



WEBER  
BASIN  
WATER  
CONSERVANCY  
DISTRICT

WaterSMART Grants:  
Drought Resiliency Projects  
FY 2021  
BOR-DO-20-F00

# Green Road Well Construction



er Basin Water Conservancy District  
East Highway 193  
n, UT 84040-8406

ECT MANAGER:

y Nay, P.E.  
East Highway 193  
n, UT 84040  
771-4380

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# Technical Proposal and Evaluation Criteria

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## Executive Summary

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### Applicant Info

*Date:* August 3, 2020

*Applicant Name:* Weber Basin Water Conservancy District (WBWCD)

*City, County, State:* Layton, Davis County, Utah

*Project Manager:*

Ashley Nay

Project Manager, WBWCD

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*Project Funding Request:* Funding Group I, \$500,000; Total Estimated Project Cost, \$1,750,000

### Project Summary

*A one paragraph project summary that specifies the work proposed, including how funds will be used to accomplish specific project activities and briefly identifies how the proposed project contributes to accomplishing the goals of this FOA.*

Weber Basin Water Conservancy District's Drought Resiliency Project will construct a culinary well in Kaysville, Utah. The construction of this well will provide additional water resources allotted to Weber Basin through a Bureau of Reclamation Water Right. The proposed project will contribute to the goals of this FOA in the following way: **Increasing the Reliability of Water Supplies through Infrastructure Improvements: Developing alternative sources of water supply.** The equipping of the proposed well will provide additional water supply to help with drought resiliency.

### Length of Time and Estimated Completion Date

*State the length of time and estimated completion date for the proposed project.*

This project is ready to move forward as soon as it is awarded; however, no construction will take place until after July 2021 as required in the FOA. An environmental document will be prepared as part of the project, and it is anticipated that a Categorical Exclusion will be approved since the project will take place in previously disturbed areas. The environmental document is anticipated to require two to six months for completion. Equipping the well will take 12-24 months. The project will be completed within the required two-year time frame.

### Federal Facility

*Whether or not the project is located on a Federal facility.*

In 1949, the United States Congress authorized the Weber Basin Project (Project), which was a U.S. Bureau of Reclamation (Reclamation) project aimed at developing and effectively utilizing the available water resources within the Weber River Basin Drainage. The Weber Basin Water

Conservancy District was subsequently created in June of 1950 by a decree of the Second District Court of Utah and under the guidelines of the Utah Water Conservancy Act. The District is the operating agency for the Weber Basin Project and is responsible for the sale and delivery of project water, operation and maintenance of project facilities and is contracted with the U.S. Government for repayment of reimbursable costs of the Project.

## Background Data

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### Water Supply

*Source of water supply and water rights involved. The total quantity of water supplies managed and supplied.*

Water resources in the area were extensively developed before initiation of the Weber Basin Project. Numerous private developments antedate the Federal projects. Prior federal Reclamation developments include the Weber River Project on the main stem of the Weber River and the Ogden River Project on the Ogden River. Also, as part of the Weber River and Ogden River Projects, water is diverted from the high reaches of the Weber River for multiple uses on the Provo River. The Weber Basin Project supplements all the previous undertakings, and its operation is correlated with users in approaching the full practicable development of the area's water resources. Water is delivered from the Weber River to the District via two aqueducts.

The Weber Aqueduct conveys irrigation water to lands on the Uintah Bench, and municipal and industrial water to Ogden and adjacent communities in Weber County. Part of the irrigation water is pumped to parcels above the aqueduct, and the remainder is delivered by a gravity pressure distribution system. At the terminal of the aqueduct, water is delivered to the District's Weber South Water Treatment Plant (WTP) from which it is treated then distributed to Ogden City and surrounding communities (an approximate population of 240,000 people).

The Davis Aqueduct extends to the south from the Weber Canyon along the foot of the Wasatch Mountains to North Salt Lake City. Part of the water is pumped for irrigation of lands above the aqueduct; some of the water is sold by the District to irrigation companies, Improvement Districts, Sub-conservancy Districts and individual landowners. The remaining water is processed through the District's Davis North Water Treatment Plant for distribution to communities in North Davis County and through the Davis South Water Treatment Plant for communities in the south end of Davis County – combined communities of approximately 300,000. A large block of treated and untreated industrial water is also delivered to the several oil refineries in the extreme south end of Davis County.

