COMMUNICATIONS AND REPORTS
SEPTEMBER 19, 2023

The following communications and reports were received, duly noted, and ordered placed on file with the Clerk:

COMMUNICATIONS

A. Application to the Public Utilities Commission, dated August 28, 2023, from Great Basin Water Co. for modification of its Certificate of Public Convenience and Necessity designated as CPC No. 2692 to expand its water service territory for its Cold Springs Division to include 1,018.175 acres of commercial and industrial development on land owned by Lifestyle Homes TND, LLC.

MONTHLY STATEMENTS/REPORTS

A. Clerk of the Court, Monthly Financial Statement for the month ending August 31, 2023.

ANNUAL STATEMENTS/REPORTS

A. Office of the Washoe County Treasurer, Annual Investment Portfolio for the fiscal year ending June 30, 2023.

FENNEMORE.

Wade Beavers
Associate
wbeavers@fennemorelaw.com

7800 Rancharrah Parkway,
Reno, Nevada 89511
PH (775) 788-2208 | FX (775) 788-2283
fennemorelaw.com

August 28, 2023

Trisha Osborne
Assistant Commission Secretary
Public Utilities Commission of Nevada
1150 E. William Street
Carson City, NV 89701

Re: Application of Great Basin Water Co. for modification of its Certificate of Public Convenience and Necessity designated as CPC No. 2692 to expand its water service territory for its Cold Springs Division to include 1,018.175 acres of commercial and industrial development on land owned by Lifestyle Homes TND, LLC.

Dear Trisha:

Please accept for filing with the Public Utilities Commission of Nevada the enclosed Application of Great Basin Water Co. for modification of its Certificate of Public Convenience and Necessity designated as CPC No. 2692. An ACH payment in the amount of $200.00 has been concurrently submitted for the Application filing fee. Should you have any questions or require additional information, please advise.

Sincerely,

FENNEMORE CRAIG, P.C.

Wade Beavers

WBEA/dwhe

BEFORE THE PUBLIC UTILITIES COMMISSION OF NEVADA

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In the Matter of: Application of Great Basin Water Co. for modification of its Certificate of Public Convenience and Necessity designated as CPC No. 2692 to expand its water service territory for its Cold Springs Division to include 1,018.175 acres of commercial and industrial development on land owned by Lifestyle Homes, TND, LLC.	Docket No. 23-_____

APPLICATION

Great Basin Water Co. ("**GBWC**" or the "**Company**"), by and through its counsel, Fennemore Craig, P.C., respectfully requests that the Public Utilities Commission of Nevada (the "**Commission**") approve the amendment of Certificate of Public Convenience and Necessity ("**CPC**") No. 2692[1], to expand GBWC's Cold Springs Division's water service authority to permit the annexation of 1,018.175 acres of development property owned by Lifestyle Homes, TND, LLC ("**TND**") into GBWC's water service territory in Cold Springs, Washoe County, Nevada. The proposed expansion would serve TND's planned commercial, industrial, and

[1] GBWC's current CPC is designated as No. 2692 Sub 10, which was issued on May 16, 2023, pursuant to the Commission's Order dated November 2, 2022, in Docket No. 22-09010 on GBWC's application to reduce its service territory in its Spanish Springs Division.

On April 25, 2023, in Docket No. 22-11023 (prior to issuance of the new CPC No. 2692 Sub 10), the Commission approved at its agenda hearing an annexation of 20 acres of water and wastewater service territory in GBWC's Pahrump Division, and a written order is expected to be issued directing that the then-existing CPC No. 2692 Sub 9 be canceled and that the Assistant Commission Secretary should issue a "CPC No. 2692 Sub 10" reflecting the approved annexation upon completion of certain compliance items.

On May 12, 2023, in Docket No. 23-05011 (prior to the issuance of the new CPC No. 2692 Sub. 10), GBWC filed its application to amend the then-existing CPC No. 2692 Sub. 9 to reflect GBWC's requested annexation of 412 acres of water and wastewater service territory in GBWC's Pahrump Division. That docket is ongoing and the Commission has not yet approved any amendment of the CPC in relation thereto.

GBWC respectfully requests that any amended CPC that should issue as a result of this docket be numbered next in order from the most recent amendment approved by the Commission.

streetscaping development on the property to be annexed. The proposed expanded service territory is contiguous with GBWC's Cold Springs Division's existing water service territory.

This Application is filed pursuant to Nevada Revised Statute ("**NRS**") § 704.330, and Nevada Administrative Code ("**NAC**") §§ 703.175, 703.190, and 703.197.

Fennemore Craig, P.C. is GBWC's authorized representative in this proceeding. All communications regarding the Application or this proceeding, including any paper or discovery request that must be served upon GBWC pursuant to NAC § 703.601 should be directed to:

Seán Twomey, President
Great Basin Water Co.
1005 Terminal Way, Ste. 294
Reno, Nevada 89502
Telephone: (775) 335-9041
E-Mail: Sean.Twomey@greatbasinwaterco.com

Dan R. Reaser, Esq.
Wade Beavers, Esq.
7800 Rancharrah Parkway
Reno, Nevada 89511
Telephone: (775) 788-2200
E-Mail: dreaser@fennemorelaw.com
E-mail: wbeavers@fennemorelaw.com

I. INTRODUCTION

This Application seeks the Commission's approval of the annexation of 1,018.175 acres of land owned by Lifestyle Homes, TND, LLC ("**TND**") located in Cold Springs, Washoe County, Nevada, into GBWC's Cold Springs Division service territory, and a corresponding modification of CPC No. 2692. GBWC's Cold Springs Division has a proven track record of providing adequate and reliable service in its existing territory since 1998. The expansion as proposed would have no effect on the rates GBWC currently charges to existing customers for water service, and is expected to have no effect on the reliability of the water services GBWC currently provides to existing customers, as further explained in the report prepared by Shaw Engineering attached hereto as **Exhibit 1** ("**Engineering Report**").

Moreover, the expansion of GBWC's service area as proposed will further the interests of public convenience and necessity by allowing the property proposed for annexation to be served by community water facilities, rather than individual wells, reducing the expected environmental impact of the proposed development. GBWC is ready, willing, and able to provide water service in the geographic area proposed for annexation consistent with the information provided in the

Engineering Report, and respectfully requests that the Commission approve the proposed annexation and modify CPC No. 2692 accordingly.

II. BACKGROUND

TND has proposed to construct commercial, industrial and streetscape development on approximately 1,018.175 acres of property that it owns in Cold Springs, Nevada ("**Annexation Territory**").[2] The proposed Annexation Territory is contiguous with GBWC's Cold Springs Division's existing service territory.[3]

TND expresses a desire that the Annexation Territory be annexed into GBWC's water service area, and GBWC desires to annex the Annexation Territory into its water service area, so that GBWC may provide central potable water service to the proposed development according to the terms, conditions, and covenants of GBWC's Commission-approved tariff schedules.

The proposed Annexation Territory is composed of the following seven parcels within Township 21 North, Range 18 East, M.D.B. & M., identified by Washoe County Assessor's Office parcel number ("APN"):

- APNs 087-010-10 and 087-010-41 located in the north half and southwest corner of Section 28 (391.41 acres);
- APN 087-010-21 located in the north half and southeast corner of Section 29 (252.28 acres);
- APN 087-010-11 located in the south half and west half of Section 21 (176.25 acres);
- APN 087-281-01 located in the southeast corner of Section 20 (158.645 acres); and
- APN 087-032-04 and 087-032-05 in the northeast corner of Section 20 (39.59 acres).

III. CONSTRUCTION AND TRANSFER OF INFRASTRUCTURE

In connection with the proposed annexation, TND will plan, engineer, construct, and dedicate to GBWC all of the utility facilities necessary to provide water service to the proposed

[2] The proposed Annexation Territory is depicted in the Lakefront Development Annexation Map included as Figure 2 in the Engineering Report. *See* **Ex. 1**, Figure 2 thereto.

[3] The Cold Springs Division's existing service territory is depicted in the Great Basin Water Company Service Territory map included as Figure 1 in the Engineering Report. *See* **Ex. 1**, Figure 1 thereto.

development. The facilities to be constructed consist of a 100 lineal foot distribution main waterline extension from GBWC's existing water service infrastructure to the planned commercial and industrial development, and commercial service connections from certain planned streetscaping developments to existing GBWC main waterlines that are already located contiguous to, or within, the property.[4]

IV. ADDITIONAL INFORMATION

The additional information required by NAC §§ 703.175, 703.190 and 703.197 is set forth in the Engineering Report and in the figures and exhibits attached thereto. A draft notice pursuant to NAC § 703.162 is attached hereto as **Exhibit 2**.

V. REQUESTS FOR DEVIATION

As detailed in the Engineering Report, GBWC seeks approval, pursuant to NAC § 703.115, for it to deviate from certain provisions of NAC §§ 703.175 and NAC § 703.190 based on good cause and on grounds that deviation would be in the public interest and not contrary to statute. GBWC hereby incorporates such requests as they are set forth in the Engineering Report as part of this Application.

In addition to the deviation requests set forth in the Engineering Report, GBWC requests that, to the extent the Commission determines that the provisions of NAC § 703.200 are applicable to the requested annexation, the Commission allow GBWC to deviate from that regulation, including all subsections thereto, pursuant to NAC § 703.115. GBWC submits that good cause exists for such deviation because GBWC's Cold Springs Division has long operated as a "regulated utility" as defined in NRS Ch. 704, whereas NAC § 703.200's requirements appear to apply only to a water or wastewater company that recently reached the jurisdictional threshold to qualify as a "public utility" as defined in NRS § 704.021.

Specifically, GBWC has operated its Cold Springs Division as a public utility since Utilities, Inc. acquired the division in 1998, and NAC § 703.200(1)'s requirement for a utility to

[4] The proposed and existing water system infrastructure, including distribution waterline sizes and locations, and available points of connection for the proposed service area, is depicted in the GBWC Infrastructure and Pressure Zones map included as Figure 3 in the Engineering Report. *See* **Ex. 1**, Figure 3 thereto.

provide a balance sheet as of the date the utility reached the statutory jurisdictional requirements of gross revenues and number of customers has long passed. *See also* NRS 704.021. Moreover, GBWC's Cold Springs Division files updated balance sheets with the Commission annually as part of its required annual report (the most recent report was submitted on May 15, 2023 in Docket No. 23-01003). Similarly, subsection (2) of NAC § 703.200 requires a "schedule of accounts showing the original cost of any plant in service as of the date of the [utility's initial] balance sheet or an estimate of the cost of any plant proposed by a new water company," but for GBWC's Cold Springs Division, such schedule of accounts would be over 20 years old, and therefore of little apparent relevance to this Application. Likewise, subsections (3), (4), (5) and (6) of NAC § 703.200 appear to seek information relating to the utility's initial balance sheet or otherwise relating to the utility's inception, bearing no apparent relevance to the relief currently being sought.

Based on the above, and in light of GBWC's track record of demonstrating managerial capability to operate water systems in a prudent, safe, and reliable manner, GBWC submits that good cause exists for the requested deviation from NAC § 703.200. The requested deviation would also further the public interest because the time and effort necessary to recover decades-old documentation tied to the Cold Springs Division's inception as a public utility might result in additional cost to GBWC, contrary to the interests of its ratepayers. GBWC has attempted to include with this Application and Engineering Report, or otherwise by reference to balance sheets or other materials recently filed with the Commission, including rate information and cost estimates, all of the information that appears to be relevant and necessary for the Commission consider the relief requested. Lastly, GBWC does not believe that the requested deviation from NAC § 703.200 would be contrary to statute.

VI. CONCLUSION AND REQUESTS FOR RELIEF

GBWC respectfully requests the following:

1. That the Commission approve the amendment of CPC No. 2692 to expand GBWC's Cold Spring's Division's water service authority to include the Annexation Territory as described herein;

2. That the Commission approve GBWC's use of its current rates applicable to the Cold Springs Division for the provision of water service to the 1,018.175-acre development described herein;

3. That, to the extent the Commission determines the provisions of NAC § 703.200 are applicable to this Application, the Commission grant GBWC permission to deviate from those requirements pursuant to NAC § 703.115;

4. That the Commission grant GBWC permission to deviate from certain requirements of NAC §§ 703.175 and 703.190 pursuant to NAC § 703.115, as set forth in the Engineering Report attached hereto as Exhibit 1; and

5. That the Commission grant any further relief that it deems just and reasonable.

Dated and respectfully submitted this 28th day of August, 2023.

FENNEMORE CRAIG, P.C.

By: */s/ Wade Beavers*
Dan R. Reaser
Nevada Bar No. 1170
Wade Beavers
Nevada Bar No. 13451
7800 Rancharrah Parkway
Reno, Nevada 89511

Attorneys for Great Basin Water Co.

CERTIFICATE OF SERVICE

I hereby certify that I am an employee of Fennemore Craig, P.C. and on August 28, 2023, I caused to be served, a true and correct copy of this **Application**, via Electronic Mail, or as indicated below, to the following parties:

Regulatory Operations Staff
Public Utilities Commission of Nevada
1150 E. William Street
Carson City, Nevada 89701
Pucn.sc@puc.nv.gov

Office of the Attorney General
Bureau of Consumer Protection
100 N. Carson Street
Carson City, Nevada 89701
bcpserv@ag.nv.gov

U.S. Mail

U.S. Mail

County of Washoe
Washoe County Clerk
1001 E. 9th Street
Reno, Nevada 89512

City of Reno
City Clerk's Office
1 E. First Street, 2nd Floor
Reno, Nevada 89504

U.S. Mail

Truckee Meadows Water Authority
C/O John Enloe, P.E., Director of Natural Resources Planning & Management
1355 Capital Blvd.
Reno, Nevada 89502

Dated this 28th day of August, 2023.

/s/ Diana L. Wheelen
An Employee of Fennemore Craig, P.C.

EXHIBIT 1

APPLICATION FOR ANNEXATION OF LAND INTO GBWC – COLD SPRINGS DIVISION SERVICE TERRITORY

Modification to CPC 2692

Seven Mixed Use parcels -- Cold Springs

Washoe County, Nevada

Submitted To: Great Basin Water Co.
c/o Lifestyle Homes TND, LLC
4790 Caughlin Parkway #519
Reno, NV 89519

Submitted By: Shaw Engineering, LTD
20 Vine Street
Reno, Nevada 89503

SHAW ENGINEERING
Trusted Engineering Expertise

August 2023

Project No. 22040.00G

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INTRODUCTION

In this Application, Great Basin Water Co. - Cold Springs Division ("GBWC-CSD") requests that the Public Utilities Commission of Nevada (the "Commission") permit annexation of 1,018.175 acres of Lifestyle Homes TND, LLC ("TND" or the "Developer") property into its service territory and modify Certificate of Public Convenience ("CPC") 2692 accordingly. As demonstrated by the information provided in this Application, GBWC-CSD is ready, willing, and able to provide water service in the geographic area proposed.

Specifically, TND has proposed to develop approximately one industrial building site, one commercial site and varying areas of streetscaping in Cold Springs, NV (hereinafter, the "Annexation Territory"). The proposed Annexation Territory is contiguous with GBWC-CSD's existing service territory, as depicted in the location maps provided in Figure 1. The TND development areas are shown in Figure 2 and the schematic layout of the proposed improvements to serve the developments is presented in Figures 3 and 4. The Annexation Territory is comprised of seven parcels: Washoe County APNs 087-010-10 and 087-010-41 located in the north half and southwest corner of Section 28 (391.41 acres), 087-010-21 located in the north half and southeast corner of Section 29 (252.28 acres), 087-010-11 located in the south half and west half of Section 21 (176.25 acres), 087-281-01 located in the southeast corner of Section 20 (158.645 acres), and 087-032-04 and 087-032-05 in the northeast corner of Section 20 (39.59 acres), Township 21 North, Range 18 East, M.D.B.& M. GBWC respectfully requests that the Commission modify CPCN 2692 to allow annexation of the Annexation Territory for the reasons outlined in this Application.

TND has contracted with Shaw Engineering, LTD. ("Shaw") in conjunction with GBWC-CSD to complete the application for annexation and will engage their services for design of the infrastructure improvements to serve the development at the appropriate time. The proposed water system infrastructure improvements will likely include the following:

- Distribution mains. These improvements will be completed with the development of each area and will be built to the requirements of GBWC-CSD.

In addition to the facilities described above, improvement plans will be prepared for the construction of the commercial, industrial and streetscape developments which will tie into the proposed water infrastructure.

NAC 703.175 GENERAL REQUIREMENTS

NAC 703.175 General Requirements (NRS 703.025, 704.210) *An applicant for a Certificate of Public Convenience and Necessity must, in addition to complying with the provisions of NAC 703.530 to 703.615, inclusive, submit the following data, either in the application or as exhibits attached to it:*

2.1 NAC 703.175(1)

A full description of the proposed construction or extension and the manner in which it will be constructed.

TND is proposing to construct water system improvements to serve the TND developments in Washoe County, Nevada, in the City of Reno. The planned TND development described herein as the Annexation Territory includes an industrial building site, a commercial development site and streetscaping. The location of the Annexation Territory is shown on Figures 1 and 2. The land is currently vacant other than the horse corrals on APN 087-032-05 which are currently receiving water service form GBWC-CSD.

GBWC-CSD's proposed water system improvements to accommodate TND's planned developments in the Annexation Territory consist of pipelines and appurtenances to supply water to the parcels.

Water System:

The water system facilities planned include the following:

- **Distribution main extensions**

The proposed development locations will need a distribution waterline extension to meet demands. The horse corral facility is currently being served by GBWC-CSD and no improvements are required to continue to provide service to the parcel. The Conceptual layout for the development is included in Figure 4. The TND commercial and industrial developments within the Annexation Territory (APN 087-010-41) (Figure 4) – will require a 100 lineal foot (LF) waterline extension across White Lake Pkwy just west of Towhee Way to existing Pressure Zone (PZ)-2. The TND streetscaping developments in Sections 20 and 29 within the Annexation Territory – will only require commercial service connections to existing mains which are located contiguous or within the parcels. The TND streetscaping developments in Sections 21 and 28 will be served by private irrigation laterals from Sections 20 and/or 29. GBWC-CSD has reviewed the water resource and hydraulic capacity to serve the developments and determined that with an additional private fire storage tank, which will be built by the developer, the system has sufficient capacity without any offsite improvements other than the main extension mentioned above.

Preliminary water demands for the Lakefront Annexation area were provided to Lumos and Associates and GBWC-CSD. Lumos modeled adding demands to the system at the location of the proposed main extension across White Lake Pkwy and reported available capacity in Zone 2 of approximately 21 GPM during MDD+Fire flow scenario. The maximum day demand for the annexation area is 4.24 GPM, therefore the system has sufficient capacity to serve the annexation area. Due to the water main extension being limited to a single 8" main across White Lake Pkwy, no additional modeling figures were prepared by Lumos and Associates. The total demand for the overall development is approximately 18 GPM and after buildout, will leave approximately 3 GPM remaining capacity in Zone 2 during MDD+Fire flow.

2.2 NAC 703.175(2)

The names and addresses of all utilities, corporations, persons or other entities, whether publicly or privately operated, with which the proposed service or construction is likely to compete and of the cities or counties within which service will be rendered under the requested certificate. The application must contain a certification that a copy of the application has been served upon or mailed to each entity named.

The Annexation Territory is located adjacent to GBWC-CSD's existing service territory. The proposed expansion of service will not be in direct competition with any other utility.

The following is contact information for water utilities in Cold Springs other than GBWC-CSD:

There are no other entities providing water service. However, Truckee Meadows Water Authority may provide service in the future to areas of Cold Springs South of the proposed Annexation Territory.

Truckee Meadows Water Authority
C/o John Enloe, P.E., Director of Natural Resources Planning & Management
1355 Capital Blvd.
Reno NV 89502

The following is contact information for the county within which service will be rendered under the requested certificates:

County of Washoe
Washoe County Clerk
1001 E. 9th Street
Reno, Nevada 89512

City of Reno
City Clerk's Office
1 E. First Street, 2nd Floor
Reno, Nevada 89504

Copies of this application will be sent to each entity named above at the time of its filing with the Commission.

2.3 NAC 703.175(3)

A legible map of suitable scale indicating townships, ranges and sections, and showing the location or route of the proposed construction or extension and its relation to other public utilities, corporations, persons or entities with which the proposal is likely to compete.

Figure 1 provides the existing GBWC-CSD service territory with aerial background and Washoe County parcels including townships, ranges and sections. Figure 2 shows the areas to be annexed into GBWC-CSD (the Annexation Territory) and the current and proposed tariff boundaries of each of the water utility companies serving the Cold Springs area. Figure 3 shows the existing pressure zones and system information for GBWC-CSD. Figure 4 has the public and private water system infrastructure, distribution waterline sizes, locations and available points of connection to service the entire development including the newly annexed service areas.

2.4 NAC 703.175(4)

A statement identifying the franchise and the permits for health and safety that appropriate public authorities require for the proposed construction or extension. If a construction permit is required under NRS 704.820 to 704.900, inclusive, application must also be made under NAC 703.415 to 703.427, inclusive.

Applications will be made for the appropriate permits needed to construct the necessary water system improvements to serve the project in accordance with Nevada Administrative Code (NAC) requirements. The following state and local permits are anticipated.

WATER SYSTEM

For the water system improvements, Washoe County Health District will require submission of a water project application, hydraulic water distribution model report, design documents (construction plans) and other information for approval in accordance with NAC 445A "Public Water Systems Design, Construction, Operation and Maintenance."

WATER RIGHTS

The Nevada Division of Water Resources (NDWR) will oversee allocation of water rights.

WASHOE COUNTY and CITY OF RENO

Washoe County and/or City of Reno will require certain building permits and an encroachment permit to install an underground pipeline across White Lake Pkwy to serve the development, depending on the location of the construction. Construction drawings for the development will be permitted through the proper agency, while the water system design will be included with the site development improvement plans.

In summary, the following permits will be required:

- Washoe County Health District
  - Water system plan review and approval for the main extension across White Lake Pkwy and to the meter services and backflow devices.
  - Each industrial/commercial connection will have a separate meter and therefore no additional permitting is required by NDEP or WCHD.
- NDWR
  - Water Rights.
- Washoe County and/or City of Reno
  - Building and underground permits, including encroachment permit.

2.5 NAC 703.175(5)

Facts showing that public convenience and necessity requires or will require the proposed construction or extension.

The expansion of GBWC-CSD's service area is being proposed to meet the needs of the project for property contiguous with the existing service area. The expansion of the existing GBWC-CSD system, as proposed, will be funded by the Developer. The location of the property is directly adjacent to GBWC-CSD service area and will therefore be economically and efficiently served by GBWC-CSD. The Annexation Territory to be served by the GBWC-CSD water and the *County* sewer facilities will minimize environmental impacts as compared with the use of individual wells and septic systems. The Developer has requested that GBWC-CSD extend its existing water service territory to the TND properties, which would require annexing the Annexation Territory as requested herein.

2.6 NAC 703.175(6)

A statement detailing the estimated cost of the proposed construction or extension and the estimated annual costs, both fixed and operating, associated with the proposal, including statements or exhibits showing that the proposed construction is in the public interest and that it is economically feasible.

Cost estimates for construction of the proposed facilities associated with the Annexation Territory have been prepared based on the design effort to date. These costs are presented in the following sections. All construction costs related to expansions for the water service necessary to serve the Annexation Territory will be incurred by the Developer as stated in this section. This is in the public interest and economically feasible because GBWC-CSD will not incur costs for the expansion, meaning the costs of such expansion will not be passed along to existing ratepayers.

2.6.1 *Construction Costs*

Estimated construction costs for the water systems are as shown in the following tables. These cost tables do not include legal or financing costs. Estimated construction costs for the water system are as shown in Table 1 below.

Waterline Tie-in (White Lake Pkwy.)				
Line Item	Unit	Quantity	Unit Cost	Cost
Mobilization/Demobilization	LS	1	$10,000	$10,000
Traffic Control	LS	1	$5,000	$5,000
8-Inch C900 PVC Water Main	LF	100	$90	$9,000
Trenching	LF	100	$25	$2,500
Fire Hydrant Assembly	EA	1	$7,000	$7,000
Pavement Restoration/Patch	SF	240	$15.00	$3,600
Tie-In at Connection Point	EA	1	$10,000	$10,000
8" Gate Valve w/ Collar	EA	2	$4,500	$9,000
Subtotal				**$56,100**
Contingency (10%)				$5,610
Construction Total				**$61,710**
Geotechnical (5%)				$3,086
Survey (3%)				$1,851
Design (10%)				$6,171
Construction Management (10%)				$6,171
Testing & Inspection				$10,000
Total Project Cost*				**$88,989**

**All costs provided in the table above are based on a current snapshot of opinion of probable costs and are based on the best available information at this time.*

2.6.2 *Operating Costs*

Typical operating costs for the proposed water system have been estimated by GBWC-CSD based on operating similar systems. The waterline extensions will only require the exercising of the isolation valves once per year, which will only require very minimal time as the work will

be implemented into the existing valve exercising program for the water system as a whole. Costs for valve exercising are considered negligible.

2.7 NAC 703.175(7)

Statements or exhibits showing the financial ability of the applicant to render the proposed service and information regarding the manner in which the applicant proposes to finance the cost of the proposed construction or extension, including a copy of its most recent balance sheet and statement of income.

Water capacity will be provided by GBWC-CSD upon construction of the facilities, the Developer's submission of a complete application for water service, and payment by the Developer of the applicable fees for water service as set forth in GBWC-CSD's tariffs. At its sole cost and expense, the Developer will pay for the construction and installation of water facilities necessary to bring water service to the Annexation Territory and to connect to the GBWC-CSD water system.

The Developer will pay for all construction and installation of necessary facilities as outlined and no financial burden will be placed on GBWC-CSD or its existing customers to render the proposed service. Recent balance sheets and income statements were filed with the Commission in Docket No. 23-01003 on May 15, 2023, in the GBWC-CSD Combined Water and Wastewater Utility Annual Report (please see doc id 26516 on the Commission's online archives). However, to the extent the Commission deems it necessary, GBWC-CSD respectfully requests permission to deviate from NAC 703.175(7)'s requirement to provide copies of balance sheets and income statements with this Application pursuant to NAC 703.115. GBWC-CSD believes good cause exists for the requested deviation because it recently provided the necessary documentation for the Commission's review in Docket No. 23-01003 as outlined above, as part of its annual report submitted as a regulated public utility. The requested deviation is in the public interest because the public has been provided the necessary assurance regarding GBWC-CSD's financial ability through GBWC-CSD's recent annual report filing, and thus the effort required to provide the same documents in this filing would be duplicative and contrary to ratepayer interests. Finally, GBWC does not believe that its requested deviation is contrary to statute. Should the Commission deny GBWC's request, GBWC-CSD submits that its response provided to this section above be deemed to satisfy NAC 703.175(7).

2.8 NAC 703.175(8)

A statement of the proposed rates to be charged for service to be rendered by means of the proposed construction or extension, the rules governing service in the form of a tariff, an estimate of the number of customers to be served and an estimate of the annual revenue to be received from those customers.

Rates charged for water service in the Annexation Territory are anticipated to match GBWC-CSD's current rate structure. GBWC-CSD Water Tariff rate sheets are provided in Exhibit A. At short-term build-out, there will be 2 new water service connections equating to an annual usage of 30,804 gallons, not to exceed 6,106 gallons, daily. An estimate of revenue is provided in Exhibit B.

2.9 NAC 703.175(9)

If the applicant is a corporation, a list of:

2.9.1 NAC 703.175(9)(a)

(a) The shareholders holding 2 percent or more of the issued shares of stock of the corporation and the number of shares they hold listed by class.

The Great Basin Water Co. (GBWC) water and wastewater systems are owned by GBWC, a wholly owned subsidiary of Corix Regulated Utilities (U.S.) Inc. (CRUUS) a private, investor-owned, national water and wastewater utilities owner and operator. In 2016, the Nevada regulated utilities were reorganized into one entity and named Great Basin Water Co. with four separate operating divisions. The four divisions include GBWC-Pahrump, GBWC-Spring Creek, GBWC-Cold Springs, and GBWC-Spanish Springs. CRUUS acquired the GBWC Spring Creek Division (GBWC-SCD) in 1996, GBWC Cold Springs Division (GBWC-CSD) in 1998, GBWC Spanish Springs Division (GBWC-SSD) in 1999, and the GBWC Pahrump Division (GBWC-PD) in 2002.

CRUUS operates more than 500 systems in seventeen states. The states are divided into seven business units. Each business unit has a President, Director of State Operations (both officers of the companies in their distinct business units), and finance staff. The business units are supported by Water Service Corporation which provides support in various areas including, but not limited to, accounting, human resources, billing, customer service, internet technology, etc. GBWC is part of the Arizona/Nevada Business Unit (AZ/NV). The President and Director of State Operations both reside in Nevada. In addition, AZ/NV has a Water Conservation Coordinator who resides in Pahrump, NV.

The four regulated Nevada utilities were reorganized in 2016 into one legal entity and named GBWC. The Nevada reorganization was driven by the fact that water is a local resource. As such, local water companies should have local decision-making ability and responsibility as those decisions impact local residents, regulators and communities. Additionally, there are many efficiencies in operating and managing one company as opposed to four companies, the benefits of which are passed on to the GBWC ratepayers.

2.9.2 NAC 703.175(9)(b)

(b) The number of shares of stock, listed by class, held directly by all executive officers of the corporation, including the president, vice president, secretary, treasurer and any other person in a position of similar responsibility, and the number of shares held indirectly by those officers pursuant to an ownership plan for employees.

None.

2.10 NAC 703.175(10)

Such additional information as is necessary for a full understanding of the application.

None.

NAC 703.190 SPECIFIC REQUIREMENTS FOR WATER UTILITIES

3.1 NAC 703.190 (1)

In the case of a water utility, in addition to all applicable requirements of NAC 703.175, an application must include the following information regarding its technical, managerial and financial capability to operate the system in a reliable manner and provide continuous and adequate service to its customers:

Please refer to bates pages 221 through 239 of 368 of Volume III of the GBWC-CSD 2021 Consolidated Integrated Resource Plan, included in Exhibit C, which provides an overview of the condition of the existing water system. Through the inventory and explanation of the assets, there is sufficient data to support that GBWC-CSD has the technical and managerial capability to operate the system in a reliable manner to provide adequate service to its customers. In addition, the GBWC-CSD Combined Water and Wastewater Utility Annual Report most recently filed in Docket No. 23-01003 (please see doc id 26516 in the Commission's online archives) provides sufficient evidence to show financial capability to operate the system.

3.1.1 NAC 703.190(1)(a)

(a) To demonstrate technical capability, the applicant must provide:

(1) Evidence that there is a need for a water utility.

The expansion of the service area is being proposed to meet the needs of those who own property bordering the existing service area and who have asked to become part of the service area. The expansion will have no negative economic or system reliability effects on the existing customers of GBWC-CSD.

(2) Written agreements or statements from property owners, approved subdivision maps and any other documentation that demonstrates the need for water service in the area for which the certificate is requested.

TND is the sole property owner in the Annexation Territory. Based on the statements contained in this Application and TND's desire to construct the proposed development, there exists a need for water service in the Annexation Territory.

(3) Evidence that any required construction or operating permit from other state and local agencies has been obtained and is in effect, or that an application for such a permit has been submitted to other state and local agencies and the date of its anticipated issuance.

GBWC-CSD operates under Nevada Division of Environmental Protection, Bureau of Safe Drinking Water Public Water System operating permit number NV0000270 and Washoe County Health

District. Development permits will also be required by Washoe County in order for the developments to be constructed. All required permits will be obtained prior to construction.

(4) A plan that demonstrates the continuing ability of the utility to meet the needs, relating to water resources, of the entire service area to be served by the utility. In lieu of such a plan, the utility may provide information which demonstrates that the utility has adequate resources to meet such needs, including, without limitation:

(I) Copies of all documents evidencing water rights and accompanying maps.

Bates pages 311 through 331 of 340 of Volume IV of the GBWC-CSD 2021 Consolidated Integrated Resource Plan are provided in Exhibit C and provide sufficient evidence of GBWC-CSD's continuing ability to meet the water resource needs of the entire service area.

Exhibit D contains information to support the dedication (transfer) of water rights to GBWC-CSD for the proposed project.

(II) Hydrological data defining the reliability of the source.

Please refer to bates page 311 through 331 of 340 of Volume IV of the GBWC-CSD 2021 Consolidated Integrated Resource Plan, included in Exhibit C, as supporting hydrological data. In addition, bates pages 263 through 267 of 368 of Volume III of the GBWC-CSD 2021 Consolidated Integrated Resource Plan included in Exhibit C provides additional information showing the existing wells for the system have capacity in excess of the current system demands.

(III) Any additional information which is necessary to demonstrate the ability of the utility to meet those needs.

Please refer to bates pages 221 through 297 of 368 of Volume III of the GBWC-CSD 2021 Consolidated Integrated Resource Plan included in Exhibit C. The sections presented in the integrated resource plan show the ability of the utility to meet growth needs.

(5) An estimate of the number of customers that will be served in the proposed service area during the first 5 years of service, and the estimated number of customers at build-out of the proposed service area.

The full buildout of the industrial development within the annexation territory will occur relatively quickly as a single phase of development. The commercial development (storage units or similar) and the addition of streetscaping irrigation will occur gradually based on general growth patterns for the area. At 5 years, the estimate assumes all commercial and industrial developments will be

completed. The streetscape irrigation will utilize existing infrastructure and has an unknown development timeline and therefore has been omitted from the estimates for customer growth.

(6) A full description of the proposed water system, including the proposed normal operating and emergency standby water facilities to serve the area for which the certificate is sought.

The area's Annexation Territory will be served by an extension of an existing waterline located in pressure zones 2. Figure 3 shows the location of the proposed extension in relation to the existing GBWC-CSD system. The well that is located in the pressure zone (Van Dyke) contains alternative power source (Backup Generator), which provides emergency standby water facilities to the existing and proposed annexed service areas. This pressure zone is also supplemented by additional capacity in higher pressure zones which can gravity feed down into PZ-2 during emergencies.

Please refer to bates page 232 of 368 of Volume III of the GBWC-CSD 2021 Consolidated Integrated Resource Plan, included in Exhibit C, for a review of current operating pressures for pressure zone 2. Zone 2 operates between 40 PSI and 63 PSI.

(7) If the utility facilities will be phased in as customers are added, a description of the phasing thresholds for each utility facility that will be phased in.

All off-site utility extensions to serve the commercial and industrial development portions of the Annexation Territory will be constructed at once. The initial expected areas to be serviced by the water system at the time of completion of the proposed improvements include the development area shown in Figure 4. The developments within the Annexation Territory will consist of a commercial development site, an industrial development site and streetscaping; additional internal infrastructure will be completed as required to support the individual phases of construction within each development. For the purposes of phasing, it should be assumed the main extension to support the commercial/industrial development will be constructed with the first phase of construction within the annexation area. In addition it is assumed the existing mains in the system will serve the streetscape development and no GBWC-CSD main extensions will be required.

3.1.2 NAC 703.190(1)(b)

(b) To demonstrate managerial capability, the applicant must provide:

(1) An operations and maintenance plan for the proposed water utility, including, without limitation:

GBWC-CSD will operate and maintain the new facilities necessary to serve the Annexation Territory in the same manner as it operates and maintains its existing facilities. GBWC-CSD has operated as a regulated utility since 1998. The Company's track record demonstrates managerial capability to operate water systems in a prudent, reliable, and safe manner. This requirement – for an operation and maintenance plan – appears to apply to start-up operations, not an existing regulated utility with an operating track record, which is subject to the Commission's oversight, and the Commission's integrated resource planning regulations.

Accordingly, pursuant to NAC 703.115(1), GBWC-CSD requests an authorization to deviate from NAC 703.190(1)(b)(1)'s requirement that it provide an operations and maintenance plan for the facilities necessary to serve the Annexation Territory. GBWC-CSD believes good cause appears for this deviation for the reasons detailed above, and given that GBWC-CSD is currently required to maintain an ongoing O&M Manual for its system as part of its Public Water System permit issued by NDEP Bureau of Safe Drinking Water (acting through the Washoe County Health District). After construction of the infrastructure identified to serve the Development, GBWC-CSD will update its O&M Manual to include all newly constructed infrastructure. Further, the requested deviation is in the public interest because preparation and provision of an additional operations and maintenance plan would be duplicative of GBWC's existing efforts and oversight requirements as outlined above, and would thus require an unnecessary time and cost to prepare, which GBWC believes to be contrary to the interests of its ratepayers where GBWC has demonstrated managerial capability to operate its water system. Finally, GBWC does not believe the request for deviation to be contrary to statute.

In the alternative, should the Commission deny GBWC's request to deviate from NAC 703.190(1)(b)(1), GBWC requests that its responses to subsections (I) through (III) below be deemed sufficient to meet NAC 701.190(1)(b)(1)'s requirement to provide an operations and maintenance plan.

> *(I) The contact information for all principal managers, certified operators and customer service representatives of the system;*
>
> President
>
> Mr. Seán Twomey
>
> Great Basin Water Co.
>
> 1005 Terminal Way, Suite 294

Reno, Nevada 89502

Telephone: (775) 337-1001

Director of State Operations

James Eason

Great Basin Water Co.

1005 Terminal Way, Suite 294

Reno, NV 89502

Telephone: (775) 337-1001

Regional Manager

Marc Rohus – D-3; T-2; WWT 2

Great Basin Water Co. – Cold Springs Division

1005 Terminal Way, Suite 294

Reno, NV 89502

Telephone: (775) 337-1001

Area Manager

Darrin Lewis – D-2

Great Basin Water Co. – Cold Springs Division

1005 Terminal Way, Suite 294

Reno, NV 89502

Telephone: (775) 337-1001

Lead Operator

Jeramy Millim – D-2

Great Basin Water Co. – Cold Springs Division

1005 Terminal Way, Suite 294

Reno, NV 89502

Telephone: (775) 337-1001

Operator

Andrew Williams – D-1

Great Basin Water Co. – Cold Springs Division

1005 Terminal Way, Suite 294

Reno, NV 89502

Telephone: (775) 337-1001

Operator

Timothy Underwood - D-1

Great Basin Water Co. – Cold Springs Division

1005 Terminal Way, Suite 294

Reno, NV 89502

Telephone: (775) 337-1001

Operator

Joneux Mesler

Great Basin Water Co. – Cold Springs Division

1005 Terminal Way, Suite 294

Reno, NV 89502

Telephone: (775) 337-1001

Customer Service Supervisor

Ewan Dehnert

(407) 790-1992

(II) The normal procedures for maintenance used to ensure the proper operation of the system;

The water systems are monitored daily by certified operators according to recommendations found in the O&M Manual provided by the manufacturer. Personnel are trained through various publications, ongoing education, and in-house training programs.

All areas of the facilities are inspected daily. Well and flow reads are recorded daily. A supervisory control and data acquisition system is also used to monitor the water system.

Water facilities, including all mechanical/electrical equipment, are continually maintained and replaced as suggested by the manufacturer recommendations. In addition, GBWC-CSD has formalized maintenance guidelines to ensure ongoing proper operations of the systems.

(III) A plan describing how worn-out utility facilities will be replaced.

GBWC-CSD has incorporated the 10-box asset management framework as advocated by the United States Environmental Protection Agency (USEPA). According to the USEPA, "Asset management is maintaining a desired level of service for what you want your assets to provide at the lowest life-cycle cost. Lowest life-cycle cost refers to the best appropriate cost for rehabilitating, repairing, or replacing an asset. Asset management is a framework being widely adopted as a means to pursue and achieve sustainable infrastructure. It is the practice of managing infrastructure capital assets to minimize the total cost of owning and operating them while delivering the desired service levels. Asset management programs with good data, including asset attributes (e.g., age, condition and criticality), life-cycle costing, proactive operations and maintenance (O&M) and capital replacement plans based on cost-benefit analyses, can be the most efficient method of meeting this challenge." USEPA, Water: Sustainable Infrastructure.

The asset management framework provides a systematic methodology to incorporate the gathered information used to prioritize capital projects based on level of service requirements, criticality of assets and condition assessments of those assets. In addition, GBWC-CSD has developed asset maintenance guidelines to extend the life of current assets.

An asset management plan is a dynamic plan evolving with changes in required levels of service and continued information gathering and condition assessments, and inclusion of the addition of new infrastructure.

In addition, GBWC-CSD provides an Integrated Resource Plan to the Commission at least every three years outlining a 20-year capital with a detailed focus on the next three years for the Commission's

review and approval. The latest such plan was submitted in March 2021 as the GBWC-CSD 2021 IRP, which has asset management framework integrated in the document.

(2) *A standard operating procedure for all employee communications not covered by the proposed tariff.*

Employee communications not covered by GBWC-CSD's tariffs are given to the Area Manager for appropriate distribution.

(3) *A training protocol for all employees.*

The certified operators licensed by the State of Nevada follow all protocols necessary for certification. In addition, monthly safety meetings, vendor sponsored training, and in-house training are all a part of normal operations.

(4) *Evidence that the applicant will maintain its books and records consistent with the system of accounts established by the National Association of Regulatory Utility Commissioners for water utilities.*

GBWC-CSD is currently a regulated utility, operating subject to the Commission's regulatory oversight since 1998. GBWC-CSD last filed an application for permission to increase its rates in 2021, designated Docket No. 21-12025. In connection with that proceeding, the Commission's Staff audited GBWC-CSD's books and records. To the extent the Company's books and records were not maintained in a manner consistent with the National Association of Regulatory Utility Commissioners ("NARUC") Uniform System of Accounts for Class A Water and Wastewater Companies, such issues would have been addressed and resolved by the final order in that proceeding. The Commission's audit provides sufficient evidence that GBWC-CSD maintains and will continue to maintain its books and records in a manner that is consistent with the Uniform System of Accounts.

In the alternative, to the extent that this requirement may be read to apply only to start-up operations, GBWC-CSD respectfully requests permission to deviate from NAC 703.190(1)(b)(4) pursuant to NAC 703.115. GBWC-CSD believes good cause exists for the requested deviation because it currently operates as a regulated public utility as described above, with regular oversight requirements, including the requirement that it regularly make its books and records available for inspection by the Commission and Commission Staff as described above. Further, the requested deviation is in the public interest because the public is provided the necessary assurance that GBWC-CSD operates its books and records in accordance with NARUC through the regulatory

mechanisms in place to ensure the same (including through the regular general rate case process), and thus the time and work required to provide the necessary exhaustive evidence of its books and records through this requirement would be duplicative and contrary to ratepayer interests. Finally, GBWC does not believe that its requested deviation is contrary to statute. Should the Commission deny GBWC's request, GBWC-CSD requests that its response provided to this section above be deemed to satisfy NAC 703.190(1)(b)(4).

3.1.3 NAC 703.190(1)(c)

To demonstrate financial capability, the applicant must provide:

(1) An explanation of whether and to what extent customers will directly or indirectly make contributions to the costs of the facilities of the proposed water system. The explanation must indicate whether the applicant intends to assess charges or has assessed charges for the extension of any lines and whether the price of lots or units in the proposed service area will reflect the cost of the investment in the proposed system.

It is not anticipated that contributions for the cost of facilities will be made directly by customers. At this time, it is understood that the costs of facilities will be borne by TND and will be recovered solely by TND through price of lots and/or other revenues (such as rent). However, if circumstances unforeseeable today arise, GBWC-CSD has in place its Commission-approved tariffs, Water Capacity Fees, Water Supply Fees, Water Connection Fees, and Meter Fees. In addition, Rule No. 9 in GBWC-CSD's tariff provides the methodology for reapportionment of the costs of any line extension.

(2) Evidence that the proposed revenues from reasonable rates will give the applicant an opportunity to earn a fair return on its regulated rate base.

GBWC-CSD last filed a rate case in 2021, designated Docket No. 21-12025, and the Commission determined that its current rates were just and reasonable and provide the Company a fair opportunity to earn a reasonable return on its regulated rate base.

(3) A statement of the estimated operating revenues and expenses, including taxes and depreciation, for the first 5 years of operation in the proposed service area for each major class of service. If the applicant anticipates that the system will initially operate at a loss, the statement must identify the sources of money that will be used to sustain the operation of the system during that initial period.

