is anticipated that the growth projected over the next ten years will be able to utilize some of the excess capacity in the existing system but will also need to construct new facilities to meet the projected demand. The IFFP and this analysis determine the true impact of a particular user class upon the District's infrastructure and ensure new growth funds the costs of growth-related capital infrastructure and/or the costs of any excess capacity within the existing system.



[5] UC 11-36a-402(1)(a)

DEMAND UNITS

As shown in Table 3.1, the growth in ERCs is expected to reach 39,624 units by 2032. This represents an increase of 17,288 ERCs from 2022.

TABLE 3.1: DISTRICT-WIDE CULINARY WATER ERC PROJECTIONS

YEAR	EST. ERCS	% of Buildout
2021	20,111	31.9%
2022	22,336	35.4%
2032	39,624	62.9%
Buildout	**63,025**	**100.0%**
New ERCs (2018-2028)	17,288	27.4%
New ERCs through Buildout	40,689	64.6%
Source: IFFP p.3		

LEVEL OF SERVICE STANDARDS

Impact fees cannot be used to finance an increase in the level of service to current or future users of capital improvements. Therefore, it is important to identify the culinary water level of service currently provided within the District to ensure that the new capacities of projects financed through impact fees do not exceed the established standard.

WATER RIGHTS

The adopted LOS for water rights is 0.34 acre-feet per ERC. For outdoors, the LOS is 507 acre-feet, or 1.87 acre-feet per irrigated acre.

3.2: WATER RIGHTS LEVEL OF SERVICE (LOS)

	ACRE FEET PER YEAR	ACRE FEET PER ERC
Indoor	7,594	0.34
	ACRE FEET PER YEAR	ACRE FEET PER IRRIGATED ACRE
Outdoor	507	1.87
Source: IFFP p. 6, LYRB		

SOURCE

For the source component, the adopted LOS is 600 gallons per day per ERC (GPD/ERC). The current system currently provides for 635 GPD/ERC, resulting in no excess capacity.

TABLE 3.3: SOURCE LEVEL OF SERVICE (LOS)

	ACRE FEET PER YEAR	GALLONS PER DAY (GPD)	GPD PER ERC
Indoor	6,634	13,401,600	600
Outdoor	383	775,264	35
Subtotal:		**14,176,864**	**635**
Adopted LOS: (GDP per ERC)			**600**
Source: IFFP p. 6-7			

STORAGE

The total storage required of the existing system is 5,919,040 gallons. The total storage within the system minus the fire flow storage and irrigation storage is 8,057,900 gallons. Based on current ERCs, the existing LOS equals 388 gallons per ERC. The proposed LOS is 265 gallons per ERC plus 772,100 gallons irrigation storage plus 1,920,000 fire flow storage.

TABLE 3.3: STORAGE LEVEL OF SERVICE (LOS)

	CAPACITY (GALLONS)	GALLONS PER ERC
Current Storage	10,500,000	
Excluding Fire	(1,920,000)	
Excluding Irrigation	(772,100)	
Available Capacity	**7,807,900**	**388**
Adopted LOS: (Gallons per ERC)		**265**
Source: IFFP p.8		

DISTRIBUTION

For the distribution component, the adopted LOS is 0.4 GPM/ERC based on information provided in the IFFP. The existing system currently provides for 0.27 GPM/ERC for peak day demand and 0.4 GPM/ERC for peak instantaneous demand. Additional facilities will need to be constructed to maintain this LOS into the future.

TABLE 3.4: DISTRIBUTION LEVEL OF SERVICE (LOS)

	FLOW GPM	ERCS	GPM PER ERC	MINIMUM PRESSURE (PSI)
Peak Day Demand	5,423	20,111	0.27	40
Peak Instantaneous	8,135	20,111	0.40	30
Source: IFFP p.7				

The existing and proposed level of service for water rights, sources, distribution, and storage are illustrated in Table 3.5.