In addition to surface water distribution, twenty-one deep wells relieve water shortages in dry periods and to meet peak water demands. Streams flowing from the face of the Wasatch Mountains toward the Great Salt Lake contribute small quantities of water for project use. The Ogden Valley Canal distributes Ogden River water to mountain valley lands near Huntsville and Eden.



The District holds several decreed water rights (Weber Canal Co., Dunn and Jones Ditch and Line Creek Irrigation) in the Weber River. Direct flow water rights are subject to potential reductions during drought years therefore were reduced by 20% to estimate dry year yield.

<i>Total District Water – Existing Supply</i>	<b>Dry Year Yield (acre-ft)</b>
Weber Basin Project Storage - Unit Notices	206,914
District Storage	12,917
District Groundwater Sources	20,485
Weber Basin Project Groundwater Sources	0
Irrigation Company Stock Water	17,056
Weber River Decreed Water	1,117
<b>Total</b>	<b>258,489</b>

### Net Production of Culinary Water from Treatment Plants & Wells - AF

MONTH	WEBER SOUTH PLANT		DAVIS NORTH PLANT		DAVIS SOUTH PLANT		PRODUCTION TOTAL OF ALL TREATMENT PLANTS	PRODUCTION TOTAL OF ALL WELLS	GROSS TOTAL PRODUCTION OF WELLS & TREATMENT PLANTS
	TOTAL MONTHLY PRODUCTION	% OF PLANT CAPACITY	TOTAL MONTHLY PRODUCTION	% OF PLANT CAPACITY	TOTAL MONTHLY PRODUCTION	% OF PLANT CAPACITY			
JAN	808.00	26.93%	1,155.17	26.74%	287.00	18.52%	2,250.17	40.99	2,291.16
FEB	834.00	27.80%	1,066.62	24.69%	343.00	22.13%	2,243.62	236.43	2,480.05
MAR	942.00	31.40%	1,287.93	29.81%	292.00	18.84%	2,521.93	0.96	2,522.89
APR	840.00	28.00%	1,517.53	35.13%	321.00	20.71%	2,678.53	72.97	2,751.50
MAY	829.00	27.63%	1,913.31	44.29%	475.00	30.65%	3,217.31	264.32	3,481.63
JUN	1,234.00	41.13%	2,986.85	69.14%	621.00	40.06%	4,841.85	155.00	4,996.85
JUL	1,282.00	42.73%	3,237.75	74.95%	927.00	59.81%	5,446.75	1,400.72	6,847.47
AUG	1,194.00	39.80%	3,222.55	74.60%	941.00	60.71%	5,357.55	1,211.69	6,569.24
SEP	866.00	28.87%	2,487.24	57.58%	682.00	44.00%	4,035.24	974.29	5,009.53
OCT	768.00	25.60%	1,708.32	39.54%	698.00	45.03%	3,174.32	492.10	3,666.42
NOV	742.00	24.73%	1,677.87	38.84%	502.00	32.39%	2,921.87	335.50	3,257.37
DEC	954.00	31.80%	1,162.16	26.90%	354.00	22.84%	2,470.16	0.00	2,470.16
<b>TOTAL</b>	<b>11,293.00</b>		<b>23,423.33</b>		<b>6,443.00</b>		<b>41,159.33</b>	<b>5184.97</b>	<b>46,344.30</b>