This requirement appears to apply to a start-up utility, not a utility currently subject to the Commission's regulatory oversight. To the extent this requirements does not apply to GBWC-CSD, it is respectfully submitted that good cause exists to deviate from the requirement pursuant to NAC 703.115. To the extent a response is required, the evidence included with this Application, providing estimated operating and maintenance costs at Section 2.6 above, reflects that GBWC-CSD's existing rates, as applied to new customers who will be served within the Annexation Territory, will provide GBWC-CSD an opportunity to earn a fair return on its regulated rate base.

(4) A depreciation schedule for the different water treatment facilities.

See Exhibit E for the Depreciation Schedule.

(5) A method for replacing rate base when the utility facility reaches the end of its service life.

As depreciation is funded through ongoing rates/revenue, assets will be maintained and replaced through capital improvements to continually extend their service life. The commercial/industrial connections paying the rates are assumed to require water service in perpetuity and therefore the continuous extension of service life through maintenance and replacement projects is assumed to also continue forever.

(6) A copy of a performance bond or other suitable assurance deposited with the Federal Government or local government to guarantee construction of any improvements or infrastructure required for approval of final subdivision maps.

This requirement is not applicable at this time. Washoe County has not yet required a bond for the improvements for this development. GBWC-CSD will not be responsible to provide service until the Developer has completed construction of all improvements and GBWC-CSD has accepted them as completed. Therefore, GBWC-CSD bears no risk related to a performance bond that is provided to ensure completion of construction. Bonding will be required by Washoe County prior to creation of the residential lots proposed within the Annexation Territory.

3.2 NAC 703.190(2)

In addition to the information required by subsection 1, a water utility must include in its application for a Certificate of Public Convenience and Necessity:

3.2.1 NAC 703.190(2)(a)

(a) If the application is for an initial certificate to provide water service, proof that the utility inquired of each utility, person or other entity, whether publicly or privately operated, including, without limitation, a county water district, a public utility or municipal utility district, and any other water or utility district with which the proposed water service is likely to compete and each city or county within which the water service will be rendered under the requested certificate, whether the entity is ready, willing and able to provide the water service in the geographic area proposed by the applicant for the certificate. The application must set forth in detail the results of each inquiry.

The application is not for an initial certificate to provide water service but instead is to amend an existing certificate in an area immediately adjacent to GBWC's existing certificated service area. There are no water systems in the proposed annexation areas that GBWC-CSD would be competing with.

3.2.2 NAC 703.190(2)(b)

(b) If the application is for a certificate to establish or extend water service within a county water district, a public utility or municipal utility district, any other water or utility district, or any other area that is served by such a district, the name and address of the district and certification that a copy of the application has been served upon or mailed to the district.

The proposed new service territory is not within a county water district or municipal utility district. The proposed new service territory is contiguous with GBWC's existing Cold Springs Division service territory. Truckee Meadows Water Authority may provide service in the future to areas of Cold Springs South of the proposed Annexation Territory, and copies of this application will be sent to Truckee Meadows Water Authority at the time of its filing with the Commission.

NAC 703.197 SPECIFIC REQUIREMENTS FOR ANNEXATIONS BY EXISTING WATER AND WASTEWATER UTILITIES

NAC 703.197 Specific requirements for annexations by existing water and wastewater utilities (NRS 703.025, 704.210) In the case of an annexation by an existing water or wastewater utility, in addition to all other applicable requirements of NAC 703.175, an application for a certificate of public convenience and necessity must include:

4.1 NAC 703.197(1)

The information required by NAC 703.190 or 703.195, as it pertains to the service area to be annexed;

See previous sections for detail.

4.2 NAC 703.197(2)

The anticipated effect, if any, that the annexation will have on the ability of the utility to provide reasonable and adequate service and facilities to its existing customers.

The proposed annexation is not anticipated to have any negative impact on the ability of GBWC-CSD to provide reasonable and adequate service and facilities to its existing customers.

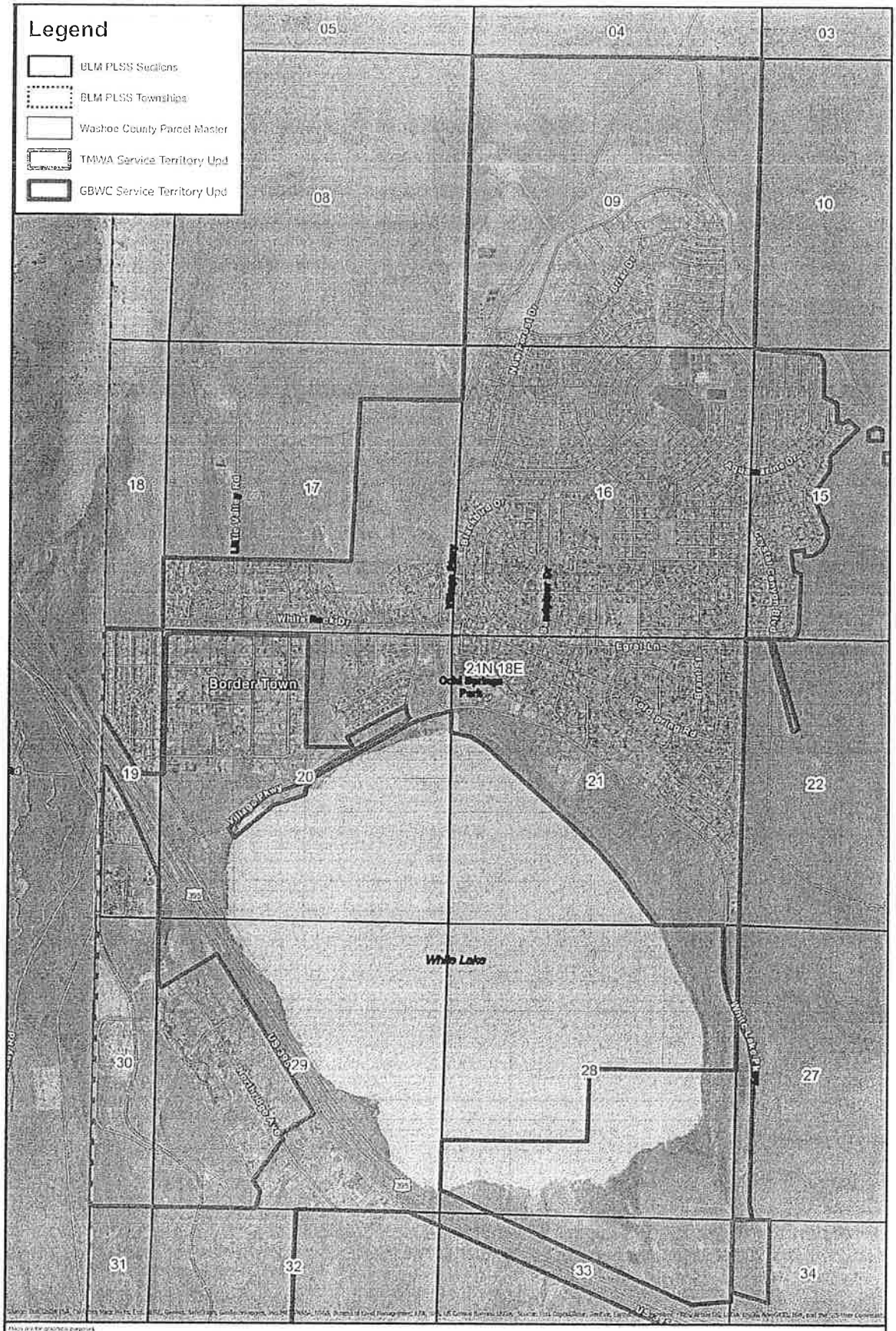


Figure 1 - Great Basin Water Company Service Territory

Drafted By: DCW

SHAW ENGINEERING

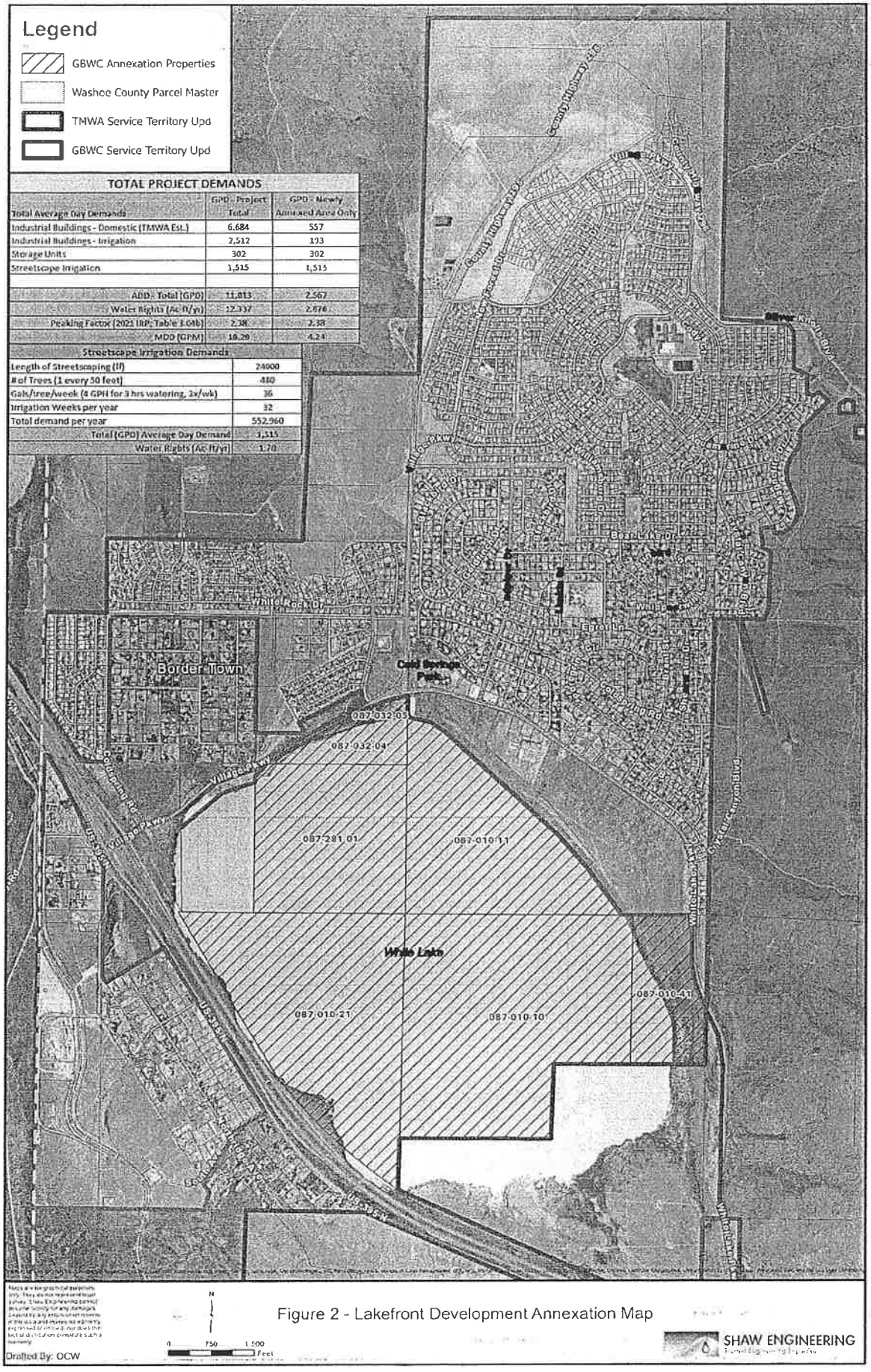


Figure 2 - Lakefront Development Annexation Map

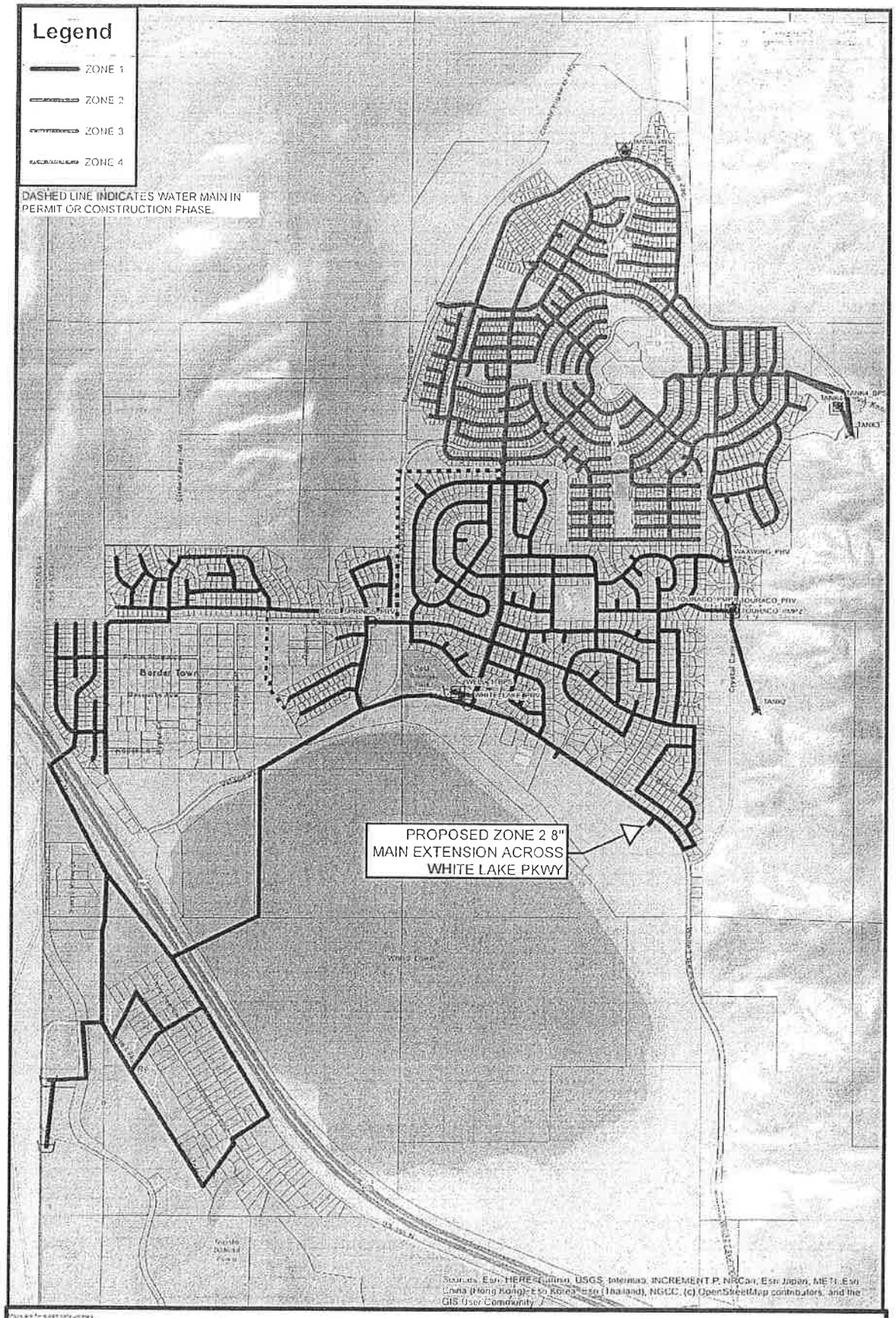
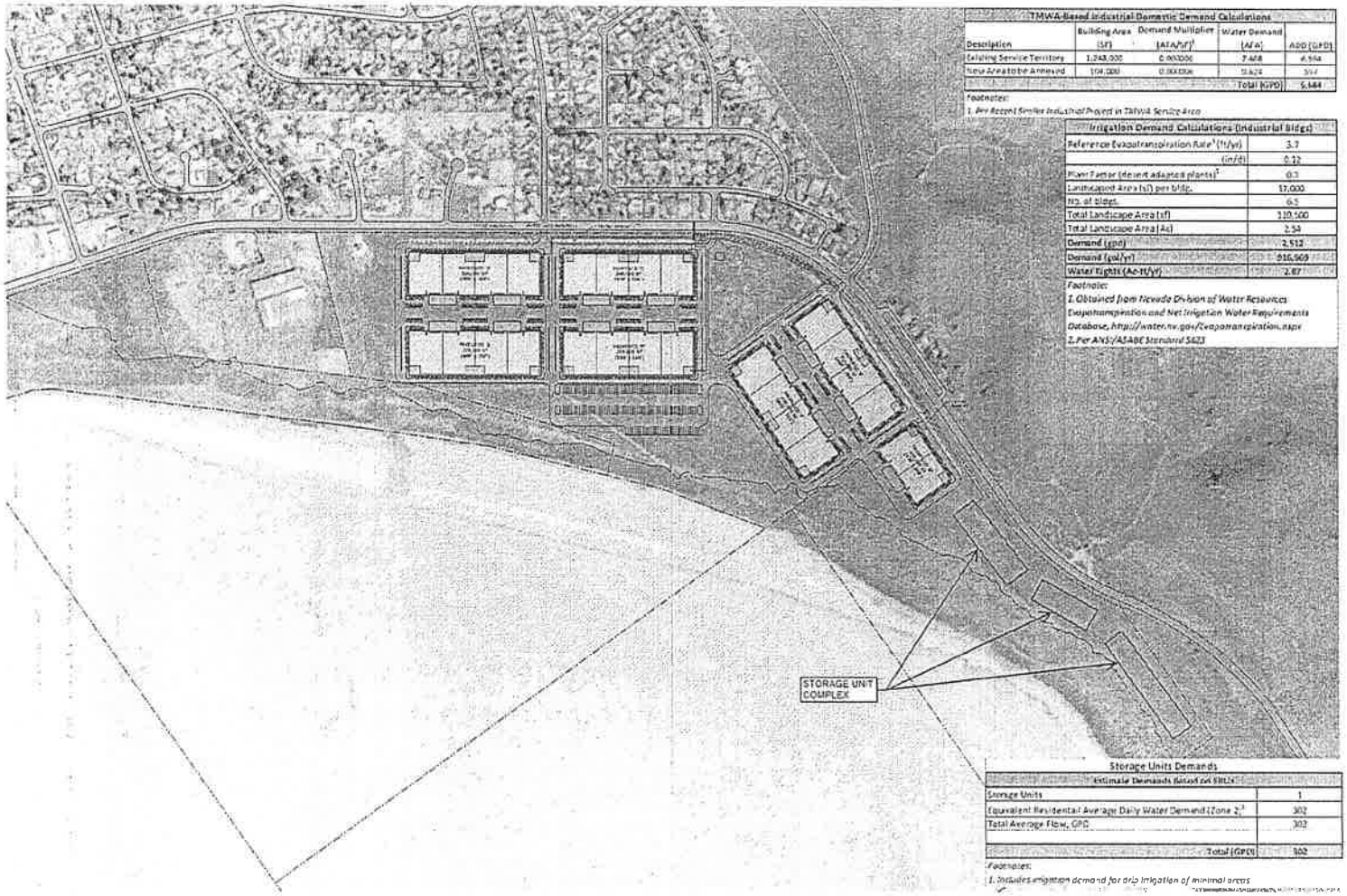


Figure 3: GBWC Infrastructure and Pressure Zones



TMWA-Based Industrial Domestic Demand Calculations

Description	Building Area (SF)	Demand Multiplier (AFA/yr)[1]	Water Demand (AFA)	ADD (GPD)
Existing Service Territory	1,243,000	0.000200	7.468	6,664
New Area to be Annexed	104,000	0.000200	0.624	557
		Total (GPD)		5,484

Footnotes:
1. Per Recent Similar Industrial Project in TMWA Service Area

Irrigation Demand Calculations (Industrial Bldgs)

Reference Evapotranspiration Rate[1] (ft/yr)	3.7
(in/d)	0.12
Plant Factor (desert adapted plants)[2]	0.3
Landscaped Area (sf) per bldg.	17,000
No. of bldgs.	6.5
Total Landscape Area (sf)	110,500
Total Landscape Area (Ac)	2.54
Demand (gpd)	2,512
Demand (gal/yr)	916,969
Water Rights (Ac-ft/yr)	2.87

Footnotes:
1. Obtained from Nevada Division of Water Resources Evapotranspiration and Net Irrigation Water Requirements Database, http://water.nv.gov/Evapotranspiration.aspx
2. Per ANSI/ASABE Standard S623

Storage Units Demands

Estimate Demands Based on SIZE[1]	
Storage Units	1
Equivalent Residential Average Daily Water Demand (Zone 2)[1]	302
Total Average Flow, GPD	302
Total (GPD)	302

Footnotes:
1. Includes irrigation demand for drip irrigation of minimal areas

SITE SUMMARY

APN(S): 087-010-01

JURISDICTION: CITY OF RENO

CURRENT ZONING: SF1 - SINGLE FAMILY; IC - INDUSTRIAL COMMERCIAL; PEAKS - PARKS, GREENWAYS AND OPEN SPACE

ANTICIPATED ZONING: I - INDUSTRIAL

ADJACENT ZONING: UT40 - 1, MDS, I-C

SITE AREA (120.33 AC): 5,242,415 SF

PROPOSED BUILDING AREA: 1,208,800 SF

BUILDING COVERAGE (1,208,800/5,242,415): 23.06%

SETBACKS

FRONT YARD: 20' + 1' FOR EVERY FOOT OF BUILDING HEIGHT GREATER THAN 35'

REAR YARD: 0FEET

SIDE YARD: 0FEET

MAX. BUILDING HEIGHT: 75 FEET

ACCORDING TO CITY OF RENO MUNICIPAL CODE FOR INDUSTRIAL ZONING

LANDSCAPE

ALL REQUIRED FRONT YARD SETBACKS SHALL BE FULLY LANDSCAPED.

ACCORDING TO CITY OF RENO MUNICIPAL CODE FOR INDUSTRIAL ZONING

PARKING SUMMARY

BUILDING 'A'

5% OFFICE PARKING (1/275 SF)	34
95% WAREHOUSE PARKING (1/3100 SF)	60
TOTAL PARKING REQUIRED:	94
TOTAL PARKING PROVIDED:	193

BUILDING 'B'

5% OFFICE PARKING (1/275 SF)	34
95% WAREHOUSE PARKING (1/3100 SF)	60
TOTAL PARKING REQUIRED:	94
TOTAL PARKING PROVIDED:	193

BUILDING 'C'

5% OFFICE PARKING (1/275 SF)	34
95% WAREHOUSE PARKING (1/3100 SF)	60
TOTAL PARKING REQUIRED:	94
TOTAL PARKING PROVIDED:	193

BUILDING 'D'

5% OFFICE PARKING (1/275 SF)	34
95% WAREHOUSE PARKING (1/3100 SF)	60
TOTAL PARKING REQUIRED:	94
TOTAL PARKING PROVIDED:	193

BUILDING 'E'

5% OFFICE PARKING (1/275 SF)	34
95% WAREHOUSE PARKING (1/3100 SF)	60
TOTAL PARKING REQUIRED:	94
TOTAL PARKING PROVIDED:	193

BUILDING 'F'

5% OFFICE PARKING (1/275 SF)	34
95% WAREHOUSE PARKING (1/3100 SF)	60
TOTAL PARKING REQUIRED:	94
TOTAL PARKING PROVIDED:	193

BUILDING 'G'

5% OFFICE PARKING (1/275 SF)	19
95% WAREHOUSE PARKING (1/3100 SF)	32
TOTAL PARKING REQUIRED:	51
TOTAL PARKING PROVIDED:	105
TOTAL TRAILER PARKING PROVIDED:	143

LEGEND

▼ DOCK DOOR, 9' x 10'

◇ DRIVE-IN DOOR, 12' x 14'

0 150' 300' 600'

TECTONICS DESIGN GROUP

FIGURE 4 - White Lake Parkway

Conceptual Site Plan | Cold Springs, NV | PR2

EXHIBIT A –

Tariff Rate Sheets

Great Basin Water Co.
1240 E. State St., Ste. 115
Pahrump, NV 89048

FIFTH REVISED PUCN Sheet No. 235
Cancels
FOURTH REVISED PUCN Sheet No. 235

Tariff No. 1-W (Water)

D/N

SCHEDULE WRES-1

RESIDENTIAL SERVICE – COLD SPRINGS, SPANISH SPRINGS, SPRING CREEK, AND PAHRUMP

APPLICABILITY

The charges set forth in this Schedule apply to all Customers who receive Residential service from the Utility. T

RATES – RESIDENTIAL

The charge for water service shall consist of a monthly Base Rate (assessed on the size of the Customer's water meter) plus the sum of Volumetric Charges. Volumetric Charges include a Commodity Charge, Deferred Water Service Adjustment, and System Improvement Rate and are assessed based on consumption.

BASE RATE WATER

Meter Size	Monthly Rate – Pahrump, Spring Creek, Spanish Springs	Monthly Rate – Cold Springs
5/8"	$ 18.00	$ 14.79
3/4"	$ 18.00	$ 14.79
1"	$ 22.51	$ 22.51
1 ½"	$ 27.01	$ 27.01
2"	$ 51.32	$ 51.32
3"	$ 87.24	$ 87.24
4"	$ 104.69	$ 104.69
6"	$ 209.38	$ 209.38
8"	$ 323.17	$ 323.17
10"	$ 475.25	$ 475.25

COMMODITY CHARGE

Cold Springs	Metered Consumption	Rate per 1,000 gallons
Tier 1	0 to 5,000 gallons	$ 2.43
Tier 2	5,001 to 30,000 gallons	$ 3.63
Tier 3	30,001+ gallons	$ 4.54

D/N

Issued:
Effective:
Advice No.:

Issued by:
Sean Twomey, President
Great Basin Water Co.

Filing Accepted
Effective
JUL 18 2022
Public Utilities Commission
of Nevada

EXHIBIT B –

Revenue Estimate

Great Basin Water Company White Lake Parkway Main Extension Estimated Revenue			
Unit	Revenue/Month* /Unit	# of Months	Annual Revenue
2" Meter for 1 Industrial Bldg Base Rate (17kgal / month estimated)	$ 51.32	12	$616
2" Meter for 1 Ind. Bldg. Commodity Charge (Tier 1 - 5kgal x $2.43)	$ 12.15	12	$146
2" Meter for 1 Ind. Bldg. Commodity Charge (Tier 2 - 12 kgal x $3.63)	$ 43.56	12	$523
3/4" Irr. Meter for the Ind. Bldg. (consumption estimated at 10 kgal / month during irrigation season)	$ 18.00	12	$216
3/4" Irr. Meter for the Ind. Bldg. Commodity Charge (Tier 1 - 5kgal x $2.43)	$ 12.15	7	$85
3/4" Irr. Meter for the Ind. Bldg. Commodity Charge (Tier 2 - 5 kgal x $3.63)	$ 18.15	7	$127
3/4" Meter for Storage Unit Bldgs (consumption estimated at 10 kgal / month)	$ 18.00	12	$216
3/4" Irr. Meter for the Ind. Bldg. Commodity Charge (Tier 1 - 5kgal x $2.43)	$ 12.15	7	$85
3/4" Irr. Meter for the Ind. Bldg. Commodity Charge (Tier 2 - 5 kgal x $3.63)	$ 18.15	7	$127
2" Irr. Meter (Consumption estimated at 29kgal/month during irrigation season)	$ 51.32	12	$616
3/4" Irr. Meter for the Ind. Bldg. Commodity Charge (Tier 1 - 5kgal x $2.43)	$ 12.15	7	$85
3/4" Irr. Meter for the Ind. Bldg. Commodity Charge (Tier 2 - 24 kgal x $3.63)	$ 87.12	7	$610
		Total	**$3,451**

Great Basin Water Company Complete Annexation Area (1 Bldg, 1 Storage Unit) Estimated Customers Coming Online			
Year	# of Customers Added	New Annual O&M Costs	Revenue Est. (per table above)
Year 1	1	$0	$1,284
Year 2			$0
Year 3			$0
Year 4			$0
year 5	1	$0	$428
Remaining Customers	**0**		

Total Annual Revenue (All Newly Annexed Development built within 5 years)	$1,712

Total Annual O&M Costs (All Annexed Development)	$0

EXHIBIT C –

2021 GBWC Integrated Resource Plan,

Volumes III and IV (Select pages included, please refer to Docket No. 21-03003 for complete volumes of document)

Contact Filer Regarding Image Clarity

BEFORE THE PUBLIC UTILITIES COMMISSION OF NEVADA

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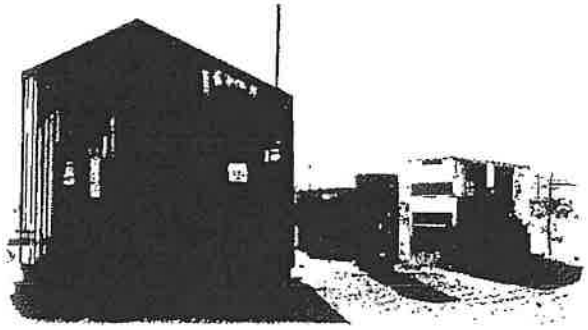
In the Matter of: Application of Great Basin Water Co., Cold Springs, Pahrump, Spanish Springs and Spring Creek Divisions for approval of its 2021 Integrated Resource Plan and to designate certain system improvement projects as eligible projects for which a system improvement rate may be established, and for relief properly related thereto.	Docket No. 21-_____

VOLUME 3 OF 14

Great Basin Water Co.
2021 Integrated Resource Plan
Volume III: Spring Creek Division
March 01, 2021



Prepared for:

Great Basin
Water Co.™

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2/26/21

SECTION 1.0: INTRODUCTION

1.1 Report Organization

Summary — The Executive Summary provides an overview of the study and the recommended capital improvement plan.

Section 1.0 — Introduction. This section provides background information on the Great Basin Water Company – Cold Springs Division (GBWC-CSD), a description of the Cold Springs Division and Hydrographic Basin 100 and 100A, and a discussion of the objectives of the Integrated Resource Plan (IRP).

Section 2.0 — Existing Conditions. This section presents a complete description of the service area, existing facilities, condition of the major assets and remaining useful life, and their operation and control.

Section 3.0 — Historical Data and Forecasting. This section presents an evaluation of the historical population and connections to the existing system. This data is used and presented as a basis for the population and demand forecasting for the utility.

Section 4.0 — Water Supply Plan. This section presents the analysis of the existing water system with regards to how it will be impacted by the demand forecasting presented in Section 3.0.

Section 5.0 — Emergency Action Plan. This section will be provided in the Introduction (Volume I) with a generalized explanation of the Plan for the GBWC-CSD. The actual Emergency Action Plan is provided in the Appendix J.

Section 6.0 — Water Conservation Plans. This section provides a reference to GBWC's water conservation plan discussed in Volume I.

Section 7.0 — Preferred Plan. This is a 20-year projected evaluation, which includes a preferred plan for the necessary improvements over the 20-year planning period. This preferred plan is a planning level guideline based on current demands, growth projections, and remaining useful life of major assets.

Section 8.0 — Action Plan. This section is a summary subset of the Preferred Plan detailing the improvements, which are recommended for implementation in the 3 years following approval of the 2021 IRP.

Section 9.0 — Funding Plan. This section details the financing impacts and strategies for meeting the needs addressed in the Action Plan.

Section 10.0 — System Improvement Rate Request. This section outlines the information required by NAC 704.6339 to designate water projects in the Action Plan as eligible for a System Improvement Rate (SIR).

Technical Appendices — This section is part of the comprehensive technical appendix that will support all of the specific resource plan volumes which will contain the complete details of the methodologies used in developing the resource plan along with all of the basic data used in the study.

1.2 Background

1.2.1 Cold Springs Division Overview

The Great Basin Water Co. – Cold Springs Division (GBWC-CSD) water system services the community of Cold Springs, Nevada, which is located approximately 10 miles north of Reno on U.S. Highway 395 at the California-Nevada Border as shown in Figure 1.01. The Cold Springs Division is the only utility that provides water service throughout the Cold Springs Valley. Cold Springs Valley covers an area on both sides of U.S. Highway 395. There are a few clusters of homes near the GBWC-CSD service area that are served by individual wells. These homes are adjacent to the GBWC-CSD service area and could be connected in the future with only minor capital improvements if a need arises for water service. Approximately 3,574 residential customers and 59 commercial/public customers are currently being served.

The GBWC-CSD water system is made up of four pressure zones served by two booster pump stations, four ground level water storage tanks, and five groundwater wells located in two hydrographic basins (Basins 100 and 100A). The primary use is residential, although the system serves several large water users, including two Washoe County School District Schools and two sizable parks owned by Washoe County.

The purpose of this IRP is to balance the needs of the system, environment, and customers over the next 20 years. The Action Plan is a 3-year plan. The purpose of the Action Plan is to identify current major assets that have exceeded their useful life expectancy and identify needed improvements in the system in order to develop a plan for the next three years balancing the objectives of minimizing cost, mitigating risk, and maximizing service reliability. The planning horizon for the IRP is 20 years, from 2022 to 2041. NAC 704.5654. Historical production data presented in this IRP covers the 10-year period preceding 2020 pursuant to NAC 704.5668.

1.2.2 Hydrographic Basins 100 and 100A Overview

The GBWC-CSD service territory straddles two hydrographic basins in Nevada: the Cold Springs Basin (Basin 100) and the Long Valley Basin (Basin 100A). Basin 100A predominantly resides across the California border with only a small portion of the basin within Nevada. The majority of the water rights in Basin 100 consists of Quasi-Municipal followed by Irrigation. In 1977 (Order 606), the State Engineer elevated Basin 100 to a "designated basin" status. A basin is usually elevated to a designated status when the water rights in the basin have reached or exceeded its perennial yield. A designated basin status allows the State Engineer additional authority in the administration of the water resources in the form of restricting specific uses and/or subdividing the basin for better management of the water resources. In 2019, the State Engineer issued an interim order to establish a temporary moratorium on development in the basin. Currently, there are approximately 2,860 acre feet annually (AFA) of water rights appropriated in Basin 100 with a perennial yield of 500 acre feet annual. Basin 100 is currently over appropriated.

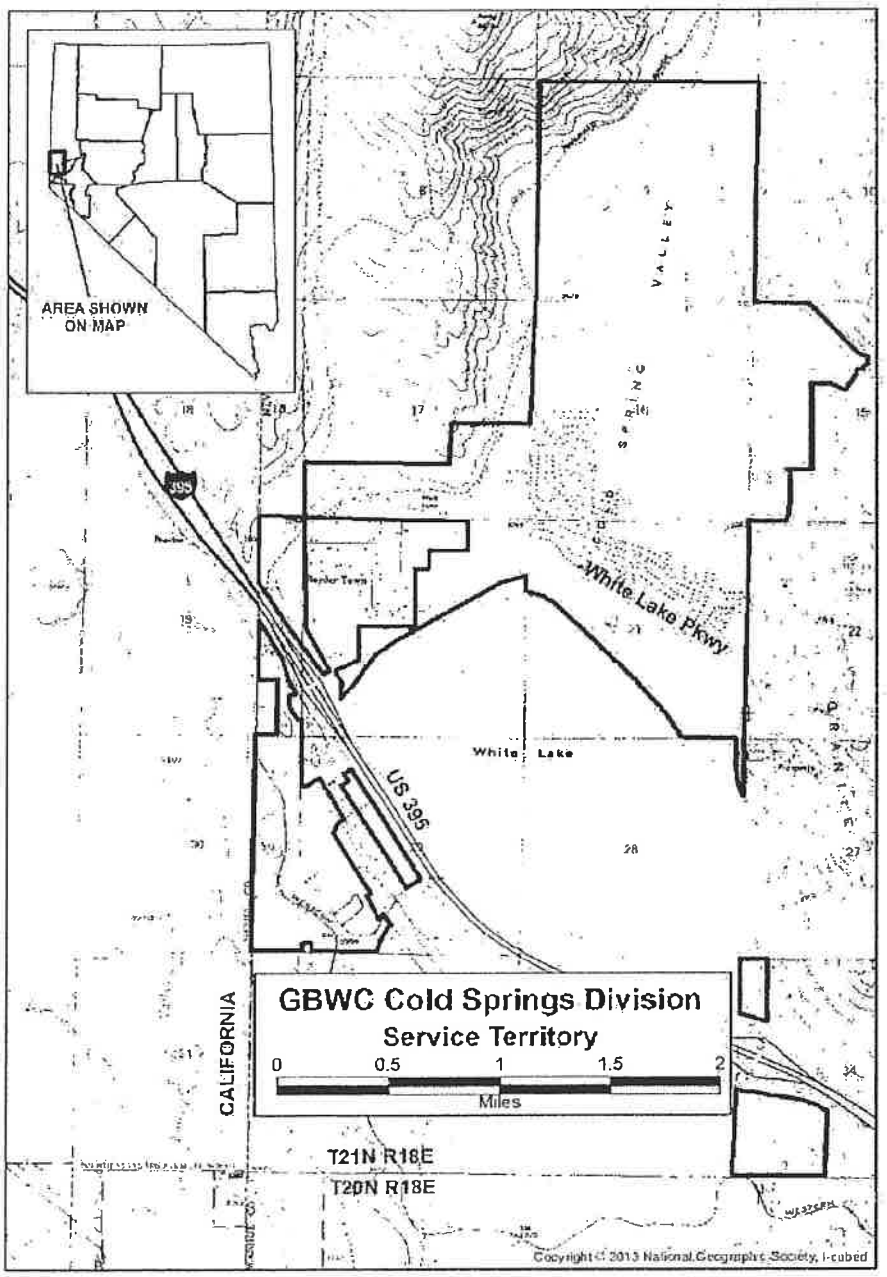

Figure 1.01: Map of GBWC - Cold Springs Service Territory

All of the water rights in Basin 100A consist of Quasi-Municipal. In 1983 (Orders 787 & 826), the State Engineer elevated Basin 100A to a "designated basin" Status. He also declared irrigation to be a non-preferred used of the limited ground water resource. Currently, there are approximately 1907 AFA of water rights appropriated in Basin 100A with a perennial yield of 500 – 900 acre feet annually. Basin 100A is currently over appropriated. Appendix B contains information associated with these two basins.

1.3 Objectives

The overall objective of this IRP is to provide guidance to GBWC as to how to provide adequate water service to their customers in the GBWC-CSD service area over the next 20 years by balancing the objectives of minimizing cost, mitigating risk, and maximizing service reliability. This includes identifying needed improvements for the current system and needed improvements for projected growth over the next 20 years, identifying innovative tools and systems for improving operation and maintenance efficiencies, and determining the facilities needed to provide adequate service for growth. An asset management framework has been integrated into the IRP to identify and determine when existing critical assets will need to be replaced or rehabilitated in the future. A detailed Action Plan is provided identifying the needed and recommended improvements over the next three (3) years, and the timing of those improvements. Additional sections address water conservation as a means to limit water demand and protect the groundwater resource, and a funding plan for each of the proposed improvements and estimating the financial impacts on the customers.

1.3.1 Current Level of Service

In February 2015, the GBWC management team developed the initial Asset Management Plan (AMP), which includes a section on the current "Level of Service" (LOS) assessment. The section listed the level of service elements for GBWC-CSD with regards to Regulatory and Contractual, Quality, Reliability, and Customer Service. The LOS section has helped GBWC-CSD identify areas where improvement will help to strengthen services and relations with their customers. The AMP has various components and is a continuous process on which GBWC-CSD has been working. The LOS consists of various areas for improvement that GBWC-CSD has identified. These areas will or may always need constant monitoring or may be changed by implementing programs or projects. Included below are areas which are being constantly monitored or programs have been developed:

- NAC Regulatory: GBWC-CSD staff continuously works with regulators to identify any needed improvements in the GBWC-CSD system via sanitary surveys;
- Monthly Reading of Meters: Occasional winter weather and buried/frozen meter pits make readings difficult to acquire. GBWC-CSD is in the process of replacing non-AMR meters with AMR meters. Approximately 300 non-AMR meters remain.

Since identifying these service needs for improvement, the GBWC-CSD Staff are targeting solutions to improve these LOS aspects as well as recommended improvements in the resource plan.

Since the 2018 IRP, improvements have been made to the system to address areas of LOS concern. Namely, complaints of air entrainment that required constant monitoring have subsided due to the rehabilitation of Well 6 and Well 7.

1.3.2 Asset Registry Condition Assessment

The February 2015 initial Asset Management Plan also contained an asset registry of the major assets in GBWC-CSD's water utility. This asset registry, updated in 2020, includes a condition assessment of the assets to ensure future fundamental replacement/rehabilitation schedule can be generated to deal with the assets once they exhaust their remaining useful life. Appendix A contains the asset registry and condition assessment with timetables and estimated costs for replacement/rehabilitation for non-linear assets. The assets which have estimates for remaining useful life are based on "nominal" design lives of specific assets. The nominal design life of an asset is a rough guideline that has the capability of either out living or prematurely failing, which is dependent on design and installation attributes, and degree of operation and maintenance of an asset. The asset registry is considered a living document that is updated on an as-needed basis to ensure sufficient monitoring of the assets are being conducted regularly. The asset registry only contains the major fixed assets. In order to develop a linear asset registry for the water distribution piping systems, a GIS Mapping Database has been developed, which will help track and maintain the asset registry. Infrastructure within Pressure Zone 1 and all new construction have been added to the database so far.

1.3.3 Failure Mode and Effects Analysis

In October 2015, Lumos & Associates, Inc. (Lumos) conducted a workshop for the GBWC-CSD staff to assess specific major assets and subsystems of the water system for vulnerabilities. The assets and subsystems assessed included water supply, storage, pressure zones, and booster pumping systems. The goal was to identify vulnerabilities so that corrective actions and better monitoring protocols could be implemented to reduce the potential of asset and subsystem failures. The workshop was not meant to be exhaustive but rather to identify the highest-priority potential failures. Since this time, GBWC-CSD has transition away from the FMEA process and into their new Lucity Operation Maintenance Support (OMS) Software system. This digital asset management program tracks an asset over the entire lifecycle. This software can assess how an asset performed during its useful life and better determine an asset's longevity (useful life) in the future. Asset management is a continuous process, which evolves over time.

SECTION 2.0: EXISTING CONDITIONS

2.1 GBWC-Cold Springs Division

2.1.1 Location

The GBWC-CSD service area is located approximately 10 miles northwest of Reno, Nevada, along U.S. Route 395. Specifically, the GBWC-CSD service area is located in Sections 7-10, 15-22, 27-34 of Township 21 North, Range 18 East of the Mount Diablo Meridian and within Washoe County, Nevada. The most recent service territory map for the water system can be found in Appendix D.

2.1.2 History

Reno Park Water Company (RPWC) was sold and its Certificate of Public Convenience and Necessity (CPCN) transferred to GBWC-CSD (formally known as Utilities, Inc. of Nevada) on June 23, 1998 in the Commission Order under Docket No. 98-2009. This Order completed the transaction that began on February 6, 1998, when RPWC and GBWC-CSD filed a joint application for Commission approval of the sale and transfer of Reno Park's CPCN and associated water utility plant to GBWC-CSD. On May 22, 1998, a stipulation and negotiated settlement was entered into regarding the sale and transfer of RPWC that included the following parties: RPWC, GBWC-CSD, Cold Springs 2000, and the Regulatory Operations Staff of the Public Utilities Commission of Nevada (PUCN). The Stipulation, among other things, reiterated certain agreements and responsibilities of RPWC and GBWC-CSD. Some of the responsibilities of GBWC-CSD included:

1) The construction of a new storage tank to replace the Long Valley Tank with a tank of equal or greater size;
2) Conduct a pressure/leak test on the 10" diameter Long Valley Transmission Main, and, if necessary, secure or relocate the transmission so the integrity of the pipeline is maintained;
3) Conduct main water quality testing for VOC, SOC, and nitrate on Well 8 (Sweger Well);
4) GBWC-CSD being bound by all stipulations approved by the Commission regarding RPWC;
5) GBWC-CSD assuming the rights and obligations of the existing contracts.