TABLE 3.5: LEVEL OF SERVICE (LOS) SUMMARY

CATEGORY	EXISTING LOS	PROPOSED LOS
Water Rights	0.34 ac-ft per ERC	0.34 ac-ft per ERC
Available Peak Demand Flow (Indoor)	600 GPD/ERC	600 GPD/ERC
Available Peak Demand Flow (Outdoor)	775,264 GPD	775,264 GPD
Transmission Lines – Peak Day Flowrate	-	0.27 GPM/ERC
Transmission Lines – Instantaneous Peak Flowrate	-	0.40 GPM/ERC
Max Day + Fire Flow Residual Pressure	20 psi	20 psi
Minimum Peak Hour Demand Pressure	30 psi	-
Minimum Peak Day Demand Pressure	40 psi	40 psi
Storage	265 gallons per ERC + Irrigation + Fire Flow	265 gallons per ERC + Fire Flow
Source: IFFP p.9-11		

SECTION 4: EXISTING FACILITIES INVENTORY

EXCESS CAPACITY

The intent of the equity buy-in component is to recover the costs of the unused capacity in existing infrastructure which will be used by new development. This section addresses any excess capacity within the culinary water system. Excess capacity is calculated using the projected 2022 demand on the system.

WATER RIGHTS

Based on the LOS of 0.34 ac-ft, the excess capacity for the water rights component is 4,802 ac-ft, or 37 percent, as illustrated in Table 4.1. The excess capacity is calculated by determining the difference between the current water rights, 12,903 acre-feet, and the current need, 8,101 acre-feet.

TABLE 4.1: ILLUSTRATION OF WATER RIGHTS EXCESS CAPACITY

	ACRE FEET	ERCS SERVED*	% OF TOTAL CAPACITY
ERCs Served by Existing Source	12,903	37,950	100%
Current Demand	8,101	23,827	63%
Excess Capacity	**4,802**	**14,123**	**37%**
Demand from Future Growth (2022 – 2032)	5,878	17,288	
Remaining to be Served	1,076	3,165	

Source: Bona Vista Water Improvement District, LYRB
*Based on LOS of 0.34 ac-ft

SOURCE

Analysis of existing sources illustrates no excess capacity as shown in Table 4.4. The total original value of existing assets is $231,097. Table 4.3 below provides details in determining the existing value used in the impact fee calculation.

TABLE 4.2: ILLUSTRATION OF SOURCE EXCESS CAPACITY

	GALLONS PER DAY	ERCS SERVED*	% OF TOTAL CAPACITY
ERUs Served by Existing Source	13,248,000	22,080	100%
Current Demand	14,176,864	23,628	107%
Excess Capacity	**(928,864)**	**(1,548)**	**0%**
Demand from Future Growth (2022 – 2032)	10,372,800	17,288	
Remaining to be Served	10,372,800	17,288	

Source: Bona Vista Water Improvement District, LYRB
*Based on LOS of 600 gallons per day

TABLE 4.3: ORIGINAL VALUES OF CURRENT SOURCE ASSETS

DATE	ASSET	COST (ORIGINAL)	DEVELOPER CONTRIBUTION %	DISTRICT PAID
1995	Spring Project	$8,738	0%	$8,738
1997	Land-Jones Property (Hot Springs Well)	$25,942	0%	$25,942
2000	Repairs on Well	$9,656	0%	$9,656
2008	Farr West Well Reconstruction	$170,000	0%	$170,000
2016	New West Well	$6,820	0%	$6,820
2018	New West Well	$1,007	0%	$1,007
2021	Farr West Well Upgrade	$8,935	0%	$8,935
	Total:	**$231,097**		**$231,097**

Source: Bona Vista Water Improvement District, LYRB

The buy-in component is calculated using the original cost of existing source assets as presented in the District's financial records plus any interest costs associated with debt issued to fund the existing facilities.

TABLE 4.4: DETERMINATION OF VALUE OF EXISTING SOURCE FACILITIES RELATED TO NEW GROWTH

	COST (ORIGINAL)	NOTES:
Total Value of Existing Source Facilities	$231,097	See Table 4.3 for total value of existing asset details
Percent Excess Capacity	0%	See Table 4.2
Buy-In Cost to Growth	**$0**	

STORAGE

A comparison of existing storage capacity relative to the future storage needs illustrates excess capacity within the existing system. Based on the LOS of 265 gallons/ERC, the District's current storage needs total 5,919,040 gallons. The total capacity of the existing system excluding fire suppression and irrigation is 7,807,900 gallons for a difference of 1,888,860 gallons. This excess capacity should serve 7,128 ERCs (based on the LOS of 265 gallons/ERC). This represents 71 percent of the added storage (3MG North Ogden Tank) capacity (See Table 4.5).