## Water Pumped from Wells - AF

CULINARY WELLS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
BEN LOMOND	0	0	0	0	0	0	75.49	108.94	29.46	0	0	0	213.89
CLEARFIELD #1	0	0	0	0	0	0	0	0	0	0	0	0	0
CLEARFIELD #2	0	0	0	0	0	0	0	289.36	55.45	0	0	0	344.81
DISTRICT WELL #2	0	0	0	0	0	0	0	149.67	356.85	0	0	0	506.52
DISTRICT WELL #3	0	0	0	0	0	0	0	0	0	0	0	0	0
FAIRFIELD	18.07	0	0	0	0	0	570.85	0	0	0	0	0	588.92
LAYTONA	22.92	236.43	0	0	0	0	0	0	0	0	0	0	259.35
NORTH OGDEN	0	0	0	0	0	50.44	97.54	80.26	75.76	24.98	0	0	328.98
ORCHARD DR.	0	0	0	0	0	0	28.81	28.32	29.04	13.26	0	0	99.43
RIVERDALE	0	0	0	72.97	264.32	0	0	0	0	0	0	0	337.29
SOUTH DAVIS	0	0	0	0	0	0	0	0	0	0	0	0	0
SOUTH WEBER #1	0	0	0	0	0	104.56	535.7	459.57	360.23	453.86	326.78	0	2,240.7
SOUTH WEBER #2	0	0	0	0	0	0	0	0	0	0	0	0	0
DAVIS BOULEVARD	0	0	0.96	0	0	0	0	0	0	0	8.72	0	9.68
NORTH WEBER	0	0	0	0	0	0	92.33	95.57	67.5	0	0	0	255.4
<b>TOTAL</b>	<b>40.99</b>	<b>236.43</b>	<b>0.96</b>	<b>72.97</b>	<b>264.32</b>	<b>155</b>	<b>1,400.72</b>	<b>1211.69</b>	<b>974.29</b>	<b>492.1</b>	<b>335.5</b>	<b>0</b>	<b>5,184.97</b>

### *Current water uses and number of water users served.*

As of the end of 2019, the District-administered water contracts totaled 229,701 acre-feet, with 92,915 acre-feet categorized as municipal and industrial (M&I) water, and the remaining 136,786 acre-feet categorized as irrigation. The District serves a geographic area over 2,500 square miles, with five principle water uses:

1. **Wholesale Irrigation:** wholesale water is supplied to several irrigation suppliers along the Wasatch Front. These organizations then retail water to customers in their respective service areas. This use accounts for approximately 36 percent of the District's water contracts.
2. **Groundwater Replacement:** various drinking water purveyors and individuals (either residential or agricultural) with a water contract, which is then used in an exchange application to obtain approval from the State Engineer to drill a groundwater well to meet water supply needs. This use accounts for nearly 10 percent of the District's contracts currently.
3. **Retail Secondary Irrigation:** The District provides residential customers with irrigation water in Davis and Weber counties via 484 miles of pipelines. This use accounts for roughly 25 percent of water contracts. They also deliver irrigation water to many irrigators and farmers in Box Elder, Davis, Morgan, Summit, and Weber Counties.
4. **Treated Municipal Water:** The District wholesales culinary water to nearly 50 cities and water improvement districts in Davis and Weber Counties via 69 miles of transmission lines. This use accounts for approximately 23 percent of the District's contracts.
5. **Untreated Industrial Water:** This use accounts for about 7 percent of the District's Contracts.