On July 1, 1998, GBWC-CSD issued Tariff No. 1A, sheets 1 through 91 (Tariff No. 2A was provided with the GBWC-CSD 2016 IRP filing). The PUCN accepted the tariff filing as effective on July 30, 1998. These tariffs were derived from Tariff No. 1A, originally issued March 1, 1997, and revised per the Commission's order under Docket No. 97-3017 on January 5, 1998. Subsequently, as part of the consolidation process, GBWC filed the consolidated Tariff No. 1-W for the four GBWC owned systems in Nevada. The PUCN accepted the Tariff No. 1-W filing as effective on January 12, 2017. The tariffs include, among other things, rules for the extension and/or alterations to the water system to provide for development within the service territory. Additionally, there is a rule that requires "...that all applicants for new water service never theretofore supplied to the premises of theretofore deeded to or for use by the Utility on the premises for with water service is sought, shall provide all water rights required for the service applied for..." The previous utility, RPWC,

sought tariffs in the mid-1990s to help mitigate the impacts that new annexations were causing to the utility, and to eliminate the need to make agreements with developers prior to the annexation that were a "condition precedent to the annexation". Prior to adoption of the new tariffs, these older agreements allowed the utility to acquire or fund improvements they deemed necessary to mitigate the impact of annexations. One of these agreements dated back to a case involving a group of five developers in the late 1980s, establishing what is known as the "Common Improvement Fee" for the water system in Cold Springs Valley. This pre-annexation fee has been used to develop several needed improvements for the utility such as, but not limited to, much of the radio telemetry and control system and altitude valve assembly on Tank No. 1, and construction of Tank No. 4. Prior to the sale of the RPWC to GBWC-CSD, an annexation was completed under PUCN Docket No. 95-11002. The majority of the annexed property has been for the current Woodland Village Subdivision, which is address in Section 3.

2.1.3 Service Territory

The GBWC-CSD water service area covers approximately three square miles and consists of four pressure zones. For the 2021 IRP, there are approximately 3,633 connections consisting primarily of single-family residents with a small number of commercial clients, two schools (middle and K-6), two sizable parks and one large industrial user (Reno Truss). Growth is expected to continue in the existing service territory which is approximately 90% built out.

GBWC-CSD does not provide sewer services for their service area. GBWC-CSD's customers are either on private septic systems or are served by a Washoe County sewer system. Residents in Pressure Zones 1, 2, and 3 areas are primarily on private septic systems, which are owned and maintained by the individual property owners. Pressure Zone 4 is primarily served by collection, treatment and disposal systems owned by Washoe County with the treatment facilities located in the northwest portion of Pressure Zone 4.

The legal description of the water service territory is contained in GBWC's Tariffs Rule No. 16, which is maintained on file in the office of the PUCN and at GBWC offices in Reno and Pahrump, as well as the GBWC-CSD website at www.GreatBasinWaterCo.com. Refer to Appendix D for the legal descriptions of each service area.

2.1.4 Maps

Figure 1.01 shows the general overview of the GBWC-CSD water service territory. A more detailed map of the service territory is provided in Appendix D.

2.1.5 Geography and Climate

The service area terrain is generally level with slight slopes. The surrounding hills allow for placement of large water storage tanks sufficient for proper distribution pressures. One hundred feet of topographic relief exists in Pressure Zones 1 and 3, ranging from approximately 5,050 feet above mean sea level (amsl) to 5,150 amsl. Pressure Zone 2 is relatively level compared to the

other pressure zones. One hundred fifty feet of topographic relief exists in Pressure Zone 4, ranging from approximately 5,050 amsl to 5,200 amsl.

Summers in Cold Springs are characterized by hot, dry afternoons with temperatures in the 90s to low 100s cooling to lows in the 50s by morning. Average winter temperatures range from highs in the mid-40s and low 50s to lows in the mid-20s, frequently falling below freezing. Snowfall averages 14.2 inches per year and generally melts quickly. Annual precipitation averages around 10.9 inches per year throughout the region. Sunny or partly cloudy skies are predominant. Table 2.01 summarizes average monthly data for the region.

Table 2.01: Cold Springs Average Monthly Weather Data

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Max. Temp. (°F)	43.7	47.2	54.9	61.1	69.6	79.6	88.8	87.3	78.9	67.2	53.0	43.5	64.6
Min. Temp. (°F)	21.5	24.5	29.4	33.8	40.8	48.3	55.2	53.1	45.1	35.9	26.7	21.0	36.3
Total Precip. (in.)	1.57	1.92	1.24	0.56	0.55	0.54	0.34	0.26	0.46	0.72	0.88	1.84	10.89
Total Snowfall (in.)	2.8	2.0	2.5	0.5	0.1	0	0	0	0	0.1	1.8	4.4	14.2

Station: Stead, Nevada (267820)
Period of Record: 3/9/1985 to 6/10/2016
Source: Western Regional Climate Center

2.1.6 Land Use

Land use within the service area is primarily residential with some light commercial and public facilities. Within the service area there is an elementary school, a middle school, two sizable parks, a firehouse, and churches. Commercial and Industrial uses include gas stations, a wood structure manufacturer, a small grocery store, restaurants, an RV-park, a casino, and a pallet manufacturing company.

2.1.7 Population

The U.S. Census Bureau reported a population in the Cold Springs 2010 (most recent) Census Designated Place (CDP) of 8,544 people in 2010 with an average household size of 2.90 persons per household. Cold Springs was not a CDP in the previous census and therefore does not have available information on growth rates.

2.1.8 Water Supply and Quality

The water supply for GBWC-CSD is groundwater from five (5) wells; two (2) wells in Pressure Zone 1; one (1) well in Pressure Zone 2; and two (2) wells in Pressure Zone 4.

Water quality data from the 2019 Consumer Confidence Report for GBWC-CSD is provided in Table 2.02. This report illustrates that no regulated contaminates exceed maximum contaminant levels (MCLs). The Consumer Confidence Reports can be found on www.GreatBasinWaterCo.com.

Table 2.02: Water Quality Data (2019) UIN Consumer Confidence Report

Detected Substance	Units	Sample Year	Range	MCL	Violation
Microbiological					
No Detected Microbiological Contaminants Were Found in the Calendar Year of 2019					
Inorganic Contaminants					
Antimony	ppb	2019	1 - 2	6	N
Arsenic	ppb	2019	3 - 6	10	N
Barium	ppm	2019	0.052 - 0.052	2	N
Chromium	ppb	2019	3 - 3	100	N
Flouride	ppm	2019	<0.1 - 0.2	4	N
Nickel	ppm	2019	0.002 - 0.004	0.1	N
Nitrate	ppm	2019	0.59 - 2.5	10	N
Nitrate - Nitrite	ppm	2017	1.6	10	N
Radionuclides					
Combined Radium 226 & 228	pCi/L	2017	0.510 - 2.626	5	N
Uranium	ug/L	2019	1 - 15	30	N
Gross Alpha, Incl. Radon & U.	pCi/L	2017	0.149 - 3.84	15	N
Gross Beta Particle Activity	pCi/L	2017	2.72 - 4.5	50	N
Radium 226	pCi/L	2017	0.266 - 0.535	5	N
Radium 228	pCi/L	2017	0.542 - 2.36	5	N
Disinfection By-Products					
Chlorine	ppm	2019	0.21 - 1.02	4	N
HAAs	ppb	2019	ND	60	N
TTHM	ppb	2019	2.1	80	N
Lead and Copper					
Copper	ppm	2017	0.003 - 0.49	1.3 AL	N
Lead	ppb	2017	1 - 2	15 AL	N
Secondary Contaminants					
Chloride	mg/L	2019	2.6 - 6.9	400	N
Color	CU	2019	<5	15	N
Magnesium	mg/L	2019	5.4 - 10	150	N
Manganese	mg/L	2019	<0.001 - 0.012	0.1	N
PH	pH	2019	8.13 - 8.34	8.5	N
Sodium	mg/L	2019	15 - 20	200	N
Sulfate	mg/L	2019	2.9 - 16	500	N

TDS	mg/L	2019	130 - 180	1000	N
Zinc	mg/L	2019	<0.01 - 0.04	5	N
Nitrogen	mg/L	2014	2.7		N

MFL = Million Fibers per Liter, HAA5 = Haloacetic Acid, TTHM = Trihalomethane, AL = Active Level, ppb = parts per billion, ppm = parts per million, pCi/L = picocuries per liter, mg/L = milligrams per liter, pH = Potential of Hydrogen, TDS = Total Dissolved Solids, CU = Color Units.

2.2 Existing System

2.2.1 Distribution Piping (Pressure Zones)

The GBWC-CSD distribution piping consists of 4, 6, 8, 10, 12, and 14-inch piping. The hydraulic model indicates that pipe sizing and condition are adequate for maximum daily demand and fire flow. Table 2.03 lists pipe diameters and approximate total linear footage for each diameter of pipe.

Table 2.03: Pipe Sizes and Total Length for CSD

Pipe Size	Pipe Length (ft)
4-inch	720
6-inch	81,580
8-inch	122,420
10-inch	72,340
12-inch	9,150
14-inch	2,190
Total	**288,400**

2.2.1.1 Distribution Piping Existing Conditions Assessment

The age of the distribution piping ranges over a 40-year period with the initial piping being constructed during the 1970's. The original Reno Park Water Company's distribution piping network (constructed in the 1970's) consists primarily of 6, 8, and 10-inch schedule 40 PVC pipe. This portion of the distribution system is generally closest to White Lake and includes water mains north of White Lake Parkway, east of Village Parkway, west of Crystal Canyon Boulevard, and south of Black Lake Drive including Blackbird Drive and the water mains to the south. A 10-inch asbestos concrete (AC) transmission main crossing White Lake is also part of the original distribution system. The 10-inch AC transmission main was last pressure tested in 1998 and passed. All of the original distribution piping is currently 40+ years old, which is approximately the life expectancy of standard schedule 40 PVC pipe. In June 2014, a main break occurred on a part of the original piping on Golden Finch Drive. This is the first and only documented main break within the old distribution piping. A current meter pit replacement pilot test study recommended and approved by the PUCN (currently undergoing) has documented that several of the service lateral connected to the old Schedule 40 PVC distribution piping and meter pits are leaking.

The post 1970's distribution system is primarily constructed of 4, 6, 8, and 10-inch PVC C-900 pipe throughout the system. There is a 14-inch PVC C-900 transmission main that feeds the majority of the Woodland Village Subdivision that runs from the Pressure Zone 4 storage tank. While staff has worked on numerous lateral leaks off the distribution system, documented transmission main leaks are very rare. GBWC-CSD has developed a GIS database system for their linear assets and collecting GPS data points of vertical assets. Ideally, with the implementation of GIS an in-depth condition assessment of the distribution system can be completed before then next IRP document.

2.2.1.2 Pressure Zone Existing Condition Assessment

The GBWC-CSD water system has four distinct pressure zones. They include Pressure Zones 1, 2, 3, and 4. Each pressure zone contains its own storage tank, which are also numerically associated with each pressure zone. Pressure Zone 1 is located on the west side of the Highway 395 and northwest of White Lake and is fed by Wells 6 and 7. Pressure Zone 2 is located on the northeast side of White Lake, adjacent to Pressure Zone 1, and is fed by the Van Dyke Well and Well 2 (which is currently offline due to structural issues as discussed in Section 2.2.2.1). Pressure Zone 3 is on the far northeastern portion of the service territory and is the only zone without a supply well. Pressure Zone 3 receives water from booster stations located in Pressure Zones 2 and 4. Pressure Zone 4 is located on the northern most portion of the service territory and has historically been fed by Well 8 (Sweger Well). Due to the ongoing development in Zone 4, Well 1 was redirected to feed Pressure Zone 4 via a 10-inch distribution main within Sandpiper Drive. The Maximum Day Demand (MDD) pressures in each zone are located in Table 2.04. Based on the available modeling results, the pressure zones all meet minimum and maximum allowable delivery pressures as per Nevada Administrative Code NAC 445A.6711(1b).

Table 2.04: GBWC-CSD Pressure Zones

Pressure Zones	Supply	Hydraulic Grade Lines*	Hydraulic Model MDD Pressures (PSI)
1	Wells 6 & 7 to Tank 1	5,323	49 to ~121 psi
2	Well 2 (offline) and Van Dyke Well to Tank 2	5,191	40 to ~63 psi
3	Tank 4 Booster Station and Pressure Zone 2 Touraco Booster Station to Tank 3	5,321	51 to ~97 psi
4	Wells 1 and 8 (Sweger Well) to Tank 4	5,284	43 to ~96 psi

*Based on high water level in tanks

2.2.1.3 Pressure Reducing Valve Existing Condition Assessment

The four pressure zones are controlled by four pressure reducing valves (PRV), as summarized in Table 2.05. A fifth PRV vault exists adjacent to Well 1 that was originally designed to convey water from Pressure Zone 1 through the 10-inch main up Sandpiper Drive into Pressure Zone 4. Now that Well 1 feeds directly into Zone 4, this PRV is not currently in operation.

Table 2.05: GBWC-CSD Pressure Reducing Valves

PRV	Location	High pressure zone	High pressure (psi)	Low pressure zone	Low pressure (psi)	Notes
1	Cold Springs Dr./ Diamond Peak Dr.	1	120	2	60	
2	White Lake Pkwy./ Sandpiper Dr.	1	120	2	60	
3	Waxwing St.	3	102	2	42	
4	Puffin St.	4	90	2	45	
5	Adjacent to Well 1	1	-	4	-	Closed

All the CLA-VAL valves in the PRV vaults were last serviced in July of 2019. The PRV's continue to operate as intended, with the only operational concern being that water infiltrates into the PRV vault adjacent to Well 1 due to the location of these vaults near White Lake. Appendix D contains the locations of the PRV's. Photos of the PRV systems have been provided in Appendix E. The fixed asset management registry, with the remaining useful life for the PRV's, is located in Appendix A.

2.2.2 Water Supply

The water that supplies GBWC-CSD system is produced from five wells (Wells 1, 6, 7, 8, and Van Dyke). Wells 6 and 7 are located in Pressure Zone 1; Van Dyke Well is located in Pressure Zone 2; and Wells 1 and 8 feed Pressure Zone 4. Appendix D contains a map showing the location of the wells.

Table 2.06: GBWC-CSD Wells and Capacities

Well	Year Drilled	Pressure Zone	Depth (ft)	Casing Dia (in.)	Capacity (gpm)	Backup Power
Well 1	2000	4	400	14	550	Yes
Well 2*	1971	2	242	10	N/A	No
Well 6	1979	1	605	16/14	350	Yes
Well 7	1981	1	663	14	330	Yes
Well 8	1974	4	350	16	1,050	Yes
Van Dyke	2016	2	426	18	1,080	Yes
Total Production					**3,360**	

* Well 2 is currently offline and will likely not be put back into service

2.2.2.1 Water Supply Well Existing Conditions Assessment

Well 1

Well 1, originally drilled in 2000, was constructed with nominal 14-inch diameter steel casing to a depth of 400 feet below ground level (bgl). The screen intervals consist of wire wrap screen from 145'-225'; 240'-280'; 290'-335'; 345'-365'; and 380'-390' bgl. The original static water level after completion was 7.8 feet bgl. Currently, the static water level in the well is 14 feet bgl. The well is equipped with a Goulds 7THC 4-stage submersible turbine pump with a 75 HP Hitachi submersible motor. The well site has been equipped with a 125 kW backup generator in case of power outage. A video log of the well was not available for review, but the standard nominal useful life of a well with good quality construction is roughly 40 (±5) years. Currently, this well is 20 years old.

Well 2

Well 2, originally drilled in 1971, was constructed with nominal 10-inch diameter steel casing to a depth of 242 feet bgl. The screen intervals consist of mill slots from 30-242 feet bgl. The original static water level was 45 feet bgl. Historically, the well has been a low producer, but helped to supply water to a specific area in Pressure Zone 2. The well has not been used for several years due to issues with the pumping water level reaching the pump intake after only 30 minutes of operation and Washoe County Health District preventing the well from being placed into service due to the high density of domestic septic systems near the well. Currently, the well is 49 years old. While it continues to be used as an observation well, for all sense of purpose, this well has reached the end of its useful life and is not expected to be placed back in service.

Well 6

Well 6, originally drilled in 1979, was constructed with nominal 16-inch diameter steel casing to a depth of 315 feet bgl and nominal 14-inch steel casing from a depth 315 feet to 605 feet bgl. The well has multiple screen intervals of wire wrap screen located at 135'-150'; 170'-195'; 205'-240'; 250'-270'; 315'-405'; 455'-470'; 510'-535'; 550'-565'; and 585-600' bgl. The original static water level was 79 feet bgl. Previously, complaints of air entrainment from customers were reported when this well was operating. In 2018 a well rehabilitation was initiated which revealed that the well casing was in very poor condition. The screen intervals were heavily plugged and the static water level in the well was 140 feet bgl, which had exposed the upper portion of screen, resulting in cascading water that was likely the cause of air entrainment issues. The rehabilitation, which involved a shock chlorination/swabbing pretreatment, installation of a 10" liner, acid main cleaning treatment, redevelopment, pump testing, and design of a new pumping system (Goulds 8RJLC 5 stage submersible pump and 60 Hp submersible motor). Complaints of air entrainment have subsided since the rehabilitation. The well site has been equipped with a 100 kW backup generator in case of power outage. A sanitary survey conducted by Washoe County Health District (WCHD) in June 2020 identified significant deficiencies with the well house due to deterioration, meaning the well house is not providing adequate or sanitary protection of the wellhead. The nominal useful life of a well with good quality construction is roughly 40 (±5) years. Currently, this well is 41 years old, but should be re-assessed under a new condition assessment due to the installation of the new liner to determine its revised remaining useful life based on structural integrity.

Well 7

Well 7, originally drilled in 1981, was constructed with nominal 14-inch diameter steel casing to a depth of 663 feet bgl. The screen intervals consist of factory mill slot from 143-643 feet bgl. The original static water level was 88 feet bgl; however, the static water level is now at 183 feet bgl, which is exposing the top 40 feet of the screen. The well is equipped with a Goulds model 7CLC 5 stage pump and 75 HP Franklin submersible motor. The well site has been equipped with a 150 kW backup generator in case of power outage. In 2018, the well underwent a rehabilitation, revealing several holes in the casing above the static water level (147.6 feet) and heavily plugged mill slot perforations, which had exposed the upper portion of screen, resulting in cascading water that was likely the cause of air entrainment issues. The rehabilitation involved a shock chlorination/swabbing pretreatment, installation of a high quality stainless steel 10" liner, two separate acid main cleaning treatment, redevelopment, pump testing, and design of a new pumping system, installation of a VFD, and numerous well site improvements and electrical upgrades. A sanitary survey conducted by Washoe County Health District (WCHD) in June 2020 identified significant deficiencies with the well house due to deterioration, meaning the well house is not providing adequate or sanitary protection of the wellhead. The nominal useful life of a well with good quality construction is roughly 40 (±5) years. Currently, this well is 39 years old, though the liner will extend the life of this well.

Well 8

Well 8, originally drilled in 1974, was constructed with nominal 16-inch diameter steel casing to a depth of 350 feet bgl. The screen interval consists of mill slot perforations from 100-350 feet bgl. The original static water level was 54 feet bgl; however, the static water level now is 68 feet bgl. In 2006, GBWC contracted a company to install a 12-inch liner in the well due to gaping holes in the screen interval. The well drilling contractor failed to submit a Well Driller's Report for the modification made to Well 8, but based on a proposal estimate provided by the contractor, the following work was completed: The new well liner consisted of 110 feet of 12-inch steel casing (0-110 feet bgl) welded to 240 feet of 12-inch stainless steel wire wrap screen (110-350 feet bgl). 8 x 16 gravel pack was placed between the old casing and the new liner annulus. No documentation was provided regarding a transition coupling between the low carbon steel blank casing and the stainless steel screen liner. In 2018 a well rehabilitation was completed, which involved a shock chlorination/swabbing pretreatment, installation of a 10" liner, acid main cleaning treatment, redevelopment, pump testing, and design of a new pumping system (10DHHC, 10 Stage water lube submersible pump) on the existing 150 HP General Electric hollow shaft turbine motor. The well site has been equipped with a 200 kW backup generator in case of power outage. No recent video survey has been conducted since the installation of the liner. The well was rehabilitated in 2018. The nominal useful life of a well with good quality construction is roughly 40 (±5) years. Currently, this well is 46 years old but should be re-assessed under a new condition assessment due to the installation of the new liner to determine its revised remaining useful life based on structural integrity.

Van Dyke Well

The Van Dyke Well, originally drilled in 2016, was constructed with nominal 18-inch diameter stainless steel casing to a depth of 426 feet bgl. The screen intervals consist of stainless steel

louvered screen from 155'-215'; 235'-305'; and 325'-415' bgl. The static water level at the time of drilling was 25 feet bgl, and the current static water level has risen to 20 bgl. The well is equipped with a Flowserve 12EML, 6-stage vertical turbine pump with a 100 HP hollow shaft turbine electric motor and backup power. The nominal useful life of a well with good quality construction is roughly 40 (±5) years. Currently, this well is four years old.

2.2.3 Storage

There are four water tanks used for water storage in the Cold Springs service area as listed in Table 2.07. Each tank services the corresponding pressure zone (i.e. Tank 1 serves Pressure Zone 1).

Table 2.07: GBWC-CSD Water Storage Tanks

Tank	Volume (MG)	Diameter (ft.)	Height (ft.)	Base Elevation (ft.)
1	0.42	55	24	5,300
2	0.42	55	24	5,150
3	0.42	55	24	5,300
4	1.20	80	32	5,250
Total	**2.46**			

2.2.3.1 Storage Tank Existing Conditions Assessment

Tank 1

Storage Tank 1 is a nominal 420,000 gallon bolted steel storage tank constructed in 1999. The tank was last inspected in 2019 and was given a condition assessment of good for all exterior and interior categories. A visual external field inspection was conducted in August 2020. The tank was observed to have minor to moderate seepage at the base of the tank. This tank is equipped with cathodic protection. Appendix F contains a copy of the most recent Tank 1 inspection report. The remaining useful life is based on a storage tank's nominal life expectancy of 45 years. The tank is estimated to have 24 years of nominal useful life. Photos taken during the field inspection can be found in Appendix E.

Tank 2

Storage Tank 2 is a nominal 420,000 gallon bolted steel storage tank constructed in 1975 at its current location. Prior to this location, the tank was previously owned and moved to the current location. No identification plate is found on the tank. The actual age of the tank is unknown, but it has been at its current location for 45 years. The tank was last inspected in 2019. The majority of the internal portion of the tank received a fair to poor assessment due to heavy amounts of corrosion on the interior walls and floor. The exterior condition assessment of the tank was found to be good. The tank is equipped with cathodic protection. Appendix F contains a copy of the most recent Tank 2 inspection report. A hole was patched in the tank in May 2017. A visual external field inspection was conducted in August 2020. Just outside the security fencing below the tank is an area of soil erosion. The area appears to be eroding away due to off road

motorcycles using the dirt bank as a ramp. Concrete is exposed on one side of a fence post next to the eroded bank. The site is monitored weekly to identify any changes in the fencing or soil conditions during operate drive byes. At its current location and based on a nominal life expectancy of 45 years, this tank is estimated to be at the end of its useful life. Photos taken during the field inspection can be found in Appendix E.

Tank 3

Storage Tank 3 is a nominal 420,000 gallon welded steel storage tank, constructed in 1993. The tank was last inspected in 2019 and was given a good to fair condition assessment for most interior and exterior categories. The wall was given a fair to poor condition due to heavy de-lamination. The water level indication was found in poor condition. A visual external field inspection was conducted in August 2020. The tank is equipped with a cathodic protection system. Recommendations in the report include installing a gasket on the access hatch, replacing the exterior level indicator, and blast and recoat the interior roof. Appendix F contains a copy of the most recent Tank 3 inspection report. The nominal useful life is based on a storage tank's nominal life expectancy of 45 years. The tank is estimated to have 18 years of nominal useful life. Photos taken during the field inspection can be found in Appendix E.

Tank 4

Storage Tank 4 is a nominal 1,200,000 gallon welded steel storage tank, constructed in 2001. The tank was last inspected in 2019. A visual external field inspection was conducted in August 2020. Although the tank was found to be in good to fair condition for most interior and exterior categories, the exterior water gauge was not operational and there is evidence of non-operators climbing the exterior ladder. This is a continuing safety and security issue for all of the GBWC-CSD critical sites. GBWC-CSD is currently conducting a security audit, which will be considering the options of installing different types of security, or monitoring cameras at all tank locations and other critical sites. GBWC-CSD is currently in the process of receiving quotes from Resource Development Company (tank building and repair company) to repair any exterior water gauges and OSHA approved harness attachment systems for all tank ladders. Appendix F contains a copy of the most recent Tank 4 inspection report. The tank is equipped with a cathodic protection system. The remaining useful life is based on a storage tank's nominal life expectancy of 45 years. The tank is estimated to have 26 years of nominal useful life remaining. Photos taken during the field inspection can be found in Appendix E.

2.2.4 Booster Pumps

Water is pumped through two booster pump stations into Pressure Zone 3 for water service. The booster pumping stations are located in Pressure Zone 4 adjacent to Tank 4 and in a vault on Touraco Street (known as the Touraco Booster Station) in Pressure Zone 2. The Tank 4 Booster Station contains one pump and the Touraco Booster Station Vault contains two pumps. A second (redundant pump) has been added to the Tank 4 Booster Station, but has not been hooked up to electrical or SCADA as of this report. The Tank 4 Booster Station has been equipped with a 50 kW backup generator in case of power outage. The Touraco Booster Station is not equipped with backup power.

2.2.4.1 Pump and Motor Existing Condition Assessment

Touraco Booster Station
The Touraco Booster Station has two Gould's model 3756 pumps with a 10 HP 3540 RPM electric motor. The pumps have a pumping capacity of 125 gallons per minute (175' TDH) and are assembled in a parallel configuration. One pump has recently been refurbished and is in good condition. When both pumps are operating simultaneously, the station has a 250 GPM capacity. According to the asset registry, these booster pumps should have approximately 2 years of nominal remaining life. This booster pumping station is considered to be a secondary pumping system to convey water to Pressure Zone 3. The booster station is located in a vault adjacent to a residential property with a large grassed front lawn. The booster station vault often is flooded and requires dewatering. The pumps are located very close to the floor of the vault, resulting in frequent issues with water damage to the pumps and motors. The operators have installed a sump pump to help mitigate the flooding issue but periodically the sump pump fails. There is a safety hazard with the need to enter the vault periodically for maintenance and the electrical motor and panels located inside the vault. GBWC-CSD has addressed this issue by cutting the power to the all the pumps and motors located in the vault before allowing any contractors or personnel to enter the vault for maintenance. All work still requires two operators to be present because of the confined space requirement.

Tank 4 Booster Station (Booster 4)
The Tank 4 Booster Station was placed in service in 2001 as part of a Tank 4 project and has one Paterson vertical in-line pump with a 7.5 HP 1750 RPM Marathon Electric motor with a second redundant pump/motor recently installed, but not hooked up to electrical or SCADA as of the timing of this report. Both the electrical and SCADA should be finalized by the 1st quarter of 2021.The booster station is equipped with a 50 kW backup generator. The pumping capacity is 350 gallons per minute (50' TDH). This pumping station is the primary pumping system for conveying water into Tank 3. The booster pumping station appears to be in good condition. According to the asset registry, the booster pump is currently 19 years old.

2.2.5 Backup Power Supply

Backup power supply is provided in the event that a power outage occurs and allows GBWC-CSD to continue to provide water services during emergency situations or shut downs. Wells 1, 6, 7, 8, and Van Dyke, as well as the Tank 4 Booster Station, have backup generators and automatic transfer switches to ensure instantaneous power to the motors when a power outage occurs.

2.2.6 System Operation and Control

The wells and the booster pumping stations are controlled by a Supervisory Control and Data Acquisition (SCADA) by monitoring the water levels in the storage tanks. When a water level drops to a preset level (see below), the pumps turn on and begin filling the tanks. The SCADA system was upgraded in 2018 to a high-speed Ethernet radio system, consistent with a similar system installed in the GBWC-SSD system. All the existing monitoring equipment uses FM radio frequency to communicate with the receiving equipment located in Well House 8. The entire SCADA system is accessible through the operator's laptops and cell phones through the internet.

Pressure Zone 1 (Tank 1 Operations)
The lower level in Storage Tank 1 triggers Well 6 to start when the water level is at 17 feet. If Well 6 is unable to keep up with demand, Well 7 will start when the water level is at 21 feet. When Tank 1 is filled, wells are told to shut off at 20.8 feet (Well 7) and 21.0 feet (Well 6).

Pressure Zone 2 (Tank 2 Operations)
The lower level in Storage Tank 2 triggers the Van Dyke Well to start when the water level is at 16.0 feet. If the Van Dyke Well is unable to keep up with demand, the Cold Springs Drive PRV and the Puffin Street PRV will open to convey water from Pressure Zones 1 and 4 to maintain pressure. When Tank 2 is filled (18.5 feet), the PRV's will close and the Van Dyke Well is told to shut off.

Pressure Zone 3 (Tank 3 Operations)
The lower level in Storage Tank 3 triggers Tank 4 Booster Station to start when the water level is at 17.0 feet. If Tank 4 Booster Station is unable to keep up with demand, the Touraco Booster Pump 1 will then start-up at a level of 16.0 feet. If both boosters are unable to keep up with demand, then Touraco Booster Pump 2 will be manually started at 16.0 feet. When Tank 3 is filled (19.5 feet), all the booster pumps will shut off.

Pressure Zone 4 (Tank 4 Operations)
The lower level in Storage Tank 4 triggers Well 8 to start when the water level is at 24.0 feet. If Well 8 is unable to keep up with demand, Well 1 will start when the water level is at 21 feet. When Tank 4 is filled (29.0 feet), Well 1 and/or Well 8 are told to shut off.

2.2.6.1 SCADA Existing Conditions Assessment

The GBWC-CSD SCADA system was installed in 1999 with limited upgrades made in 2006 and 2013, and extensive upgrades made in 2018 to convert from a hybrid analog/digital system to a fully digital system. The current SCADA system monitors the following aspects: storage tank level with trends over time; well pump start/stop status; well pump run times; static and pumping water levels; booster pump start/stop status; and run times for booster pump motors. In addition, the SCADA system monitors "Out of Parameter" conditions and will trigger an alarm call-out to the on-call cell phone. The "Out of Parameter" conditions include high tank levels, low tank levels, well pump/motor failure, and electrical power failure. Most of the monitoring equipment uses FM analog radio frequency to communicate with the receiving equipment located in Well House 8. The entire SCADA system is supported by Sierra Controls and is accessible through the operator's laptops, cell phones, and tablets through an internet connection.

2.3 Failure Mode and Effective Analysis

The Failure Mode and Effects Analysis (FMEA) workshop was conducted in 2015 with the GBWC-CSD Staff on specific assets and subsystems of the water utility for vulnerabilities. The subsystems assessment included the water supply, storage tanks, booster systems, PRV systems and extended power outages throughout the utility. A "Failure Mode" is the way(s) or "mode(s)" in which a component might fail. The "Effects Analysis" is the study of the consequences of those failures. The workshop focused on getting the core team (GBWC-CSD Staff) to assess the major

assets and subsystems within the utility to analyze the consequences if failures occur. The purpose of the FMEA exercise is to take action to eliminate or reduce failures, starting with the highest-priorities. A FMEA also documents current knowledge and actions about the risks of failures for use in continuous improvement.

During the workshop, GBWC-CSD Staff evaluated potential weak links within subsystems and major assets, which could have serious effects on their targeted "Level of Service". Each failure mode has a numerical value for the severity, occurrence, and detection scaled between 1 and 10. The numbers are then multiplied together to come up with a risk priority number (RPN) to determine the priority of each failure mode. Once the RPN's are determined, the next step is to generate recommended actions for reducing the RPN. Some of the recommended actions for the subsystems include:

- Wells: Locating future well sites and documenting well interference and declining water levels.
- Storage Tanks: Inspections every 5 years, cathodic protection to extend useful life.
- PRV Vaults: Inspections every 2 years.
- Booster Stations: Backup generator in the event of an extended power outage.

Since this time, GBWC-CSD has transition away from the FMEA process and into their new Lucity Operation Maintenance Support (OMS) Software system. This digital asset management program tracks an asset over the entire lifecycle. This software can assess how an asset performed during its useful life and better determine an asset's longevity (useful life) in the future. Asset management is a continuous process, which evolves over time.

SECTION 3.0 HISTORICAL DATA AND FORECASTING

3.1 Planning Period

The planning period for the 2021 GBWC Consolidated IRP is from 2022 to 2041 with an emphasis on the most recent full three years of data compilation from 2017, 2018, and 2019. Demand projections and buildout estimates will extend to 2041. The existing GBWC-CSD Service Territory currently contains 4,048 permitted residential lots. As of 2019, GBWC-CSD has installed meters on 3,655 of the residential lots, leaving 415 lots still available for development. This equates to the existing service territory permitted residential lots currently at 90% of buildout.

3.2 Population Projections

Over the past decade, new developed lots, with meter installations, in the GBWC-CSD Service Territory have fluctuated from a high of 137 to a low of 0 per year. This large fluctuation is believed to be due to the end of the housing boom in the mid 2000's, followed by the "Great Recession" in 2008, and then the steady increase in development since 2014. Currently, the GBWC-CSD Service Territory has several partially completed residential subdivisions. These subdivisions include Reno Park by H & N Properties, Woodland Village by Lifestyle Homes, LLC, and the, soon to be, annexation of two new multi-family developments called Village Parkway and Cold Springs, by Lifestyle Homes, LLC.

The *Nevada County Population Projections 2019– 2038* dated October 1, 2019, prepared by the Nevada State Demographer's Office was the most current data available at the time and used to develop the future population and connection projections in the GBWC-CSD Service Area. Two sets of population projections were developed by the State Demographer Office for this time period. One population projection was developed based on additional factors including the Tesla Gigafactory Project and price of housing increases among other factors. The second population projection does not take these factors into consideration and is considered a more baseline projection model. The future population and connection projections for the GBWC-CSD used the population projection model with the additional factors including the Tesla Gigafactory Project and housing price increases. The U.S. Census Bureau American Factfinder was also evaluated to provide past and current population information for the Cold Springs Census Designated Place (CDP). The GBWC-CSD Service Area is contained within the Cold Springs CDP.

The 2019 to 2038 report shows a 2019 population for Washoe County of 469,963 people and an increase to 563,434 by the year 2038. The most recent Cold Springs CDP (2018) reported a population in the Cold Springs area of 9,168 and an occupancy density of 2.87 people per household. Table 3.01 is a projection in population growth and service connections for the 20-year planning period. Projections have been calculated and are based on the Nevada Demographer's Information.

Table 3.01: Population and GBWC-CSD Service Connection Projections

Year	Washoe County Population[1]	% Change[1]	Cold Springs Population[2]	Additional GBWC-CSD Connections	Total Service Connections[3]
2017	453,362	-	9,184	-	3,517
2018	460,237	-	9,168	73	3,590
2019	469,963	2.10%	9,361	43	3,633
2020	479,336	2.00%	9,548	59	3,692
2021	488,344	1.90%	9,729	70	3,762
2022	496,955	1.80%	9,904	68	3,830
2023	504,992	1.60%	10,063	61	3,891
2024	512,264	1.40%	10,204	54	3,946
2025	518,651	1.20%	10,326	47	3,993
2026	524,466	1.10%	10,440	44	4,037
2027	529,810	1.00%	10,544	40	4,077
2028	534,585	0.90%	10,639	37	4,114
2029	538,911	0.80%	10,724	33	4,147
2030	542,877	0.70%	10,799	29	4,176
2031	546,509	0.70%	10,875	29	4,205
2032	549,838	0.60%	10,940	25	4,230
2033	552,861	0.50%	10,995	21	4,252
2034	555,585	0.50%	11,050	21	4,273
2035	558,001	0.40%	11,094	17	4,290
2036	560,085	0.40%	11,138	17	4,307
2037	561,897	0.30%	11,172	13	4,320
2038	563,434	0.30%	11,205	13	4,333
2039	565,124	0.30%	11,239	13	4,346
2040	566,820	0.30%	11,272	13	4,359
2041	568,520	0.30%	11,306	13	4,372

(1) Washoe County populations for 2017-2019 are based on U.S Census Bureau data. Washoe County population projections for 2019-2038 are estimated using the % change based on *Nevada County Population Projections 2019 to 2038* dated October 1, 2019, prepared by the Nevada State Demographer's Office. The projection for 2020 to 2039 was not available at the time of this report was being developed, due to COVID-19 related delays. The % change from 2038 was extended through 2039-2041 to estimate populations through the planning period.

(2) The 2017-2018 Cold Springs populations were are based on U.S Census Bureau data. Population projections from 2019 to 2038 were estimated using % change for Washoe County per Nevada State Demographer's Office. The % change from 2038 was extended through 2039 and 2041 to estimate populations through the planning period.

(3) Total existing service connections for 2017-2020 is based on GBWC meter counts and includes commercial. Total existing service connections for 2021-2038 is based on the Nevada State Demographer's Office County % change. The % change from 2038 was extended through 2039- 2041 to estimate service connections through the planning period.

3.2.1 Future Development

The GBWC-CSD Service Territory is surrounded by several future developments, which are in various stages of preliminary and final approval for Plan Unit Developments. Several may have the possibility of being annexed into the GBWC-CSD Service Territory. While several developers would like to have water services provided by GBWC-CSD, the challenging issue is the availability of water rights in the Cold Springs and Long Valley Basins for dedication. What follows are brief

descriptions of all the known developments that are located near the GBWC-CSD's Service Territory (Figure 3.01).

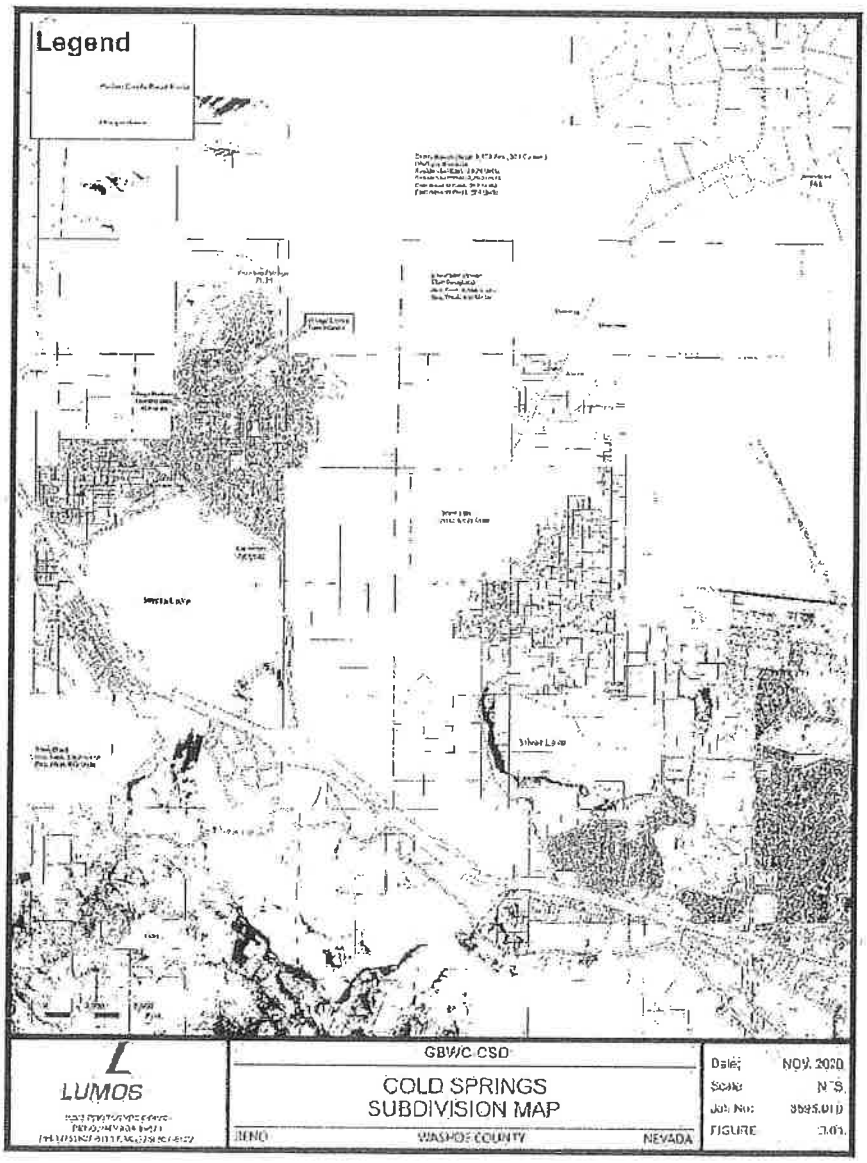

Figure 3.01: Cold Springs Proposed Subdivisions

3.2.1.1 StoneGate

The StoneGate (formally Heinz Ranch) Project owned by Heinz Ranch Land Company, LLC consists of approximately 1,400 acres of undeveloped land that has been approved for a mixed-use "Planned Unit Development" with close to 5000 single and multi-family units and a town center, schools, and parks located south of the existing GBWC-CSD Service Territory. The Developer has negotiated with Truckee Meadows Water Authority (TMWA) to extend a water line approximately 6 miles east along Highway 395 to the development site, and will directly be serviced by TMWA. An interconnect with this new service territory and GBWC-CSD may be possible. The project is in the preliminary development stages and is projecting that construction of homes will start in late 2021 or early 2022. This is considered a very aggressive timeline.

3.2.1.2 Train Crest

The Train Crest Project is west and adjacent to the StoneGate Project. It is owned by Lifestyle Homes, LLC and consists of approximately 480 acres of undeveloped land that is being proposed for a residential "Planned Unit Development" with up to 1,400 residential units. The timing for this development will be dependent on the StoneGate Project schedule. No decision has been made on who will serve this future development.

3.2.1.3 Village Center

The Village Center Townhouses project is in the center of Woodland Village. It is owned by Lifestyle Homes, LLC and consists of undeveloped land that is being proposed for a residential multifamily development with up to 111 residential units. This unit is currently annexed into the GBWC-CSD water system. The timing for this development is assumed to occur in one phase and is believed to begin in 2021.

3.2.1.4 Village Parkway

The Village Parkway Townhouses project is west and southwest of Woodland Village. It is owned by Lifestyle Homes, LLC and consists of approximately 125 acres of undeveloped land that is being proposed for a residential multifamily development with up to 428 residential units. Preliminary design reports, plan review, hydraulic modeling, and hydrology reports are currently underway as well as the annexation of this development into the GBWC-CSD water system service territory. The timing for this development is assumed to occur in phases over several years, starting in 2021 with the annexation.

3.2.1.5 Cold Springs Townhouses

The Cold Springs Townhouses project is on the northwest side of White Lake. It is owned by Lifestyle Homes, LLC and consists of undeveloped land that is being proposed for a residential multifamily development with up to 126 residential units. This area is currently being annexed into the GBWC-CSD water system service territory. The timing for this development is assumed to occur in one phase and is believed to start once Village Parkway Development is completed. The annexation of the development may occur at the same time as Village Parkway Project.

3.2.1.6 Lakefront

The property comprising of the contemplated Lakefront Project, owned by Lifestyle Homes, is in preliminary design phase. The scenario under discussion would consist of as many as 720 residential units. While the Lakefront Project is located within the GBWC-CSD Service Territory, and thus will not require annexation, no water rights or infrastructure have been dedicated to GBWC-CSD, and it remains to be determined if the developer has or will be able to obtain sufficient water rights for dedication, or a reliable source of water. In that regard, the projected timing is dependent on StoneGate and Traintown because of the water issues. This project could also be proposed as office/light industrial, which could cut the water dedication requirements by as much as one half making it more viable. Because the property is within GBWC-CSD's Service Territory, the water system projections above 4,048 assume the inclusion of the Lakefront Project. However, it should be noted that before this project could proceed, the developer would be responsible for the dedication of water rights and infrastructure.

3.2.1.7 Evans Ranch

The Evans Ranch Project owned by Wallach and Lifestyle Homes, is an approved 7,200 residential "Planned Unit Development" located northeast of the GBWC-CSD Service Territory. Construction of homes is estimated to start as early as 2022. Once again, if this project is to be serviced by GBWC-CSD water system, the developer will need to obtain water rights and dedicate them along with infrastructure. The developer of this project will be responsible for dedication of water rights.

3.2.1.8 Silver Star

The Silver Star Project, owned by Dan Douglass, is an approved 1,600 residential home "Planned Unit Development" located south and adjacent to the Evans Ranch Project. Similarly to the Evans Ranch Project, the construction of homes is estimated to start at the earliest around the same time as the Evans Ranch Project in 2022. The developer of this project will be responsible for dedication of water rights.