TABLE 4.5: ILLUSTRATION OF EXCESS CAPACITY

STORAGE	CAPACITY (GALLONS)	ERCS SERVED*	% OF TOTAL CAPACITY
Available Storage Capacity	7,807,900	29,464	100%
Current Demand	5,919,040	22,336	76%
Added Storage (North Ogden Tank)	3,000,000	11,321	38%
	CAPACITY (GALLONS)	**ERCS SERVED***	**% OF ADDED STORAGE**
Excess Capacity	**1,888,860**	**7,128**	**63%**
Demand from Future Growth (2022 – 2032)	4,581,320	17,288	
Remaining to be Served	2,692,460	10,160	
Source: Bona Vista Water Improvement District, LYRB *Based on State Standard and Adopted LOS of 265 gallons/ERC)			

The total original value of the storage assets is $6,339,726, with the North Ogden Tank accounting for $2,595,408. Table 4.6 below provides further asset details in determining the value used in the impact fee calculation.

TABLE 4.6: ORIGINAL VALUES OF CURRENT STORAGE ASSETS

DATE	DESCRIPTION	COST	DEVELOPER CONTRIBUTION (%)	DISTRICT PAID
1982	Plain City Reservoir	$189,086	0%	$189,086
1990	Land	$16,946	0%	$16,946
1990	Airport Reservoir and Line	$767,450	0%	$767,450
1996	Reservoir Easement	$11,110	0%	$11,110
1996	Reservoir Property	$25,000	0%	$25,000
2004	Scada System	$116,291	0%	$116,291
2012	Small Tank Waterproofing	$4,832	0%	$4,832
2012	Large Tank Crack Repair/Waterproofing	$43,856	0%	$43,856
2014	North Ogden Property	$24,059	0%	$24,059
2018	**3Mg North Ogden Tank**	**$2,292,137**	**0%**	**$2,292,137**
2019	**3Mg North Ogden Tank**	**$13,967**	**0%**	**$13,967**
2019	**3Mg North Ogden Tank 2019**	**$289,304**	**0%**	**$289,304**
1999	Reservoir Improvement	$336,267	0%	$336,267
2004	2-million-gallon tank @ airport	$717,460	0%	$717,460
2020	Pumphouse Roof	$8,990	0%	$8,990
2021	Hot Springs Tank	$36,265	0%	$36,265
2021	Plain City Water Tank Roo	$49,360	0%	$49,360
2020	Xeriscaping Office & Tank	$49,617	0%	$49,617
Total		**$4,991,996**		**$4,991,996**
Source: Bona Vista Water Improvement District, LYRB				

The total buy-in component is calculated using the North Ogden Tank original cost as presented in the District's financial records, plus any interest costs associated with debt issued to fund the existing facilities.

TABLE 4.7: DETERMINATION OF VALUE OF EXISTING STORAGE FACILITIES RELATED TO NEW GROWTH

	COST (ORIGINAL)	NOTES:
Total Value of Existing Storage Facilities	$2,595,408	See Table 4.6 for total value of existing asset details
Percent Excess Capacity	63%	See Table 4.5
Buy-In Cost to Growth	**$1,634,121**	
Source: Bona Vista Water Improvement District, LYRB		

DISTRIBUTION

Existing infrastructure was analyzed relative to needed improvements to develop the list of capital projects necessary to serve new growth. It was determined new growth will utilize the existing system infrastructure, plus the additional facilities identified in Section 5. This analysis assumes that the existing system benefits both existing ERCs and future ERCs through buildout. As a result, the existing distribution system is apportioned to both existing and future development. The original value of the assets of the distribution component of the culinary water system total $26,469,933. After subtracting out developer contributions, the remaining value included in this analysis equals $18,265,881. The total buy-in component is calculated using the original cost of existing source assets as presented in the District's financial records plus any interest costs associated with debt issued to fund the existing facilities.

TABLE 4.7: DETERMINATION OF VALUE OF EXISTING DISTRIBUTION FACILITIES RELATED TO NEW GROWTH

	COST (ORIGINAL)	NOTES:
Total Value of Existing Distribution Facilities	$18,265,881	According to Districts Financial Records
Percent Excess Capacity	27%	ERCs served by excess capacity (17,288)/Total ERCs through buildout served by existing distribution (63,025)
Buy-In Cost to Growth	**$5,010,388**	

MANNER OF FINANCING EXISTING PUBLIC FACILITIES

The District has funded its existing capital infrastructure through a combination of different revenue sources, including general utility fund revenues, developer contributions, and the issuance of debt. This analysis has removed all funding that has come from developer contributions or from non-district sources to ensure that none of those infrastructure items are included in the calculation of the impact fee. The District had no outstanding debt that was used in the calculation of this impact fee.