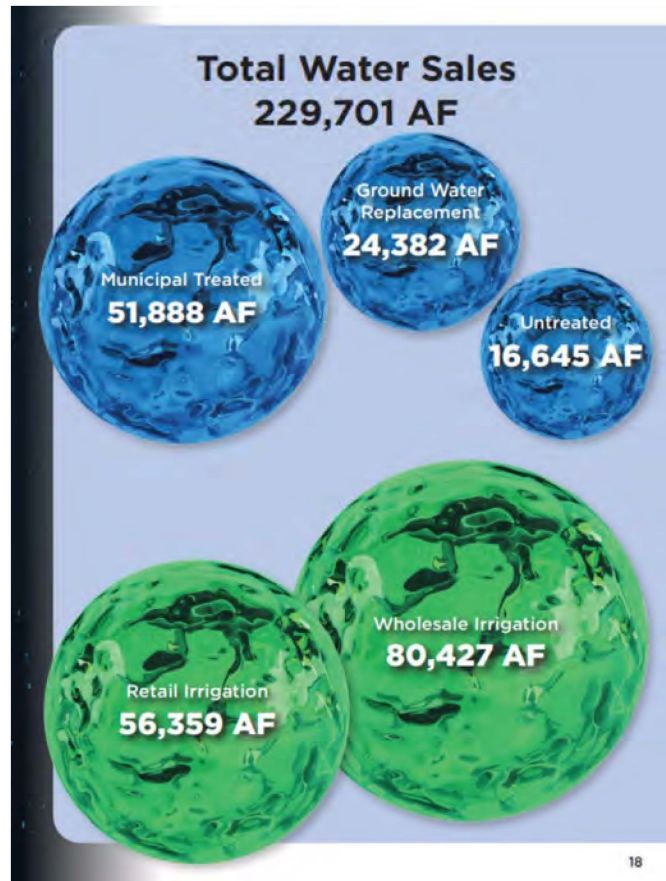


Figure 1 The District's Water Contracts

*Current and projected water demand/potential shortfalls in water supply.*

As of 2019, existing contracts obligated 83 percent of the District's reliable yield supply. Current population projections for the District's service area show the population nearly doubling between 2010 and 2060 (575,500 to 1,011,800). As this growth takes place, additional water supply will be necessary to meet anticipated demands even with the conservation goals of 25 percent reduction in per capita use by 2025 and 35 percent conservation by 2050 when compared with the year 2000 per capita use.

**Water Delivery System**

*Please include the total approximate length of distribution lines, number and sizes of storage tanks, number of pump stations and capacities, and the number of connections and/or number of water users served.*

**Wholesale M&I:** Within the desired service area where the proposed well will be installed, there are no other existing wells. The District has three contracting entities in the vicinity of the proposed location of the well: Fruit Heights City, Kaysville City, and Layton City. These cities contracts total to 10,461 ac-ft per year.

The District currently has 32 M&I water contracts that utilize water from the Davis North Water Treatment Plant and the Weber South Water Treatment Plant (14 in Davis County and 18 in

Weber County). Currently, the water treatment plants mentioned are the major sources of supply for the listed contracting entities. Equipping of this well will allow for greater operational flexibility in redirecting flows to other contracting agencies.

### Relationship with Reclamation

*Identify any past working relationships with Reclamation. This should include the date(s), description of prior relationships with Reclamation, and a description of the project(s).*

The District has collaborated with Reclamation on several recently completed and ongoing cooperative projects, including:

- Woods Cross Secondary Water Metering Project 2020: This project has been awarded and is currently awaiting a signed agreement before beginning construction, which is anticipated in 2020. It will install 650 secondary water meters in the Centerville service area.
- WaterSMART Small-Scale Water Efficiency Project FY 2019 – Weber Basin Water Conservancy District, Aqueduct Turnout and Secondary Lateral Metering Project Reclamation Funding 2019 Phase 2: Install magnetic flow meters and upgrade existing flow meters on turnouts from the Davis Aqueduct, Weber Aqueduct and other large secondary laterals - connecting a total of 11 meters to the district’s existing advanced metering infrastructure system.
- WaterSMART Small-Scale Water Efficiency Project FY 2019 Weber Basin Water Conservancy District, Potable Water System Metering Project Phase III Reclamation Funding 2019: Upgrade 2 existing flow meters to tie into current automated metering infrastructure system and install 17 new magnetic flow meters.
- Woods Cross Secondary Water Metering Project 2019: This project has been awarded and is in the process of selecting a contractor before beginning construction, which is anticipated in October 2020. It will install 700 secondary water meters in the Centerville service area.
- WaterSMART Small-Scale Water Efficiency Project FY 2018 – Weber Basin Water Conservancy District, Aqueduct Turnout and Secondary Lateral Metering Project Reclamation Funding 2018: Install magnetic flow meters and upgrade existing flow meters on turnouts from the Davis Aqueduct, Weber Aqueduct and other large secondary laterals - connecting a total of 17 meters to the district’s existing advanced metering infrastructure system.
- WaterSMART Small-Scale Water Efficiency Project FY 2018 Weber Basin Water Conservancy District, Potable Water System Metering Project Phase II Reclamation Funding 2018: Upgrade 10 existing flow meters to tie into current automated metering infrastructure system and install 25 new magnetic flow meters.
- Woods Cross Secondary Water Metering Project 2018: This project is in the final stages of completion. It installed 750 secondary water meters in the Woods Cross service area.