3.2.1.9 Silver Hills

The Silver Hills Project, owned by Lifestyle Homes, is an approved 680 residential home "Planned Unit Development" located east of the GBWC-CSD Service Territory completely within Lemon Valley. Since the development is located on the east side of the Granite Hills and closer to TMWA service area, it is more likely that TMWA will be the water purveyor for the Silver Hills Project.

3.3 Water System Forecasting

3.3.1 Water System Connections Projections

With the exception of the Lakefront Project, the GBWC-CSD Service Territory is completely subdivided. Minor changes in the proposed total number of residential units may occur, but not to the extent that it will have a significant effect on projected customer counts. Therefore, unless additional developments are annexed into the service territory, all future development appears

to be infill, with the potential exception of the Village Park and Cold Springs Townhouse developments. The limiting factor for annexing future developments will be water right dedications in the Cold Springs and Long Valley Basins, and regulatory approvals from the City of Reno and Washoe County. Table 3.02 shows the historical connection increase for GBWC-CSD for 2017-2019 as well as the projections from 2020 to 2041.

GBWC-CSD has been filing IRPs for several years, and hereby incorporates relevant historical system data contained in those IRPs in addition to the data provided in this filing.

Table 3.02: Growth Projections

Year	Total Connections
2017	3,517
2018	3,590
2019	3,633
2020	3,692
2021	3,762
2022	3,830
2023	3,891
2024	3,946
2025	3,993
2026	4,037
2027	4,077
2028	4,114
2029	4,147
2030	4,176
2031	4,205
2032	4,230
2033	4,252
2034	4,273
2035	4,290
2036	4,307
2037	4,320
2038	4,333
2039	4,346
2040	4,359
2041	4,372

(1) Connections above 4,048 are based on Village Park, Cold Springs annexations and Lakefront Project
(2) Projections from 2021 – 2038 based on Nevada Demographer's Information
(3) Projections from 2039 – 2041 are based on Nevada Demographer's Information extended through that period

3.3.2 Water Usage

3.3.2.1 Recorded Water Production

Table 3.03 summarizes historical water production for the 5 wells for the years 2010 to 2019 based on monthly production reports. The well production data has been broken out into the

pressure zones and associated wells supplying each zone. Since Pressure Zones 3 and 4 are heavily tied together through Well 8 and 1 water production, they were tied together in the analysis. With the Van Dyke Well being brought online in 2017 and Well 1 directed into Pressure Zone 4 around the same time, Table 3.03 reflects these production wells pumping into the their associated pressure zones prior to and after 2017. The table shows that prior to the Van Dyke Well being brought online, almost half of the yearly water production was provided by Well 8. Since then, yearly water production has been more evenly spread amongst the wells and their respective pressure zones.

Table 3.03: Historical Water Production for GBWC-CSD by Pressure Zones and Wells

Year	Pressure Zone 1				Pressure Zones 3 & 4			
	Well 6		Well 7		Well 8		Well 1 [1]	
	MG/Y	MG/D	MG/Y	MG/D	MG/Y	MG/D	MG/Y	MG/D
2010	74.66	0.2	20.76	0.06	205.08	0.56	-	-
2011	81.34	0.22	7.22	0.02	192.58	0.53	-	-
2012	72.83	0.2	32.11	0.09	240.84	0.66	-	-
2013	71.48	0.2	20.86	0.06	205.82	0.56	-	-
2014	71.03	0.19	22.29	0.06	221.31	0.61	-	-
2015	61.68	0.17	25.51	0.07	193.5	0.53	-	-
2016	48.45	0.13	46.33	0.13	210.57	0.58	-	-
2017	52.85	0.14	39.65	0.11	200.12	0.55	22.66	0.06
2018	67.25	0.18	35.66	0.10	94.03	0.26	159.30	0.44
2019	63.41	0.17	33.21	0.09	108.81	0.30	135.73	0.37

Year	Pressure Zone 2						TOTAL	
	Well 1 [1]		Well 2		VanDyke Well [2]		MG/Y	MG/D
	MG/Y	MG/D	MG/Y	MG/D	MG/Y	MG/D		
2010	125.93	0.35	13.56	0.04	-	-	**439.99**	**1.21**
2011	121.06	0.33	11.22	0.03	-	-	**413.41**	**1.13**
2012	143.24	0.39	5.89	0.02	-	-	**494.91**	**1.36**
2013	126.68	0.35	6.40	0.02	-	-	**431.24**	**1.18**
2014	128.44	0.35	10.11	0.03	-	-	**453.18**	**1.24**
2015	121.81	0.33	1.02	0.00	-	-	**403.51**	**1.11**
2016	129.24	0.35	0.02	0.00	-	-	**434.59**	**1.19**
2017	-	-	0.00	0.00	112.61	0.31	**427.89**	**1.17**
2018	-	-	0.00	0.00	121.81	0.33	**478.05**	**1.31**
2019	-	-	0.00	0.00	116.35	0.32	**457.51**	**1.25**

[1] Well 1 was directed from Pressure Zone 2 to Pressure Zone 4 in 2017.
[2] VanDyke Well was brought online in 2017.

Total annual water production during the three-year analysis period (2017-2019) ranged from a low of 428 MG/Y in 2017 to a high of 478 MG/Y in 2018. This is an 11.7% increase (50 MG/Y

increase) in water production in one year. The water production in 2019 shows a decrease to 458 MG/Y.

In order to determine maximum daily demand (MDD), monthly consumption data was analyzed. Using the maximum month production, the average day of the maximum month (ADMM) was calculated. The ADMM calculation relates to the estimated MDD value. MDD was calculated by multiplying the ADMM by 1.25 (a standard of the American Water Works Association [AWWA]). The ratio of ADD to MDD is typically referred to as the Peaking Factor (PF). According to the AWWA criteria, the peaking factor typically ranges from 1.2 to 3.0. The three-year average PF derived from the data (2017 – 2019) equates to 2.46, which is within the typical range. Maximum months observed were generally July or August. A peaking factor was also applied to the MDD to calculate the system's peaking hourly demand (PHD), which was used in the hydraulic model system analysis. Table 3.04 show the ADD, ADMM, MDD, PF and PHD values for 2017-2019. Tables 3.04a - 3.04c show ADD, ADMM, MDD, PF, and PHD values for each of the pressure zones for 2017-2019. At the time data was collected by GBWC-CSD in 2010 to 2011, it was not delineated by pressure zone, so separated data is not available for these years.

Table 3.04: GBWC-CSD Historical Daily Production, Peaking Factors and MDD/PHD

									Peak Hour Demand (PHD)	
Year	ADD (MGD)	ADMM (MGD)	Max Month	AMDD/ ADD	MDD/ ADMM	MDD (MGD)	MDD/ ADD	PHD/ MDD	MGD	gpm
2010	1.21	2.35	July	1.94	1.25	2.93	2.42	1.75	5.13	3565
2011	1.13	2.40	August	2.12	1.25	3.00	2.66	1.75	5.25	3647
2012	1.36	2.39	July	1.76	1.25	2.99	2.20	1.75	5.23	3632
2013	1.18	2.24	July	1.90	1.25	2.80	2.37	1.75	4.90	3403
2014	1.24	2.23	July	1.80	1.25	2.79	2.25	1.75	4.88	3388
2015	1.11	1.94	August	1.75	1.25	2.43	2.18	1.75	4.24	2947
2016	1.19	2.42	August	2.03	1.25	3.03	2.54	1.75	5.29	3676
2017	1.17	2.25	July	1.92	1.25	2.82	2.40	1.75	4.93	3423
2018	1.31	2.56	August	1.95	1.25	3.20	2.44	1.75	5.59	3885
2019	1.25	2.55	July	2.04	1.25	3.19	2.55	1.75	5.58	3877
MDD/ADD Average for 2017, 2018 & 2019							**2.46**			

Table 3.04a: Pressure Zone 1 Historical Maximum Daily Production, Peaking Factors and Maximum Day Demand/PHD

									Peak Hour Demand (PHD)	
Year	ADD (MGD)	ADMM (MGD)	Max Month	AMDD/ ADD	MDD/ ADMM	MDD (MGD)	MDD/ ADD	PHD/ MDD	MGD	gpm
2010	0.26	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]
2011	0.24	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]
2012	0.29	0.52	July	1.79	1.25	0.65	2.24	1.75	1.14	792
2013	0.25	0.48	July	1.92	1.25	0.60	2.4	1.75	1.05	729
2014	0.26	0.47	July	1.81	1.25	0.59	2.26	1.75	1.03	714
2015	0.24	0.43	August	1.79	1.25	0.54	2.24	1.75	0.94	653
2016	0.26	0.54	August	2.08	1.25	0.68	2.6	1.75	1.18	820
2017	0.25	0.52	July	2.04	1.25	0.65	2.55	1.75	1.13	785
2018	0.28	0.55	August	1.96	1.25	0.69	2.45	1.75	1.21	841
2019	0.26	0.57	July	2.17	1.25	0.72	2.71	1.75	1.25	871
MDD/ADD Average for 2017, 2018 & 2019							**2.57**			

[1] Data collected in 2010-2011 was not separated by pressure zone.

Table 3.04b: Pressure Zone 2 Historical Maximum Daily Production, Peaking Factors and Maximum Day Demand/PHD

									Peak Hour Demand (PHD)	
Year	ADD (MGD)	ADMM (MGD)	Max Month	AMDD/ ADD	MDD/ ADMM	MDD (MGD)	MDD/ ADD	PHD/ MDD	MGD	gpm
2010	0.39	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]
2011	0.36	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]
2012	0.41	0.79	July	1.93	1.25	0.95	2.32	1.75	1.66	1153
2013	0.37	0.69	July	1.87	1.25	0.86	2.32	1.75	1.51	1049
2014	0.38	0.71	July	1.87	1.25	0.89	2.34	1.75	1.55	1079
2015	0.34	0.64	August	1.88	1.25	0.8	2.35	1.75	1.4	972
2016	0.35	0.88	August	2.51	1.25	1.1	3.14	1.75	1.93	1337
2017	0.31	0.65	July	2.09	1.25	0.81	2.62	1.75	1.41	981
2018	0.33	0.65	August	1.96	1.25	0.82	2.44	1.75	1.43	991
2019	0.32	0.53	July	1.66	1.25	0.66	2.08	1.75	1.16	805
MDD/ADD Average for 2017, 2018 & 2019							**2.38**			

[1] Data collected in 2010-2011 was not separated by pressure zone.

Table 3.04c: Pressure Zones 3 & 4 Historical Daily Production, Peaking Factors and Maximum Day Demand/PHD

									Peak Hour Demand (PHD)	
Year	ADD (MGD)	ADMM (MGD)	Max Month	AMDD/ ADD	MDD/ ADMM	MDD (MGD)	MDD /ADD	PHD/ MDD	MGD	gpm
2010	0.56	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]
2011	0.53	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]
2012	0.66	1.08	July	1.64	1.25	1.35	2.05	1.75	2.36	1639
2013	0.56	1.07	July	1.91	1.25	1.34	2.39	1.75	2.35	1632
2014	0.61	1.05	July	1.72	1.25	1.31	2.15	1.75	2.3	1595
2015	0.53	0.91	August	1.72	1.25	1.14	2.15	1.75	1.99	1382
2016	0.58	1.05	August	1.81	1.25	1.31	2.26	1.75	2.3	1595
2017	0.61	1.09	July	1.79	1.25	1.36	2.23	1.75	2.39	1657
2018	0.69	1.35	August	1.95	1.25	1.69	2.43	1.75	2.96	2053
2019	0.67	1.45	July	2.16	1.25	1.81	2.70	1.75	3.17	2201
MDD/ADD Average for 2017, 2018 & 2019							**2.46**			

[1] Data collected in 2010-2011 was not separated by pressure zone.

As previously stated, peak production months have historically occurred in July or August. The maximum daily flows are also related to the seasonal changes in the system. The maximum flows always occur in the summer months when the weather is warmest and outdoor water demands are at their peak. Based on a review of production data, the peak season can be defined as May-September. Winter production includes months outside of this time frame. The seasonal peaking factor is the peak season production divided by the winter production. Approximately 68% of water used during the year occurs during the peak season months as show in Table 3.05. Tables 3.05a – 3.05c are the historical seasonal average well production for each of the pressure zones. Pressure Zones 3 and 4 are included together. At the time data was collected by GBWC-CSD in 2010 to 2011, it was not delineated by pressure zone, so separated data is not available for these years.

Table 3.05: Total Historical Seasonal Average Well Production (MG)

Year	**Annual Production** (12 months total)	**Peak Seasonal Production** (May-September)	**Winter Production** (January-April & October-December)	**Seasonal Peaking Factor** (Seasonal Peak/Winter Production)	**Peak Month for System**	**Peak Month Production**	**Peaking Factor** (Peak Month/Average Annual Month)
2010	439.99	304.53	135.46	2.25	July	72.76	1.98
2011	413.41	284.76	128.65	2.21	August	74.42	2.16
2012	494.91	319.72	175.19	1.82	July	76.89	1.86

2013	431.24	290.38	140.86	2.06	July	69.55	1.94
2014	453.18	299.54	153.64	1.95	July	68.99	1.83
2015	403.51	260.15	143.36	1.81	August	60.02	1.78
2016	434.61	300.03	134.58	2.23	August	74.87	2.07
2017	427.89	296.12	131.78	2.25	July	69.86	1.96
2018	478.05	322.76	155.29	2.08	August	79.28	1.99
2019	457.51	308.84	148.66	2.08	July	79.12	2.08
[1] Data collected in 2010-2011 was not separated by pressure zone.							

Table 3.05a: Pressure Zone 1 Historical Seasonal Avg. Production (MG)

Year	Annual Production (12 months total)	Peak Seasonal Production (May-September)	Winter Production (January-April & October-December)	Seasonal Peaking Factor (Seasonal Peak/Winter Production)	Peak Month for System	Peak Month Production	Peaking Factor (Peak Month/Average Annual Month)
2010	95.42	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]
2011	88.56	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]
2012	104.94	75.01	29.93	2.51	July	18.92	2.16
2013	92.34	63.86	28.48	2.24	July	15.01	1.95
2014	93.32	64.63	28.69	2.25	July	14.66	1.89
2015	87.18	56.78	30.4	1.87	August	13.23	1.82
2016	94.78	67.01	27.77	2.41	August	16.84	2.13
2017	92.50	66.20	26.29	2.52	July	16.02	2.08
2018	102.91	70.06	32.85	2.13	August	17.15	2.00
2019	96.62	68.96	27.65	2.49	July	17.78	2.21
[1] Data collected in 2010-2011 was not separated by pressure zone.							

Table 3.05b: Pressure Zone 2 Historical Seasonal Average Well Production (MG)

Year	Annual Production (12 months total)	Peak Seasonal Production (May-September)	Winter Production (January-April & October-December)	Seasonal Peaking Factor (Seasonal Peak/Winter Production)	Peak Month for System	Peak Month Production	Peaking Factor (Peak Month/Average Annual Month)
2010	139.49	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]
2011	132.28	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]
2012	149.13	100.04	49.09	2.04	July	24.51	1.97
2013	133.08	86.51	46.57	1.86	July	21.33	1.92
2014	138.56	91.62	46.93	1.95	July	21.71	1.91
2015	122.83	79.99	42.84	1.87	August	19.81	1.94

2016	129.25	90.02	39.23	2.29	August	27.14	2.52
2017	112.62	78.94	41.32	1.91	July	20.03	2.13
2018	121.81	80.49	41.89	1.92	August	20.23	1.99
2019	116.35	74.46	41.89	1.78	July	16.42	1.69
[1] Data collected in 2010-2011 was not separated by pressure zone.							

Table 3.05c: Pressure Zones 3 & 4 Historical Seasonal Average Well Production (MG)

Year	Annual Production (12 months total)	Peak Seasonal Production (May-September)	Winter Production (January-April & October-December)	Seasonal Peaking Factor (Seasonal Peak/Winter Production)	Peak Month for System	Peak Month Production	Peaking Factor (Peak Month/Average Annual Month)
2010	205.08	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]
2011	192.58	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]
2012	240.84	144.67	96.17	1.5	July	33.46	1.67
2013	205.82	140.01	56.81	2.13	July	33.21	1.94
2014	221.31	143.29	78.02	1.84	July	32.62	1.77
2015	193.50	123.38	70.12	1.76	August	27.00	1.76
2016	210.57	143.00	67.57	2.12	August	30.89	1.86
2017	222.78	150.98	71.80	2.10	July	33.81	1.82
2018	253.33	172.21	81.12	2.12	August	41.89	1.98
2019	244.54	165.42	79.12	2.09	July	44.91	2.20
[1] Data collected in 2010-2011 was not separated by pressure zone.							

3.3.2.2 Recorded Consumption

Table 3.06 summarizes the historical water meter use data for the years 2010 to 2019. The total annual water use supplied by GBWC-CSD during this period ranged from 382 million gallons in 2015 to a high of 439 million gallons in 2018. The system experienced a large increase of 6.5% in one year from 2017 to 2018. The following year (2019) historical meter use decreased to 406 million gallons, which is an 8.1% decrease. The significant decrease in water usage in 2019 is likely due to a very late spring with significant precipitation.

Table 3.06: Summary of Historical Meter Water Use Data for 2010 - 2019

Year	Pressure Zone 1 (gal)	Pressure Zone 2 (gal)	Pressure Zones 3 & 4 (gal)	Total (gal)
2010	N/A[1]	N/A[1]	N/A[1]	416,355,160
2011	N/A[1]	N/A[1]	N/A[1]	387,168,146
2012	86,464,411	143,051,349	201,744,853	431,260,613
2013	82,254,247	128,755,720	197,468,130	408,478,097

2014	89,484,309	126,314,460	205,660,807	421,459,576
2015	82,806,370	108,546,814	191,486,027	382,839,211
2016	88,993,012	118,126,641	206,885,516	414,005,169
2017	88,817,644	113,073,822	209,110,280	411,001,746
2018	94,598,978	115,588,590	229,243,456	439,431,024
2019	88,172,669	106,149,767	212,156,348	406,478,784
Avg. AFA (2017-2019)	**277.83 AFA**	**342.50 AFA**	**665.45 AFA**	**1285.77 AFA**
[1] Data collected in 2010-2011 was not separated by pressure zone.				

The metered data can be broken down further to show the historical metered water use by class of service. Tables 3.06a - 3.06c presents the metered data, by class of service with pressure zones for GBWC-CSD. The commercial class was divided into actual commercial use and public use (i.e. HOA irrigation, Washoe County Parks and Schools) to help delineate public water that could sometime in the future be replaced with treated reclaimed water, which would negatively impact GBWC-CSD revenue. At the time data was collected by GBWC-CSD in 2010 to 2013, it was not delineated by pressure zone and class of service, so separated data is not available for these years.

Table 3.06a: Pressure Zone 1 Water Use by Class of Service

Year	Residential		Commercial		Public	
	Annual (Gallons)	% of Total	Annual (Gallons)	% of Total	Annual (Gallons)	% of Total
2010	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]
2011	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]
2012	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]
2013	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]
2014	79,379,686	88.70%	6,887,278	7.70%	3,217,345	3.60%
2015	72,797,245	87.90%	6,184,221	7.50%	3,824,904	4.60%
2016	77,429,101	87.00%	6,798,571	7.60%	4,765,340	5.40%
2017	77,771,039	87.56%	6,819,731	7.68%	4,226,874	4.76%
2018	82,420,398	87.13%	8,038,140	8.50%	4,140,440	4.38%
2019	77,692,943	88.11%	7,477,630	8.48%	3,002,096	3.40%
[1] Data collected in 2010-2013 was not separated by pressure zone and class of service.						

Table 3.06b: Pressure Zone 2 Water Use by Class of Service

Year	Residential		Commercial		Public	
	Annual (Gallons)	% of Total	Annual (Gallons)	% of Total	Annual (Gallons)	% of Total
2010	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]
2011	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]

2012	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]
2013	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]
2014	124,591,040	98.60%	320,720	0.30%	1,402,700	1.10%
2015	105,453,574	97.20%	164,440	0.20%	2,928,800	2.70%
2016	113,703,701	96.30%	649,390	0.60%	3,773,550	3.20%
2017	109,074,692	96.46%	162,750	0.14%	3,836,380	3.39%
2018	111,748,390	96.68%	196,320	0.17%	3,643,880	3.15%
2019	103,010,377	97.04%	227,930	0.21%	2,911,460	2.74%
[1] Data collected in 2010-2013 was not separated by pressure zone and class of service.						

Table 3.06c: Pressure Zones 3 & 4 Water Use by Class of Service

Year	Residential		Commercial		Public	
	Annual (Gallons)	% of Total	Annual (Gallons)	% of Total	Annual (Gallons)	% of Total
2010	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]
2011	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]
2012	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]
2013	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]
2014	163,632,910	79.60%	343,202	0.20%	41,684,695	20.30%
2015	152,835,686	79.80%	901,292	0.50%	37,749,049	19.70%
2016	164,952,978	79.70%	612,695	0.30%	41,319,843	20.00%
2017	161,730,603	77.34%	6,898,143	3.30%	40,481,534	19.36%
2018	173,727,555	75.78%	14,247,291	6.21%	41,268,610	18.00%
2019	166,332,749	78.40%	14,519,351	6.84%	31,304,248	14.76%
[1] Data collected in 2010-2013 was not separated by pressure zone and class of service.						

The three most recent years of data are considered more representative of current demand and level of development. For these years, Pressure Zone 1 has an average of 87.6% of metered water use as residential, 8.2% commercial, and 4.2% public. Pressure Zone 2 has an average of 96.7% metered water use as residential and 3.1% public, with very little commercial. Pressure Zones 3 and 4 have an average of 77.1% metered water use for residential, 17.3% for public, and 5.5% for commercial use. The public metered water use, which represents primarily irrigation water, could be replaced with treated effluent in the future. Due to growth in Zone 4 associated with the Woodland Village development, commercial usage has substantially increased since the 2018 IRP.

3.3.2.3 Non-Revenue Water

The International Water Association (IWA) and the American Water Works Association (AWWA) define non-revenue water as equal to the total amount of water flowing into the potable water supply network from the source (Wells) minus the total amount of water that industrial and

domestic consumers are authorized to use (metered/billed authorized consumption). There are two broad types of losses that occur in drinking water utilities, which include apparent losses and real losses.

Apparent losses: the non-physical losses that occur in utility operations due to customer meter inaccuracies, systematic data handling errors in customer billing systems and unauthorized consumption. In other words, this water is consumed but is not properly measured, accounted or paid for.

Real Losses: the physical losses of water from the distribution system, including leakage and storage overflows.

Table 3.07 presents the differences between historical water production and actual usage during 2010 to 2019. This compares the production data summarized in Table 3.05 to the metered uses from Table 3.06. The system non-revenue water (NRW) for GBWC-CSD averaged approximately 7.7% over the last 3 years. NRW is a combination of real losses such as leaks, and apparent losses such as variation in meter accuracy, unmetered accounts, and theft.

Table 3.07: GBWC-CSD Historical Non-Revenue Water Quantities

Year	Production (MG)	Metered Use (MG)	Unbilled Water (MG)	% Unbilled Water
2010	439.99	416.36	23.63	5.37%
2011	413.41	387.17	26.24	6.35%
2012	494.91	431.26	63.65	12.86%
2013	431.24	408.48	22.76	5.28%
2014	453.18	421.46	31.72	7.00%
2015	403.51	382.84	20.67	5.10%
2016	434.59	414.01	20.58	4.70%
2017	427.89	411.00	16.89	3.95%
2018	478.05	439.43	38.62	8.08%
2019	457.51	406.48	51.03	11.15%

An acceptable industry standard for non-revenue water is usually 10% or less. With the last three years at an average of below 8%, the non-revenue water is at acceptable levels. A ruptured fire hydrant in Pressure Zone 4 during 2019, may account for the increase in NRW.

The following measures can be conducted by GBWC-CSD as ongoing efforts to reduce water losses from the water production process to the delivery point:

1. Ensure well production meters are functioning properly;
2. Storage tanks should be inspected at regular intervals to assure integrity against leakage.
3. Customers automatic meter records can be reviewed and monitored for consumption anomalies (continue the process of zero consumption reports quarterly).

4. Document all line breaks and potential thefts for quantity losses.
5. Continue diligently repairing leaks.
6. Implement a Geographical Information System (GIS) break and leak data tracking and regularly update the conditions assessment matrix as a tool to prioritize and target pipeline system improvements.
7. Install water meters at pressure reducing valves to monitor water flowing between zones. The installation of flow meters at the PRVs will allow the delineation of NRW in each pressure zone.

3.3.3 Water Usage Forecasting

With the exception of the Lakefront Project, the GBWC-CSD Service Territory has been fully subdivided. Therefore, unless additional areas are annexed into the service territory, all future development will be infill from the remaining permitted lots and future Lakefront Project. In forecasting future connections, Lumos assumed that the Lakefront Project would entail the proposed 720 future residential homes. The projections for future population and connections in the GBWC-CSD Service Territory are detailed in Tables 3.01 and 3.02. In addition, it is anticipated that all future infill connections will consist primarily of residential with a very small addition of commercial connections. Based on these assumptions, GBWC-CSD Service Territory would not reach its potential built out of a possible 4768 residential homes (Lakefront residential of an addition 720 residential) within the 20-year growth projection (Table 3.08).

Table 3.08: Water Connection Projection Summary

Year	Total Service Connections
2020	3,692
2021	3,762
2022	3,830
2023	3,891
2026	4,037
2031	4,205
2036	4,307
2041	4,372

Tables 3.09 – 3.11 summarizes average water demand data for 2010 to 2019 as provided by GBWC-CSD. To obtain more accurate residential water demand factors, only metered residential connections with 10 months of meter data or more were used to determine the average water demand per connection. At the time data was collected by GBWC-CSD in 2010 to 2013, it was not delineated by pressure zone and class of service, so separated data is not available for these years.

Table 3.09: Average Daily Water Demand - Residential

Year	Metered Use (gal)	Avg. Connections	Avg. gpd/conn
2010	N/A[1]	N/A[1]	N/A[1]
2011	N/A[1]	N/A[1]	N/A[1]
2012	N/A[1]	N/A[1]	N/A[1]
2013	N/A[1]	N/A[1]	N/A[1]
2014	361,689,311	2,998	331
2015	325,846,415	3,063	291
2016	350,016,896	3,166	303
2017	344,072,014	3,294	286
2018	364,149,283	3,396	294
2019	343,108,727	3,441	273
Average Use (Latest 3 years)			**284**

[1] Data collected in 2010-2013 was not separated by class of service.

Table 3.10: Average Daily Water Demand - Commercial

Year	Metered Use (gal)	Avg. Connections	Avg. gpd/conn
2010	N/A[1]	N/A[1]	N/A[1]
2011	N/A[1]	N/A[1]	N/A[1]
2012	N/A[1]	N/A[1]	N/A[1]
2013	N/A[1]	N/A[1]	N/A[1]
2014	7,551,200	18	1,149
2015	7,249,953	19	1,045
2016	8,060,656	19	1,162
2017	8,081,816	22	1,006
2018	15,099,033	22	1,880
2019	21,921,241	23	2,611
Average Use (Latest 3 years)			**1,833**

[1] Data collected in 2010-2013 was not separated by class of service.

Table 3.11: Average Daily Water Demand - Public

Year	Metered Use (gal)	Avg. Connections	Avg. gpd/conn
2010	N/A[1]	N/A[1]	N/A[1]
2011	N/A[1]	N/A[1]	N/A[1]
2012	N/A[1]	N/A[1]	N/A[1]
2013	N/A[1]	N/A[1]	N/A[1]
2014	46,304,740	30	4,229

2015	44,502,753	32	3,810
2016	49,858,733	33	4,139
2017	49,320,267	36	3,753
2018	48,458,354	37	3,588
2019	47,914,586	39	3,366
Average Use (Latest 3 years)			**3,569**
[1] Data collected in 2010-2013 was not separated by class of service.			

The GBWC-CSD has an average residential water usage of 284 gallons per day per connection (gpdpc) for the latest three years of data. The average commercial usage is 1,833 gpdpc, and the average public usage is 3,569 gpdpc for the latest three years of data.

Tables 3.12a – 3.12c summarizes residential average water demand data by pressure zones as provided by GBWC-CSD. At the time data was collected by GBWC-CSD in 2010 to 2011, it was not delineated by pressure zone, so separated data is not available for these years.

Table 3.12a: Residential Average Daily Water Demand for Pressure Zone 1

Year	Metered Use	Avg. Connections	Avg. gpd/conn
2010	N/A[1]	N/A[1]	N/A[1]
2011	N/A[1]	N/A[1]	N/A[1]
2012	N/A[1]	N/A[1]	N/A[1]
2013	N/A[1]	N/A[1]	N/A[1]
2014	78,134,226	550	389
2015	71,718,835	550	357
2016	75,713,929	555	374
2017	77,015,999	595	355
2018	81,677,088	604	370
2019	76,384,313	597	351
Average Use (Latest 3 years)			**359**
[1] Data collected in 2010-2013 was not separated by pressure zone and class of service.			

Table 3.12b: Residential Average Daily Water Demand for Pressure Zone 2

Year	Metered Use	Avg. Connections	Avg. gpd/conn
2010	N/A[1]	N/A[1]	N/A[1]
2011	N/A[1]	N/A[1]	N/A[1]
2012	N/A[1]	N/A[1]	N/A[1]
2013	N/A[1]	N/A[1]	N/A[1]
2014	122,348,785	907	370

2015	103,705,074	936	304
2016	112,124,037	952	323
2017	107,754,112	965	306
2018	109,892,100	968	311
2019	101,646,287	969	287
Average Use (Latest 3 years)			**301**
[1] Data collected in 2010-2013 was not separated by pressure zone and class of service.			

Table 3.12c: Residential Average Daily Water Demand for Pressure Zones 3 & 4

Year	Metered Use	Avg. Connections	Avg. gpd/conn
2010	N/A[1]	N/A[1]	N/A[1]
2011	N/A[1]	N/A[1]	N/A[1]
2012	N/A[1]	N/A[1]	N/A[1]
2013	N/A[1]	N/A[1]	N/A[1]
2014	161,206,300	1,541	287
2015	150,422,506	1,577	261
2016	162,178,930	1,659	268
2017	159,301,903	1,737	251
2018	172,580,095	1,827	259
2019	165,078,127	1,876	241
Average Use (Latest 3 years)			**250**
[1] Data collected in 2010-2013 was not separated by pressure zone and class of service.			

Pressure Zone 1 has an average residential water usage of 359 gpdpc for the latest three years of data. Pressure Zone 2 has an average water usage of 301 gpdpc and Pressure Zones 3 and 4 have an average water usage of 250 gpdpc for the latest three years of data. The significantly lower demand for Pressure Zones 3 and 4 is due to Woodland Village Subdivision's very low to zero landscape requirements in front yards and low-flow appliances required in the residential homes.

Table 3.13 provides both average day and maximum day projected future water demand for the GBWC-CSD Service Territory. Actual demands were used for the years 2017-2019, and then the Nevada Demographer's population projections were integrated into the forecast. The Peaking Factors (MDD/ADD) calculated for each of the pressures zones were used in the projected future forecast. These factors were derived from actual consumption figures and ADD in the maximum months. Refer to Table 3.04 and 3.05 for the historical Maximum Daily Production and Peaking Factors used.

Table 3.13: Projected Future Water Demand

Year	Total CSD Required Water Production (MGD)		Total CSD Water Demand (AFA)	Pressure Zone 1 (MGD) MDD/ADD = 2.57		Pressure Zone 2 (MGD) MDD/ADD = 2.38		Pressure Zone 3 & 4 (MGD) MDD/ADD = 2.46		% Population Change
	ADD	MDD		ADD	MDD	ADD	MDD	ADD	MDD	
2017	1.17	2.88	1,313	0.25	0.65	0.31	0.73	0.61	1.50	-
2018	1.31	3.22	1,467	0.28	0.72	0.33	0.79	0.69	1.71	-
2019	1.25	3.08	1,404	0.26	0.68	0.32	0.76	0.67	1.65	2.10%
2020	1.28	3.29	1,434	0.27	0.69	0.33	0.77	0.68	1.68	2.00%
2021	1.31	3.35	1,462	0.28	0.71	0.33	0.79	0.70	1.71	1.90%
2022	1.33	3.42	1,490	0.28	0.72	0.34	0.81	0.71	1.75	1.80%
2023	1.35	3.48	1,517	0.29	0.73	0.34	0.82	0.72	1.78	1.60%
2024	1.38	3.54	1,541	0.29	0.75	0.35	0.83	0.74	1.81	1.40%
2025	1.40	3.59	1,563	0.29	0.76	0.35	0.84	0.75	1.83	1.20%
2026	1.41	3.63	1,581	0.30	0.77	0.36	0.85	0.75	1.85	1.10%
2027	1.43	3.67	1,599	0.30	0.77	0.36	0.86	0.76	1.87	1.00%
2028	1.44	3.70	1,615	0.30	0.78	0.37	0.87	0.77	1.89	0.90%
2029	1.45	3.74	1,629	0.31	0.79	0.37	0.88	0.78	1.91	0.80%
2030	1.47	3.77	1,642	0.31	0.80	0.37	0.89	0.78	1.93	0.70%
2031	1.48	3.79	1,654	0.31	0.80	0.38	0.89	0.79	1.94	0.70%
2032	1.49	3.82	1,665	0.31	0.81	0.38	0.90	0.79	1.95	0.60%
2033	1.50	3.84	1,675	0.32	0.81	0.38	0.91	0.80	1.96	0.50%
2034	1.50	3.86	1,684	0.32	0.82	0.38	0.91	0.80	1.97	0.50%
2035	1.51	3.88	1,692	0.32	0.82	0.38	0.91	0.81	1.98	0.40%
2036	1.52	3.90	1,699	0.32	0.82	0.39	0.92	0.81	1.99	0.40%
2037	1.52	3.91	1,706	0.32	0.83	0.39	0.92	0.81	2.00	0.30%
2038	1.53	3.93	1,711	0.32	0.83	0.39	0.92	0.82	2.01	0.30%
2039	1.53	3.94	1,716	0.32	0.83	0.39	0.93	0.82	2.01	0.30%
2040	1.54	3.95	1,721	0.32	0.83	0.39	0.93	0.82	2.02	0.30%
2041	1.54	3.80	1,726	0.33	0.84	0.39	0.93	0.82	2.02	0.30%

Table 3.14 shows the existing well capacity available for each of the pressure zones based on current well production, and the redirection of Well 1 into Pressure Zone 4. When comparing Table 3.14 (current well production for each pressure zone) to Table 3.13 (existing and future projected demands for each pressure zone), the well production in all pressure zones currently meet the ADD and MDD and will meet the 20-year projected demand.

Table 3.14: Existing Well Capacity - Total and By Pressure Zone

Wells	Capacity (gpm)	Capacity (mgd)	Pressure Zone 1 (mgd)	Pressure Zone 2 (mgd)	Pressure Zone 3&4 (mgd)
Well 1	550	0.792	-	-	0.792
Well 6	350	0.504	0.504	-	-
Well 7	330	0.475	0.475	-	-
Well 8	1050	1.512	-	-	1.512
Van Dyke	1080	1.555	-	1.555	-
TOTALS	**3,360**	**4.838**	**0.979**	**1.555**	**2.304**

The projected future water demands do not account for system-wide losses, or continued savings associated with GBWC-CSD Water Conservation Plan. Future water system demands should be reduced even further as the system NRW is reduced. Since the NRW system losses averaged 7.7% for the entire system, GBWC-CSD's water production must be able to accommodate for these apparent and real losses in order to ensure the system averages are met. The amount of realized NRW is a product of the amount of water delivered. In order to calculate the total amount of water that needs to be delivered, an adjustment to recognize NRW is needed. This "gross-up" adjustment is intended to provide the total amount of production water required to be delivered in order to compensate for both consumption and NRW. The well production required was inflated by a factor of 7.7% for the entire system.

Both the existing and future water demand (averages) were provided/projected based on the calculated water demand factors for residential, public and commercial service class for each pressure zone. Tables 3.15A identified existing demands as provided by meter data. Table 3.15B identified the grossed-up well production required to provide anticipated service and accommodated for NRW losses.

Table 3.16A and 3.16B, future demands as of 2041, also include the minimum well production required in order to accommodate for these unaccounted-for losses. Note that by using this same demand-average throughout the system and projected into the future, water demand in Tables 3.16A and 3.16B for the pressure zones are higher than shown in the projected future water production shown in Table 3.13, in order to accommodate for system losses.

Table 3.15a: Existing Demand

GBWC-CSD - EXISTING DEMANDS					GBWC-CSD WELL PRODUCTION REQUIRED to Accommodate for Demands and Anticipated System-Wide Losses		
Customer Class	No. of Customers	Average Daily Demands [gpdpc]	Total Average Demands per Day [gpd]	Average Daily Demand TOTAL SYSTEM [gpm]	ADD REQUIRED (gpm) including Unaccounted-for Losses (grossed up to accommodate for 7.7% system losses)	SYSTEM MDD Required (gpm) (ADD x 2.46)	SYSTEM PHD Required (gpm) (MDD x 1.75)
Residential	3,574	284	1,016,370	706	760	1,870	3,272
Public	28	3,569	99,932	69	75	184	322
Commercial	31	1,833	56,813	39	42	105	183
TOTALS	3,633	5,686	1,173,121	815	877	2,158	3,777
Pressure Zone 1 - EXISTING DEMANDS					**Pressure Zone 1 EXISTING WELL PRODUCTION REQUIRED to Accommodate for Demands and Anticipated System-Wide Losses**		
Customer Class	No. of Customers	Average Daily Demands [gpdpc]	Total Average Demands per Day [gpd]	Average Daily Demand TOTAL SYSTEM [gpm]	ADD REQUIRED (gpm) including Unaccounted-for Losses (grossed up to accommodate for 7.7% system losses)	SYSTEM MDD Required (gpm) (ADD x 2.57)	SYSTEM PHD Required (gpm) (MDD x 1.75)
Residential	613	398	219,454	152	164	422	738
Public	12	3,569	42,830	30	32	82	144
Commercial	3	1,833	5,498	4	4	11	18
TOTALS	628	5,760	267,782	186	200	515	901
Pressure Zone 2 - EXISTING DEMANDS					**Pressure Zone 2 EXISTING WELL PRODUCTION REQUIRED to Accommodate for Demands and Anticipated System-Wide Losses**		
Customer Class	No. of Customers	Average Daily Demands [gpdpc]	Total Average Demands per Day [gpd]	Average Daily Demand TOTAL SYSTEM [gpm]	ADD REQUIRED (gpm) including Unaccounted-for Losses (grossed up to accommodate for 7.7% system losses)	SYSTEM MDD Required (gpm) (ADD x 2.38)	SYSTEM PHD Required (gpm) (MDD x 1.75)
Residential	1,013	301	304,913	212	228	543	950
Public	5	3,569	17,846	12	13	32	56
Commercial	3	1,833	5,498	4	4	10	17
TOTALS	1,021	5,703	328,257	226	246	584	1,023
Pressure Zone 3 & 4 - EXISTING DEMANDS					**Pressure Zones 3 & 4 EXISTING WELL PRODUCTION REQUIRED to Accommodate for Demands and Anticipated System-Wide Losses**		
Customer Class	No. of Customers	Average Daily Demands [gpdpc]	Total Average Demands per Day [gpd]	Average Daily Demand TOTAL SYSTEM [gpm]	ADD REQUIRED (gpm) including Unaccounted-for Losses (grossed up to accommodate for 7.7% system losses)	SYSTEM MDD Required (gpm) (ADD x 2.46)	SYSTEM PHD Required (gpm) (MDD x 1.75)
Residential	1,948	250	487,000	338	364	896	1,568
Public	11	3,569	39,261	27	29	72	126
Commercial	25	1,833	45,817	32	34	84	148
TOTALS	1,984	5,652	572,078	397	428	1,053	1,842

Average Consumption derived from consumption data for years 2017, 2018 and 2019 provided by GBWC-CSD.

Table 3.15b: Existing Well Production Required

Table 3.16a: Future Demand (2041)

Table 3.16b: Future Well Production Required (2041)

GBWC-CSD - FUTURE DEMANDS (2041)					GBWC-CSD FUTURE WELL PRODUCTION REQUIRED to Accommodate for Demands and Anticipated System-Wide Losses		
Customer Class	No. of Customers	Average Daily Demands [gpdpc]	Total Average Demands per Day [gpd]	Average Daily Demand Total System [gpm]	ADD REQUIRED (gpm) including Unaccounted-for Losses (grossed up to accommodate for 7.7% system losses)	SYSTEM MDD Required (gpm) (ADD x 2.46)	SYSTEM PHD Required (gpm) (MDD x 1.75)
Residential	4,313	284	1,225,520	852	947	2,257	3,949
Public	28	3,569	93,930	65	72	164	323
Commercial	31	1,833	56,813	39	47	105	183
TOTALS	4,372	5,686	1,383,277	961	1,035	2,585	4,434
Pressure Zone 1 - FUTURE DEMANDS					Pressure Zone 1 FUTURE WELL PRODUCTION REQUIRED to Accommodate for Demands and Anticipated System-Wide Losses		
Customer Class	No. of Customers	Average Daily Demands [gpdpc]	Total Average Demands per Day [gpd]	Average Daily Demand Total System [gpm]	ADD REQUIRED (gpm) including Unaccounted-for Losses (grossed up to accommodate for 7.7% system losses)	SYSTEM MDD Required (gpm) (ADD x 2.57)	SYSTEM PHD Required (gpm) (MDD x 1.75)
Residential	709	358	253,822	176	198	510	651
Public	12	3,569	42,830	30	33	85	144
Commercial	3	1,833	5,498	4	4	11	18
TOTALS	724	5,760	302,150	210	226	581	1,016
Pressure Zone 2 - FUTURE DEMANDS					Pressure Zone 2 FUTURE WELL PRODUCTION REQUIRED to Accommodate for Demands and Anticipated System-Wide Losses		
Customer Class	No. of Customers	Average Daily Demands [gpdpc]	Total Average Demands per Day [gpd]	Average Daily Demand Total System [gpm]	ADD REQUIRED (gpm) including Unaccounted-for Losses (grossed up to accommodate for 7.7% system losses)	SYSTEM MDD Required (gpm) (ADD x 2.38)	SYSTEM PHD Required (gpm) (MDD x 1.75)
Residential	1,441	301	433,741	301	324	772	1,351
Public	5	3,569	12,846	9	10	30	56
Commercial	3	1,833	5,498	4	4	10	17
TOTALS	1,449	5,703	457,085	317	342	814	1,424
Pressure Zones 3 & 4 - FUTURE DEMANDS					Pressure Zones 3 & 4 FUTURE WELL PRODUCTION REQUIRED to Accommodate for Demands and Anticipated System-Wide Losses		
Customer Class	No. of Customers	Average Daily Demands [gpdpc]	Total Average Demands per Day [gpd]	Average Daily Demand Total System [gpm]	ADD REQUIRED (gpm) including Unaccounted-for Losses (grossed up to accommodate for 7.7% system losses)	SYSTEM MDD Required (gpm) (ADD x 2.46)	SYSTEM PHD Required (gpm) (MDD x 1.75)
Residential	2,163	250	541,750	376	404	995	1,741
Public	11	3,569	39,261	27	29	72	126
Commercial	25	1,833	45,817	32	34	84	148
TOTALS	2,199	5,652	625,929	435	466	1,151	2,015

Average Consumption derived from consumption data for years 2017, 2018 and 2019 provided by GBWC-CSD.

SECTION 4.0: WATER SUPPLY NEEDS

4.1 Water Supply

The water supply was evaluated based on GBWC-CSD total system capacity, which includes wells and storage, compared to projected water demands. Projected water demands are presented in Table 3.13 of Section 3.3.3. The water supply plan is based on the production and storage facilities defined previously in Section 2 of this report.

4.1.1 Water Rights

The water in Nevada on the surface and below the ground surface belongs to the people of the State. Entities within the State can apply for the right to use that water. Nevada Water Law is founded on the doctrine of prior appropriation – "first in time, first in right". Under the appropriation doctrine, the first user of water from a water source acquired a priority right to the use and to the extent of its use.