SECTION 5: CAPITAL FACILITY ANALYSIS

The estimated costs attributed to new growth were analyzed based on existing development versus future development patterns, as well as through an analysis of flow data. From this analysis it was determined that new growth will utilize a combination of excess capacity and future facilities.

The following paragraphs include the original values used in the "Buy-in Cost to Growth" totals presented throughout Section 4 and in the final impact fee calculation. Only the original cost can be included as part of the buy-in component of the impact fee calculation. Construction cost for future facilities and an analysis of how much of the project is related to new growth is also included in this section.

SOURCE

Table 5.1 details the future source projects and the costs included in the impact fee analysis.

TABLE 5.1: FUTURE SOURCE FACILITIES

#	YEAR	PROJECT DESCRIPTION	TOTAL PROJECT COST	CONST. YEAR COST	GENERAL FUND %	IMPACT FEE %	GROWTH RELATED
22-1	2022	Improvements to Existing Well	$458,753	$458,753	13%	87%	$399,115
22-3	2023	New Well at Bona Vista Water Improvements	$5,813,108	$6,045,632	0%	100%	$6,045,632
22-7	2025	Shop Well at 2700 N 2000 W	$5,813,108	$6,538,956	0%	100%	$6,538,956
22-12	2027	New Well	$5,813,108	$7,072,535	0%	100%	$7,072,535
22-17	2029	New Well	$5,813,108	$7,649,654	0%	100%	$7,649,654
22-20	2030	New Well	$5,813,108	$7,955,640	0%	100%	$7,955,640
22-26	2032	New Well	$5,813,108	$8,604,820	0%	100%	$8,604,820
22-29	2024	Well House Generator	$182,000	$196,851	14%	86%	$169,292
Subtotal: Source			**$35,519,401**	**$44,522,841**			**$44,435,644**

TABLE 5.1: FUTURE SOURCE FACILITIES (CONT.)

#	YEAR	PROJECT DESCRIPTION	NEW CAPACITY	UNIT	ERCS SERVED	% OF TOTAL*	COST TO IFA
22-1	2022	Improvements to Existing Well	576,000	GPM	**960**	90%	$359,370
22-3	2023	New Well at Bona Vista Water Improvements	1,728,000	GPM	**2,880**	90%	$5,443,588
22-7	2025	Shop Well at 2700 N 2000 W	1,728,000	GPM	**2,880**	90%	$5,887,785
22-12	2027	New Well	1,728,000	GPM	**2,880**	90%	$6,368,228
22-17	2029	New Well	1,728,000	GPM	**2,880**	90%	$6,887,876
22-20	2030	New Well	1,728,000	GPM	**2,880**	90%	$7,163,391
22-26	2032	New Well	1,728,000	GPM	**2,880**	90%	$7,747,923
22-29	2024	Well House Generator	576,000	GPM	**960**	90%	$152,433
Subtotal: Source			**11,520,000**		**19,200**	**90%**	**$40,010,594**

*Calculated based on IFFP demand of 17,288 ERCs as a percent of total ERCs Served (19,200).

STORAGE

The existing excess storage capacity is not sufficient to meet demand through the plan horizon. Additional storage facilities will need to be constructed. Table 5.2 details the future projects and their associated costs to new growth within the planning horizon. The District is anticipating that a portion of the facility (19 percent) will be funded by grants. Thus this portion is removed from the calculation of the impact fees.

As discussed in Section 4, there is excess capacity available related to storage which should serve 7,128 ERCs (based on the LOS of 265 gallons/ERC). This represents 63 percent of the added storage (North Ogden Tank) capacity (See Table 4.5). The size of the new storage facility is three million gallons, which can serve 11,321 ERCs. The needed capacity for the IFFP planning horizon represents 90 percent of the total.

TABLE 5.2: FUTURE STORAGE FACILITIES

#	YEAR	PROJECT DESCRIPTION	TOTAL PROJECT COST	CONST. YEAR COST	GENERAL FUND %	IMPACT FEE %	GROWTH RELATED	CAPACITY
22-2	2023	New Tank	$5,586,000	$5,809,440	19%	81%	$4,705,646	3,000,000

TABLE 5.2: FUTURE STORAGE FACILITIES (CONT.)