- Title XVI Reuse Feasibility Study 2017: This study will allow the the District to evaluate and collaborate with five wastewater treatment facilities within the District on ways to help develop greater resiliency and diversity of their water portfolio.
- The Secondary Water Metering, Fish Passage, and Solar Array/Hydro Project 2017: This project received full funding through the 2017 WaterSMART program. The project is in the process of being completed and will install 2,365 meters and upsize a hydro unit at the Causey Dam; estimated to be completed in September 2020.
- WaterSMART Small-Scale Water Efficiency Project FY 2017 – WBWCD Culinary Meters Project. This project will install new metering equipment on water transmission mains to all ow to an Automated Metering Infrastructure System (AMI).
- The Secondary Water Metering, Fish Passage, and Solar Array/Hydro Project 2016: This project received full funding through the 2017 WaterSMART program. The project is in the process of being completed and will install 2,365 meters and upsize a hydro unit at the Causey Dam; estimated to be completed in September 2020.
- Drought Contingency Plan 2016: This planning project received partial funding to help develop a drought plan for the entire District.
- The Secondary Water Meter Project 2015: This project, which received partial funding through the 2016 WaterSMART program, is in the process of being completed with the installation of 1000 meters.
- Phase 3 Upper Willard Canal Lining and Water Marketing Project: This project, which received partial funding through the 2013 WaterSMART program, has been completed.
- Phase 2 Upper Willard Canal Lining and Water Marketing Project: This project, which received partial funding through the 2012 WaterSMART program, has been finalized.
- Phase 1 Upper Willard Canal Lining and Water Marketing Project: This project, which received partial funding through the 2011 WaterSMART program, has been completed.
- The Layton Canal Lining and Water Marketing Project: This project, which received partial funding through the 2010 WaterSMART program, has been completed.
- The first Secondary Water Meter Project: This project, which received partial funding through the 2010 WaterSMART program, has been completed with the installation of 1000 meters.
- System Trunk-line Meter Project: Completed in 2009, this project involved installation of large meters and provides information for the water deliveries through the many of the large lines that service portions of the District’s retail secondary water system.
- System Optimization Review (SOR) was completed in 2008. This project evaluated the efficiencies of the District’s entire water storage and distribution system.
- Weber River Basin Aquifer Recharge Water Bank: This project, which was completed in 2009, received partial funding through the 2007 Water 2025 program.
- Gateway Canal Landslide Stabilization Projects: This is an ongoing collaboration.



## Project Location

### *Geographic Location*

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*Figure 2 The Green Road Well Project Location*

The Green Road Well Project is in Kaysville, UT twenty miles north of Salt Lake City.

## Technical Project Description and Milestones

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*Describe the work in detail, including specific activities that will be accomplished. This description shall have sufficient detail to permit a comprehensive evaluation of the proposal. The technical project description must include milestones for the completion of the project, including environmental compliance, permitting, final design, and construction.*

The District's service population is expected to double by 2060. Regional growth is driving the need for an informed level of investment decisions related to redundancy and resiliency to the culinary water system. Currently, the District utilizes a Bureau of Reclamation water right: a24880. The defined flow with that right is 25 cfs and the District has developed and put to use 10.83 cfs. The Green Road well is intended to be a beneficial well that helps the District utilize some of the remaining 14.17 cfs on that water right. Based on preliminary pumping results from test drills, the proposed well is projected to produce between 1.33 and 1.56 cfs (600-700 gpm or 477-566 ac-ft/yr).

The first step in the Green Road Well construction will be to perform an environmental compliance. The location of the well will be in a previously disturbed area; therefore, it is anticipated that the environmental review will take up to 2-6 months to complete. After the review is completed, the final design will then begin and once completed the construction can commence. Final design of this well is anticipated to generally incorporate a seismically sound well house, applicable water treatment processes, a new deep well vertical turbine pump and motor with possible VFD, SCADA instrumentation to allow for remote monitoring of the flows and treatment processes, electrical equipment, and HVAC. Construction for equipping this well is anticipated to take six months to complete. The well casing will be installed by using the rotary method and the screen will be either wire wrap, shutter, or louvered screen depending on the results from drilling. See Amendment E for the Well Drilling Log.