The GBWC-CSD owns water rights in two separate hydrographic groundwater basins (Long Valley - 100A, and Cold Springs Valley - 100) with a total combined duty of 2414.86 acre feet annual (AFA). More specifically, GBWC-CSD's water rights in the Long Valley Basin have a total combined duty of 1906.90 AFA and 1707.96 AFA in the Cold Springs Valley Basin. In 1999, a change in the point of diversion was requested and approved by the Nevada Division of Water Resources. The purpose of the request was to ensure commingling of the existing water rights from the two separate hydrographic groundwater basins to create flexibility in distribution to the water service area from all of the available production wells. What that means is that GBWC-CSD has the ability to pump up to the total combined duty in one of the two basins as long as the total combined duty for both basins (2414.86 AFA) is not exceeded from what is pumped from the other basin. Appendix B contains a hydrographic summary of the water right manner of uses for the Long Valley and Cold Springs Valley Basins.

In the late 1980's, the State Engineer decided on a duty of 0.57 acre-feet annually per lot for the 1/3-acre lots in the GBWC-CSD Service Territory. This duty of 0.57 has held true for all the residential lots except for the Woodland Village Subdivision Phases 15, 16, 17, 18 and all future phases. GBWC-CSD Tariff No. 2A allows for dedications of less than 11,200 square foot lot sizes to use a specific calculation. For these phases and assuming similar future lots sizes for the remaining phases, the TMWA "Rule No. 7" provision was used. The TMWA "Rule No. 7" provision for a single family residential lot is based on the footage of the lot with a minimum demand of 0.12 acre feet annually per lot. The calculation is as follows:

$$\frac{1}{1.1 + (10{,}000/\text{Lot Size})}$$

GBWC-CSD has provided a water budget that breaks down the use of all water rights within the GBWC-CSD service territory. A list of the water budget break down prior to changing the water right dedications to the TMWA "Rule 7" can be viewed in Appendix B. The budget defines the

amount of water that each residential subdivision, commercial, public, and industrial facilities can use per year and is provided to the State Engineer in Will Serve Letters. The budget and associated Will Serve Letters help to ensure that GBWC-CSD's water rights are allocated properly throughout the entire water service area.

Based on the dedication criteria that GBWC-CSD has developed for the existing service territory, there appears to be sufficient water rights to finish all the existing subdivisions as allocated in the dedication. An issue may arise for any future developments, like the Lakefront Project, since water right allocations were never dedicated for this property. If this project moves forward, Lifestyle Homes will need to acquire the appropriate dedication of water rights.

4.1.2 Water Supply Evaluation

The GBWC-CSD water system capacity was evaluated based on available well capacity compared to the current and projected future water demands. Although the pressure zones have the ability to move water between zones, the pressure zones were evaluated separately with Pressure Zones 3 and 4 tied together. The criteria for evaluating adequate supply capacity is based on NAC 445A.6672, which requires a system that relies exclusively on wells to provide a total well capacity sufficient to meet the MDD when all the well are operational, or the ADD with the most productive well out of service.

Pressure Zone 1, Well Capacity

Pressure Zone 1 has two active wells with the total pumping capacity of 680 gpm. Table 4.01 shows the available pumping capacity with all wells in service of 680 gpm. With Well 6, the largest producer out of service, the available pumping capacity is 330 gpm. In order to accommodate for the 7.7% system losses in GBWC-CSD system, the water supply demand was grossed up by the 7.7%, which resulted in a total ADD of 202 gpm for existing conditions and an anticipated 228 gpm by 2041. Refer to Tables 3.15B and 3.16B for the well production requirement figures. MDD is 2.57 times ADD for Pressure Zone 1, and MDD is 520 gpm for existing conditions and an anticipated 586 gpm by 2041.

With all wells in service, Pressure Zone 1 well capacity is able to accommodate the MDD required for build out with existing system losses.

Table 4.01: Pressure Zone 1 Capacity versus Demand

Wells	Capacity (gpm)[1]	Backup Power	Year	Well Supply req'd for ADD (gpm)[2]	MDD (gpm)	Can Well Supply [3] Meet MDD?
Well 6	350	YES	**2019**	202	520	YES
Well 7	330	YES	**2041**	228	586	YES
Total, All Wells in Service	680					
Total, Well 7 Out of Service	330					

1. Capacities are based on the most recent review conducted in 2020 by GBWC Staff.
2. Well Supply figures were grossed up to accommodate for 7.7% losses.
3. Total well supply must be able to accommodate MDD.

Pressure Zone 2, Well Capacity

With the construction of the Van Dyke Well and being brought online in February 2017, Pressure Zone 2 has one active well with the total pumping capacity of 1,080 gpm. Table 4.02 shows the available pumping capacity with the well in service of 1,080 gpm. Since Pressure Zone 2 only has one active well, the only way the system can be checked for the largest well off line meeting ADD is to allow for the excess capacity in the other pressure zones that have the ability to feed Pressure Zone 2 via PRV's. The excess capacity of Pressure Zones 3 and 4, which is currently 540 gpm, would suffice the current ADD with the Van Dyke Well offline. In order to accommodate for the 7.7% system losses in Pressure Zone 2, the water supply demand was grossed up by 7.7%, which resulted in a total ADD of 247 gpm for existing conditions and an anticipated 344 gpm by 2041. Refer to Tables 3.15B and 3.16B for the well production required figures. MDD is 2.38 times ADD for Pressure Zone 2, and is 589 gpm for existing conditions and an anticipated 818 gpm by 2041.

With the one well in service, Pressure Zone 2 well capacity can currently meet ADD and the future 2041 projection with existing system losses. The current 540 gpm in excess capacity in Pressure Zone(s) 3 and 4 can be used to supply ADD if the Van Dyke Well is offline.

Table 4.02: Pressure Zone 2 Capacity versus Demand

Wells	Capacity (gpm)[1]	Backup Power	Year	Well Supply req'd for ADD (gpm)[2]	MDD (gpm)	Can Well Supply [3] Meet MDD?
Van Dyke	1,080	YES	**2019**	247	589	YES
			2041	344	818	YES
Total, All Wells in Service	1,080					
Total, Well 1 Out of Service	Only available from other zones' excess capacity					

1. Capacities are based on the most recent review conducted in 2020 by GBWC Staff.
2. Well Supply figures were grossed up to accommodate for 7.7% losses.
3. Total well supply must be able to accommodate MDD

Pressure Zone 3 and 4, Well Capacity

Pressure Zones 3 and 4 currently have two active wells with the total pumping capacity of 1,600 gpm. With the Van Dyke Well being brought online in February 2017, Well 1 has been redirected into Pressure Zone 4 to meet anticipated future demands. Table 4.03 shows the available pumping capacity with Well 1 being 550 gpm and Well 8 being 1050 gpm. In order to accommodate for the 7.7% system losses in Pressure Zones 3 and 4, the water supply demand was grossed up by the 7.7%, which resulted in a total ADD of 443 gpm for existing conditions and an anticipated 483 gpm by build out. Refer to Tables 3.15B and 3.16B for the well production required figures. MDD is 2.46 times ADD for Pressure Zones 3 and 4, and is 1,089 gpm for existing conditions and an anticipated 1,188 gpm by 2041 (build out).

With the redirection of Well 1 into Pressure Zone 4, Pressure Zones 3 and 4 currently meet the existing MDD conditions and are projected to meet the future MDD conditions in 2041. The drought over the mid 2010's had reduced the average production rate in Well 8 from 950 to a rate of 850 gpm, but with the recent high precipitation winters, the existing production rate of Well 8 is 1050 gpm. Now that the total capacity of the two wells within Pressure Zone 4 is 1,600 gpm, the excess capacity from within this zone may be used to supplement deficiencies in other pressure zones.

Table 4.03: Pressure Zones 3 & 4 Capacity versus Demand

Wells	Capacity (gpm)[1]	Backup Power	Year	Well Supply req'd for ADD (gpm)[2]	MDD (gpm)	Can Well Supply [3] Meet MDD?
Well 1	550	YES	**2019**	443	1,089	YES
Well 8	1,050	YES	**2041**	483	1,188	YES
Total, All Wells in Service	1,600					
Total, Well 8 Out of Service	550					

1. Capacities are based on the most recent review conducted in 2020 by GBWC Staff.
2. Well Supply figures were grossed up to accommodate for 7.7% losses.
3. Total well supply must be able to accommodate MDD

4.1.3 Water Storage Evaluation

Water storage is regulated by the Nevada Administrative Code, Section NAC 445A.6674, NAC 445A.66745, NAC 445A.6675 and NAC 445A.66755.

Total Storage Capacity includes operating storage, emergency storage, and fire flow storage.

- Operating Storage – Operating storage is provided as MDD. The MDD for each of the pressure zones in the GBWC-CSD Water System were calculated from the average ADD, from meter data provided for years 2017, 2018, and 2019.
- Emergency Storage – The NAC states that emergency storage can either be determined by the engineer or is 75% of the amount of operating storage. Lumos has provided emergency storage equivalent to ADD.
- Fire Flow Storage – Lumos met with the Truckee Meadows Fire Protection District (TMFPD) on January 9, 2018 to discuss the maximum fire flow requirements within GBWC-CSD's system. Upon conclusion of the meeting, it was determined that TMFPD requires a maximum 1,500 gpm for two hours in Pressure Zones 1 and 3 for the residential and small commercial buildings located within these zones. Pressure Zones 2 and 4 have public schools. The Elementary School Building in Pressure Zone 2 requires 2,338 gpm for four hours and the Middle School in Pressure Zone 4 requires 2,750 gpm for two hours.

For the purposes of this 2021 IRP, Lumos has included Operating Storage of MDD for one day, fire flow storage (dependent on the pressure zone highest requirement) and emergency reserves of ADD in its system-wide storage assessment. Each pressure zone's storage capacity was analyzed separately.

Pressure Zone 1, Storage

Pressure Zone 1 has one storage tank known as Tank 1. The total storage capacity of Tank 1 is 420,000 gallons. Table 4.04 shows the storage capacity analysis for Pressure Zone 1, which currently has 628 connections consisting of residential, public, and commercial facilities. With the existing storage tank and the additional alternative pumping capacity from Well 6 and Well 7 being equipped with backup power, Pressure Zone 1 meets its existing and future build out storage requirements.

Pressure Zone 2, Storage

Pressure Zone 2 has one storage tank known as Tank 2. The total storage capacity of Tank 2 is 420,000 gallons. Table 4.04 shows the storage capacity analysis for Pressure Zone 2, which currently has 1,021 connections consisting of residential, public, and commercial facilities. Pressure Zone 2 has the potential for up to 1,218 total connections in 2041 based on growth projection discussed in Section 3 if the Lakefront Project is developed. As previously mentioned in Section 2.2.3.1, Tank 2 was erected in its current location in 1975 after being moved from another unknown location. The actual age of the tank is unknown. The interior of the tanks roof plates, sidewall plates, floor plate, and overflow flume received fair to poor ratings in a 2019 inspection report. The 2019 inspection report states that the existing condition of the tank is in such disrepair that common maintenance such a coating and patching would not be a cost effective approach to repair the tank.

In addition to typical daily operations to meet customer demands, GBWC-CSD also uses the capacity of the storage tanks within the water system to provide necessary fire flow to the community. In the January 9, 2018 meeting with TMFPD, Lumos discussed the possibility of removing Tank 2 altogether and providing the necessary fire flow capacity from the storage tank in Pressure Zone 4. TMFPD stated that based on the experience they obtained from the range fire during the summer of 2017 and the remoteness of the Cold Springs Community, TMFPD was uncomfortable not having separate fire storage in each of the pressure zones. TMFPD requires that each pressure zone contain its own fire storage capacity.

With the additional pumping capacity of the Van Dyke Well and the installation of a backup generator, Pressure Zone 2 now meets the current storage capacity requirements. Based on the 2041 projections, however, Pressure Zone 2 will not meet the forecasted operational storage demand. Even if future developments are not added to Pressure Zone 2, additional storage is required to meet current fire flow requirements per TMFPD.

Pressure Zone 3, Storage

Pressure Zone 3 has one storage tank known as Tank 3. The total storage capacity of Tank 3 is 420,000 gallons. Table 4.04 shows the storage capacity analysis for Pressure Zone 3, which is currently built out at 185 residential connections. A tank inspection for Tank 3 was last performed in 2019.

Table 4.04 indicates that Pressure Zone 3 meets the current storage capacity requirements with the existing tank.

Pressure Zone 4, Storage

Pressure Zone 4 has one storage tank known as Tank 4. The total storage capacity of Tank 4 is 1,200,000 gallons. Table 4.04 shows the storage capacity analysis for Pressure Zone 4, which currently has 1,799 connections consisting of residential, public and commercial facilities with a storage capacity requirement of 2,171,905 gallons. At build out, Pressure Zone 4 will have a total of 2,014 connections with an anticipated storage capacity requirement of 2,356,268 gallons.

Table 4.04 indicates that Pressure Zone 4 currently meets storage capacity requirements with its existing storage tank capacity (1,200,000 gallons) and alternative pumping capacity from Well 8 (1,224,000 gallons) and Well 1 (1,080,000 gallons). Additionally, due to the alternative pumping capacity from Wells 1 and 8 being equipped with backup power, Pressure Zone 4 will contain adequate storage for the build-out of all future developments.

Table 4.04: GBWC-CSD Storage Capacity Analysis

			Ex. Connections 2019	YEAR 2041
Pressure Zone 1			628 Connections	724 Connections
Operational Storage Req'd	ADD for one Day, based on historical usage (2017 - 2019) [gallons]		266,394	292,466
	MDD (ADD X 2.57)		684,634	751,638
Emergency Reserves (ADD) [gallons]			266,394	292,466
Fire Flows	1500 gpm @ 2 hours - Commercial (Pallet Manufacture) [gallons]		180,000	180,000
		Total Storage Required	1,131,028	1,224,104
Well #6 has backup power. (504,000 gallons)		Existing Storage Capacity	420,000	420,000
Well #7 has backup power. (475,200 gallons)		Alternative Pumping Capacity	979,200	979,200
Recommendations:				
N/A		**Total Storage Capacity Available**	1,399,200	1,399,200
		Meets NAC for Storage?	YES	YES
Pressure Zone 2			1,021 Connections	1,449 Connections
Operational Storage Req'd	ADD for one Day, based on historical usage (2017 - 2019) [gallons]		328,657	457,485
	MDD (ADD X 2.44)		801,924	1,116,264
Emergency Reserves (ADD) [gallons]			328,657	457,485
Fire Flows	2338 gpm @ 4 hours - Public (Elementary School) [gallons]		561,120	561,120
		Total Storage Required	1,691,701	2,134,869
		Existing Storage Capacity	420,000	420,000
Van Dyke Well has backup power (1,555,200 gallons)		Alternative Pumping Capacity	1,555,200	1,555,200
Recommendations:				
N/A		**Total Storage Capacity Available**	1,975,200	1,975,200
		Meets NAC for Storage?	YES	NO
Pressure Zone 3			185 Connections	185 Connections
Operational Storage Req'd	ADD for one Day, based on historical usage (2017 - 2019) [gallons]		46,250	46,250
	MDD (ADD X 2.43)		112,388	112,388
Emergency Reserves (ADD) [gallons]			46,250	46,250
Fire Flows	1,500 gpm @ 2 hours - Residential [gallons]		180,000	180,000
		Total Storage Required	338,638	338,638
		Existing Storage Capacity	420,000	420,000
No well or booster w backup power.		Alternative Pumping Capacity		
Recommendations:				
N/A		**Total Storage Capacity Available**	420,000	420,000
		Meets NAC for Storage?	YES	YES
Pressure Zone 4			1,799 Connections	2,014 Connections
Operational Storage Req'd	ADD for one Day, based on historical usage (2017 - 2019) [gallons]		536,999	590,749
	MDD (ADD X 2.43)		1,304,906	1,435,519
Emergency Reserves (ADD) [gallons]			536,999	590,749
Fire Flows	2750 gpm @ 2 hours - Public (Middle School) [gallons]		330,000	330,000
		Total Storage Required	2,171,905	2,356,268
Well #8 has backup power. (1,512,000 gallons)		Existing Storage Capacity	1,200,000	1,200,000
Well #1 has backup power. (792,000 gallons)		Alternative Pumping Capacity	2,304,000	2,304,000
Recommendations:				
N/A		**Total Storage Capacity Available**	3,504,000	3,504,000
		Meets NAC for Storage?	YES	YES
Pressure Zone 3 & 4 Combined			1,984 Connections	2,209 Connections
Operational Storage Req'd	ADD for one Day, based on historical usage (2017 - 2019) [gallons]		583,249	683,041
	MDD (ADD X 2.43)		1,417,294	1,659,790
Emergency Reserves (ADD) [gallons]			583,249	683,041
Fire Flows	2750 gpm @ 2 hours - Public (Middle School) [gallons]		330,000	330,000
		Total Storage Required	2,330,543	2,672,831
Well #8 has backup power. (1,512,000 gallons)		Existing Storage Capacity	1,620,000	1,620,000
Well #1 has backup power. (792,000 gallons)		Alternative Pumping Capacity	2,304,000	2,304,000
Recommendations:				
N/A		**Total Storage Capacity Available**	3,924,000	3,924,000
		Meets NAC for Storage?	YES	YES

4.2 Water Distribution System

The water distribution system was analyzed by hydraulically modeling the GBWC-CSD water system. The hydraulic model was analyzed on an existing demand basis for ADD, MDD, peak hour demand (PHD) and fire flow conditions. The pipeline network was evaluated based on flow velocities and head losses as they related to pressures throughout the distribution system.

The goal for developing any needed solution to problematic areas of the distribution network was to improve efficiency by making the minimum changes necessary to correct the deficiency. The overall objective was to produce a fully functional and compliant system at the lowest cost to ratepayers.

Design criteria are outlined in the Nevada Administrative Code (NAC) 445A.6672 and are summarized in Table 4.05.

Table 4.05: Design Criteria

Parameter	Criteria
Minimum Pressure at Peak Hour Demand*	30 psi
Minimum Pressure at Maximum Day Demand*	40 psi
Maximum Pressure*	100 psi
Maximum Flow Velocity in Pipe*	< 8 feet per second
Maximum Head Loss**	10 feet per 1,000 feet
Fire Flow	
Minimum Residual Pressure	20 psi
Minimum Residual Fire Flow	1,000 gpm
Minimum Commercial Fire Flow	1,500 gpm
Minimum Elementary School Fire Flow (PZ-2)	2,338 gpm
Minimum Middle School Fire Flow (PZ-4)	2,750 gpm

* Provision of the Nevada Administrative Code.
** American Water Works Association (AWWA)

Model Selection and Development

The GBWC-CSD hydraulic water model was analyzed using the Bentley® WaterCAD® v8i modeling software. The existing model was updated with all additional Woodland Village Subdivision phases that had occurred through the end of 2019. The model was updated to fit current conditions, including updating all system demands to reflect the most recent usage data and addition of new demands due to growth since the last model update.

Existing Demands Update

Based on available information, the following method was used to update the model demands, which included multiple steps:

- Lumos distributed new demands to account for growth since the model was last analyzed. This process included identification of new service connections between 2017 and 2019.

Once identified, these demands were distributed to nodes adjacent to the new service connections, incorporating 2017-2019 water meter billing data.

- Updated average day system demands developed in the previous step and then globally adjusted to the 2019 system MDD for each of the pressure zones. This was done by applying the MDD/ADD peaking factor for each pressure zone. PHD was provided by multiplying 1.75 to MDD for each of the pressure zones.
- To adjust the model for the 3-Year Action Plan and 2041 Future Demands, the pressure zones were regionally adjusted based on the estimated ADD for both scenarios, as well as anticipated completion of housing developments. The ADD was then globally adjusted to the estimated MDD-scenario based on the peaking factor presented above. Table 4.06 presents the existing, and anticipated demands used in the hydraulic model.

Table 4.06: Hydraulic Model Loading

GBWC-SSD PRESSURE ZONES	ADD (gpm)	MDD (gpm)	PHD (gpm)
Existing Pressure Zone 1	185	476	832
Existing Pressure Zone 2	228	543	950
Existing Pressure Zone 3 & 4	405	995	1741
Totals	**818**	**2014**	**3524**
Action Plan (2024) (Pressure Zone 1)	185	476	832
Action Plan (2024) (Pressure Zone 2)	260	619	1083
Action Plan (2024) (Pressure Zone 3 & 4)	442	1087	1902
Totals	**887**	**2181**	**3817**
Future 2041 (Pressure Zone 1)	209	537	940
Future 2041 (Pressure Zone 2)	318	756	1323
Future 2041 (Pressure Zone 3 & 4)	442	1087	1902
Totals	**969**	**2380**	**4165**

The hydraulic modeling scenarios preformed include:

- Existing MDD
- Existing MDD with fire flow
- Existing PHD
- 3-Year Action Plan MDD
- 3-Year Action Plan MDD with fire flow
- 3-Year Action Plan PHD
- Future (2041) MDD
- Future (2041) MDD with fire flow
- Future (2041) PHD

4.2.1 Distribution System Evaluation

The GBWC-CSD water system was evaluated using Bentley® WaterCAD® v8i software and carefully applied data, assumptions, and operating conditions. The objective of the analysis was to identify weaknesses in the distribution network that would lead to unacceptable pressure conditions, reduced fire-flow capacity, and energy waste through high head losses.

4.2.2 System Deficiencies and Alternatives for Improvements

The GBWC-CSD distribution model was analyzed for Existing Conditions, Three Year Action Plan, and the Preferred Plan (2041). No significant deficiencies were identified in any of the model runs.

Existing Conditions
With the exception of some high pressures in junctions located in the low elevations of Pressure Zone 1, the hydraulic distribution model for the existing conditions meets all the design criteria. The MDD Run had a several junctions that exceed 100 psi, with a range of 40.1 to 121.9 psi. The PHD run had even less junctions that exceed 100 psi, with a range of 38.2 to 117.8 psi. No sections of pipe exceeded the recommended AWWA of 10 ft./1000 ft. head loss during PHD criteria.

Action Plan (2024)
Similar to existing conditions scenario, in year 3 of the Action Plan, the hydraulic distribution model meets all the design criteria. The following minor issues were observed: MDD Run several junctions in Pressure Zone 1 that exceeded 100 psi; PHD Run had a fewer junctions that exceeded 100 psi; no sections of pipe exceeded the AWWA recommended 10 ft./1000 ft. head loss criteria.

Preferred Plan (2041)
Projecting assumptions for a demand out 20 years when future developments have not been approved for a Plan Unit Development is difficult. With this in mind, the Preferred Plan (2041) hydraulic model appears to satisfy most of the criteria associated with only very minor issues similar to the Action Plan hydraulic distribution model run. Please refer to Appendix H for all of the hydraulic modeling scenarios discussed.

4.3 Water Transfer Possibilities

There is one regional water purveyor, which could be involved with a water transfer to or from GBWC-CSD. The regional water purveyor is TMWA. They provide water services to almost all of the Reno/Sparks regional area. Currently, no interconnections exist between GBWC-CSD and TMWA, with the closest potential connection on the east side of the Granite Hills approximately 6 miles away. However, since the StoneGate Development is extending a water line approximately 6 miles east along Highway 395 to the development site, the possibility now exists to intertie with the TMWA system much closer to the GBWC-CSD system area.

4.4 Water Reliability

4.4.1 Overview

The GBWC-CSD water system relies entirely on groundwater. Several factors which could affect the reliability of GBWC-CSD's groundwater include droughts, which can affect water quality and water quantity, and catastrophic interruptions.

4.4.2 Historic Effects of Drought

One factor affecting reliability of the groundwater supply is the trend in pumping water levels. From 2001 through 2019, the Cold Springs Area has had 13 years out of 19 years of "Moderate to Exceptional Drought" drought conditions. The National Drought Mitigation Center (NDMC) monitors drought conditions throughout the United States and classifies drought conditions based on intensity and percent of an area affected by the drought. The NDMC has a website that records drought conditions several times per month every month of the year. The website is:

Reference: http://droughtmonitor.unl.edu/mapsanddata/maparchive.aspx

Figure 4.01 is an example of the data provided on the website. Over the past year the drought circumstances have increased due to the low precipitation year during the 2019/2020 winter. The anticipated future projections also appear to suggest that increases in droughts may continue.

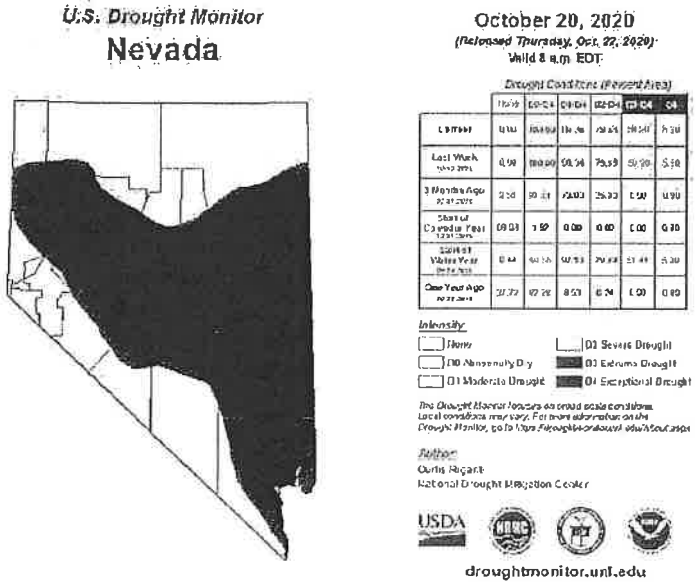

Figure 4.01: Nevada Drought Monitoring with Conditions and Intensity Classifications

The extensive drought conditions have had an effect on the GBWC-CSD Service Territory over the last 19 years. One example of the affect can be seen in Well 1 located in Pressure Zone 2. The well was originally drilled in 2001 with a static water level of 7 feet below ground level (bgl). In 2015, Well 1 was recorded to have a static water level of 23 feet bgl. The static water level in Well 1 had averaged 1-foot per year decline over 15 years. However, with wet winter of 2016/2017 the static water level in Well 1 has recovered to 14 feet bgl. The other wells in the water system have also seen similar effects over the years from the drought conditions. Section 6 Water Conservation Plan (Appendix K) contains water conservation measure that are being implemented and will help with planning for the drought conditions.

4.4.3 Man-Made Disaster

Man-made disasters can come in many forms. Fortunately, GBWC-CSD has never experienced civil riots or acts of terrorism. Minor acts of vandalism have occurred, such as graffiti and theft. Should a man-made disaster affect the infrastructure, the same procedures are followed with the local law enforcement being notified.

With the rise of the 2020 Pandemic (COVID-19) in the country, GBWC-CSD has had to adapt their operational procedures to ensure the health and safety of their employees. GBWC-CSD has been identified as an "Essential Business" and continued to provide services to their customers. Social distancing and facemasks have been part of the new protocols to reduce the spread of the virus within the GBWC-CSD. When available, most of the employees have been working remotely and all meetings have been converted to virtual meetings. When utilizing vehicles for travel to company owned facilities, only one employee is allowed to be in a company owned vehicle at a time. The Center for Disease Control (CDC) has provided safety protocols, which have been integrated into GBWC-CSD's everyday operations of their facilities.

The most likely sources of contamination of water supplies are because of backflow from loss of pressure in the system, through unprotected cross connections or after a break in a main.

Purposeful intrusion into the system is guarded through fences, lighting, inspections and locks. Contamination of the water supply is protected by:

- Frequent monitoring and testing of water for bacterial contamination.
- Recording customer complaints regarding water quality.
- Working chlorinators at the well sites.
- Active backflow prevention requiring routine monitoring of all new customer service applications and backflow prevention assemblies for potential cross connections.
- Ability to isolate segments of the water distribution system through use of valves.

GBWC has created a Cross-Connection Control program and corresponding manual for all systems in the State of Nevada. Cross-connections between a potable water system and non-potable sources of contamination represent a threat to public health. This program is designed to maintain the safety and quality of the water in the supply and distribution system by preventing the introduction, by backflow, of any foreign liquids, gases or other substances into the supply

system. Cross connection control is addressed in GBWC's tariff and the GBWC Standards and Specifications for Water Distribution System Construction for new development.

GBWC Tariff Rule No. 15, Sections G (effective July 2019) and Section H (effective October 2019) provide for Cross-Connection Control and penalties for violation. Per Section G:

- "Where any water pipe on a Customer's premises is cross-connected to another source or water supply, the Utility may refuse or discontinue service until there shall be installed at the expense of the Customer a suitable protective device, approved by the Utility, to protect against back-flow into the Utility's system, as required by the governmental authorities having jurisdiction. Customer or Applicant will own and maintain said cross-connection protective device(s) and provide to Utility each year the annual inspection report by a licensed cross-connection inspector and follow the Utility's State approved Cross Connection Control Plan and this Section G can cause the imposition of penalties set forth in the following Section H."

In accordance with Section H, penalties are assessed for violations of the Cross-Connection Plan, with the penalties increasing with each offense. The addition of violation fees and a structure for notifying customers in violation with the Cross-Connection Control Program are greatly assisting in protecting the potable water system.

SECTION 5.0: EMERGENCY ACTION PLAN

Section 5 in Volume I of this IRP provides a generalized explanation of the Emergency Action Plan for the four divisions, and the Emergency Action Plan for GBWC-CSD is provided in Appendix J.

SECTION 6.0: WATER CONSERVATION PLAN

The conservation plan is discussed in Section 6 in Volume I of this IRP, and the full conservation plan is included as Appendix K. GBWC-CSD has no deviations from the conservation plan provided in Volume I.

SECTION 7.0: PREFERRED PLAN

The purpose of a utility's preferred plan is to set forth the "utility's selection of its preferred options for meeting the demand for water for the term of the resource plan." The preferred plan must "include an explanation of the criteria that the utility used to select its preferred options" in "sufficient detail to enable the Commission to determine whether the utility's selection is justified." NAC 704.5674.

The 2021 Consolidated IRP preferred plan for GBWC-CSD is intended to provide a list of necessary projects over the next 20-year planning period in order for GBWC-CSD to continue to provide the current level of service to their customers. With the integration of an asset management plan, the preferred plan also makes recommendations associated with monitoring, maintenance, and inspections for several of the more expensive critical assets of the water system. The purpose for these recommendations is to extend the useful life of the assets prolonging the need for replacement or refurbishment. A condition assessment of several assets over the past year have identified some of the larger assets which have reach the end of their useful lives and will need to be replaced and/or refurbished. The capital projects provided in this preferred plan are at a planning level guideline based on current demand and growth projections and should be reviewed periodically and updated in future IRPs.

The preferred plan addresses the system, compliance, environmental, and conservation needs at a capital spending and monitoring schedule, which GBWC-CSD staff believes are prudent. The asset maintenance, monitoring, and smaller capital recommendations are provided in the plan with the goal of extending the assets' useful lives beyond their nominal life expectancies. This will help to push out some of the larger capital projects for replacement or refurbishing of specific assets.

With this strategy in mind, the objective of this preferred plan is to make the necessary investments to at least maintain the customer's existing level of service while ensuring NAC compliance of the GBWC-CSD water system.

7.1 CIP Organization and Description

The CIP describes capital improvements, maintenance, and monitoring recommendations to the system to maintain the customer's existing level of service while ensuring NAC 445A compliance. The timing for the project improvements has been assessed extensively by GBWC-CSD staff and their engineers to ensure the most cost effective results are captured for the ratepayers, while sustaining their existing level of service. The scheduling for the capital improvements were designed in a manner that brings about the least cost with the highest benefit to the company and its ratepayers. The following CIPs have been developed based on the best information available.

It should be noted that the CIPs are conceptual plans, and no topographic surveys, site inspections, or other field investigations have been conducted at this time. It should also be noted that no easements or sites have been obtained for facilities that are planned outside the public

right of way. It is possible that when such investigations are conducted at the time of design, changes in pipe alignments, lengths, facility siting or other changes will be required. All estimated costs in the 2021 Consolidated IRP were developed from actual costs from third parties and do not include items such as allowance for funds used during construction (AFUDC).

The following sections describe the capital improvement projects, monitoring, maintenance, and inspection recommendations necessary to maintain the customer's level of service for the GBWC-CSD water system, while ensuring NAC 445A compliance. All of the recommendations are provided to replace assets that are at the end of their useful lives.

A detailed breakdown of the construction and non-construction costs for each of the CIP can be found in Appendix I.

7.2 Preferred Plan Water Projects

White Lake Pipeline Replacement Project

Part of the original distribution system includes a 10-inch asbestos concrete (AC) transmission main that crosses White Lake and connects into the distribution system souths of US Hwy 395. Due to recent high precipitation winters, the typically dry lake has been inundated with water year-round. With the pipeline reaching the life expectancy of 40+ years old, and the added stress of water submerging the AC pipe, it is recommended that this portion of waterline be abandoned and a new transmission main be installed. The new pipeline will extent approximately 4,000 linear feet along Village Parkway and be bored under the highway to connect into the distribution system. A Preliminary Engineering Report (PER) was prepared in 2020 to analyze alternatives for the replacement of the main. Based upon recommendations in the PER, GBWC will monitor the pipeline for leaks and failure to determine the exact timeline of replacement. An excerpt from the PER is included as Figure 7.01, illustrating the decision flowchart for pipeline replacement. Four new flow meters need to be installed in order to accomplish this monitoring of leaks and water loss within this pipeline. The estimated cost and schedule for this project is as follows:

- White Lake Pipeline Replacement Project
  Estimated Cost: $1,244,950
  CIP Year: 2025

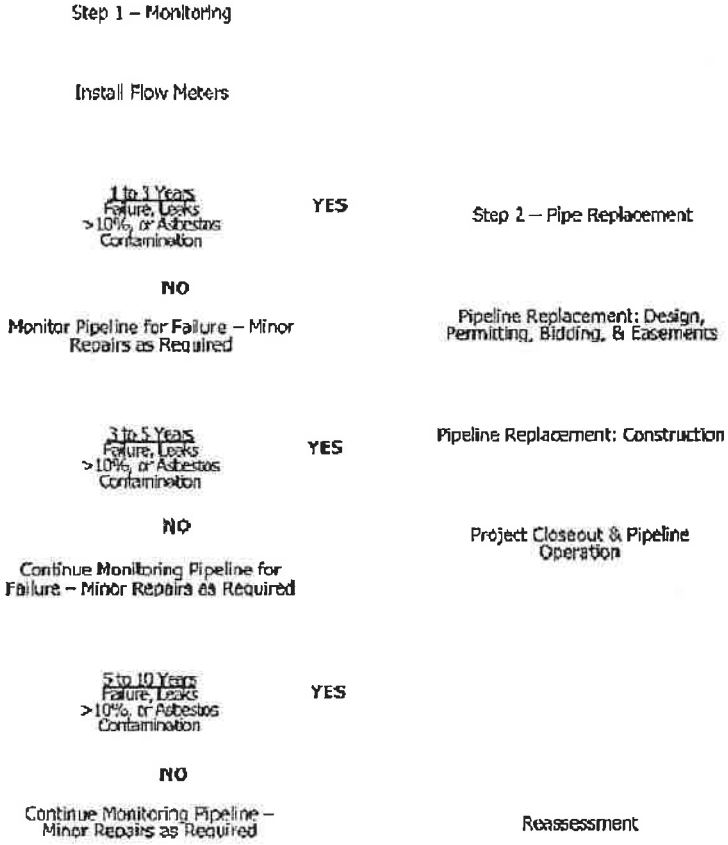

Figure 1.1 – Pipeline Replacement Flowchart

Figure 7.01: White Lake Pipeline Replacement Flowchart

AMI Conversion

The meters currently serving the CSD system are Automatic Meter Reading (AMR) meters. The AMR meters must be read by driving by the meters, due to the relatively weak signal strength. GBWC-CSD plans to replace 3,633 meters with Advanced Metering Infrastructure (AMI) meters. AMI meters produce a stronger signal that can be transmitted to a base tower and read directly by GBWC without an employee driving by each site. This will free up time for the operators, allowing them to conduct more maintenance and monitoring of Cold Springs fixed assets, which should result in extending their useful life. In addition to the meter replacements, the system conversion will require a radio tower base station and antenna, repeaters, and annual maintenance.

- AMI Conversion
  Estimated Cost: $1,463,160
  Project Year: 2025

Test Hole for Future Replacement Well

Approximately ¼-mile south of Well 7, GBWC-CSD owns a 50' X 50' parcel that has been slated for a future replacement well in Pressure Zone 1 (Long Valley Basin). If either Well 6 or 7 fail or lose significant capacity in the future, GBWC-CSD would drill a new replacement well on this parcel. However, it is unknown whether this site is a viable location for a new production well. In order to proactively assess the site's viability, GBWC-CSD will drill a test hole at the site to test the aquifer's water quality and quantity. In the event Well 6 or 7 fails, GBWC-CSD can be prepared to immediately begin on a replacement well based on information gathered from the test hole. We recommend that GBWC-CSD conduct an exploration drilling project to determine the viability of their well replacement parcel. The estimated cost and schedule for this project is as follows:

- Test Hole Drilling for Future Replacement Well in Long Valley
  Estimated Cost: $221,680
  Project Year: 2026

Long Valley Well Replacement

GBWC-CSD is planning to drill a test hole on a parcel of property approximately ¼ mile south of Well 7, which has been recommended as one of the Preferred Plan items in this Section. Based on the condition and age of Wells 6 and 7, GBWC-CSD estimates that at least one of these wells will need to be replaced in the next 5 to 7 years. As has been projected in the asset registry for fixed asset, we are recommending that a replacement well be drilled in the Long Valley Basin to either supplement lost production from Wells 6 and 7 or totally replace a well. The replacement well will be drilled to a depth of at least 700 feet to ensure that sufficient production will be available. The estimated cost and project schedule for this project is as follows:

- Long Valley Well Replacement
  Estimated Cost: $2,153,510
  CIP Year: 2026

Pipeline and Meter Pit Replacement

Some of the distribution piping in the water system consists of schedule 40 PVC pipe that is approximately 45 years old. Although pipeline breaks are rare, this old schedule 40 PVC pipe is reaching the end of its useful life and increasingly frequent leaks and breaks are expected in the future, which in turn adds to the NRW within the system. In addition, several of the lots in the oldest part of Pressure Zone 2 contain old paper tar meter pits that are frequently filled with dirt, requiring operators to clean them before the meters can be read for monthly water use (Appendix E). The paper tar meter pits generally are located in topographic low areas adjacent to the streets allowing them to fill with water and dirt during rainstorm events. The streets in this part of the service area do not have curb and gutter systems, and thus have poor drainage for storm water runoff. The operators spend a significant amount of time cleaning the dirt out of the meter pits only to have them fill again during the next storm event. The laterals to these meter pits were constructed of 1-inch PVC pipe that is connected to some of the oldest schedule 40 PVC distribution pipe in the water system. The PVC laterals do not have valves to isolate the lateral in order to replace the paper tar meter pits when they fail.

The previous method of replacing one of these paper tar meter pits was by isolating a portion of the distribution piping in the street through inline valves and draining the entire distribution piping between the two isolation valves through the lateral with the attached meter pit being replaced. This resulted in the entire street being without water until the meter pit was replaced. Once the meter pit had been replaced, the isolated distribution line needed to be shock chlorinated and bacti tested per NAC 445A regulations before being put back into service. According to the GBWC-CSD operators, this was only conducted when a lateral or paper tar meter pit was damaged beyond repair. To prevent replacing meter pits by isolating and draining portions of the 40-year old schedule 40 PVC distribution pipe resulting in customers being without water for an extended period of time, GBWC-CSD completed a meter pit replacement pilot study in 2018. The pilot study found that most of the leaks were coming from the meter pits and laterals where they connect into the mains. During the pilot study a method was engineered that allowed the replacement of the laterals and meter pits without draining the distribution piping and without cutting into the streets. A detailed report of the meter pit replacement pilot study can be found in Appendix M.

Lumos is recommending that new distribution piping, laterals, and meter pits be installed within the older portions of Pressure Zone 2 using the methods determined in the pilot study. This will allow the customers to still have water service during construction and only be without water when the meter pits are transferred over. If specific streets with old schedule 40 PVC pipe do need to be replaced, then new pipelines will be installed in the streets with minimum disturbance of the old pipeline located in the roadside drainage. The old schedule 40 PVC distribution piping, which is reaching the end of its useful life, would then be abandoned in place after the new distribution piping was activated. The schedule 40 PVC will be replaced with C-900 PVC pipe in the appropriate pipe size to ensure proper hydraulic pressures and flows are achieved. Along with the pipe replacement, the associated distribution valves and fire hydrants will be included in the required projects.

Prioritizing and scheduling of replacement pipeline projects by GBWC-CSD will be in coordination with Washoe County to coincide with annual road repair projects to reduce construction impacts

and for cost efficiency. Lumos recommending an annual pipeline replacement project budget of $250,000 for the Action Plan years of 2022-2024 (See Action Plan Section 8) and every year thereafter in the Preferred Plan.

- Pipeline and Meter Pit Replacement Project
  Estimated Cost: $250,000 (per year)
  CIP Year: 2025-2041

Inspection and Maintenance Recommendations

To help ensure that the storage tanks within the GBWC-CSD system remain in good condition, inspections and routine maintenance should be scheduled for all the storage tanks every 5 years. This includes annual inspections of the recently installed cathodic protection anodes to ensure they are working properly. Regularly scheduled inspections and maintenance will help extend the useful lives of the tanks. The costs for this recommendation are not included in the CIP because it is budgeted separately as ongoing inspection and maintenance.

7.3 Other Fixed Assets – Future Potential Replacement Needs

Table 7.01 is a list of additional assets that may need replacement or refurbishing base on their age and expected nominal useful lives. The goal for many of these assets, through proper monitoring and maintenance, is to extend their useful lives beyond the nominal useful life expectancy for replacement. Many of the recommended monitoring, maintenance, and inspection recommendations have been designed for this reason.

Table 7.01: Major Assets Expected Replacement/Refurbish Years

Asset	Year	Comments
Well 1	2040	Replacement
Touraco Booster Station	2025	Refurbishment

7.4 Preferred Plan Project Timeline

Table 7.02 provides an estimated project schedule timeline for the recommended implementation of the Preferred Plan. This project schedule timeline only recommends an implementation of projects out to 2027 with a recommended budgetary cost estimate for the yearly replacement of pipeline and meter pit through 2041. Beyond 2027, the schedule timeline for replacement of assets should be determined based on the monitoring, maintenance, and inspection protocols recommended in this and future IRPs.

Table 7.02: Scheduled Timeline for Preferred Plan Water CIPs

YEAR	PROJECTS	TOTAL ANNUAL CIP COST
2022	See Action Plan Timeline	$641,992
2023	See Action Plan Timeline	$2,014,986

2024	See Action Plan Timeline	$649,024
2025	White Lake Pipeline Replacement; AMI Conversion Pipeline and Meter Pit Replacement	$2,958,110
2026	Test Hole (Long Valley); Long Valley Well Replacement; Pipeline and Meter Pit Replacement	$2,625,190
2027	Pipeline and Meter Pit Replacement	$250,000
2028	Pipeline and Meter Pit Replacement	$250,000
2029	Pipeline and Meter Pit Replacement	$250,000
2030	Pipeline and Meter Pit Replacement	$250,000
2031	Pipeline and Meter Pit Replacement	$250,000
2032	Pipeline and Meter Pit Replacement	$250,000
2033	Pipeline and Meter Pit Replacement	$250,000
2034	Pipeline and Meter Pit Replacement	$250,000
2035	Pipeline and Meter Pit Replacement	$250,000
2036	Pipeline and Meter Pit Replacement	$250,000
2037	Pipeline and Meter Pit Replacement	$250,000
2038	Pipeline and Meter Pit Replacement	$250,000
2039	Pipeline and Meter Pit Replacement	$250,000
2040	Pipeline and Meter Pit Replacement	$250,000
2041	Pipeline and Meter Pit Replacement	$250,000
20-Year Preferred/Action Plan Total		**$12,639,302**

SECTION 8.0: ACTION PLAN

The recommended action plan projects for GBWC-CSD targets the water system in a way that helps maintain (and improve) the customers' current level of service, provide redundancy to the system, free up staff time for monitoring and maintenance, and ensure compliance with NAC 445A "water works" regulations. Where this action plan provides only a single option for a project, this represents the sole viable option for the project. For every action plan item related to a forecasted demand deficiency, we have considered all relevant and required factors in reaching our determination. Consistent with the Commission's guidance in GBWC's 2018 consolidated IRP, GBWC-CSD has scaled its Action Plan the reflect projects that it can reasonably complete within the 3-year Action Plan period.