#	YEAR	PROJECT DESCRIPTION	UNIT	ERCS SERVED	ERC REMAINING TO SERVE IN IFFP	% OF TOTAL	COST TO IFA
22-2	2023	New Tank	Gal	11,321	10,160	90%	$4,223,255

While the current impact fee analysis includes 90 percent of the future facility cost, it is anticipated that the remaining capacity while be utilized by the demand beyond the ten-year planning horizon.

DISTRIBUTION

New growth will utilize a portion of the current distribution system, but new facilities will also be needed to service future development. Table 5.3 details the future distribution projects, and the costs included in the impact fee analysis.

TABLE 5.3: VALUE OF FUTURE DISTRIBUTION FACILITIES

#	YEAR	PROJECT DESCRIPTION	TOTAL PROJECT COST	CONST. YEAR COST	GEN. FUND %	IMPACT FEE %	IMPACT FEE PORTION
22-4	2024	Upsize 6 " to 10"	$1,184,533	$1,281,191	31%	69%	$883,151
22-5	2025	Upsize 10" to 12"	$3,773,315	$4,244,466	39%	61%	$2,607,469
22-6	2025	Replace 6" with 8" PVC	$280,210	$315,198	60%	40%	$124,632
22-8	2026	Replace 6" with 12" PVC	$419,293	$490,514	94%	6%	$28,643
22-9	2026	Replace 6" with 8" PVC	$340,256	$398,051	30%	70%	$280,340
22-10	2026	Upsize to 12"	$1,425,494	$1,667,626	15%	85%	$1,413,676
22-11	2026	12" Looping	$414,890	$485,363	38%	62%	$300,925
22-13	2028	Replace 6" with 8" PVC	$661,500	$837,009	76%	24%	$199,288
22-14	2028	12" PVC and RR Crossing	$518,371	$655,905	26%	74%	$487,744
22-15	2028	12" Pipe Connecting the two streets	$862,925	$1,091,875	0%	100%	$1,091,875
22-16	2029	Replace 6" with 12" PVC	$1,924,825	$2,532,938	10%	90%	$2,282,428
22-18	2030	Replace with 12" PVC	$807,737	$1,105,443	28%	72%	$799,518
22-19	2030	Replace with 12" PVC	$1,639,740	$2,244,097	28%	72%	$1,623,056
22-21	2031	Replace 6" with 12" PVC	$1,108,156	$1,577,252	56%	44%	$687,950
22-22	2031	Replace 6" with 8" PVC	$544,033	$774,329	76%	24%	$185,345
22-23	2032	Replace 6" with 8" PVC	$525,210	$777,439	60%	40%	$310,976
22-24	2032	Replace 6" with 8" PVC	$650,027	$962,199	62%	38%	$364,972
22-25	2032	Replace 6" with 8" PVC	$473,459	$700,835	50%	50%	$348,042
22-27	2033	Replace 6" with 8" PVC	$894,957	$1,377,745	61%	39%	$544,143
22-28	2033	Replace 6" with 8" PVC	$2,019,717	$3,109,262	25%	75%	$2,331,946
Subtotal: Distribution			**$20,468,648**	**$26,628,737**			**$16,896,119**

SYSTEM VS. PROJECT IMPROVEMENTS

System improvements are defined as existing and future public facilities designed to provide services to service areas within the community at large.[6] Project improvements are improvements and facilities that are planned and designed to provide service for a specific development (resulting from a development activity) and considered necessary for the use and convenience of the occupants or users of that development.[7] To the extent possible, this analysis only includes the costs of system improvements related to new growth within the proportionate share analysis.

[6] 11-36a-102(21)
[7] 11-36a-102(14)

FUNDING OF FUTURE FACILITIES

The IFFP must also include a consideration of all revenue sources, including impact fees and the dedication of system improvements, which may be used to finance system improvements.[8] In conjunction with this revenue analysis, there must be a determination that impact fees are necessary to achieve an equitable allocation of the costs of the new facilities between the new and existing users.[9]

In considering the funding of future facilities, the District has determined the portion of future projects that will be funded by impact fees as growth-related, system improvements. No other revenues from other government agencies, grants or developer contributions have been identified within the IFFP to help offset future capital costs. If these revenues become available in the future, the impact fee analysis should be revised. It is anticipated that future project improvements will be funded by the developer. These costs have not been included in the calculation of the impact fee.

Other revenues such as utility rate revenues will be necessary to fund non-growth-related projects and to fund growth related projects when sufficient impact fee revenues are not available. In the latter case, impact fee revenues will be used to repay utility rate revenues for growth related projects. A brief description of alternative financing options is included below.