The purpose of this proposed well is to further develop the Reclamation water right as well as provide culinary water in the event of an emergency (e.g., should the water treatment plant be shut down or the aqueduct needs to be taken offline).

## Performance Measures

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*Propose a method (performance measure) of quantifying the benefits of their proposed project once it is implemented.*

Raw water from the Davis Aqueduct is treated at the Davis North WTP and supplied to communities in north Davis County via a culinary water transmission line. The District utilizes a Reclamation water right (a24880) for 25 cfs and has only been able to develop 10.83 cfs of that right. The purpose of this proposal is to equip the previously drilled Green Road Well; doing so will help the District utilize some of the remaining 14.17 cfs.

Key considerations have guided the approach to equipping the well and include: drilling two exploratory pilot holes followed by reaming for construction of production wells using the reverse-rotary drilling method, as well as attractive and low maintenance site improvements, and prequalification of contractors. The well is to be used in the District drinking water system and will be constructed to meet Utah Division of Drinking Water standards. The well is completed with a minimum 16-inch diameter casing to a total depth of 1,500 feet with anticipated production from unconsolidated sand and gravel aquifer(s).

## E.1. Technical Proposal: Evaluation Criteria

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### E.1.1. Evaluation Criterion A – Project Benefits (40 Points)

#### Improve Drought Resiliency

- *How will the project build long term resilience to drought? How many years will the project continue to provide benefits?*

Key actions during a drought involve determining how much supply is available. Currently, the District does not have a well servicing the Kaysville area. Wells will provide the ability to deliver culinary water when the water treatment plant, or the supply aqueduct need to be taken offline, or in times when drought limits the volume of surface waters available for diversion and use.

- *Will the project make additional water supplies available?*
  - *If so, what is the estimated quantity of additional supply the project will provide and how was this estimate calculated? Provide this quantity in acre-feet per year as the average annual benefit over 10-years.*

Based on preliminary pumping data, it is projected that the well will produce between 477-566 ac-ft/yr (600-700 gpm or 1.33-1.56 cfs).

- *What percentage of the total water supply does the additional water supply represent? How was the estimate calculated?*

The percentage of total water supply that this additional well represents is 9.2 – 10.9%. This was calculated from adding the total water pumped from wells then taking the amount of water pumped from this well and dividing it by the total 2019 production of all wells.

$$\frac{\text{Green Road Well production}}{\text{2019 Total Production of culinary wells}} = \frac{477 - 566 \text{ ac-ft}}{5,184.97 \text{ ac-ft}} = 9.2 - 10.9 \%$$

- *Provide a brief qualitative description of the degree/significance of the benefits associated with the additional water supplies.*

Finding and developing additional wells along the Wasatch Front has become arduous and expensive. The proposed well will help meet the needs the District has for wells in the north Davis area to provide resiliency and redundancy to their culinary water system

- *Will the project improve the management of water supplies? For example, will the project increase efficiency, increase operational flexibility, or facilitate water marketing (e.g. improve the ability to deliver water during drought or access other sources of supply)?*

Constructing the proposed well will increase operational flexibility which improves the ability to deliver water during drought.

- *If so, how will the project increase efficiency or operational flexibility?*

The project increases efficiency by providing the critical pumping capacity needed in the service area, and allows water, that has been tied up for use in this area, to be redirected in the event the water needed elsewhere.

- *What is the estimated quantity of water that will be better managed as a result of this project? How was this estimate calculated?*

The estimated quantity of water that will be better managed is 466 - 577 ac-ft. This estimate was calculated based off the anticipated operations for the well; running the well 4 months out of an average year at 600 to 700 gpm.

- *How will the project increase efficiency or operational flexibility?*

The proposed well will allow for the ability to deliver culinary water in the event that the water treatment plant, or supply aqueduct are taken offline. The District is also in the process of designing and constructing a tank located in this area that will operate in conjunction with this well; the well will be able to pump into the tank to augment storage.

- *What percentage of the total water supply does the water better managed represent? How was this estimate calculated?*

The percentage of total water supply represented with this project is 9.2 – 10.9%. This was calculated by dividing the anticipated amount of water supplied by the proposed well by the total water supplied by existing wells in 2019, which is 5,184.97 ac-ft.