It should be noted that the CIPs are conceptual plans, and no survey routes, site inspections or other field investigations have been conducted at this time. It should also be noted that no easements or sites have been obtained for facilities that are planned outside the public right of way. It is possible that when such investigations are conducted at the time of design, changes in pipe alignments, lengths, facility siting or other changes may be required. All estimated costs in this Volume (GBWC-CSD, Volume IV) of the consolidated 2021 IRP were developed from actual costs from third parties and do not include items such as allowance for funds used during construction (AFUDC). The AFUDC is included in the Funding Plan (Appendix L).

A detailed breakdown on the construction and non-construction costs for each action plan project can be found in Appendix I.

8.1 Action Plan Projects

The three-year action plan projects are focused on asset concerns that have been identified through the development of the asset management component, the new Lucity OMS Software System, NAC compliance, and GBWC-CSD staff recommendations. The project list includes:

- Surge Protection and Power Conditioning on Well 6 and 7;
- Cold Springs Drive Booster Station;
- Storage Tank 2 Replacement;
- New Well House on Well 6;
- New Well House on Well 7; and
- Pipeline and Meter Pit Replacement.

8.2 Water System Projects

Surge Protection and Power Conditioning on Well 6 and 7

Wells 6 and 7 are prone to power surges in the event of lightning strikes or other irregular electrical surges. This situation happened at Well 7 six months after a new pump and motor were installed following a rehabilitation of the well. The failed motor was diagnosed by Franklin Electric and determined to have been damaged due to a power surge. Surge protectors should be installed to protect the pumps and motors from damage in the case of future electrical

surges. The wells are also located on or near the end of the power transmission line, resulting in inconsistent power quality, subjecting the wells to rolling brown outs. Power conditioners should be installed to reduce voltage fluctuations and prevent damage to the pumps, motors, and other electrical components. The estimated price and schedule for the components of this project are as follows:

The estimated pricing and schedule for this project is as follows:

- Electrical Submersible Motor Surge Protection
  Estimated Cost: $192,480
  Project Year: 2022

Anticipated Timeline for Surge Protection and Power Conditioning on Well 6 and 7

Tasks	Est. Time
Bid Document Prep., Bidding, and Review	4 weeks
Capital Project Team Review	2 weeks
Contract Negotiations	2 weeks
Implementation of Work	4 weeks
Closeout of Project	2 weeks
Total Estimated Project Time	**16 weeks**

Cold Springs Drive Booster Station

Pressure Zone 1 (Zone 1) is isolated from the other pressure zones within the system due to Zone 1 being higher than the only adjacent pressure zone, Pressure Zone 2. Water is provided to Zone 1 by Well 6, Well 7, and Tank 1. In case of an emergency failure in Wells 6 and 7 or a water main break, there is potential that a portion of Pressure Zone 1 may lose water service. In February 2018, Well 6 experienced a motor failure, leaving Well 7 to provide water to the customers in Zone 1. If Well 6 had failed in a summer month with higher demand, Well 7 and Tank 1 would not have had sufficient capacity to meet Zone 1 demand. During the summer months, Wells 6 and 7 run up to 23 hours a day to maintain water demand in Zone 1. In addition, the capacity of Well 7 has decreased by over 50% since the 2018 IRP, resulting in an even larger deficit if Well 6 fails again.

In addition to the risk of equipment failure, both Well 6 and 7 are located near each other in a remote area of undeveloped land at high risk for range fires. The wells are equipped with backup generators to protect against power loss, but a range fire could incapacitate backup generators in addition to the power source to the site. As demonstrated by range fires within the GBWC-CSD service area in recent summers (2020), range fires can and do occur commonly in the area. These fires can result in power, well, and generator failures during the high demand summer months.

The static water levels of Wells 6 and 7 have dropped significantly since they were drilled. As mentioned above, Well 7 has also experienced a dramatic loss of capacity in recent years. Due to this, a project is included in the Preferred Plan to drill a replacement well when either well eventually fails or is unable to keep up with demand in Zone 1. The installation of the booster station could provide additional capacity to Zone 1 and delay the need for the replacement well.

The proposed Cold Springs Drive Booster Station would allow water to be moved from the adjacent Zone 2 in the event of supply deficit in Zone 1. Zone 2 is served by the Van Dyke well, which currently has excess capacity compared to the Zone 1 demand. This connectivity will ensure safe, redundancy and reliable water service to all GBWC-CSD customers in Zone 1.

The proposed booster station will be connected to the 8" waterline on Cold Springs Drive, near the existing PRV. The Cold Springs Booster Station will include a triplex booster pump system with two duty pumps and one backup pump, all in parallel. The pumps are estimated to be 15 HP and will have a total pumping capacity of 350 gpm. The triplex pump system allows flexibility for flow scenarios. A single pump will have capacity to convey enough water for the irrigation demands in summer months or to accommodate the failure of either Well 6 or 7. The second pump provides additional capacity in the event of a catastrophic occurrence in Zone 1, such as a range fire causing both wells to fail or for a fire flow scenario. The third pump provides redundancy in the event of pump maintenance or failure. This is a standard approach to booster pump station design.

The booster station will include a building to house the pumps and electrical equipment above ground and will be equipped with a backup generator with automatic transfer switch. Due to the high groundwater in the area of the proposed booster station, a below ground pump system within a vault cannot be installed and it is not recommended because it would create a confined space environment per OSHA regulations. The estimated price and schedule for the components of this project are as follows:

The estimated pricing and schedule for this project is as follows:

- Cold Springs Booster Station:
  Estimated Cost: $514,080
  Project Year: 2023

Anticipated Timeline for Cold Springs Booster Station

Tasks	Est. Time
ITB Documents, Bids, Review & Engineer Award	4 weeks
Capital Project Team Review	2 weeks
Contract Negotiations	4 weeks
Survey	2 weeks
Geotechnical Investigation	2 weeks
Engineering Design Bid Documents	12 weeks
Bidding and Project Award	5 weeks
Construction of Booster Station	12 weeks
Closeout of Project	2 weeks
Total Estimated Project Time	**45 weeks**

Storage Tank 2 Replacement

Storage Tank 2 is located in Pressure Zone 2. Tank 2 was relocated to its current location in 1975 (46 years ago) from another site and the actual age of the tank is unknown. The nominal useful

life expectancy for the generation of tank is 45 years, meaning the tank is past its useful life. Tank 2 was last inspected in 2019 and was given poor ratings for most of its internal condition assessments including the internal sidewall plates, internal floor plate, common inlet/outlet, and manways. If the current Tank 2 is decommissioned and replaced with a new 420,000-gallon storage tank, along with the Van Dyke Well that was brought online in 2016, Pressure Zone 2 will continue to meet NAC 445A storage capacity requirements. Together, the new Storage Tank 2 and Well would allow for a limited amount of excess storage capacity to accommodate for the limited amount of growth (infill) expected over the next several years in Pressure Zone 2. If the Lakefront Development Project moves forward, the developer would be required to add any additional storage capacity needed for the new development in Pressure Zone 2. We recommend the decommissioning of the existing Tank 2 and replacing it with a new 420,000-gallon storage tank.

Based on discussions with Washoe County Health Department (WCHD) and Truckee Meadows Fire Protection District (TMFPD), the storage capacity of Tank 2 is required to meet fire flow requirements. The fire marshal having jurisdiction has the sole authority to determine, on a case-by-case basis, if fire flow storage can be conveyed from a high-pressure zone in a system or must be stored in the specific pressure zone. In discussions with TMFPD's Fire Marshal on January 8, 2019, the Fire Marshal advised that Tank 2 is required in Pressure Zone 2. Each zone in the GBWC-CSD system must have fire flow storage within the zone and is not allowed to share the storage with adjacent zones (see Appendix M for documentation). Due to the fire flow requirement for Gomes Elementary School (the largest requirement in the zone) as determined by TMFPD, the storage capacity of Tank 2 is required in Zone 2. If Tank 2 is not replaced, it is in danger of failing in the near future based on age and the poor results of the latest inspection. When a water storage tank fails, it typically fails along a welded seam. This failure is commonly called "unzipping" of a storage tank due to the rapid failure. If a tank of this size and volume were to fail in this manner, it would result in a significant release of water all at once. Due to the high seismic activity in the area of Tank 2, even a small earthquake could trigger a welded seam failure. Tank 2 is a liability in its current state and in the event of failure, the pressure zone would not have sufficient storage for a fire event.

The estimated pricing and schedule for this project is as follows:

- Storage Tank 2 Replacement
  Estimated Cost: $997,560
  Project Year: 2022-2024

Anticipated Timeline for Storage Tank 2 Replacement

Tasks	Est. Time
ITB Documents, Bids, Review & Engineer Award	8 weeks
Capital Project Team Review	2 weeks
Contract Negotiations	4 weeks
Survey	2 weeks
Geotechnical Investigation	3 weeks
Engineering Design Bid Documents	12 weeks

Bidding and Project Award	4 weeks
Construction of Tank 2 Replacement	26 weeks
Closeout of Project	3 weeks
Total Estimated Project Time	**64 weeks**

New Well House for Well 6

The well house for Well 6 currently consists of a two-piece "clam shell" vault placed above ground to create a makeshift concrete well house. The vault is equipped with an access door, vents, necessary electrical and SCADA equipment, and sodium hypochlorite (NaOCl) storage.

Washoe County Health District (WCHD) performed a sanitary survey of the GBWC-CSD system in June 2020. During this sanitary survey, WCHD identified significant deficiencies at the Well 6 well house. The well house is deteriorating and does "not provide adequate or sanitary protection of well head". WCHD advised that "this well house must be repaired or replaced so that it provides adequate protection of well". The replacement of the well house under this project will bring the wellhead into conformance with WCHD standards.

NAC 445A.6685 dictates that NaOCl should be stored "away from any equipment, piping or wiring that is susceptible to damage from corrosion". A new well house would provide a separate room for storage of NaOCl to prevent corrosion of equipment in the well house. The exterior of the current well house vault is aggressively deteriorating. The new well house will consist of a precast fiberglass building with a roof hatch to access the pump and separate room and ventilation for NaOCl storage. The project will also include reconfiguration of well discharge piping, reinstallation of SCADA and electrical equipment, heating and cooling systems, and lighting. The estimated cost and project schedule for the project is as follows:

The estimated pricing and schedule for this project is as follows:

- New Well House for Well 6
  Estimated Cost: $425,941
  Project Year: 2023

Anticipated Timeline for New Well House for Well 6

Tasks	Est. Time
ITB Documents, Bids, Review & Engineer Award	4 weeks
Capital Project Team Review	2 weeks
Contract Negotiations	4 weeks
Survey	1 week
Geotechnical Investigation	2 weeks
Engineering Design Bid Documents for Well House and Discharge Piping	8 weeks
Bidding and Project Award	4 weeks
Construction of Tank 2 Replacement	10 weeks
Closeout of Project	1 week
Total Estimated Project Time	**36 weeks**

New Well House Well 7

The well house for Well 7 currently consists of a two-piece "clam shell" vault placed above ground to create a makeshift concrete well house. The vault is equipped with an access door, vents, necessary electrical and SCADA equipment, and sodium hypochlorite (NaOCl) storage.

Washoe County Health District (WCHD) performed a sanitary survey of the GBWC-CSD system in June 2020. During this sanitary survey, WCHD identified significant deficiencies at the Well 7 well house. The well house is deteriorating and does "not provide adequate or sanitary protection of well head". WCHD advised that "this well house must be repaired or replaced so that it provides adequate protection of well". The replacement of the well house under this project will bring the wellhead into conformance with WCHD standards.

NAC 445A.6685 dictates that NaOCl should be stored "away from any equipment, piping or wiring that is susceptible to damage from corrosion". A new well house would provide a separate room for storage of NaOCl to prevent corrosion of equipment in the well house. The exterior of the current well house vault is aggressively deteriorating. The new well house will consist of a precast fiberglass building with a roof hatch to access the pump and separate room and ventilation for NaOCl storage. The project will also include reconfiguration of well discharge piping, reinstallation of SCADA and electrical equipment, heating and cooling systems, and lighting. The estimated cost and project schedule for the project is as follows:

The estimated pricing and schedule for this project is as follows:

- New Well House for Well 7
  Estimated Cost: $425,941
  Project Year: 2023

Anticipated Timeline for New Well House for Well 7

Tasks	Est. Time
ITB Documents, Bids, Review & Engineer Award	4 weeks
Capital Project Team Review Contract Negotiations	2 weeks 4 weeks
Survey	1 week
Geotechnical Investigation	2 weeks
Engineering Design Bid Documents for Well House and Discharge Piping	8 weeks
Bidding and Project Award	4 weeks
Construction of Tank 2 Replacement	10 weeks
Closeout of Project	1 week
Total Estimated Project Time	**36 weeks**

Pipeline and Meter Pit Replacement

Some of the distribution piping in the water system consists of schedule 40 PVC pipe that is approximately 45 years old. Although pipeline breaks are rare, this old schedule 40 PVC pipe is

reaching the end of its useful life and more frequent leaks and breaks are expected in the future, which in turn adds to the NRW within the system and emergency service outages. During a meter pit replacement pilot test study, which was recommended and approved by the PUCN, several of the service laterals and meter pits being replaced were found to be leaking (Appendix E). In addition, several of the lots in the oldest part of Pressure Zone 2 contain old paper tar meter pits that are frequently filled with dirt requiring operators to clean them before the meters can be read for monthly water use (Appendix E). The paper tar meter pits generally are located in topographic low areas adjacent to the streets allowing them to fill with water and dirt during rainstorm events. The streets in this part of the service area do not have curb and gutter systems and thus have poor drainage for storm water runoff. The operators spend a significant amount of time cleaning the dirt out of the meter pits only to have them fill again during the next storm event. The laterals to these meter pits were constructed of 1-inch PVC pipe that is connected to some of the oldest schedule 40 PVC distribution pipe in the water system. The PVC laterals do not have valves (corp stops) to isolate the lateral in order to replace the paper tar meter pits when they final fail.

As mentioned in Section 7.2, a meter pit replacement pilot study, approved by the PUCN and completed in 2018, found a more economical method to replace service laterals and meter pits. New distribution piping, laterals, and meter pits be installed within the older portions of Pressure Zone 2 using the methods determined in the pilot study. This will allow the customers to still have water service during construction and only be without water when the meter pits are transferred over. If specific streets with old schedule 40 PVC pipe do need to be replaced, then new pipelines will be installed in the streets with minimum disturbance of the old pipeline located in the roadside drainage. The old schedule 40 PVC distribution piping, which is reaching the end of its useful life, would then be abandoned in place after the new distribution piping was activated. The schedule 40 PVC will be replaced with C-900 PVC pipe in the appropriate pipe size to ensure proper hydraulic pressures and flows are achieved. Along with the pipe replacement, the associated distribution valves and fire hydrants will be included in the required projects.

To help reduce costs, pipeline and meter pit replacement projects would be coordinated with Washoe County road repair project (similar to what TMWA, City of Reno, RTC, and Washoe County coordinate for infrastructure to stretch their public dollars farther) to reduce construction impacts and be more cost efficiency. We are recommending an annual pipeline replacement project budget of $250,000 for the Action Plan years of 2022-2024 and every year thereafter in the Preferred Plan. Cost will be allocated on an annual basis as follows:

The estimated pricing and schedule for this project is as follows:

- Pipeline and Meter Pit Replacement Project
  Estimated Cost: $250,000 (per year)
  CIP Year: 2022-2024

Anticipated Timeline for Pipeline and Meter Pit Replacement

Tasks	Est. Time
ITB Documents, Bids, Review & Engineer Award	4 weeks
Capital Project Team Review	2 weeks
Contract Negotiations	2 weeks
Survey	2 weeks
Geotechnical Investigation	2 weeks
Engineering Design Bid Documents for Pipeline and Meter Pit	6 weeks
Permit Submittals and Approvals	4 weeks
Bidding and Project Award	4 weeks
Construction of Tank 2 Replacement	12 weeks
Closeout of Project	2 weeks
Total Estimated Project Time	**40 weeks**

Maintenance/Monitoring/Inspections

Wire-Water Efficiency Testing:

Due to the critical nature and dependency of groundwater, the wells should have a wire to water efficiency test conducted annually to determine the overall electrical efficiency of the pumping systems in the wells. Well hydraulic parameters are constantly changing and these tests better determine when a well needs cleaning (rehabilitation) due to plugging of the screens or a redesign of the pumping system to reduce annual electrical costs. A project cost is not being provided for this monitoring recommendation due to the nominal expense associated with an outside testing company.

8.3 Action Plan Project Timeline

Table 8.01 is a schedule of the project timeline for the water projects proposed for the 3-year Action Plan.

Table 8.01: Scheduled Time Line for Action Plan Water Projects

YEAR	PROJECTS	TOTAL CIP COST
2022	Electrical Submersible Motor Surge Protection	$ 192,480
	Tank 2 Replacement	$ 199,512
	Pipeline and Meter Pit Replacement	$ 250,000
	2022 CIP Total Cost	**$ 641,992**
2023	Cold Springs Booster Pump Station	$ 514,080
	Well 6 Building Replacement	$ 425,941
	Well 7 Building Replacement	$ 425,941
	Tank 2 Replacement (continued)	$ 399,024
	Pipeline and Meter Pit Replacement	$ 250,000
	2023 CIP Total Cost	**$ 2,014,986**
2024	Tank 2 Replacement (continued)	$ 399,024
	Pipeline and Meter Pit Replacement	$ 250,000
	2024 CIP Total Cost	**$ 649,024**
3-Year Action Plan Total		**$ 3,306,002**

SECTION 9.0: FUNDING PLAN

The Funding Plan is detailed in Section 9 of Volume I (Introduction) of this 2021 Consolidated IRP filing.

SECTION 10.0: SYSTEM IMPROVEMENT RATE REQUEST

GBWC-CSD is requesting a System Improvement Rate ("SIR") based on NRS 704.663(3), and the implementing regulations adopted by the Commission for two (2) capital investments in the Action Plan of the GBWC-CSD 2021 Consolidated IRP, (i) Cold Spring Drive Booster Station and (ii) Storage Tank 2 Replacement.

NAC 704.6339 states that SIR requests must include the following information:

(1) A description of the project.
(2) A statement explaining the necessity of the project.
(3) The resulting benefits of the project to the utility and the customers of the utility upon the completion of the project.
(4) A statement supported by written testimony that the project is not designed to increase revenues by connecting an improvement to a distribution system or wastewater system to new customers.
(5) A statement that the project was not included in the rate base of the utility in its most recent general rate case.
(6) A statement that the project costs for which recovery will be sought represent an investment to be made by the utility and which will not be paid by another funding source, including, without limitation, a grant, developer contribution or other form of reimbursement.
(7) If submittal to the Commission is not otherwise required by law or regulation, the utility's plan for construction and the proposed schedule for construction. A plan for construction and a proposed schedule for construction submitted pursuant to this paragraph must comply with the provisions of paragraph (a) of subsection 4 of NAC 704.568.
(8) If submittal to the Commission is not otherwise required by law or regulation, a budget of planned expenditures which complies with the provisions of NAC 704.5681.

10.1 Description of each SIR Project

Cold Springs Drive Booster Station

This project involves installing a new Booster Station near the PRV on Cold Springs Drive to enable GBWC-CSD to convey water from Pressure Zone 2 to Pressure Zone 1. See Section 2.2.4 (Booster Pumps) and Section 8.2 (Cold Springs Drive Booster Station).

Storage Tank 2 Replacement

This project would involve demolition of the existing Tank 2 (due to the poor tank conditions) and construction of a new 420,000-gallon welded steel tank in its place. See Section 2.2.3.1 (Storage Tank Existing Condition Assessment, Tank 2), Section 4.1.3 (Water Storage Evaluation, Pressure Zone 2 Storage) and Section 8.2 (Storage Tank 2 Replacement).

10.2 Need for Each SIR Project

Cold Springs Drive Booster Station

This project upgrades the distribution system and is critical for maintaining service in Pressure Zone 1 in the event of an outage and/or well failure. The failure of Well 6 or 7 due to equipment failure or a catastrophic event (such as a range fire) would result in loss of water service to part or all of Pressure Zone 1. The Cold Springs Drive Booster Station would allow water to be conveyed from Pressure Zone 2 to continuing providing water service to the zone. See Section 2.2.4 (Booster Pumps) and Section 8.2 (Cold Springs Drive Booster Station).

Storage Tank 2 Replacement

This project replaces aging infrastructure, which is in very poor condition. The project materially improves service and reliability in Pressure Zone 2 by ensuring adequate fire flow storage for the zone. Per Truckee Meadows Fire Protection District requirements, each pressure zone must have sufficient storage to meet fire flow requirements. Tank 2 is required to meet this storage requirement in Pressure Zone 2, and is at risk of failing in the near future. See Section 2.2.3.1 (Storage Tank Existing Condition Assessment, Tank 2), Section 4.1.3 (Water Storage Evaluation, Pressure Zone 2 Storage) and Section 8.2 (Storage Tank 2 Replacement).

10.3 Benefits of Each SIR Project

Cold Springs Drive Booster Station

The project will improve reliability by adding redundancy to the system and ensuring that the customers in Pressure Zone 1 have water in the event of well equipment failure or catastrophic event causing the failure of Well 6 or 7. See Section 2.2.4 (Booster Pumps) and Section 8.2 (Cold Springs Drive Booster Station).

Storage Tank 2 Replacement

Replacing Tank 2 will reduce the liability of the tank failing in the near future and releasing a large volume of water. In addition, this project will ensure fire flow is reliably provided to Pressure Zone 2 during the extended lifespan of the new tank. Replacing Tank 2 will bring the GBWC-CSD system Pressure Zone 2 in conformance with the requirements of the Truckee Meadows Fire Department for fire flow storage. Additionally, replacing Tank 2 will prevent the potential tank failure in the near future and the issues created by the sudden release of a large volume of water. See Section 2.2.3.1 (Storage Tank Existing Condition Assessment, Tank 2), Section 4.1.3 (Water Storage Evaluation, Pressure Zone 2 Storage) and Section 8.2 (Storage Tank 2 Replacement).

10.4 Project Supports Current Customers

These projects are not designed to increase revenues to existing customers by making improvements to the system for new customers, but would instead help to maintain or enhance the existing customers Level of Service.

Cold Springs Drive Booster Station

This project will provide a necessary reliable water source to the current customers in Pressure Zone 1, even in the event of a well failure or catastrophic event. See Section 2.2.4 (Booster Pumps) and Section 8.2 (Cold Springs Drive Booster Station).

Storage Tank 2 Replacement
This project will allow GBWC-CSD to continue to provide necessary fire flow storage to benefit current customers in Pressure Zone 2. See Section 2.2.3.1 (Storage Tank Existing Condition Assessment, Tank 2), Section 4.1.3 (Water Storage Evaluation, Pressure Zone 2 Storage) and Section 8.2 (Storage Tank 2 Replacement).

10.5 Statement that each Project is not included in Rate Base

The project list in Section 10.1 *et seq.* were not included in the Company's rate base in its most recent general rate case. See Testimony by Terry J. Redmon.

10.6 Funded by Utility Investment

The project list in Section 10.1 *et seq.* will be funded through traditional funding sources using GBWC's parent company's Corix Regulated Utilities (US) Inc. debt and equity investment, and will not be paid by another funding source, including, without limitation, a grant, developer contribution, or other form of reimbursement. See Section 9.0 (Funding Plan).

10.7 Construction Schedule for Each Project

Cold Springs Drive Booster Station
This project is scheduled for construction in 2023. See Section 8.2 (Cold Springs Drive Booster Station).

Storage Tank 2 Replacement
This project is scheduled for construction in 2022-2024. See Section 8.2 (Storage Tank 2 Replacement).

10.8 Project Budget for Each Project

Cold Springs Drive Booster Station
Project Cost: $514,080. See Section 8.2 (Cold Springs Drive Booster Station).

Storage Tank 2 Replacement
Project Cost: $997,560. See Section 8.2 (Storage Tank 2 Replacement).

Contact Filer Regarding Image Clarity

BEFORE THE PUBLIC UTILITIES COMMISSION OF NEVADA

ooOoo

In the Matter of: Application of Great Basin Water Co., Cold Springs, Pahrump, Spanish Springs and Spring Creek Divisions for approval of its 2021 Integrated Resource Plan and to designate certain system improvement projects as eligible projects for which a system improvement rate may be established, and for relief properly related thereto.	Docket No. 21-_____

VOLUME 4 OF 14

APPENDIX A

Fixed Asset Registry

Great Basin Water Company – Cold Springs Division (Volume IV)

NDWR Hydrographic Basin Data & Water Rights

Cold Springs Basin Summary
Long Valley Basin Summary

Order 606
Order 787
Order 826
Order 1206
Order 1206A
Order 1277
Order 1278
Order 1307

Nevada Division of Water Resources

Hydrographic Area Summary

Hydrographic Area No.	100	**Hydrographic Area Name**	COLD SPRING VALLEY
Subarea Name			
Hydrographic Region No.	07	**Hydrographic Region Name**	WESTERN
Area (sq. mi.)	30		
Counties within the hydrographic area	Washoe		
Nearest Communities to Hydrographic Area	Bordertown, Lemmon Valley		
Designated (Y/N, Order No.)	Y, O-606	**For All or Portion of Basin:**	All
Preferred Use (Order No., Description)	None	**For All or Portion of Basin:**	
State Engineer's Orders:	—	**For All or Portion of Basin:**	
State Engineer's Rulings:	—		
Pumpage Inventory Status	none	**Crop Inventory Status**	None
Water Level Measurement?	Y		

Yield Values

Perennial Yield (AFY)	500
System Yield (AFY)	
Yield Reference(s)	USGS Recon. 43
Yield Remarks	

Source of Committed Data: NDWR Database **Supplementally Adjusted?** Y

Manner of Use	Underground	Geothermal	Other Ground Water
Commercial	0.77	0.00	0.00
Construction	0.00	0.00	0.00
Domestic	0.00	0.00	0.00
Environmental	40.20	0.00	0.00
Industrial	0.00	0.00	0.00
Irrigation	1,105.10	0.00	0.00
Mining and Milling	0.00	0.00	0.00
Municipal	0.00	0.00	0.00
Power	0.00	0.00	0.00
Quasi-Municipal	1,707.96	0.00	0.00
Recreation	0.00	0.00	0.00
Stockwater	4.93	0.00	0.00
Storage	0.00	0.00	0.00
Wildlife	0.00	0.00	0.00
Other	0.00	0.00	0.00
Totals	2,858.96	0.00	0.00

Related Reports

USGS Reconnaissance 43 **USGS Bulletin** None

Other References

Comments Basin is Shared in Common with California

Nevada Division of Water Resources

Hydrographic Area Summary

Hydrographic Area No.	100A	Hydrographic Area Name	LONG VALLEY
Subarea Name	Long Valley		
Hydrographic Region No.	07	Hydrographic Region Name	WESTERN
Area (sq. mi.)	25		
Counties within the hydrographic area	Washoe		
Nearest Communities to Hydrographic Area	Bordertown		
Designated (Y/N, Order No.)	Y; O-826	For All or Portion of Basin:	All
Preferred Use (Order No., Description)	None	For All or Portion of Basin:	
State Engineer's Orders:	—	For All or Portion of Basin:	All
State Engineer's Rulings:	—		
Pumpage Inventory Status	None	Crop Inventory Status	None
Water Level Measurement?	None		

Yield Values

Perennial Yield (AFY)	500 - 900
System Yield (AFY)	
Yield Reference(s)	State Engineer Ruling 4673
Yield Remarks	

Source of Committed Data: NDWR Database Supplementally Adjusted? Y

Manner of Use	Underground	Geothermal	Other Ground Water
Commercial	0.00	0.00	0.00
Construction	0.00	0.00	0.00
Domestic	0.00	0.00	0.00
Environmental	0.00	0.00	0.00
Industrial	0.00	0.00	0.00
Irrigation	0.00	0.00	0.00
Mining and Milling	0.00	0.00	0.00
Municipal	0.00	0.00	0.00
Power	0.00	0.00	0.00
Quasi-Municipal	1,906.90	0.00	0.00
Recreation	0.00	0.00	0.00
Stockwater	0.00	0.00	0.00
Storage	0.00	0.00	0.00
Wildlife	0.00	0.00	0.00
Other	0.00	0.00	0.00
Totals	1,906.90	0.00	0.00

Related Reports

USGS Reconnaissance None USGS Bulletin None

Other References

Comments Basin is Shared in Common with California

IN THE OFFICE OF THE STATE ENGINEER

OF THE STATE OF NEVADA

ORDER

DESIGNATING AND DESCRIBING

THE COLD SPRINGS VALLEY GROUND WATER BASIN

WASHOE COUNTY, NEVADA

The State Engineer finds that conditions warrant the designation of the Cold Springs Valley Ground Water Basin, Washoe County, Nevada, and by this Order designates the following described area of land as a ground water basin coming under the provisions of Chapter 534 NRS (Conservation and Distribution of Underground Waters).

T.20N., R.18E.

W½, W½ NE¼, NW¼ SE¼, Section 3, All of Section 4, W½ W½, E½ NW¼, SE¼ SW¼, Section 10, NW¼, SW¼ NE¼, Section 15, and that portion of Sections 5, 8, 9 and 16 within the Cold Springs Valley Drainage Basin.

T.21N., R.18E.

W½ W½ Section 2, All of Sections 3, 4, 5, 8, 9, 10, W½ W½ Section 11, NW¼ NW¼, Section 14, N½, SW¼ Section 15, All of Sections 16, 17, 20 and 21, W½ of Section 22, W½, SW¼ SE¼ Section 27, All of Sections 28, 29, 33 and 34, W½ W½ Section 35, and that portion within Sections 6, 7, 18, 19, 30 and 32 within the natural Drainage Basin of Cold Springs Valley and also within the confines of the State of Nevada.

T.22N., R.18E.

W½ W½, SE¼ NW¼, E½ SW¼, W½ SE¼, Section 22, W½, W½ SE¼, Section 27, All of Sections 28, 33, 34, W½ W½, Section 35 and that portion of Sections 15, 16, 21, 29, 31 and 32 within the natural Drainage Basin of Cold Springs Valley.

Roland D. Westergard
State Engineer

Dated at Carson City, Nevada,

this 18 day of January, 1977.

IN THE OFFICE OF THE STATE ENGINEER

ORDER

DESIGNATING AND DESCRIBING THE LONG VALLEY GROUND WATER BASIN NEAR BORDERTOWN, WASHOE COUNTY, NEVADA, AND DECLARING IRRIGATION TO BE A NON-PREFERRED USE OF THE LIMITED GROUND WATER RESOURCE

The State Engineer finds that conditions warrant the designation of the Long Valley Ground Water Basin near Bordertown, Washoe County, Nevada, and by this Order, designates the following described area of land as a ground water basin coming under the provisions of Chapter 534 NRS (Conservation and Distribution of Underground Waters).

T.20N., R.18E., M.D.B. & M.

All of the Nevada portion of Sections 6, 7, 17 and 18, and that portion of Sections 5, 8, 9, 14, 15, 16, 19, 20, 21, 22, 23, 29 and 30 lying within Nevada and within the natural drainage of Long Valley.

T.21N., R.18E., M.D.B. & M.

All of the Nevada portion of Section 31 and that portion of Sections 19, 29, 30 and 32 lying within Nevada and within the natural drainage of Long Valley.

In accordance with NRS 534.120, subsection 2, the irrigation of land using underground water is not considered to be a preferred use of the limited underground water resource.

NOW THEREFORE, it is ordered that:

All applications filed after June 3, 1982 to appropriate underground water to irrigate land within the Designated Long Valley Ground Water Basin will be denied.

Peter G. Morros
State Engineer

Dated at Carson City, Nevada, this
3rd day of JUNE, 1982.

826

IN THE OFFICE OF THE STATE ENGINEER

ORDER

DESIGNATING AND DESCRIBING THE REMAINING PORTION
OF LONG VALLEY GROUND WATER BASIN NEAR BORDERTOWN,
WASHOE COUNTY, NEVADA, AND
DECLARING IRRIGATION TO BE A NON-PREFERRED USE
OF THE LIMITED GROUND WATER RESOURCE

The State Engineer finds that conditions warrant the designation of the Long Valley Ground Water Basin near Bordertown, Washoe County, Nevada, and by this Order, designates the following described area of land as a ground water basin coming under the provisions of Chapter 534 NRS (Conservation and Distribution of Underground Waters). This area is not covered under previous Order No. 787 dated June 3, 1982.

T.24N., R.18E., M.D.B.&M.

Those portions of Sections 19, 20, 29, 30, 31 and 32 lying within Nevada and within the natural drainage basin of Long Valley.

T.23N., R.18E., M.D.B.&M.

Those portions of Sections 5, 6, 7, 8, 17, 18, 19, 20, 29, 30, 31, 32 and 33 lying within Nevada and within the natural drainage basin of Long Valley.

T.22N., R.18E., M.D.B.&M.

Those portions of Sections 4, 5, 6, 7, 8, 9, 16, 17, 18, 19, 20, 21, 29, 30, 31 and 32 lying within Nevada and within the natural drainage basin of Long Valley.

T.21N., R.18E., M.D.B.&M.

Those portions of Sections 6 and 18 lying within Nevada and within the natural drainage basin of Long Valley.

In accordance with NRS 534.120, subsection 2, the irrigation of land using underground water is not considered to be a preferred use of the limited underground water resource.

NOW THEREFORE, it is ordered that:

All applications filed after October 12, 1983 to appropriate underground water to irrigate land within the Designated Long Valley Ground Water Basin will be denied.

Peter G. Morros
State Engineer

Dated at Carson City, Nevada, this
12th day of OCTOBER, 1983.

IN THE OFFICE OF THE STATE ENGINEER

OF THE STATE OF NEVADA

1206

ORDER

FOR DOMESTIC WELL CREDIT WITHIN THE COLD SPRINGS VALLEY HYDROGRAPHIC BASIN (100)

WHEREAS, this order is adopted under the procedure set forth in chapter 534.350 of the Nevada Revised Statutes for the establishment of a program that allows a public water system to receive credits for the addition of new customers to its system;

WHEREAS, this order covers the Cold Springs Hydrographic Basin as described and designated by State Engineer's Order No. 606 more specifically described as being:

T.20N., R.18E., M.D.B.&M.

W½, W½ NE¼, NW¼ SE¼ Section 3, All of Section 4, W½ W½, E½ NW¼, SE¼ SW¼ Section 10, NW¼, SW¼ NE¼ Section 15, and that portion of Sections 5, 8, 9 and 16 within the Natural Drainage Basin of the Cold Springs Valley Hydrographic Basin.

T.21N., R.18E., M.D.B.&M.

W½ W½ Section 2, All of Sections 3, 4, 5, 8, 9, 10, W½ W½ Section 11, NW¼ NW¼ Section 14, N½, SW¼ Section 15, All of Sections 16, 17, 20 and 21, W½ of Section 22, W½, SW¼ SE¼ Section 27, All of Sections 28, 29, 33 and 34, W½ W½ Section 35, and that portion of Sections 6, 7, 18, 19, 30 and 32 within the Natural Drainage Basin of the Cold Springs Valley Hydrographic Basin and also within the confines of the State of Nevada.

T.22N., R.18E., M.D.B.&M.

W½ W½, SE¼ NW¼, E½ SW¼, W½ SE¼ Section 22, W½, W½ SE¼ Section 27, All of Sections 28, 33, 34, W½ W½ Section 35 and that portion of Sections 15, 16, 21, 29, 31 and 32 within the Natural Drainage Basin of the Cold Springs Valley Hydrographic Basin.

WHEREAS, this order proposes that a public water system that provides water for municipal purposes within the area described above receive a credit for each customer who is added to their system provided:

a. A single family dwelling which is presently utilizing a domestic well on a lot established as a separate lot before July 1, 1993, and voluntarily ceases to draw water from that well located within the described area; or

b. Any owner of a lot with the ability to drill a domestic well and utilize water from that well meets the following conditions:

(1) That the described lot is located within the area described; and
(2) That the lot was established as a separate lot before July 1, 1993; and
(3) That the lot was approved by a local governing body or planning commission for service by an individual domestic well before July 1, 1993; and
(4) A written agreement is entered between the owner of the lot and the public water system, wherein, the owner agrees not to drill a domestic well on the lot, and the public water system agrees that it will provide water service to that lot. Any such agreement must be acknowledged and recorded in the same manner as conveyances affecting real property are required to be acknowledged and recorded pursuant to chapter 111 of NRS.

WHEREAS, if a county requires, by ordinance, the dedication to the county of a right to appropriate water from a domestic well which is located on a lot or other parcel of land that was established as a separate lot or parcel on or after July 1, 1993, the county may, by relinquishment to the State Engineer, allow the right to appropriate water to revert to the source of the water and if an owner of such a parcel of land becomes a new customer of a public water system for that parcel of land, the public water system is entitled to receive a credit in the same manner as the addition of any other customer to the public water system pursuant to NRS § 534.350.

WHEREAS, the State Engineer may require each new customer who voluntarily ceases to withdraw water from a domestic well to plug that well at such time as notification of service from the public water system is made.

WHEREAS, a credit granted to the public water system under this order:

a. Will be for domestic uses as defined by NRS § 534.013.
b. May not exceed the increase in water consumption attributable to the additional service connection or 2 acre-feet per year, whichever is less. The amount of water provided to each service will be reported by each public utility on a yearly basis, in addition to the amount pumped under any permitted water right.
c. Cannot be converted to an appropriative right.
d. May only be used at the location of the lot for which credit is being sought.
e. Will only be from a water purveyor who pumps ground water within the same ground water basin as covered by this order.

WHEREAS, this order does not:

a. Require any public water system to extend its service area unless approved by the Nevada Public Utilities Commission, if applicable.
b. Authorize any increase or the potential increase in the total amount of ground water pumped in the Cold Springs Hydrographic Basin.

c. Affect any rights of an owner of a domestic well who does not voluntarily bring himself within the provisions of this order.

d. Interfere with the State Engineer's authority to possibly restrict the drilling of a domestic well for domestic use, as defined in this order, in the described area of this order where water can be furnished by an entity presently engaged in serving water within the said area.

WHEREAS, for the purposes of this order:

a. "Domestic well" means a well used for culinary and household purposes in:
   (1) A single-family dwelling; and
   (2) An accessory dwelling unit for a single-family dwelling if provided for in an applicable local ordinance, including the watering of a garden, lawn and domestic animals where the draught does not exceed 2 acre-feet per year.

b. "Lot" has the meaning ascribed to it in NRS § 278.0165.

c. "Public Water System" has the meaning ascribed to it in NRS § 445A.840.

WHEREAS, a public hearing, as required under NRS § 534.350(2), in the matter of whether to establish a domestic well credit program within the designated Cold Springs Valley Hydrographic Basin was held in Reno, Nevada, on April 15, 2010. Based on information received at the hearing and records available in the Office of the State Engineer, it is determined that this basin meets the statutory criteria for a domestic well credit order.

NOW THEREFORE, pursuant to the authority in NRS § 534.350, the State Engineer hereby establishes a domestic well credit program in the Cold Springs Valley Hydrographic Basin, as heretofore described.

JASON KING, P.E.
State Engineer

Dated at Carson City, Nevada this

22nd day of April, 2010.

IN THE OFFICE OF THE STATE ENGINEER
OF THE STATE OF NEVADA

#1206A

AMENDED ORDER

FOR DOMESTIC WELL CREDIT WITHIN THE COLD SPRING VALLEY HYDROGRAPHIC BASIN (100), WASHOE COUNTY

WHEREAS, this order is adopted under the procedure set forth in NRS 534.350 for the establishment of a program that allows a public water system to receive credits for the addition of new customers to its system.

WHEREAS, this order covers the Cold Spring Valley Hydrographic Basin (100) within Washoe County, and more specifically described as being located within the following area:

T.20N., R.18E., MOUNT DIABLO BASE AND MERIDIAN (M.D.B.&M.)

The W½, W½ NE¼, and NW¼ SE¼ of Section 3, Section 4, the W½ W½, E½ NW¼, and SE¼ SW¼ of Section 10, the NW¼ and SW¼ NE¼ of Section 15, and those portions of Sections 5, 8, 9, and 16 lying within the natural drainage basin of Cold Spring Valley.

T.21N., R.18E., M.D.B.&M.

The W½ W½ of Section 2, Sections 3, 4, 5, 8, 9, 10, the W½ W½ of Section 11, the NW¼ NW¼ ofSection 14, the N½ and SW¼ of Section 15, Sections 16, 17, 20, and 21, the W½ of Section 22, the W½ and SW¼ SE¼ Section 27, Sections 28, 29, 33, and 34, and the W½ W½ of Section 35 and those portions of Sections 6, 7, 18, 19, 30, and 32 lying within the natural drainage basin of Cold Spring Valley and within the boundaries of the State of Nevada.

T.22N., R.18E., M.D.B.&M.

The W½ W½, SE¼ NW¼, E½ SW¼, and W½ SE¼ of Section 22, the W½ and W½ SE¼ of Section 27, Sections 28, 33, and 34, and the W½ W½ of Section 35 and those portions of Sections 15, 16, 21, 29, 31, and 32 lying within the natural drainage basin of Cold Spring Valley.

WHEREAS, this order provides that a public water system that provides water for municipal purposes within the area described above receive a credit for each customer who is added to their system provided one of the following conditions is met:

a. The owner of a single family dwelling that is presently utilizing a domestic well voluntarily ceases to draw water from that well located within the described area; or,
b. Any owner of a lot with the ability to drill a domestic well and utilize water from that well meets the following conditions:
    (1) That the described lot is located within the area described; and
    (2) That the lot was established as a separate lot before July 1, 1993; and
    (3) That the lot was approved by a local governing body or planning commission for service by an individual domestic well before July 1, 1993; and

(4) That a written agreement is entered between the owner of the lot and the public water system, wherein, the owner agrees not to drill a domestic well on the lot, and the public water system agrees that it will provide water service to that lot. Any such agreement must be acknowledged and recorded in the same manner as conveyances affecting real property are required to be acknowledged and recorded pursuant to Chapter 111 of NRS.

WHEREAS, the State Engineer may require each new customer who voluntarily ceases to withdraw water from a domestic well to plug that well at such time as notification of service from the public water system is made.

WHEREAS, a credit granted to the public water system under this order:

a. Will be for domestic uses as defined by NRS 534.013.
b. May not exceed the increase in water consumption attributable to the additional service connection or 2 acre-feet per year, whichever is less. The amount of water provided to each service will be reported by each public utility on a yearly basis, in addition to the amount pumped under any permitted water right.
c. Cannot be converted to an appropriative right.
d. May only be used at the location of the lot for which credit is being sought.
e. Will only be from a water purveyor who pumps groundwater within the same groundwater basin as covered by this order.

WHEREAS, this order does not:

a. Require the public water system to extend its service area unless approved by the Nevada Public Utilities Commission.
b. Authorize any increase or the potential increase in the total amount of groundwater pumped in the Cold Spring Valley Hydrographic Basin.
c. Affect any rights of an owner of a domestic well who does not voluntarily bring himself within the provisions of this order.
d. Interfere with the State Engineer's authority to possibly restrict the drilling of a domestic well for domestic use, as defined in this order, in the described area of this order where water can be furnished by an entity presently engaged in serving water within the said area.

WHEREAS, any such request for a credit under the order shall be made to the State Engineer on the form made available by him.

WHEREAS, for the purposes of this order:

a. "Domestic well" means a well used for culinary and household purposes directly related to a single-family dwelling, including without limitation, the watering of a family garden and lawn and the watering of livestock and any other domestic animals or household pets, if the amount of water drawn does not exceed 2 acre-feet per year (NRS 534.013 and 534.180).
b. "Lot" has the meaning ascribed to it in NRS 278.0165.
c. "Public Water System" has the meaning ascribed to it in NRS 445A.840.

NOW THEREFORE, pursuant to the authority in NRS 534.350, the State Engineer hereby establishes a program in the Cold Spring Valley Hydrographic Basin (100) as heretofore described for a public water system to receive credits for new customers who are now served by domestic wells or who could drill a domestic well on a lot created prior to July 1, 1993.

IT IS FURTHER ORDERED that this order supersedes State Engineer's Order 1206, dated April 22, 2010.

Tim Wilson, P.E.

TIM WILSON, P.E.
Acting State Engineer

Dated at Carson City, Nevada this

21st day of October, 2019.