- **Utility Rate Revenues:** Utility rate revenues serve as the primary funding mechanism within enterprise funds. Rates are established to ensure appropriate coverage of all operations and maintenance expenses, debt service coverage, and capital project needs. Impact fee revenues are generally considered non-operating revenues and help offset future capital costs.

- **Grants, Donations and Other Contributions:** Grants and donations are not expected as a future funding source. The impact fees should be adjusted if grant monies are received. New development may be entitled to a reimbursement for any grants or donations received for growth related projects, or for developer funded IFFP projects.

- **Debt Financing:** The District does not anticipate the need to utilize debt financing to fund future capital facility projects. Should the District desire to fund future projects through debt financing, the Impact Fees Act allows for the costs related to the financing of future capital projects to be included in the impact fee. However, the impact fee analysis should be updated to reflect this inclusion.

PROPOSED CREDITS OWED TO DEVELOPMENT

The Impact Fees Act requires a local political subdivision or private entity to ensure that the impact fee enactment allows a developer, including a school district or a charter school, to receive a credit against or proportionate reimbursement of an impact fee if the developer: (a) dedicates land for a system improvement; (b) builds and dedicates some or all of a system improvement; or (c) dedicates a public facility that the local political subdivision or private entity and the developer agree will reduce the need for a system improvement.[10] The facilities must be considered system improvements or be dedicated to the public, and offset the need for an improvement identified in the IFFP.

EQUITY OF IMPACT FEES

Impact fees are intended to recover the costs of capital infrastructure that relate to future growth. The impact fee calculations are structured for impact fees to fund 100 percent of the growth-related facilities identified in the proportionate share analysis as presented in the impact fee analysis. Even so, there may be years that impact fee revenues cannot cover the annual growth-related expenses. In those years, other revenues such as general fund revenues will be used to make up any annual deficits. Any borrowed funds are to be repaid in their entirety through impact fees.

NECESSITY OF IMPACT FEES

An entity may only impose impact fees on development activity if the entity's plan for financing system improvements establishes that impact fees are necessary to achieve parity between existing and new development. This analysis has identified the improvements to public facilities and the funding mechanisms to complete the suggested improvements. Impact fees are identified as a necessary funding mechanism to help offset the costs of new capital improvements related to new growth. In addition, alternative funding mechanisms are identified to help offset the cost of future capital improvements.

[8] 11-36a-302(2)
[9] 11-36a-302(3)
[10] 11-36a-402(2)

SECTION 6: CULINARY WATER IMPACT FEE CALCULATION

Impact fees are calculated based on many variables centered on proportionality and level of service. The previous sections identified the future demand, the existing and proposed level of service, the availability of excess capacity and the needed future facilities to serve new development. The following section identifies the appropriate impact fee to be assessed to new development to maintain the existing level of service.

PROPOSED CULINARY WATER IMPACT FEE

PLAN BASED IMPACT FEE CALCULATION

Impact fees can be calculated based on a defined set of costs specified for future development, usually defined within the Master Plan, Capital Improvement Plan and IFFP. The total project costs are divided by the total demand units the projects are designed to serve. Under this methodology, it is important to identify the existing level of service and determine any excess capacity in existing facilities that could serve new growth. Impact fees are then calculated based on many variables centered on proportionality share and level of service.

The culinary water impact fees proposed in this analysis will be assessed within the Service Area. The table below illustrates the appropriate impact fee to maintain the existing level of service, based on the assumptions within this document. The fee below represents the maximum allowable impact fee assignable to new development. The total fee per ERC is **$3,898**.

TABLE 6.1: CALCULATION OF PROPORTIONATE IMPACT FEE

INFRASTRUCTURE CATEGORY	VALUE IN IFFP	% TO GROWTH	COST TO GROWTH	ERCS SERVED	FEE PER ERC
Buy-In					
Source Buy-In	$231,097	0%	$0	17,288	$0
Storage Buy-In	$2,595,408	63%	$1,634,121	17,288	$95
Distribution Buy-In	$18,265,881	27%	$5,010,388	17,288	$290
Future Facilities					
Source Future Projects	$40,010,594	100%	$40,010,594	17,288	$2,314
Storage Future Projects	$4,223,255	90%	$3,790,315	17,288	$180
Distribution Future Projects	$26,628,737	63%	$16,896,119	17,288	$977
Professional Expense	$48,900	100%	$48,900	17,288	$3
Total	**$92,003,872**		**$67,390,437**		**$3,898**

The IFFP recommends assessing impact fees based on Drainage Fixture Unit (DFU) calculations which is representative of water usage, especially for the larger connection sizes. The IFFP recommends the following method of calculating impact fees in the District:

- For Single-Family Residential, 1 ERC equals 21 Drainage Fixture Units
- Multi-Family Residential = 0.82% of 1 ERC
- All other uses (Commercial, Industrial, Institutional) be calculated by dividing the total number of proposed Fixture Units by 21 to determine the number of ERC's (rounded to the nearest 1/10th). This number will then be multiplied by the single-family impact fee.

The IFFP addendum also indicates that the DFU shall not be reduced by 40% as permitted in the international Plumbing Code (IPC) since the total DFU number should be representative of the capacity of the site, consistent with the system design sizing for maximum capacity of the source, storage and distribution components.

NON-STANDARD CULINARY WATER IMPACT FEES

The District reserves the right under the Impact Fees Act[11] to assess an adjusted fee that more closely matches the true impact that the land use will have upon the culinary water system. This adjustment could result in a lower impact fee if evidence suggests a particular user will create a different impact than what is standard for its category. The formula for a non-standard impact fee calculation is shown below.

NON-STANDARD IMPACT FEE FORMULA

Estimated ERCs x $3,898 = Impact Fee

[11] 11-36a-402(1)(c)

CONSIDERATION OF ALL REVENUE SOURCES

The Impact Fees Act requires the proportionate share analysis to demonstrate that impact fees paid by new development are the most equitable method of funding growth-related infrastructure. See Section 5 for further discussion regarding the consideration of revenue sources.

EXPENDITURE OF IMPACT FEES

Legislation requires that impact fees should be spent or encumbered with six years after each impact fee is paid. Impact fees collected in the next five to six years should be spent only on those projects outlined in the CFP as growth related costs to maintain the LOS or buy-in to the existing system.

GROWTH-DRIVEN EXTRAORDINARY COSTS

The District does not anticipate any extraordinary costs necessary to provide services to future development.

SUMMARY OF TIME PRICE DIFFERENTIAL

The Impact Fees Act allows for the inclusion of a time price differential to ensure that the future value of costs incurred at a later date are accurately calculated to include the costs of construction inflation. An inflation component was NOT used to estimate the existing capital project costs in current year dollars due to the fact that only original values/costs are allowed when calculating buy-in costs.

APPENDIX A: DWELLING FIXTURE UNIT METHODOLGY

ADDENDUM -1
BONA VISTA WATER - CULINARY WATER IFFP
DRAINAGE FIXTURE UNIT CHANGES

February 8, 2023

Current Meter Sizing Impact Fee

Currently the implementation for impact fees has been done based upon meter size. Table B-2 from the AWWA manual M1 shows the safe maximum operating capacity for various meters and meter sizes. Financial institutes have utilized this table to assign the magnitude of the impact fee based upon comparing the maximum operating capacity of a larger meter to a residential meter size. This comparison is based on peak flows and not volume of water used. This has shown to be flawed due to the variability of flow in the larger meters. Some larger developments have paid significantly less impact fee by justifying smaller meter sizes.

Other options have been investigated including dwelling units or square area for the basis of the impact fee. Some communities have modified the AWWA table information in an effort to assess larger projects with larger fees. Yet another option is that of using Drainage Fixture Unit (DFU) Calculations from the International Plumbing Code. We feel this option would be more representative of the water usage, especially for the larger connection sizes.

Drainage Fixture Unit (DFU) Calculations

DFU Calculations are used to determine the pipe size for water lines and services. This method has been used successfully by several Sewer Districts in the state including Central Davis Sewer District.

The following table 709.1 for Drainage Fixture Units is taken from the 2012 International Plumbing Code showing the assigned flows based on the fixture used.

This DFU calculation is used for several reasons. First, because majority of the district has secondary water, most of the water coming into the home should proportional to that going out. Secondly this has been used successfully by the sewer districts for some time. Also, other communities in Northern Utah have successfully used DFU's as the basis for equivalency in water usage between varying land usages.

A typical single-family residence in the area will typically have an automatic clothes washer (2 DFU), with two bathroom groups (3x5 DFU) and one a kitchen sink domestic with grinder (2 DFU) and dishwasher (2 DFU) for a total of 21 Drainage Fixture Units. Other areas in Northern Utah, have shown between 22 and 26 DFUs for a Single-Family residence. For consistency, we recommend that an ERC in Bona Vista Service Area be 21 Drainage Fixture Units.