IN THE OFFICE OF THE STATE ENGINEER
OF THE STATE OF NEVADA

ORDER #1277

ORDER GRANTING PETITION FOR ADJUDICATION OF WATER RIGHTS IN THE MATTER OF THE DETERMINATION OF THE RELATIVE RIGHTS IN AND TO ALL WATERS OF COLD SPRING VALLEY, HYDROGRAPHIC BASIN NUMBER 07-100, WASHOE COUNTY, STATE OF NEVADA.

TO WHOM IT MAY CONCERN:

On February 3, 2016, the Heinz Ranch Land Company, LLC, a Nevada limited liability company, successor in interest to an appropriator to the waters of Cold Spring Valley, petitioned the State Engineer for the adjudication of water rights in the Cold Spring Valley. The State Engineer, after due consideration and investigation, has decided that facts and conditions warrant the initiation of proceedings for Determination of the Relative Rights in and to all Waters of Cold Spring Valley (Hydrographic Basin No. 07-100) located in Washoe County, Nevada.

By virtue of authority granted him in NRS § 533.090, the State Engineer enters this ORDER to proceed with the determination in question.

JASON KING, P.E.
State Engineer

Dated at Carson City, Nevada this
1ST day of JUNE, 2016.

IN THE OFFICE OF THE STATE ENGINEER
OF THE STATE OF NEVADA

#1278

NOTICE AND ORDER FOR TAKING PROOFS IN THE MATTER OF THE DETERMINATION OF THE RELATIVE RIGHTS IN AND TO ALL WATERS OF COLD SPRING VALLEY, HYDROGRAPHIC BASIN NUMBER 07-100, WASHOE COUNTY, STATE OF NEVADA.

TO WHOM IT MAY CONCERN:

Notice is hereby given that the State Engineer will commence taking Proofs of Appropriation for the Determination of the Relative Rights in and to All Waters of Cold Spring Valley (Hydrographic Basin No. 07-100) located in Washoe County, State of Nevada, on the 1st day of August, 2016.

All claimants to the waters of said Cold Spring Valley and tributaries must file their Proofs of Appropriation in the Office of the State Engineer on or before the 1st day of August, 2017, as provided for under NRS § 533.110.

JASON KING, P.E.
State Engineer

Dated at Carson City, Nevada this 1st day of August, 2016.

IN THE OFFICE OF THE STATE ENGINEER
OF THE STATE OF NEVADA

#1307

INTERIM ORDER

ESTABLISHING A TEMPORARY MORATORIUM ON THE REVIEW OF, AND ACTION ON, SUBDIVISION MAPS OR OTHER SUBMISSIONS CONCERNING DEVELOPMENT AND CONSTRUCTION SUBMITTED TO THE STATE ENGINEER IN THE COLD SPRING VALLEY HYDROGRAPHIC BASIN (100)

I. BASIN DESIGNATION AND ORDERS

WHEREAS, the Cold Spring Valley Hydrographic Basin was designated pursuant to Nevada Revised Statute (NRS) Chapter 534 by Order 606 dated January 18, 1977.

WHEREAS, on April 22, 2010, by Order 1206, the State Engineer established a program pursuant to NRS 534.350 allowing a public water system to receive credits for the addition of new customers to its system served by a domestic well or eligible to drill a domestic well prior to July 1, 1993.

II. COLD SPRING VALLEY ADJUDICATION

WHEREAS, on February 3, 2016, the Heinz Ranch Land Company, LLC, petitioned the State Engineer to adjudicate the water rights of Cold Spring Valley. The State Engineer issued Order 1277 on June 1, 2016, commencing, the adjudication of the Cold Spring Valley Hydrographic Basin, pursuant to NRS 533.090.

WHEREAS, on August 1, 2016, by Order 1278 the State Engineer commenced the taking of Proofs of Appropriation as provided for under NRS 533.110.

WHEREAS, on February 27, 2019, the State Engineer issued the Preliminary Order of Determination in the Matter of the Determination of the Relative Rights in and to the Waters of Cold Spring Valley, Hydrographic Basin No. 100, Washoe County Nevada (hereafter "Preliminary Order of Determination").

WHEREAS, the hearing on Objections to the Preliminary Order of Determination is scheduled for January 14, 2020.[1]

III. COLD SPRING VALLEY RULINGS

WHEREAS, the State Engineer has received and considered multiple applications seeking to appropriate groundwater in Cold Spring Valley.[2] However, the State Engineer has consistently found that the available perennial yield of Cold Spring Valley is 500 acre-feet and that the groundwater commitments exceed the available water supply.[3]

IV. COLD SPRING VALLEY HYDROGRAPHIC BASIN

WHEREAS, the State Engineer estimates the perennial yield of the Cold Spring Valley Hydrographic Basin is 500 acre-feet.[4]

WHEREAS, as of December 17, 2019, approximately 1,755 acre-feet of appropriated groundwater rights are committed from the Cold Spring Valley Hydrographic Basin.[5]

WHEREAS, of the 1,755 acre-feet of appropriated groundwater rights located within Cold Spring Valley, approximately 1,708 acre-feet are permitted and certificated for quasi-municipal manner of use.[6]

WHEREAS, the Preliminary Order of Determination identified 1,099.10 acre-feet of valid supplemental vested groundwater irrigation claims and 4.93 acre-feet of valid vested stockwater claims for a total of 1,104 acre-feet in the Cold Spring Valley Hydrographic Basin.[7]

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[1] Notice of Hearing, September 11, 2019.
[2] *See* State Engineer Rulings 1429, 1430, 2038, 2141, 2042, 2142, 2157, 2227, 2265, 2300, 2387, 2420, 3062, 4560, 4561, 4567, 4568, 4569, 4570, 4766, and 4880, official records in the Office of the State Engineer.
[3] *Id.*
[4] F.E. Rush and P.A. Glancy, *Water-Resources Appraisal of the Warm Springs-Lemmon Valley Area, Washoe County, Nevada,* Water Resources Bulletin No. 43, (Department of Conservation and Natural Resources, Division of Water Resources and U.S. Department of the Interior, Geological Survey), 1967.
[5] Nevada Division of Water Resources' Water Rights Database, Hydrographic Area Summary, Cold Spring Valley Basin (100), accessed December 17, 2019, official records in the Office of the State Engineer, available at http://water.nv.gov/DisplayHydrographicGeneralReport.aspx?basin=100.
[6] *Id.*
[7] *See* Preliminary Order of Determination, Exhibit A.

WHEREAS, the total groundwater commitments, including existing appropriations and vested claims determined to be valid in the Preliminary Order of Determination total approximately 2,859 acre-feet.

WHEREAS, supplemental groundwater rights are water rights that are available to fulfill the difference between a water right holder's surface water right delivery and the full duty of water the holder of the water right is authorized to divert under the terms of their right. In years where a surface water supply is sufficient to fulfill the total water right, no groundwater use is permitted; however, in extremely dry years, a water right holder may be authorized to divert as much as 100 percent of the supplemental groundwater right if there is no surface water to satisfy the water right.

WHEREAS, there remains great uncertainty as the total groundwater commitments within Cold Spring Valley resulting from the Cold Spring Valley adjudication proceedings, which are not yet determined.

WHEREAS, until such time as the adjudication proceedings are concluded and a final determination is made as to the quantification of the vested groundwater claims, there remains the potential for an additional 1,104 acre-feet of groundwater, or more, of additional claims to use of the groundwater within Cold Spring Valley.[8]

WHEREAS, the State Engineer has not determined, and cannot until the conclusion of the adjudication, the quantity of vested supplemental groundwater rights that will, on average, be relied upon to satisfy the totality of the surface water right(s). This quantity of water will have to be considered as a component of the total committed groundwater rights within Cold Spring Valley.[9]

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[8] The Objections to the Preliminary Order of Determination submitted by Heinz Holdco LLC submitted on May 3, 2019, seeks an expansion of the vested claims, including vested groundwater claims, based upon the State Engineer's calculations, which if accepted may increase the vested groundwater claims and associated commitments in the Cold Spring Valley Hydrographic Basin.

[9] The historic average of necessary groundwater needed to make-up the difference between the surface water deliveries and the historic water rights has not been determined, and that calculation is necessary to determine what additional groundwater commitments exist within Cold Spring Valley Hydrographic Basin.

WHEREAS, the State Engineer does not conduct annual groundwater pumpage inventories in Cold Spring Valley; however, groundwater pumpage for quasi-muncipal use within the basin for calendar year 2017 equals 1,313.16 acre-feet of groundwater use.[10]

WHEREAS, the predominate manner of use of water within the Cold Spring Valley being quasi-municipal use is utilized for the purpose of serving the residential population of the basin, which in 2010 was 8,544 persons.[11]

WHEREAS, within the Cold Spring Valley, there are approximately 3,110 individual households, and of those, 83.8-percent of those households are owner occupied.[12]

V. AUTHORITY AND NECESSITY

WHEREAS, NRS 533.024(1)(c) directs the State Engineer "to consider the best available science in rendering decisions concerning the availability of surface and underground sources of water in Nevada."

WHEREAS, given that the State Engineer must use the best available science and manage the water resources in the Cold Spring Valley Hydrographic Basin, consideration of any development of long-term, permanent, uses that could ultimately be curtailed due to lack of water availability must be examined with great caution.

WHEREAS, the perennial yield of the Cold Spring Valley Hydrographic Basin is 500 acre-feet, and existing water rights within the basin exceed the perennial yield of the basin.

WHEREAS, the urbanization and development in the basin continues and uncertainty as to the quantity of water under vested groundwater claims before the State Engineer cannot be determined with finality until the conclusion of the Cold Spring Valley adjudication proceedings.

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[10] As reported by Great Basin Water Company, who is the holder of all quasi-municipal rights in the basin, official records in the Office of the State Engineer.
[11] *See* United States Census Data available at https://www.census.gov/quickfacts/fact/table/coldspringscdpnevada/PST045218 (last accessed December 10, 2019).
[12] *Id.*

WHEREAS, existing groundwater pumping within the Cold Spring Valley Hydrographic Basin is documented to be at least 1,313.16 acre-feet in 2017, with the majority of that water serving residential developments within the Basin.

WHEREAS, the State Engineer has a duty to exercise caution where there is uncertainty and that the exercise of such caution is particularly prudent where the existing reliance on a water resource is by households where mismanagement may subject such communities to curtailment or regulation of water rights by priority of rights.

WHEREAS, the State Engineer must consider that any new development will be reliant on the groundwater supply for innumerable years to come.

WHEREAS, the State Engineer finds that he has a duty to take proactive steps to assure the best management practices exist in a basin so as to prevent against perpetuating or imposing an avoidable problem.

WHEREAS, there is great uncertainty as to the precise extent of the development of existing appropriations of groundwater within Cold Spring Valley that may occur without conflicting with existing senior rights.

WHEREAS, the State Engineer is empowered to make such reasonable rules and regulations as may be necessary for the proper and orderly execution of the powers conferred by law.[13]

WHEREAS, within an area that has been designated by the State Engineer, as provided for in NRS Chapter 534, where, in the judgment of the State Engineer, the groundwater basin is being depleted, the State Engineer in his or her administrative capacity may make such rules, regulations and orders as are deemed essential for the welfare of the area involved.[14]

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[13] NRS 532.120.
[14] NRS 534.120(1).

VI. ORDER

NOW THEREFORE, IT IS HEREBY ORDERED that:

1. During the pendency of this Interim Order:

    a. A temporary moratorium is issued holding in abeyance decisions on any subdivision or other submission concerning development and construction (hereafter "project") submitted to the State Engineer after December 18, 2019, for review, pending a Decree in the Cold Spring Valley adjudication to allow the State Engineer to determine the quantity of groundwater available without conflicting with senior rights and assuring an available water supply exists to serve the needs for the anticipated life of the project.

    b. The State Engineer may review and grant approval if a showing can be made to the State Engineer's satisfaction that an adequate and sustainable supply of water, other than groundwater within the Cold Spring Valley Hydrographic Basin, is available to meet the needs and anticipated life of the project.

2. Any stakeholder with interests that may be affected by water right development within the Cold Spring Valley Hydrographic Basin may file a report in the Office of the State Engineer in Carson City, Nevada, no later than the close of business on Tuesday, March 31, 2020. Reports filed with the Office of the State Engineer should address:

    a. The perennial yield of the Cold Spring Valley Hydrographic Basin, defined as the quantity of groundwater that may be withdrawn from the Basin each year over the long-term without depleting the groundwater reservoir;

    b. Whether the quantity of groundwater that may be withdrawn each year over the long-term is sufficient to meet the needs of the current commitments within the Cold Spring Valley Hydrographic Basin; and,

c. Whether the location of groundwater withdrawals and recharge within the Cold Spring Valley Hydrographic Basin impact the quantity of water that may be sustainably developed within the Basin.

3. The State Engineer may, in his discretion, schedule an administrative hearing no later than the month of May 2020 to take comment on the submitted reports.

Tim Wilson, P.E.

TIM WILSON, P.E.
State Engineer

Dated at Carson City, Nevada this

20th day of December, 2019.

EXHIBIT D –
Water Rights Information

Shaw Annex App. Review – 8/23/2023

WATER RIGHTS
The Nevada Division of Water Resources (NDWR) will oversee allocation of water rights. The annexation area will be served by existing wells. A water rights change application may be required to change the place of use for some areas of the streetscape irrigation.

WATER RIGHTS

The Nevada Division of Water Resources (NDWR) oversees allocation of water rights with subdivision map signature authority pursuant to NRS Chapter 278. The annexation area will be served by existing production wells. An application (or applications) to change the place of use is needed to incorporate certain annexation areas. This application and permitting will follow NDWR process and requirements. A table of existing water rights owned by Great Basin Water Company is attached for reference.

Great Basin Water Company

August 23, 2023

Cold Springs Division

App	Cert	Status	Source	Manner of Use	Well Desig.	Div Rate (CFS)	Primary Duty	Units
Cold Springs Valley Hydrographic Basin No. 100								
65038	17994	CER	UG	QM	Well #1	0.150	46.00	AFA
65039		PER	UG	QM	Well #1	0.750	542.98	AFA
65046	17995	CER	UG	QM	Well #8 (Sweger Well)	2.000	436.86	AFA
65047		PER	UG	QM	Well #9	0.250	181.06	AFA
65048		PER	UG	QM	Well #9	0.250	181.06	AFA
65049		PER	UG	QM	Well #9	0.100	8.07	AFA
65050		PER	UG	QM	Well #9	0.100	25.44	AFA
65051		PER	UG	QM	Well #9	0.030	5.65	AFA
65052		PER	UG	QM	Well #9	0.030	4.63	AFA
65053		PER	UG	QM	Well #12	0.044	26.84	AFA
65054		PER	UG	QM	Well #12	0.030	4.63	AFA
65055		PER	UG	QM	Well #12	0.057	5.11	AFA
85775		PER	UG	QM	Van Dyke Well	0.745	539.30	AFA
87613		PER	UG	QM	Well #1	0.500	361.82	AFA
87614		PER	UG	QM	Well #1	1.000	436.86	AFA
87615		PER	UG	QM	Well #8 (Sweger Well)	1.500	950.80	AFA
90008		PER	UG	QM	Van Dyke Well	0.005	3.68	AFA
Total combined duty of Cold Springs Valley Permit Group							**1,707.96**	**AFA**

Long Valley Valley Hydrographic Basin No. 100A								
65042		PER	UG	QM	Well #6	3.000	500.0	AFA
65043		PER	UG	QM	Well #6	1.500	250.0	AFA
65044		PER	UG	QM	Well #7	1.500	250.0	AFA
65045		PER	UG	QM	Well #7	3.000	200.0	AFA
91674		PER	UG	QM	Bergendahl Well	0.619	440.0	AFA
65057	17996	CER	UG	QM	Well #6	0.060	40.0	AFA
65058	17997	CER	UG	QM	Well #7	0.290	209.0	AFA
65059	17998	CER	UG	QM	Well #7	0.011	7.0	AFA
75444		PER	UG	QM	Well #7	0.015	10.9	AFA
Total combined duty of Long Springs Valley Permit Group							**1,906.90**	**AFA**

Cold Springs and Lov Valley Total Combined Duty	**2,414.86**	**AFA**

Nevada Division of
WATER RESOURCES

STATE OF NEVADA
Department of Conservation and Natural Resources
Joe Lombardo, *Governor*
James A. Settelmeyer, *Director*
Adam Sullivan, P.E., *State Engineer*

January 24, 2023

Heinz Holdco, LLC
777 South Center St., Suite 105
Reno, NV 89501

Michael J. DeMartini
Meridian Company
1129 Hunter Lake Drive, Ste #4
Reno, NV 89509

Washoe County Commissioners
1001 E. Ninth Street
Reno, NV 89512

Re: Notice of Order No. 1333 Affecting Water Rights in the Cold Spring Valley Hydrographic Basin (100) Within Washoe County, Nevada

To Whom It May Concern:

Enclosed for your information is a copy of State Engineer's Order No. 1333 dated January 24, 2023, affecting water rights in the Cold Spring Valley Hydrographic Basin (100).

The order may also be viewed at *http://water.nv.gov/StateEnginersOrdersList.aspx*

If you have any questions regarding this order, please contact the undersigned at (775) 684-2882.

Sincerely,

Melissa L. Flatley, Esq.
Chief, Hearings Section

MLF/jm
Enclosure
cc: Debbie Leonard, Leonard Law, PC, E-mail

IN THE OFFICE OF THE STATE ENGINEER
OF THE STATE OF NEVADA

ORDER **#1333**

ESTABLISHING THE PERENNIAL YIELD FOR THE COLD SPRING VALLEY HYDROGRAPHIC BASIN (100) WITHIN WASHOE COUNTY, NEVADA, AND RESCINDING INTERIM ORDER 1307.

I. AUTHORITY AND NECESSITY

WHEREAS, the State Engineer is designated by the Nevada Legislature to perform the duties related to the management of the water resources belonging to the people of the state of Nevada.[1]

WHEREAS, the State Engineer is empowered to make such reasonable rules and regulations as may be necessary for the proper and orderly execution of the powers conferred by law.[2]

WHEREAS, for each administratively delineated hydrographic basin located in whole or in part in the State, the State Engineer shall prepare a water budget and calculate and maintain an inventory of water, which includes an estimate of the amount of all groundwater that is available for appropriation in the basin.[3]

WHEREAS, the State Engineer is encouraged to consider the best available science in rendering decisions concerning the availability of surface and underground sources of water in Nevada.[4]

WHEREAS, the State Engineer finds that he has a duty to apply the best available science to inform decisions and to ensure the best management practices are applied so as to prevent avoidable problems associated with over-appropriation and overuse of the waters of the State, regardless of the source. This duty extends to actions and decisions in the Cold Spring Valley

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[1] NRS 232.100(2); NRS Title 48.
[2] NRS 532.120.
[3] NRS 532.167(3).
[4] NRS 533.024(1)(c).

Hydrographic Basin required to fulfill the State Engineer's statutory responsibilities to support current and future uses of water for innumerable years to come.

WHEREAS, the State Engineer previously estimated the perennial yield of the Cold Spring Valley to be 500 acre-feet, based on the 1967 investigation by Rush and Glancy, and supported by the 1981 investigation by Van Denburgh.[5] The sum of all permitted, certificated and decreed groundwater rights is about 2,069 afa.[6] Domestic wells that are exempt from the permitting process represent an additional commitment of 350 afa.[7]

WHEREAS, the State Engineer has the authority to hold a hearing to take evidence and hear testimony on the interpretation of the evidence with respect to his responsibility to manage Nevada's water resources.[8]

WHEREAS, Interim Order 1307, issued December 20, 2019, established a temporary moratorium on the review of, and action on, submissions concerning development and construction in the Cold Spring Valley while investigating water availability.[9] Interim Order 1307

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[5] NSE Ex. 45, F. Eugene Rush and Patrick A. Glancy, *Water-Resources Appraisal of the Warm Springs-Lemmon Valley Area, Washoe County, Nevada* (Rush and Glancy), Water Resources—Reconnaissance Series Report 43, (Department of Conservation and Natural Resources, Division of Water Resources and U.S. Department of the Interior, Geological Survey), 1967; NSE Ex. 46, A. S. Van Denburgh, *Water Resources of Cold Spring Valley, A Growing Urban Area Northwest of Reno, NV* (Van Denburgh), USGS Open-File Report 80-1287, (U.S. Department of the Interior, U.S. Geological Survey and Department of Conservation and Natural Resources, Division of Water Resources and), 1981, both exhibits to the Hearing on Interim Order 1307, official records in the Division of Water Resources.

[6] Corrected Findings of Fact, Conclusions of Law, Judgment, and Decree, *In the Matter of the Determination of the Relative Rights In and To all Waters of Cold Spring Valley, Hydrographic Basin No. 07-100, Washoe County, Nevada,* Case No. CV21-01532, Second Judicial District Court of Nevada, In and For the County of Washoe (November 21, 2022), ("the Cold Spring Valley Decree"); Nevada Division of Water Resources' Water Rights Database, Hydrographic Basin Summary, Cold Spring Valley Hydrographic Basin (100), accessed January 7, 2023, official records in the Division of Water Resources, available at *http://water.nv.gov/undergroundactive.aspx* (not updated to reflect the rights set forth in the Cold Spring Valley Decree). *See also* NSE Ex. 3, Hydrographic Area Summary, Hearing on Interim Order 1307, official records in the Division of Water Resources. NSE Ex. 3 predates the Cold Spring Valley Decree.

[7] *Id.*, NRS 534.080(4); NRS 534.180.

[8] NRS 532.110.

[9] *See* NSE Ex. 9, State Engineer's Interim Order 1307, dated December 20, 2019, Hearing on Interim Order 1307, official records in the Division of Water Resources.

invited stakeholders with interests in water rights development within Cold Spring Valley Hydrographic Basin to file a report with the Office of the State Engineer addressing three specific matters: 1) the perennial yield of the Cold Spring Valley, defined as the quantity of groundwater that may be withdrawn from the basin each year over the long-term without depleting the groundwater reservoir; 2) whether the quantity of groundwater that may be withdrawn each year over the long-term is sufficient to meet the needs of the current commitments within the Basin; and, 3) whether the location of groundwater withdrawals and recharge within the Basin impact the quantity of water that may be sustainably developed within the Basin.[10] Reports in response to the Interim Order 1307 solicitation were filed by Heinz Holdco, LLC (Heinz) and by Michael DeMartini, P.E. on behalf of Renate DeMartini, Matthew DeMartini, and himself (collectively, the DeMartini family).[11]

WHEREAS, a public hearing was held on May 28, 2020, via video and teleconference. The purposes of this hearing were to afford stakeholder participants who submitted reports pursuant to the solicitation in Interim Order 1307 an opportunity to present the salient conclusions of their reports and to direct the State Engineer to the evidence that supports those conclusions for the purpose of making decisions regarding the future management of the Cold Spring Valley basin.[12] Following the conclusion of the hearing, the State Engineer accepted public comment until June 29, 2020.[13]

WHEREAS, during the Interim Order 1307 hearing, testimony was provided by witnesses for Heinz and by the DeMartini family. On behalf of Heinz, Justin Huntington provided testimony on his report and technical memorandum seeking to review and reassess water resources of the Cold Spring Valley.[14] His work focused on assessing the components of perennial yield and system

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[10] *Id.*, pp. 6-7.
[11] Some reports and data were provided by Heinz Holdco, LLC at the hearing on the proposed Interim Order 1307, held on September 11, 2019. The exhibits are contained within the official records in the Division of Water Resources.
[12] *Notice of Hearing Procedures Regarding Order 1307*, dated May 22, 2020, Hearing on Interim Order 1307, official records in the Division of Water Resources.
[13] The State Engineer received no public comment.
[14] Heinz Ex. 16, Water Resource Assessment for the Cold Spring Valley Hydrographic Area, Northwestern Nevada, by Justin Huntington, PhD, dated March 2020; Heinz Ex. 17, Technical Memorandum 03-2020, "Estimating the maximum sustainable rate of groundwater pumping

yield using new methods and statistical models. Also on behalf of Heinz, John Rupp provided testimony regarding Cold Spring Groundwater Contour Maps that he prepared and the model he used to generate the maps and their updates.[15] Finally, on behalf of Heinz, Garrett Frey and Mike Hardy testified regarding the geology and hydrogeology of the Heinz Ranch property that gave rise to the assumptions regarding hydraulic conductivity and storage used in the Groundwater Contour Maps.[16] On behalf of the DeMartini family, Michael DeMartini testified regarding the potential water availability from water that collects in White Lake and detention basins in Cold Spring Valley.[17]

WHEREAS, the State Engineer has reviewed and evaluated the already existing body of research, in addition to the evidence and testimony provided by the participants as it pertained to the understanding of the perennial yield in Cold Spring Valley and the calculation of water available for appropriation. The result of that technical review and analysis is documented in the "Evaluation of Best Estimates of Water Budget Components and Review of Hearing Questions for the Cold Spring Valley Hydrographic Basin (HA 100)."[18]

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considering water reuse and importation, by Justin Huntington, dated March 25, 2020; Heinz Ex. 21, C.V. for Justin Huntington; Heinz Ex. 24, demonstrative exhibit, slides to accompany presentation by Justin Huntington, PhD, all Hearing on Interim Order 1307, official records in the Division of Water Resources.

[15] Heinz Ex. 15, Cold Spring Groundwater Contour Maps, dated "Aug 18"; Heinz Ex. 22, C.V. for John Rupp; Heinz Ex. 25, demonstrative exhibit, slides to accompany presentation by John Rupp, all Hearing on Interim Order 1307, official records in the Division of Water Resources.

[16] Heinz Ex. 15; Heinz Ex. 19, C.V. of Michael Hardy; Heinz Ex. 23, C.V. of Garrett Frey; Heinz Ex. 26, demonstrative exhibit, slides to accompany presentation by Michael Hardy and Garret Frey, all Hearing on Interim Order 1307, official records in the Division of Water Resources.

[17] DeMartini Ex. 5, C.V. of Michael DeMartini, attached to Evidentiary Disclosure, dated May 26, 2020; DeMartini Ex. 6, Report in Response to Order 1307 Regarding a Temporary Moratorium in Cold Spring Valley Hydrographic Basin (100), Washoe County, Nevada, dated March 31, 2020, both Hearing on Interim Order 1307, official records in the Division of Water Resources.

[18] "Evaluation of Best Estimates of Water Budget Components and Review of Hearing Questions for the Cold Spring Valley Hydrographic Basin (HA 100)," dated January 24, 2023, Hearing on Interim Order 1307, available in the official records in the Division of Water Resources ("Technical Memorandum").

II. CALCULATION OF WATER BUDGET

WHEREAS, the State Engineer must determine the water budget of a groundwater basin or an interconnected source of water to support decisions regarding the amount of groundwater available for withdrawal.[19] Water budgets are comprised of two main components, inflows and outflows. Natural groundwater inflow components can include recharge directly from precipitation, recharge indirectly from downward percolation of surface water runoff and subsurface inflow. Natural groundwater outflow components can include discharge from evapotranspiration (ET); discharge to surface water features including springs, streams, or lakes; and subsurface outflow.[20] These water budget components are used to account for the rates or amounts of water that move into and out of a saturated system. In a natural system, where climatic conditions are reasonably stable, the long-term mean annual recharge and discharge of an aquifer are equal.[21] However, recharge and discharge estimates can be made independently using different methods and often do not match. Discharge is generally a more reliable measure of the groundwater budget than recharge because discharge can commonly be observed and measured where it occurs.

WHEREAS, the State Engineer has reviewed the ranges of estimates for each component of the water budget, and based on considerations of the best available science, level of uncertainty, and methodology used to make the estimate, the State Engineer finds that 1,515 acre-feet annually is the most appropriate estimate of groundwater discharge from Cold Spring Valley.[22] This is derived from the average of two viable estimates of pre-development ET (1,510 acre-feet per year and 1,920 acre-feet per year) which is 1,715 acre-feet per year, minus ET in uplands areas (140 acre-feet per year) and ET from surface water irrigated areas (60 acre-feet per year) which totals 1,515 acre-feet per year.

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[19] *See, e.g.*, NRS 533.024(1)(e).
[20] *See,* Technical Memorandum, p. 4.
[21] Office of the State Engineer, *Water for Nevada, State of Nevada Water Planning Report No. 3,* p. 12, Oct. 1971.
[22] Technical Memorandum, pp. 11-13.

III. PERENNIAL YIELD

WHEREAS, the perennial yield of a groundwater reservoir may be defined as the maximum amount of groundwater that can be withdrawn each year over the long term without depleting the groundwater reservoir. Perennial yield is ultimately limited to the maximum amount of natural discharge that can be utilized for beneficial use. The perennial yield cannot be more than the natural recharge to a groundwater basin and in some cases is less. The perennial yield is a single value that represents the groundwater budget for the general purpose of determining long-term water availability and whether new appropriations may be granted in accordance with NRS 533.370.

WHEREAS, the State Engineer finds that based on the consideration of testimony and evidence regarding the accuracy and precision of existing Cold Spring Valley water budget estimates, the Cold Spring Valley perennial yield is best determined as 1,500 acre-feet annually.

IV. SUSTAINABLE GROUNDWATER DEVELOPMENT

WHEREAS, Interim Order 1307 posed two additional questions to hearing participants that went beyond the perennial yield. First, the State Engineer asked whether the perennial yield is sufficient to meet the commitments within the basin.[23]

WHEREAS, there are other measurements of available water, or "yields," such as system yield which includes both surface water and groundwater, and a term called Qmax which includes water reuse.[24] Both system yield, and Qmax, have been described and estimated in existing reports covering Cold Spring Valley.[25]

WHEREAS, system yield as estimated for Cold Spring Valley relies upon surface water capture by groundwater pumping. For basins like Cold Spring Valley where runoff may only occur seasonally and some surface water sources are fully appropriated in an average year,[26] this approach has a high probability to cause conflict with surface water users. As a result, surface water, and especially surface water that has intermittent or unpredictable flow, is not typically

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[23] NSE Ex. 9.
[24] Technical Memorandum, pp. 15-17, for definitions and discussion of system yield and Qmax.
[25] See NSE Ex. 46; Heinz Ex. 16 and 17.
[26] *See* the Cold Spring Valley Decree.

administered as available to new groundwater appropriations. For these reasons, system yield is a perilous management technique for appropriation of groundwater in Cold Spring Valley.

WHEREAS, relying upon treated wastewater infiltration, discussed as Qmax or return flow, as additional water available for appropriation is problematic to include in an administrative plan because it is not a natural source of water and can be subject to decisions and dynamics outside the purview of the State Engineer. Other mechanisms exist for beneficially reusing water consistent with the existing water rights permits and management policy without conflating this source with the naturally occurring available groundwater.

WHEREAS, the State Engineer finds that system yield and the Qmax may represent opportunities for efficient water use in distinct circumstances, but they are not replacements for the natural groundwater budget as defined by the basin-scale perennial yield in Cold Spring Valley. The State Engineer will evaluate any additional source of water that is or may become available based on the best available science and a demonstration that there is no conflict with existing rights.

V. SPATIAL LIMITATIONS ON GROUNDWATER DEVELOPMENT

WHEREAS, the second additional question posed by Interim Order 1307 concerned whether the location of groundwater pumping and recharge within the basin affected available groundwater.[27] The degree to which unreasonable lowering of the aquifer's water levels can be prevented depends not only on perennial yield, but also on the location of groundwater pumping, locations of recharge and natural discharge, and aquifer properties.[28]

WHEREAS, the evidence presented on this question by the hearing participants was inconclusive.[29] The location of groundwater pumping and recharge may play a role in how efficiently water can be developed and the effects of that pumping on the surrounding aquifer, however these relationships are not sufficiently defined in Cold Spring Valley to assert a new regional management scheme. The State Engineer will continue to consider local conditions as part of the water rights application process.

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[27] NSE Ex. 9.
[28] Technical Memorandum, p. 18.
[29] *Id.*, pp. 18-34.

VI. ORDER

NOW THEREFORE, IT IS HEREBY ORDERED, that the perennial yield of the Cold Spring Valley Hydrographic Basin (100) is **1,500 acre-feet annually.**

Moreover, current groundwater commitments exceed the perennial yield, however the consumptive use of current pumping does not exceed the amount that can be supported for the long term in Cold Spring Valley.

Finally, the locations of pumping and recharge will continue to be considered along with other available data in the evaluation of applications before the State Engineer.

ADDITIONALLY, IT IS HEREBY ORDERED that the moratorium imposed by Interim Order 1307 is hereby **RESCINDED.**

ADAM SULLIVAN, P.E.
State Engineer

Dated at Carson City, Nevada this
24th day of January, 2023.

EXHIBIT E –

Depreciation Schedule

Great Basin Water Company White Lake Parkway Main Extension Material Deprication Schedule			
Line Item	Useful Life (Years)	Total Cost	Annual Depreciation
8-Inch C900 PVC Water Main	50	$11,500	$230
Fire Hydrant Assembly	50	$7,000	$140
Tie-In's at Connection Points	50	$10,000	$200
8" Gate Valve	50	$9,000	$180
	Total	**$37,500**	**$750**

EXHIBIT 2

PUBLIC UTILITIES COMMISSION OF NEVADA
DRAFT NOTICE
(Applications, Tariff Filings, Complaints, and Petitions)

Pursuant to Nevada Administrative Code ("NAC") 703.162, the Commission requires that a draft notice be included with all applications, tariff filings, complaints and petitions. Please complete and include **ONE COPY** of this form with your filing. (Completion of this form may require the use of more than one page.)

A title that generally describes the relief requested (see NAC 703.160(5)(a)):

Application of Great Basin Water Co. for modification of its Certificate of Public Convenience and Necessity designated as CPC 2692 to expand its water service territory for its Cold Springs Division to include 1,018.175 acres of commercial, industrial, and streetscaping development on land owned by Lifestyle Homes, TND, LLC.

The name of the applicant, complainant, petitioner or the name of the agent for the applicant, complainant or petitioner (see NAC 703.160(5)(b)):

Great Basin Water Co.

A brief description of the purpose of the filing or proceeding, including, without limitation, a clear and concise introductory statement that summarizes the relief requested or the type of proceeding scheduled **AND** the effect of the relief or proceeding upon consumers (see NAC 703.160(5)(c)):

GBWC files this Application to amend its Certificate of Public Convenience and Necessity pursuant to the Nevada Revised Statutes (NRS) and Nevada Administrative Code (NAC), including but not limited to NRS 704.330 and NAC 703.175, 703.190, and 703.197. GBWC requests that the Public Utilities Commission approve the amendment to expand the GBWC service area to accommodate a 1,018.175 acre commercial, industrial, and streetscaping development in Cold Springs, Washoe County, Nevada, pursuant to a request from the property owner. Applicant is currently authorized to provide water service in certain areas in Cold Springs, and the proposed new service area is contiguous with the existing service area of its Cold Springs Division. The expansion as proposed would have no effect on the rates currently charged to GBWC's existing customers.

A statement indicating whether a consumer session is required to be held pursuant to NRS 704.069(1)[1]:

A consumer session will not be required.

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[1] NRS 704.069(1) states in pertinent part:
1. The Commission shall conduct a consumer session to solicit comments from the public in any matter pending before the Commission pursuant to NRS 704.061 to 704.110 inclusive, in which:
(a) A public utility has filed a general rate application, an application to recover the increased cost of purchased fuel, purchased power, or natural gas purchased for resale or an application to clear its deferred accounts; and
(b) The changes proposed in the application will result in an increase in annual gross operating revenue, as certified by the applicant, in an amount that will exceed $50,000 or 10 percent of the applicant's annual gross operating revenue, whichever is less.

If the draft notice pertains to a tariff filing, please include the tariff number **AND** the section number(s) or schedule number(s) being revised.

This Application pertains to the following tariff, which will require revision in the event the Commission grants this Application: GBWC Tariff No. 1-W; Rule 17 CSD, starting at Sheet No. 114.

CLERK OF THE COURT

MONTHLY FINANCIAL STATEMENT

STATE OF NEVADA, COUNTY OF WASHOE

Month Ending August 31, 2023

Alicia L. Lerud, Clerk of the Court, in compliance with NRS 19.090,and being first duly sworn, and under penalty of perjury, deposes and says that the following is a full and correct statement of all fees, percentages or compensation received in my official capacity during the preceding month:

Clerk of the Court	Law Library Fund	$	6,825.00
	Additional Divorce Filing Fee	$	175.00
	*County General Fund	$	134,816.50
	eFile Fee (General Fund)	$	22,200.00
	State Civil Fee	$	20,976.00
	Legal Aid Filing Fee	$	26,031.00
	TOTAL		$211,023.50

Alicia L. Lerud
District Court Administrator/Clerk of Court

* Included in County General Fund are the following fees: balance of civil action, certified copies of all miscellaneous.

CASH REGISTER READOUT	
T.R. Rec.No. (Doc. No)	

UNIT ID. CLERK - JUDICIAL
Date: September 11, 2023

FOR AUDIT AND CONTROL PURPOSES PLEASE INDICATE THE REASON FOR THIS COLLECTION.
(Attach any additional document if this would help to clarify the collection.)

DISTRICT COURT FEES COLLECTED FOR Aug 2023

		ACCOUNTS TO BE CREDITED			AMOUNT		
		ACCOUNTING CODE NUMBERS					
CR/GF/OP	ACCOUNT DESCRIPTION	ORDER	COST CENTER	ACCOUNT			
OP	Legal Aid (Washoe Legal Services) (01)		990023	441007	13,781.50	legalaid	$ 26,031.00
OP	Legal Aid (Elderly Indigent) Sr. Center (02)		250411	460720	4,759.50		
OP	State Civil (03)		990019	441022	14,176.00	state civil	$ 20,976.00
GF	Law Library (04)		123100	460222	6,825.00	law library	$ 6,825.00
GF	Clerk Fees (05,6,7)		120101	460210	32,984.50	general	$ 157,016.50
CR	DC Technology SB106 (06)	20038	120105	460210	448.00		
OP	Legal Aid (Washoe Legal Services) (08)		990023	441078	7,490.00		
GF	Additional Divorce Answer Fee (09)		120231	460220	175.00	add'l div	$ 175.00
GF	Mediation (10)		120331	471205	2,970.00		
OP	Neighborhood Justice Center (10J)		270710	460225	2,970.00		
GF	Arbitration (11)		120111	471215	-	TOTAL:	$ 211,023.50
OP	Displaced Homemakers (12)		990019	441021	4,350.00		
GF	Divorce Training (13)		120231	460223	730.00		
GF	Family Mediation Fee (14)		120331	471210	600.00		
GF	CD Recording/Record on CD (15,17)		120311	485300	925.00		
OP	Vital Statistics (State of NV) (18)		990019	441004	1,460.00		
OP	State of NV (OAC / Tech) (19)		990019	441020	560.00		
OP	State of NV (OAC / Judges) (20)		990019	441019	280.00		
CR	Court Expansion Fees AB65 (21)	20326		460211	79,352.00		
CR	Court Secunty Fees AB65 (22)	20335		460213	11,880.00		
CR	Mtn to Modify Div SB388	20408		460214	1,232.00		
CR	Opp Mtn to Mod Div SB388	20409		460215	-		
GF	eFile Subscription		120106	460212	22,200.00		
GF	Attorney ID Badge Fee		120101	485320	25.00		
GF	Attorney ID Badge Fee PW		160100	485100	-		
GF	Law Library Fine/Fee		123100	485100	-		
OP	Foreclosure Mediation State (34)		990019	460121	150.00		
GF	Foreclosure Mediator (35)	20444		460220	600.00		
GF	Over/Short (Filing Office)		120231	711300	100.00		
				TOTAL	$ 211,023.50		

Prepared By: Valerie Moser

ACCEPTED BY: Justin Taylor
Washoe County Treasurer

Rev 05/07

OFFICE OF THE
WASHOE COUNTY TREASURER

Date: August 9, 2023

To: Board of County Commissioners
Washoe County

From: Justin Taylor, Treasurer
Washoe County
jutaylor@washoecounty.gov 775.328.2510

Subject: Washoe County Investment Portfolio – Annual Report

Following please find the Treasurer's Annual Investment Portfolio Report for fiscal year ending June 30, 2023, as required by the Washoe County Investment Policy.

This report provides an overview of the portfolio along with information regarding issuer diversification, credit allocation, maturity and performance. Also included is an annual income analysis provided by the Comptroller, as well as a detail of securities held at June 30, 2023.

I hereby certify that the Washoe County investment portfolio was in compliance with Nevada Revised Statutes and Washoe County Investment Policies and Investment Management Plan as of June 30, 2023.

Justin Taylor
Washoe County Treasurer

cc: Eric Brown, County Manager
Cathy Hill, County Comptroller
Jan Galassini, County Clerk

Washoe County

Investment Pool Summary

Period Ended June 30, 2023

FHN FINANCIAL
MAIN STREET ADVISORS

Portfolio Type Summary

For the Year Ended June 30, 2023

	Book Value	% of Portfolio	% Allowed by Plan	In Compliance
U.S. Treasuries	$226,599,521	25.3%	100%	✓
Federal Agency Securities	$383,091,023	42.7%	100%	✓
Nevada LGIP	$0	0.0%	20%	✓
Corporate Notes	$145,903,703	16.3%	20%	✓
Certificates of Deposit	$0	0.0%	20%	✓
Commercial Paper	$0	0.0%	25%	✓
Asset-Backed Securities	$36,676,715	4.1%	20%	✓
Supranationals	$12,938,879	1.4%	15%	✓
Money-Market Fund	$91,121,201	10.2%	35%	✓
Total	**$896,331,043**	**100.0%**		

Detail may not add to total due to rounding.

Portfolio Issuer Summary

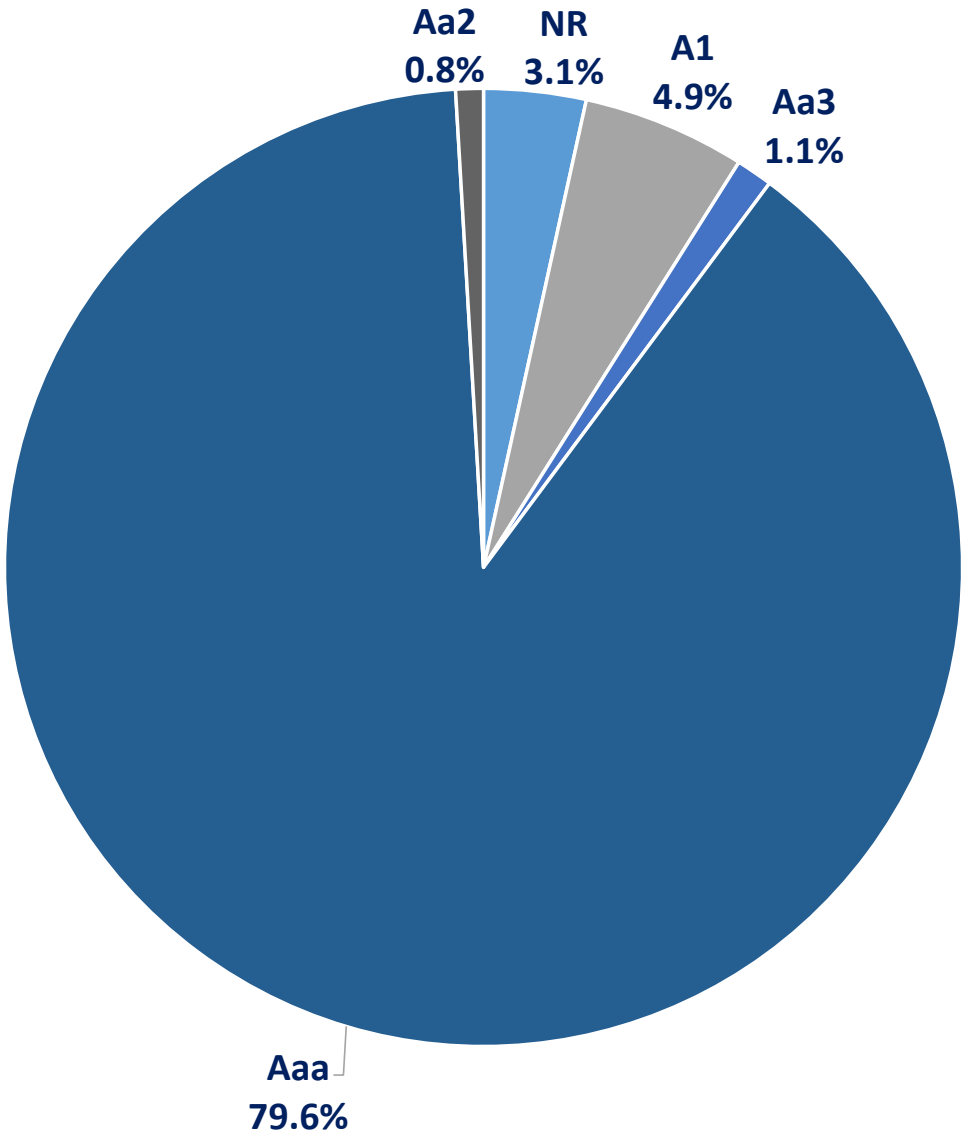
For the Year Ended June 30, 2023

Issuer Summary	Book Value	%
US Treasury	$226,599,521	25.3%
FHLB	$173,092,673	19.3%
FFCB	$97,166,154	10.8%
All Spring MMF	$91,121,201	10.2%
FNMA	$88,764,955	9.9%
FHLMC	$24,067,242	2.7%
US Bancorp	$20,453,616	2.3%
Capital One ABS	$19,997,024	2.2%
Apple	$18,450,270	2.1%
AmEx ABS	$16,679,691	1.9%
JPMorgan	$14,953,109	1.7%
Toyota	$14,905,320	1.7%
Caterpillar	$14,857,600	1.7%
Deere	$10,016,800	1.1%
IADB	$10,005,200	1.1%
MetLife	$9,903,150	1.1%
Amazon	$9,373,140	1.0%
Walmart	$7,488,972	0.8%
AAPL	$6,136,550	0.7%
NY Life	$5,032,600	0.6%
Microsoft	$4,999,235	0.6%
BNY Mellon	$4,955,179	0.6%
Adobe	$2,985,176	0.3%
IBRD	$2,933,679	0.3%
Bristol Myers	$1,392,986	0.2%
Total	$896,331,043	100.0%

Detail may not add to total due to rounding.

Portfolio Credit Allocation - Using Moody's Ratings

For the Year Ended June 30, 2023

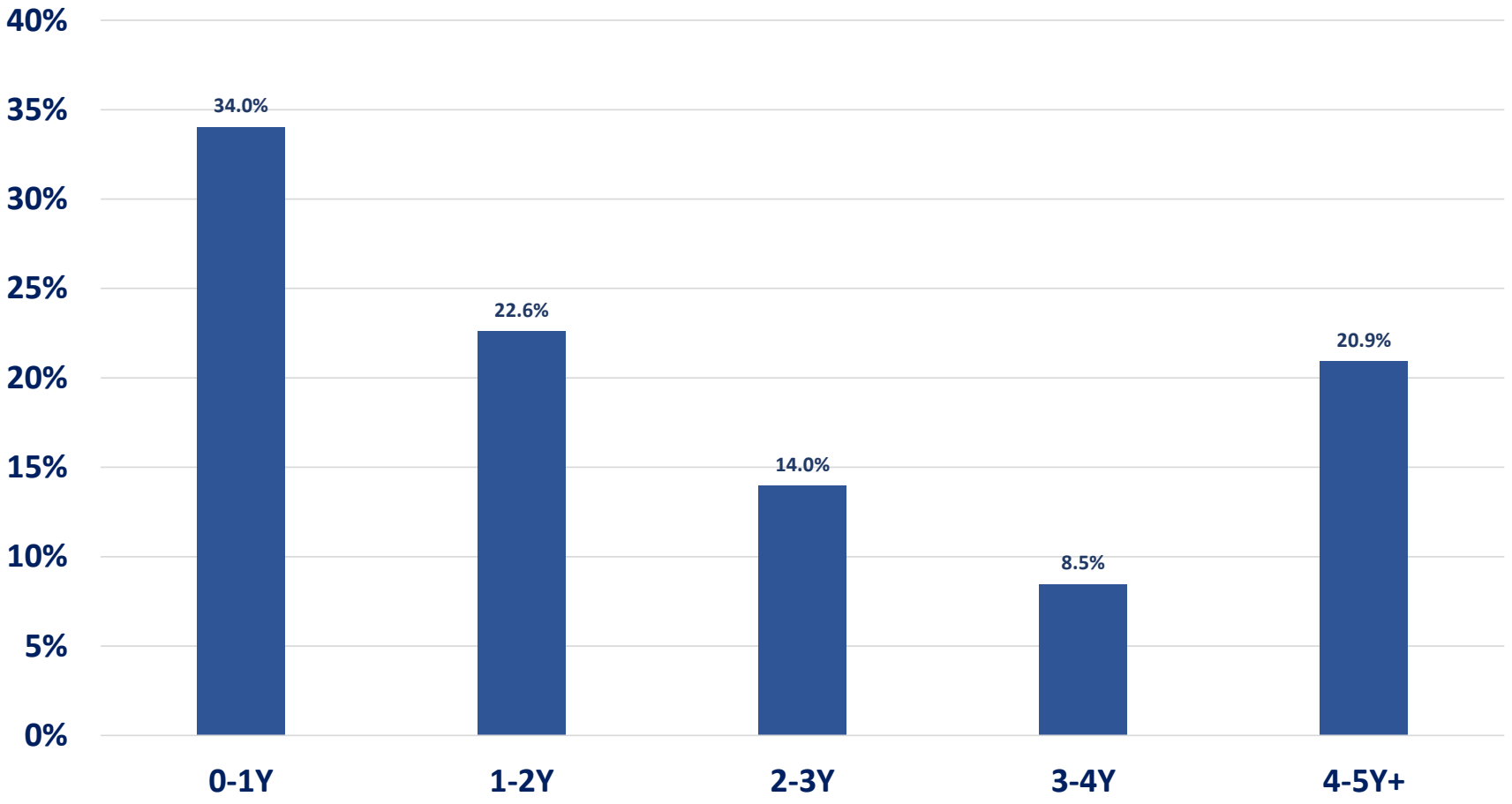


Detail may not add to total due to rounding.

FHN FINANCIAL
MAIN STREET ADVISORS

Aggregate Maturity Distribution

For the Year Ended June 30, 2023



Detail may not add to total due to rounding.

FHN FINANCIAL
MAIN STREET ADVISORS

Portfolio Performance

For the Year Ended June 30, 2023

- The County earned $16.282 million on an accrual basis through the portfolio assets in the pool.
- At fiscal year end, the County's aggregate portfolio yield to maturity at cost was 2.49%.

Fiscal Year Information	Average Book Value	Book Return	Total Return
Investment Pool	$877,543,660	1.86%	0.54%

1. *Excludes Bank of America deposits and the LGIP.*
2. *The return for the portfolio total return benchmark for the year was 0.13%, resulting in 0.41% outperformance over the benchmark.*

FHN FINANCIAL
MAIN STREET ADVISORS

CUSIP	Issuer Coupon Rate	Maturity Date Call Date	Remaining Par Value	Settle Date Book Yield	Original Value Book Value	Mkt Price Mkt YTM	Market Value Accrued Int.	% of Port Gain/Loss	Moody/S&P Fitch	WAM Eff. Dur.
Asset-Backed Securities										
02582JJR2	AMXCA 2017-6	11/16/2026	9,000,000.00	11/17/2021	8,998,594.20	93.87	8,447,940.00	1.00%	Aaa/NR	3.38
	0.900%			0.91%	8,998,594.20	2.81%	3,600.00	-550,654.20	AAA	1.37
14041NFY2	COMET 2019-A2	11/16/2026	10,000,000.00	11/30/2021	9,998,622.00	93.96	9,396,310.00	1.12%	NR/AAA	3.38
	1.040%			1.05%	9,998,622.00	2.92%	4,622.22	-602,312.00	AAA	1.37
14041NGA3	COMET 2019-A2	05/15/2027	10,000,000.00	06/14/2022	9,998,402.00	96.66	9,666,200.00	1.12%	NR/AAA	3.88
	3.490%			3.52%	9,998,402.00	4.43%	15,511.11	-332,202.00	AAA	1.76
02582JJT8	AMXCA 2017-6	05/17/2027	7,826,000.00	04/06/2023	7,681,096.72	96.51	7,552,559.56	0.86%	NR/AAA	3.88
	3.390%			4.35%	7,681,096.72	4.37%	11,791.17	-128,537.16	AAA	1.77
					36,676,714.92		**35,063,009.56**	**4.09%**		**3.62**
Total Asset-Backed Securities			**36,826,000.00**	**2.38%**	**36,676,714.92**	**3.61%**	**35,524.50**	**-1,613,705.36**		**1.56**
Corporate Bonds										
89236TFN0	Toyota Motor Credit	09/20/2023	4,650,000.00	08/28/2019	4,942,020.00	99.49	4,626,145.50	0.55%	A1/A+	0.22
	3.450%			1.84%	4,942,020.00	5.73%	45,008.13	-315,874.50	A+	0.21
037833CG3	Apple	02/09/2024	3,375,000.00	07/17/2019	3,479,220.00	98.60	3,327,783.75	0.39%	Aaa/AA+	0.61
	3.000%	12/09/2023		2.28%	3,479,220.00	5.36%	39,937.50	-151,436.25	NR	0.58
023135BW5	Amazon	05/12/2024	6,000,000.00	12/03/2021	5,931,900.00	95.87	5,752,380.00	0.66%	A1/AA	0.87
	0.450%			0.92%	5,931,900.00	5.39%	3,675.00	-179,520.00	AA-	0.83
46625HJX9	JPMorgan Chase & Co	05/13/2024	4,475,000.00	09/24/2020	4,953,109.00	98.23	4,395,882.00	0.55%	A1/A-	0.87
	3.625%			0.65%	4,953,109.00	5.73%	21,629.17	-557,227.00	AA-	0.83
89236TJG1	Toyota Motor Credit	06/14/2024	10,000,000.00	08/31/2021	9,963,300.00	95.29	9,528,800.00	1.11%	A1/A+	0.96
	0.500%	06/14/2023		0.63%	9,963,300.00	5.63%	2,361.11	-434,500.00	A+	0.92
931142EL3	Walmart	07/08/2024	7,270,000.00	07/12/2019	7,488,972.40	97.51	7,088,904.30	0.84%	Aa2/AA	1.02
	2.850%	06/08/2024		2.21%	7,488,972.40	5.39%	99,568.71	-400,068.10	AA	0.96
91159HHX1	US Bancorp	07/30/2024	5,200,000.00	08/05/2019	5,204,316.00	96.46	5,015,660.00	0.58%	A3/A	1.08
	2.400%	06/28/2024		2.38%	5,204,316.00	5.82%	52,346.67	-188,656.00	A	1.02
023135AZ9	Amazon	08/22/2024	3,300,000.00	08/28/2019	3,441,240.00	97.23	3,208,590.00	0.38%	A1/AA	1.15
	2.800%	06/22/2024		1.90%	3,441,240.00	5.32%	33,110.00	-232,650.00	AA-	1.08
14913R2P1	Caterpillar	09/13/2024	10,000,000.00	12/03/2021	9,882,300.00	94.39	9,439,100.00	1.10%	A2/A	1.21
	0.600%			1.03%	9,882,300.00	5.48%	18,000.00	-443,200.00	A+	1.16
00724PAB5	Adobe	02/01/2025	2,850,000.00	05/06/2020	2,985,175.50	95.03	2,708,269.50	0.33%	A2/A+	1.59
	1.900%	01/01/2025		0.88%	2,985,175.50	5.21%	22,562.50	-276,906.00	NR	1.51
594918BB9	Microsoft	02/12/2025	4,670,000.00	03/15/2021	4,999,235.00	96.44	4,503,748.00	0.56%	Aaa/AAA	1.62
	2.700%	11/12/2024		0.86%	4,999,235.00	5.02%	48,684.75	-495,487.00	NR	1.51
59217GEW5	MetLife	03/21/2025	5,000,000.00	06/08/2022	4,905,100.00	95.06	4,753,150.00	0.55%	Aa3/AA-	1.73
	2.800%			3.52%	4,905,100.00	5.85%	38,888.89	-151,950.00	AA-	1.62

CUSIP	Issuer Coupon Rate	Maturity Date Call Date	Remaining Par Value	Settle Date Book Yield	Original Value Book Value	Mkt Price Mkt YTM	Market Value Accrued Int.	% of Port Gain/Loss	Moody/S&P Fitch	WAM Eff. Dur.
Corporate Bonds										
06406RAN7	Bank of New York Mellon	04/24/2025	4,825,000.00	03/08/2021	4,955,178.50	93.70	4,520,976.75	0.55%	A1/A	1.82
	1.600%	03/24/2025		0.93%	4,955,178.50	5.28%	14,367.78	-434,201.75	AA-	1.73
91159HHZ6	US Bancorp	05/12/2025	15,000,000.00	09/30/2021	15,249,300.00	93.25	13,987,800.00	1.70%	A3/A	1.87
	1.450%	04/11/2025		0.97%	15,249,300.00	5.29%	29,604.17	-1,261,500.00	A	1.78
59217GFC8	MetLife	08/25/2025	5,000,000.00	08/25/2022	4,998,050.00	96.34	4,817,200.00	0.56%	Aa3/AA-	2.16
	4.050%			4.06%	4,998,050.00	5.88%	70,875.00	-180,850.00	AA-	1.98
110122DN5	Bristol-Myers Squibb Co	11/13/2025	1,407,000.00	06/21/2021	1,392,986.28	90.86	1,278,414.27	0.16%	A2/A+	2.38
	0.750%	10/13/2025		0.98%	1,392,986.28	4.88%	1,407.00	-114,572.01	NR	2.28
14913R2H9	Caterpillar	11/13/2025	5,000,000.00	08/30/2021	4,975,300.00	90.51	4,525,600.00	0.56%	A2/A	2.38
	0.800%			0.92%	4,975,300.00	5.10%	5,333.33	-449,700.00	A+	2.27
64952WED1	New York Life	06/09/2026	5,000,000.00	08/26/2021	5,032,600.00	88.53	4,426,500.00	0.56%	Aaa/AA+	2.95
	1.150%			1.01%	5,032,600.00	5.42%	3,513.89	-606,100.00	AAA	2.79
48130CBB0	JPMorgan Chase & Co	06/09/2026	10,000,000.00	06/09/2023	10,000,000.00	99.18	9,917,900.00	1.12%	A1/A-	2.95
	5.300%			5.30%	10,000,000.00	5.61%	32,388.89	-82,100.00	AA-	2.21
24422EVR7	John Deere	06/17/2026	10,000,000.00	08/24/2021	10,016,800.00	89.79	8,978,900.00	1.12%	A2/A	2.97
	1.050%			1.01%	10,016,800.00	4.79%	4,083.33	-1,037,900.00	A+	2.83
037833EC0	Apple	02/08/2028	7,000,000.00	03/29/2023	6,136,550.00	86.67	6,066,970.00	0.68%	Aaa/AA+	4.61
	1.200%			4.02%	6,136,550.00	4.43%	33,366.67	-69,580.00	NR	4.31
037833ET3	Apple	05/10/2028	15,000,000.00	05/10/2023	14,971,050.00	98.38	14,756,250.00	1.67%	Aaa/AA+	4.87
	4.000%			4.04%	14,971,050.00	4.37%	85,000.00	-214,800.00	NR	4.27
					145,903,702.68		**137,624,924.07**	**16.28%**		**2.13**
Total Corporate Bonds			**145,022,000.00**	**2.06%**	**145,903,702.68**	**5.27%**	**705,712.49**	**-8,278,778.61**		**1.94**
Money Market Funds										
PISXX	Allspring Treasury MMF	07/01/2023	91,121,201.48		91,121,201.48	1.00	91,121,201.48	10.17%	Aaa/AAA	0.00
	4.976%			4.98%	91,121,201.48	4.98%	294,051.44	0.00	NR	0.00
					91,121,201.48		**91,121,201.48**	**10.17%**		**0.00**
Total Money Market Funds			**91,121,201.48**	**4.98%**	**91,121,201.48**	**4.98%**	**294,051.44**	**0.00**		**0.00**
Supranational Securities										
459058JM6	IBRD	11/24/2023	2,940,000.00	11/24/2020	2,933,679.00	98.02	2,881,670.40	0.33%	Aaa/AAA	0.40
	0.250%			0.32%	2,933,679.00	5.31%	755.42	-52,008.60	AAA	0.38
45818WDD5	IADB	04/16/2024	10,000,000.00	09/02/2021	10,005,200.00	96.18	9,617,600.00	1.12%	Aaa/AAA	0.80
	0.390%			0.37%	10,005,200.00	5.37%	8,125.00	-387,600.00	AAA	0.76

CUSIP	Issuer Coupon Rate	Maturity Date Call Date	Remaining Par Value	Settle Date Book Yield	Original Value Book Value	Mkt Price Mkt YTM	Market Value Accrued Int.	% of Port Gain/Loss	Moody/S&P Fitch	WAM Eff. Dur.
					12,938,879.00		**12,499,270.40**	**1.44%**		**0.71**
Total Supranational Securities			**12,940,000.00**	**0.36%**	**12,938,879.00**	**5.36%**	**8,880.42**	**-439,608.60**		**0.67**
U.S. Agencies										
3135G05G4	FNMA	07/10/2023	6,700,000.00	07/10/2020	6,685,595.00	99.91	6,693,970.00	0.75%	Aaa/AA+	0.03
	0.250%			0.32%	6,685,595.00	3.49%	7,956.25	8,375.00	AAA	0.02
3137EAEV7	FHLMC	08/24/2023	3,580,000.00	08/21/2020	3,576,348.40	99.30	3,554,940.00	0.40%	Aaa/AA+	0.15
	0.250%			0.28%	3,576,348.40	4.95%	3,157.36	-21,408.40	AAA	0.14
3135G0U43	FNMA	09/12/2023	2,860,000.00	12/06/2018	2,854,222.80	99.49	2,845,328.20	0.32%	Aaa/AA+	0.20
	2.875%			2.92%	2,854,222.80	5.42%	24,895.90	-8,894.60	AAA	0.19
3133EMAM4	FFCB	09/21/2023	3,600,000.00	10/09/2020	3,593,880.00	98.81	3,557,160.00	0.40%	Aaa/AA+	0.23
	0.250%	07/10/2023		0.31%	3,593,880.00	5.60%	2,500.00	-36,720.00	AAA	0.21
3133ENAL4	FFCB	10/12/2023	10,300,000.00	12/08/2021	10,230,784.00	98.58	10,153,843.00	1.14%	Aaa/AA+	0.28
	0.290%			0.66%	10,230,784.00	5.37%	6,554.81	-76,941.00	AAA	0.27
3137EAFA2	FHLMC	12/04/2023	3,275,000.00	12/04/2020	3,271,757.75	97.84	3,204,260.00	0.37%	Aaa/AA+	0.43
	0.250%			0.28%	3,271,757.75	5.42%	614.06	-67,497.75	AAA	0.41
3130A0F70	FHLB	12/08/2023	2,290,000.00	01/31/2019	2,357,495.21	99.17	2,271,084.60	0.26%	Aaa/AA+	0.44
	3.375%			2.72%	2,357,495.21	5.29%	4,937.81	-86,410.61	NR	0.42
3130APR72	FHLB	12/08/2023	10,000,000.00	12/07/2021	9,966,960.00	97.87	9,787,200.00	1.11%	Aaa/AA+	0.44
	0.500%			0.67%	9,966,960.00	5.46%	3,194.44	-179,760.00	AAA	0.42
3130ASKB4	FHLB	12/29/2023	10,000,000.00	06/29/2022	10,000,000.00	98.92	9,891,700.00	1.12%	Aaa/AA+	0.50
	3.350%	09/29/2023		3.35%	10,000,000.00	5.59%	1,861.11	-108,300.00	AAA	0.48
313384SU4	FHLB	02/07/2024	25,000,000.00	03/07/2023	23,824,010.42	96.94	24,233,750.00	2.66%	P-1/A-1+	0.61
	0.000%			5.27%	23,824,010.42	5.20%	0.00	409,739.58	F1+	0.61
3130ASHK8	FHLB	06/14/2024	10,000,000.00	08/15/2022	9,966,000.00	97.82	9,781,800.00	1.11%	Aaa/AA+	0.96
	3.125%			3.32%	9,966,000.00	5.50%	14,756.94	-184,200.00	AAA	0.92
3130ASZH5	FHLB	08/28/2024	8,800,000.00	08/30/2022	8,800,000.00	98.42	8,660,872.00	0.98%	Aaa/AA+	1.16
	4.000%	11/28/2022		4.00%	8,800,000.00	5.41%	32,266.67	-139,128.00	AAA	1.10
3130APRA5	FHLB	11/15/2024	10,000,000.00	08/12/2022	9,503,000.00	93.93	9,393,100.00	1.06%	Aaa/AA+	1.38
	1.100%	07/15/2023		3.40%	9,503,000.00	5.75%	14,055.56	-109,900.00	AAA	1.32
3135G0X24	FNMA	01/07/2025	7,120,000.00	03/05/2020	7,384,436.80	94.82	6,750,970.40	0.82%	Aaa/AA+	1.53
	1.625%			0.84%	7,384,436.80	5.22%	55,921.67	-633,466.40	AAA	1.45
3133EN5Q9	FFCB	01/10/2025	20,000,000.00	01/10/2023	19,993,200.00	98.98	19,796,200.00	2.23%	Aaa/AA+	1.53
	4.500%			4.52%	19,993,200.00	5.20%	427,500.00	-197,000.00	AAA	1.42
3137EAEP0	FHLMC	02/12/2025	8,125,000.00	02/14/2020	8,118,743.75	94.40	7,669,756.25	0.91%	Aaa/AA+	1.62
	1.500%			1.52%	8,118,743.75	5.16%	47,057.29	-448,987.50	AAA	1.55
3130AJHU6	FHLB	04/14/2025	3,860,000.00	04/16/2020	3,840,854.40	92.52	3,571,272.00	0.43%	Aaa/AA+	1.79
	0.500%			0.60%	3,840,854.40	4.92%	4,128.06	-269,582.40	AAA	1.73

CUSIP	Issuer Coupon Rate	Maturity Date Call Date	Remaining Par Value	Settle Date Book Yield	Original Value Book Value	Mkt Price Mkt YTM	Market Value Accrued Int.	% of Port Gain/Loss	Moody/S&P Fitch	WAM Eff. Dur.
U.S. Agencies										
3135G03U5	FNMA	04/22/2025	4,275,000.00	05/04/2020	4,278,804.75	92.48	3,953,605.50	0.48%	Aaa/AA+	1.81
	0.625%			0.61%	4,278,804.75	5.02%	5,121.09	-325,199.25	AAA	1.75
3135G03U5	FNMA	04/22/2025	5,145,000.00	04/24/2020	5,134,401.30	92.48	4,758,198.90	0.57%	Aaa/AA+	1.81
	0.625%			0.67%	5,134,401.30	5.02%	6,163.28	-376,202.40	AAA	1.75
3135G03U5	FNMA	04/22/2025	6,300,000.00	06/05/2020	6,332,256.00	92.48	5,826,366.00	0.71%	Aaa/AA+	1.81
	0.625%			0.52%	6,332,256.00	5.02%	7,546.88	-505,890.00	AAA	1.75
3135G04Z3	FNMA	06/17/2025	530,000.00	09/18/2020	531,886.80	91.81	486,582.40	0.06%	Aaa/AA+	1.97
	0.500%			0.42%	531,886.80	4.93%	103.06	-45,304.40	AAA	1.90
3135G04Z3	FNMA	06/17/2025	590,000.00	10/30/2020	591,097.40	91.81	541,667.20	0.07%	Aaa/AA+	1.97
	0.500%			0.46%	591,097.40	4.93%	114.72	-49,430.20	AAA	1.90
3135G04Z3	FNMA	06/17/2025	600,000.00	12/22/2020	602,454.00	91.81	550,848.00	0.07%	Aaa/AA+	1.97
	0.500%			0.41%	602,454.00	4.93%	116.67	-51,606.00	AAA	1.90
3135G04Z3	FNMA	06/17/2025	995,000.00	07/21/2020	996,343.25	91.81	913,489.60	0.11%	Aaa/AA+	1.97
	0.500%			0.47%	996,343.25	4.93%	193.47	-82,853.65	AAA	1.90
3135G04Z3	FNMA	06/17/2025	1,650,000.00	06/23/2020	1,649,604.00	91.81	1,514,832.00	0.18%	Aaa/AA+	1.97
	0.500%			0.50%	1,649,604.00	4.93%	320.83	-134,772.00	AAA	1.90
3135G04Z3	FNMA	06/17/2025	1,985,000.00	01/05/2021	1,997,048.95	91.81	1,822,388.80	0.22%	Aaa/AA+	1.97
	0.500%			0.36%	1,997,048.95	4.93%	385.97	-174,660.15	AAA	1.90
3135G04Z3	FNMA	06/17/2025	3,645,000.00	07/06/2020	3,649,118.85	91.81	3,346,401.60	0.41%	Aaa/AA+	1.97
	0.500%			0.48%	3,649,118.85	4.93%	708.75	-302,717.25	AAA	1.90
3135G04Z3	FNMA	06/17/2025	5,970,000.00	06/19/2020	5,957,642.10	91.81	5,480,937.60	0.66%	Aaa/AA+	1.97
	0.500%			0.54%	5,957,642.10	4.93%	1,160.83	-476,704.50	AAA	1.90
3130AWGH7	FHLB	06/27/2025	10,000,000.00	06/27/2023	10,000,000.00	99.85	9,985,000.00	1.12%	Aaa/AA+	1.99
	5.625%	09/27/2023		5.63%	10,000,000.00	5.71%	6,250.00	-15,000.00	AAA	0.72
3137EAEU9	FHLMC	07/21/2025	3,610,000.00	07/23/2020	3,592,022.20	91.24	3,293,727.90	0.40%	Aaa/AA+	2.06
	0.375%			0.48%	3,592,022.20	4.90%	6,016.67	-298,294.30	AAA	1.99
3135G05X7	FNMA	08/25/2025	2,390,000.00	10/23/2020	2,376,616.00	91.00	2,174,780.50	0.27%	Aaa/AA+	2.16
	0.375%			0.49%	2,376,616.00	4.83%	3,136.87	-201,835.50	AAA	2.08
3135G05X7	FNMA	08/25/2025	3,835,000.00	08/27/2020	3,817,052.20	91.00	3,489,658.25	0.43%	Aaa/AA+	2.16
	0.375%			0.47%	3,817,052.20	4.83%	5,033.44	-327,393.95	AAA	2.08
3137EAEX3	FHLMC	09/23/2025	5,525,000.00	09/25/2020	5,508,369.75	90.74	5,013,219.25	0.61%	Aaa/AA+	2.24
	0.375%			0.44%	5,508,369.75	4.80%	5,640.10	-495,150.50	AAA	2.16
3135G06G3	FNMA	11/07/2025	5,660,000.00	11/24/2020	5,657,849.20	90.63	5,129,771.20	0.63%	Aaa/AA+	2.36
	0.500%			0.51%	5,657,849.20	4.76%	4,245.00	-528,078.00	AAA	2.27
3130ALGJ7	FHLB	03/23/2026	9,750,000.00	04/11/2023	8,901,262.50	90.42	8,816,145.00	0.99%	Aaa/AA+	2.73
	1.000%	07/23/2023		4.17%	8,901,262.50	4.78%	26,541.67	-85,117.50	AAA	2.60
3135G0K36	FNMA	04/24/2026	5,200,000.00	04/26/2016	5,159,336.00	93.51	4,862,728.00	0.58%	Aaa/AA+	2.82
	2.125%			2.21%	5,159,336.00	4.61%	20,565.28	-296,608.00	AAA	2.65

CUSIP	Issuer Coupon Rate	Maturity Date Call Date	Remaining Par Value	Settle Date Book Yield	Original Value Book Value	Mkt Price Mkt YTM	Market Value Accrued Int.	% of Port Gain/Loss	Moody/S&P Fitch	WAM Eff. Dur.
U.S. Agencies										
3130AN4T4	FHLB	06/12/2026	16,000,000.00	08/12/2021	16,048,720.00	89.97	14,395,520.00	1.79%	Aaa/AA+	2.95
	0.875%			0.81%	16,048,720.00	4.55%	7,388.89	-1,653,200.00	AAA	2.83
3135G06L2	FNMA	12/18/2026	12,000,000.00	02/10/2023	10,581,768.00	87.71	10,525,080.00	1.18%	Aaa/AA+	3.47
	0.875%	09/18/2023		4.23%	10,581,768.00	4.76%	3,791.67	-56,688.00	AAA	3.31
3130AQLX9	FHLB	01/27/2027	21,000,000.00	01/27/2022	21,000,000.00	91.76	19,268,970.00	2.34%	Aaa/AA+	3.58
	1.250%	07/27/2023		1.25%	21,000,000.00	3.73%	112,291.67	-1,731,030.00	AAA	3.09
3133EPDP7	FFCB	03/21/2028	10,000,000.00	04/14/2023	9,981,010.00	97.39	9,739,200.00	1.11%	Aaa/AA+	4.73
	3.625%			3.67%	9,981,010.00	4.24%	100,694.44	-241,810.00	AAA	4.20
3133EPHT5	FFCB	05/03/2028	10,000,000.00	05/05/2023	10,104,600.00	97.73	9,772,800.00	1.13%	Aaa/AA+	4.85
	3.625%			3.40%	10,104,600.00	4.15%	58,402.78	-331,800.00	AAA	4.32
3133EPBB0	FFCB	08/15/2028	10,000,000.00	04/11/2023	10,053,500.00	98.51	9,851,000.00	1.12%	Aaa/AA+	5.13
	3.875%			3.76%	10,053,500.00	4.20%	146,388.89	-202,500.00	AAA	4.48
3136G43D3	FNMA	09/25/2028	10,000,000.00	04/14/2023	8,518,700.00	82.88	8,287,600.00	0.95%	Aaa/AA+	5.24
	0.810%	09/25/2024		3.85%	8,518,700.00	4.52%	21,600.00	-231,100.00	AAA	4.95
3130AKC53	FHLB	10/16/2028	10,000,000.00	05/05/2023	8,661,600.00	84.13	8,413,100.00	0.97%	Aaa/AA+	5.30
	1.000%	07/10/2023		3.74%	8,661,600.00	4.39%	20,833.33	-248,500.00	AAA	4.98
3133EKS64	FFCB	09/24/2029	10,000,000.00	05/05/2023	9,085,700.00	87.96	8,795,800.00	1.01%	Aaa/AA+	6.24
	2.040%			3.66%	9,085,700.00	4.26%	54,966.67	-289,900.00	AAA	5.63
3130AHHC0	FHLB	11/06/2029	5,000,000.00	04/05/2023	4,464,250.00	87.63	4,381,700.00	0.50%	Aaa/AA+	6.36
	2.180%	11/06/2024		4.05%	4,464,250.00	4.44%	16,652.78	-82,550.00	AAA	5.44
3135G05Q2	FNMA	08/05/2030	4,030,000.00	08/06/2020	4,008,721.60	80.38	3,239,475.20	0.45%	Aaa/AA+	7.10
	0.875%			0.93%	4,008,721.60	4.09%	14,300.90	-769,246.40	AAA	6.62
3133EMK43	FFCB	06/16/2031	10,000,000.00	08/11/2022	8,813,600.00	81.46	8,146,200.00	0.98%	Aaa/AA+	7.97
	1.550%			3.09%	8,813,600.00	4.33%	6,458.33	-667,400.00	AAA	7.19
3133EMV58	FFCB	07/28/2031	10,000,000.00	08/20/2021	9,982,900.00	79.72	7,971,800.00	1.11%	Aaa/AA+	8.08
	1.310%			1.33%	9,982,900.00	4.31%	55,675.00	-2,011,100.00	AAA	7.31
3133ENFF2	FFCB	12/01/2031	6,000,000.00	08/03/2022	5,326,980.00	82.60	4,956,060.00	0.59%	Aaa/AA+	8.43
	2.040%	07/10/2023		3.46%	5,326,980.00	4.55%	10,200.00	-370,920.00	AAA	7.30
3130ASWW5	FHLB	08/16/2032	10,000,000.00	08/16/2022	10,009,660.00	95.82	9,581,600.00	1.12%	Aaa/AA+	9.14
	4.800%	08/16/2023		4.70%	10,009,660.00	5.39%	180,000.00	-428,060.00	AAA	3.55
3130AT4C8	FHLB	09/10/2032	16,615,000.00	05/17/2023	15,748,860.05	93.22	15,488,170.70	1.76%	Aaa/AA+	9.21
	3.375%			4.05%	15,748,860.05	4.27%	172,899.84	-260,689.35	AAA	7.57
					383,091,023.43		**366,591,630.05**	**42.74%**		**3.22**
Total U.S. Agencies			**393,810,000.00**	**2.66%**	**383,091,023.43**	**4.81%**	**1,733,267.71**	**-16,499,393.38**		**2.77**
U.S. Treasuries										

CUSIP	Issuer Coupon Rate	Maturity Date Call Date	Remaining Par Value	Settle Date Book Yield	Original Value Book Value	Mkt Price Mkt YTM	Market Value Accrued Int.	% of Port Gain/Loss	Moody/S&P Fitch	WAM Eff. Dur.
U.S. Treasuries										
912796XQ7	U.S. Treasury 0.000%	07/13/2023	20,000,000.00	06/27/2023 5.03%	19,955,995.56 19,955,995.56	99.86 3.91%	19,972,200.00 0.00	2.23% 16,204.44	P-1/A-1+ F1+	0.04 0.04
9128282D1	U.S. Treasury 1.375%	08/31/2023	2,835,000.00	07/03/2019 1.75%	2,792,696.48 2,792,696.48	99.38 5.09%	2,817,309.60 13,029.06	0.31% 24,613.12	Aaa/AA+ AAA	0.17 0.16
9128284X5	U.S. Treasury 2.750%	08/31/2023	3,850,000.00	09/25/2019 1.62%	4,014,527.34 4,014,527.34	99.59 5.16%	3,834,215.00 35,387.57	0.45% -180,312.34	Aaa/AA+ AAA	0.17 0.16
912828U57	U.S. Treasury 2.125%	11/30/2023	6,200,000.00	01/09/2019 2.52%	6,089,078.12 6,089,078.12	98.69 5.32%	6,118,656.00 11,159.15	0.68% 29,577.88	Aaa/AA+ AAA	0.42 0.40
91282CDM0	U.S. Treasury 0.500%	11/30/2023	22,000,000.00	01/31/2022 1.14%	21,743,906.36 21,743,906.36	98.03 5.31%	21,566,820.00 9,316.94	2.43% -177,086.36	Aaa/AA+ AAA	0.42 0.40
912828V80	U.S. Treasury 2.250%	01/31/2024	2,715,000.00	06/05/2019 1.89%	2,757,740.04 2,757,740.04	98.16 5.47%	2,665,152.60 25,481.25	0.31% -92,587.44	Aaa/AA+ AAA	0.59 0.56
912828W48	U.S. Treasury 2.125%	02/29/2024	4,300,000.00	04/04/2019 2.30%	4,265,902.34 4,265,902.34	97.89 5.38%	4,209,141.00 30,541.10	0.48% -56,761.34	Aaa/AA+ AAA	0.67 0.64
912828W71	U.S. Treasury 2.125%	03/31/2024	4,565,000.00	04/15/2021 0.35%	4,803,235.94 4,803,235.94	97.61 5.41%	4,455,850.85 24,384.08	0.54% -347,385.09	Aaa/AA+ AAA	0.75 0.72
912828X70	U.S. Treasury 2.000%	04/30/2024	4,050,000.00	06/05/2019 1.90%	4,068,351.56 4,068,351.56	97.22 5.45%	3,937,531.50 13,646.74	0.45% -130,820.06	Aaa/AA+ AAA	0.84 0.80
91282CCG4	U.S. Treasury 0.250%	06/15/2024	15,000,000.00	07/12/2021 0.38%	14,943,164.10 14,943,164.10	95.22 5.44%	14,282,250.00 1,639.34	1.67% -660,914.10	Aaa/AA+ AAA	0.96 0.93
912828YM6	U.S. Treasury 1.500%	10/31/2024	7,055,000.00	01/08/2021 0.31%	7,373,852.93 7,373,852.93	95.15 5.31%	6,712,691.40 17,829.21	0.82% -661,161.53	Aaa/AA+ AAA	1.34 1.28
912828ZL7	U.S. Treasury 0.375%	04/30/2025	4,850,000.00	04/15/2021 0.64%	4,798,279.30 4,798,279.30	92.01 4.99%	4,462,388.00 3,064.20	0.54% -335,891.30	Aaa/AA+ AAA	1.84 1.77
912828ZT0	U.S. Treasury 0.250%	05/31/2025	7,590,000.00	06/04/2021 0.56%	7,498,682.81 7,498,682.81	91.51 4.94%	6,945,760.80 1,607.17	0.84% -552,922.01	Aaa/AA+ AAA	1.92 1.86
912828ZT0	U.S. Treasury 0.250%	05/31/2025	15,000,000.00	08/25/2021 0.61%	14,801,953.20 14,801,953.20	91.51 4.94%	13,726,800.00 3,176.23	1.65% -1,075,153.20	Aaa/AA+ AAA	1.92 1.86
91282CEU1	U.S. Treasury 2.875%	06/15/2025	10,000,000.00	06/08/2023 4.52%	9,685,937.50 9,685,937.50	96.19 4.94%	9,619,100.00 12,568.31	1.08% -66,837.50	Aaa/AA+ AAA	1.96 1.86
91282CAJ0	U.S. Treasury 0.250%	08/31/2025	10,300,000.00	11/10/2021 0.92%	10,040,890.63 10,040,890.63	90.73 4.80%	9,344,881.00 8,606.66	1.12% -696,009.63	Aaa/AA+ AAA	2.17 2.10
91282CAT8	U.S. Treasury 0.250%	10/31/2025	7,630,000.00	06/04/2021 0.66%	7,495,878.91 7,495,878.91	90.25 4.71%	6,886,075.00 3,213.72	0.84% -609,803.91	Aaa/AA+ AAA	2.34 2.26
912828M56	U.S. Treasury 2.250%	11/15/2025	1,600,000.00	01/04/2018 2.40%	1,582,375.00 1,582,375.00	94.48 4.73%	1,511,632.00 4,597.83	0.18% -70,743.00	Aaa/AA+ AAA	2.38 2.25
91282CBC4	U.S. Treasury 0.375%	12/31/2025	4,900,000.00	04/15/2021 0.82%	4,799,511.72 4,799,511.72	90.14 4.60%	4,416,713.00 49.93	0.54% -382,798.72	Aaa/AA+ AAA	2.51 2.42

CUSIP	Issuer Coupon Rate	Maturity Date Call Date	Remaining Par Value	Settle Date Book Yield	Original Value Book Value	Mkt Price Mkt YTM	Market Value Accrued Int.	% of Port Gain/Loss	Moody/S&P Fitch	WAM Eff. Dur.
U.S. Treasuries										
91282CBH3	U.S. Treasury 0.375%	01/31/2026	6,065,000.00	06/21/2021 0.87%	5,930,432.81 5,930,432.81	89.78 4.61%	5,445,217.65 9,487.03	0.66% -485,215.16	Aaa/AA+ AAA	2.59 2.50
91282CBQ3	U.S. Treasury 0.500%	02/28/2026	2,775,000.00	03/11/2021 0.78%	2,737,385.74 2,737,385.74	89.83 4.59%	2,492,727.00 4,637.57	0.31% -244,658.74	Aaa/AA+ AAA	2.67 2.57
91282CCF6	U.S. Treasury 0.750%	05/31/2026	5,025,000.00	06/04/2021 0.79%	5,014,007.81 5,014,007.81	89.82 4.51%	4,513,656.00 3,192.11	0.56% -500,351.81	Aaa/AA+ AAA	2.92 2.80
912828YG9	U.S. Treasury 1.625%	09/30/2026	4,055,000.00	01/06/2021 0.45%	4,323,485.35 4,323,485.35	91.61 4.42%	3,714,623.30 16,563.46	0.48% -608,862.05	Aaa/AA+ AAA	3.25 3.07
912828ZB9	U.S. Treasury 1.125%	02/28/2027	1,870,000.00	02/26/2021 1.01%	1,882,198.83 1,882,198.83	89.23 4.33%	1,668,675.80 7,031.56	0.21% -213,523.03	Aaa/AA+ AAA	3.67 3.48
912828ZE3	U.S. Treasury 0.625%	03/31/2027	1,480,000.00	04/07/2021 1.20%	1,430,859.38 1,430,859.38	87.31 4.33%	1,292,114.00 2,325.14	0.16% -138,745.38	Aaa/AA+ AAA	3.75 3.59
9128283F5	U.S. Treasury 2.250%	11/15/2027	1,000,000.00	09/19/2019 1.72%	1,040,039.06 1,040,039.06	92.11 4.25%	921,060.00 2,873.64	0.12% -118,979.06	Aaa/AA+ AAA	4.38 4.05
91282CBS9	U.S. Treasury 1.250%	03/31/2028	1,445,000.00	04/07/2021 1.40%	1,430,493.55 1,430,493.55	87.52 4.17%	1,264,707.35 4,540.30	0.16% -165,786.20	Aaa/AA+ AAA	4.76 4.46
91282CCH2	U.S. Treasury 1.250%	06/30/2028	12,700,000.00	07/27/2021 1.04%	12,879,586.00 12,879,586.00	87.05 4.14%	11,054,969.00 431.39	1.44% -1,824,617.00	Aaa/AA+ AAA	5.01 4.70
9128285M8	U.S. Treasury 3.125%	11/15/2028	1,000,000.00	09/19/2019 1.75%	1,115,546.88 1,115,546.88	95.26 4.12%	952,620.00 3,991.17	0.12% -162,926.88	Aaa/AA+ AAA	5.38 4.81
9128285M8	U.S. Treasury 3.125%	11/15/2028	2,015,000.00	01/27/2021 0.81%	2,366,680.47 2,366,680.47	95.26 4.12%	1,919,529.30 8,042.20	0.26% -447,151.17	Aaa/AA+ AAA	5.38 4.81
9128286B1	U.S. Treasury 2.625%	02/15/2029	1,315,000.00	04/07/2021 1.51%	1,423,230.66 1,423,230.66	92.66 4.10%	1,218,479.00 12,968.37	0.16% -204,751.66	Aaa/AA+ AAA	5.64 5.04
91282CES6	U.S. Treasury 2.750%	05/31/2029	15,000,000.00	08/11/2022 2.89%	14,869,335.90 14,869,335.90	93.10 4.07%	13,965,300.00 34,938.52	1.66% -904,035.90	Aaa/AA+ AAA	5.92 5.31
912828YB0	U.S. Treasury 1.625%	08/15/2029	2,220,000.00	02/08/2021 1.00%	2,333,341.41 2,333,341.41	87.20 4.00%	1,935,817.80 13,553.04	0.26% -397,523.61	Aaa/AA+ AAA	6.13 5.62
912828ZQ6	U.S. Treasury 0.625%	05/15/2030	15,000,000.00	08/23/2021 1.18%	14,310,937.50 14,310,937.50	80.11 3.96%	12,016,350.00 11,973.51	1.60% -2,294,587.50	Aaa/AA+ AAA	6.88 6.50
					226,599,521.19		**211,861,013.95**	**25.28%**		**2.39**
Total U.S. Treasuries			**227,405,000.00**	**1.63%**	**226,599,521.19**	**4.72%**	**355,847.50**	**-14,738,507.24**		**2.25**

CUSIP	Issuer Coupon Rate	Maturity Date Call Date	Remaining Par Value	Settle Date Book Yield	Original Value Book Value	Mkt Price Mkt YTM	Market Value Accrued Int.	% of Port Gain/Loss	Moody/S&P Fitch	WAM Eff. Dur.
					896,331,042.69		854,761,049.51	100.00%		2.49
TOTAL PORTFOLIO			907,124,201.48	2.49%	896,331,042.69	4.84%	3,133,284.06	-41,569,993.19		2.14

TOTAL MARKET VALUE PLUS ACCRUED INTEREST	857,894,333.57

Custom Benchmark: 30MMA ICE BofA Treasury Index , 0-5Yr (90%), 5-10Yr (10%)

Note: The portfolio is not managed on a total return basis, nor is it managed to a specific index; rather, the portfolio is managed to ensure liquidity with the majority of the portfolio needed to fund debt and pension payments. Performance of the portfolio can differ greatly from the index depending on interest rate movements, and cash flow needs of the portfolio.

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