TABLE 709.1
DRAINAGE FIXTURE UNITS FOR FIXTURES AND GROUPS

FIXTURE TYPE	DRAINAGE FIXTURE UNIT VALUE AS LOAD FACTORS	MINIMUM SIZE OF TRAP (inches)
Automatic clothes washers, commercial[e,g]	3	2
Automatic clothes washers, residential[g]	2	2
Bathroom group as defined in Section 202 (1.6 gpf water closet)[f]	5	—
Bathroom group as defined in Section 202 (water closet flushing greater than 1.6 gpf)[f]	6	—
Bathtub[b] (with or without overhead shower or whirlpool attachments)	2	1½
Bidet	1	1¼
Combination sink and tray	2	1½
Dental lavatory	1	1¼
Dental unit or cuspidor	1	1¼
Dishwashing machine[e], domestic	2	1½
Drinking fountain	½	1¼
Emergency floor drain	0	2
Floor drains[h]	2[h]	2
Floor sinks	Note b	2
Kitchen sink, domestic	2	1½
Kitchen sink, domestic with food waste grinder and/or dishwasher	2	1½
Laundry tray (1 or 2 compartments)	2	1½
Lavatory	1	1¼
Shower (based on the total flow rate through showerheads and body sprays)		
Flow rate:		
5.7 gpm or less	2	1½
Greater than 5.7 gpm to 12.3 gpm	3	2
Greater than 12.3 gpm to 25.8 gpm	5	3
Greater than 25.8 gpm to 55.6 gpm	6	4
Service sink	2	1½
Sink	2	1½
Urinal	4	Note d
Urinal, 1 gallon per flush or less	2[c]	Note d
Urinal, nonwater supplied	½	Note d
Wash sink (circular or multiple) each set of faucets	2	1½
Water closet, flushometer tank, public or private	4[c]	Note d
Water closet, private (1.6 gpf)	3[c]	Note d
Water closet, private (flushing greater than 1.6 gpf)	4[c]	Note d
Water closet, public (1.6 gpf)	4[c]	Note d
Water closet, public (flushing greater than 1.6 gpf)	6[c]	Note d

For SI: 1 inch = 25.4 mm, 1 gallon = 3.785 L, gpf = gallon per flushing cycle, gpm = gallon per minute.

a. For traps larger than 3 inches, see Table 709.2.
b. A showerhead over a bathtub or whirlpool bathtub attachment does not increase the drainage fixture unit value.
c. See Sections 709.2 through 709.4.1 for methods of computing unit value of fixtures not listed in this table or for rating of devices with intermittent flows.
d. Trap size shall be consistent with the fixture outlet size.
e. For the purpose of computing loads on building drains and sewers, water closets and urinals shall not be rated at a lower drainage fixture unit unless the lower values are confirmed by testing.
f. For fixtures added to a bathroom group, add the dfu value of those additional fixtures to the bathroom group fixture count.
g. See Section 406.3 for sizing requirements for fixture drain, branch drain, and drainage stack for an automatic clothes washer standpipe.
h. See Sections 709.4 and 709.4.1.

Multi-Family Connections

In a comparison done of several single-family units and several apartment units over a two-year period. Based upon these flow and other evaluations, a Multi-Family unit equates to 82% of a Single Family Unit or one ERC (see Farmington City, 2022).

Historically this has been assumed to be slightly less, but with this recent data, we recommend that multi-family units be charged at 82% of the Single Family dwelling unit rate.

Recommended Fee Schedule

We recommend the following method of calculating an Impact Fee in Bona Vista:

- For Single-Family Residential, 1 ERC equals 21 Drainage Fixture Units
- Multi-Family Residential = 0.82% of 1 ERC
- All other uses (Commercial, Industrial, Institutional) be calculated by dividing the total number of proposed Fixture Units by 21 to determine the number of ERC's (rounded to the nearest 1/10th). This number will then be multiplied by the single-family impact fee.

The DFU shall not be reduced by 40% as permitted in the international Plumbing Code (IPC) since the total DFU number should be representative of the capacity of the site. Similar to the System design being sized for maximum capacity of the Source, Storage and Distribution components. Also, If a commercial or industrial site clearly doesn't fit the IPC table above, provisions may be made to evaluate the ERC amount based upon anticipated flow at the discretion of the District.

This addendum should be included as part of the IFFP and incorporated in the IFA calculations.