- *Provide a brief qualitative description of the degree/significance of anticipated water management benefits.*

The proposed well will help alleviate the demands of the area and provide for emergency supply should the aqueduct lines or water treatment plants need to be taken offline. There is currently not an existing well in the service area where the Green Road well is proposed and will therefore provide new pumping

capacities during times of drought where surface diversions may not be as readily available.

- *Will the project make new information available to water managers? If so, what is that information and how will it improve water management?*

Yes, the new information will be in regard to the level of the aquifer in this area. This will help managers make better decisions with this data concerning drawdown levels. The District will be collecting data regarding the metering of withdrawals and system pressures, as well as performing water quality testing.

- *Will the project have benefits to fish, wildlife, or the environment? If so, please describe those benefits.*

Groundwater wells allow for some flexibility in being able to prioritize groundwater withdrawals during times of drought and consequently reduce demand for surface water withdrawals. Should this operational scenario be implemented, additional water for environmental considerations would be available.

#### Wells.

- *What is the estimated capacity of the new well(s), and how was the estimate calculated?*

The capacity of the new well is 477 – 566 ac-ft per year (600-700 gpm or 1.33-1.56 cfs). The estimate was calculated based off preliminary pumping data and with the assumption that the well will be pumped at capacity four months out of the year.

- *How much water do you plan to extract through the well(s)?*

The current plan is to extract the full amount of water that is available, which is between 1.33 and 1.56 cfs (477-566 ac-ft per year). During times of drought, the availability of groundwater supply is critical.

- *Will the well be used as a primary supply or a supplemental supply when there is a lack surface supplies?*

The well will be used as a primary supply in order to augment the surface supplies.

- *Please provide information documenting that proposed well(s) will not adversely impact the aquifer it/they are pumping from (overdraft or land subsidence).*

- *Aquifer description*

In October of 1995, the State of Utah completed a groundwater management plan for the aquifer impacted by this well. Since this date all groundwater water rights have been monitored and administered per the document. Some of the items included in this plan that have been put in place to ensure no adverse impacts such as overdraft and land subsidence include an annual accounting of the volumes of water extracted with a requirement that the annual average not



exceed 90,000 acre-feet, no single year allowed to exceed 120,000 acre-feet, no change application allowing movement of water rights into this area.

The area is bounded by the Weber-Box Elder County line on the north, Edge of Valley fill on the east, Farmington-Centerville city line on the south, and the Great Salt Lake on the West. The estimated annual recharge to the groundwater aquifer is 95,000 ac-ft; however, the existing water rights allowed for the potential withdrawal up to 110,000 ac-ft annually. It is important to note that not all water rights are fully utilized every year and therefore the greater volume in withdrawals as opposed to recharge volumes is not a major concern.

Key plan elements from the document include:

- Diversions from groundwater wells are not to exceed 90,000 ac-ft per year (as a 5-year rolling average, no single year allowed to exceed 120,000 ac-ft);
- Wells drilled subsequent to the implementation of this plan are not allowed to impact wells with earlier priority dates by more than 15-foot drawdowns;
- No change applications will be approved for moving water into the Layton-Riverdale city area;
- And Identifies several contamination zones (restricted areas) near Hill Air Force Base in Layton, Utah.

○ *Information on existing or planned aquifer recharge facilities*

The District currently operates an aquifer storage and recovery facility at the mouth of the Weber Canyon. The source of the water is from the Weber River and is diverted to the recharge site through the South Weber Irrigation Canal pipeline. The current quantity is limited to 8.18 cfs. The water will be recharged through surface infiltration from shallow infiltration basins totaling approximately 7 acres. The recharge operations are planned to operate April 1 to October 15 each year. Based on the water right assigned to the project, a total of 3,212 ac-ft will be recharged per year. The recharge facilities are equipped with 18-inch butterfly valve and mag meter flow control and metering. The site is equipped also with SCADA for remote monitoring and control.

○ *A map of the well location and other nearby surface water supplies*

In the map shown in Figure 3, there are seven wells. Of those seven wells, none are serving the Kaysville area where the Green Road well location is proposed.

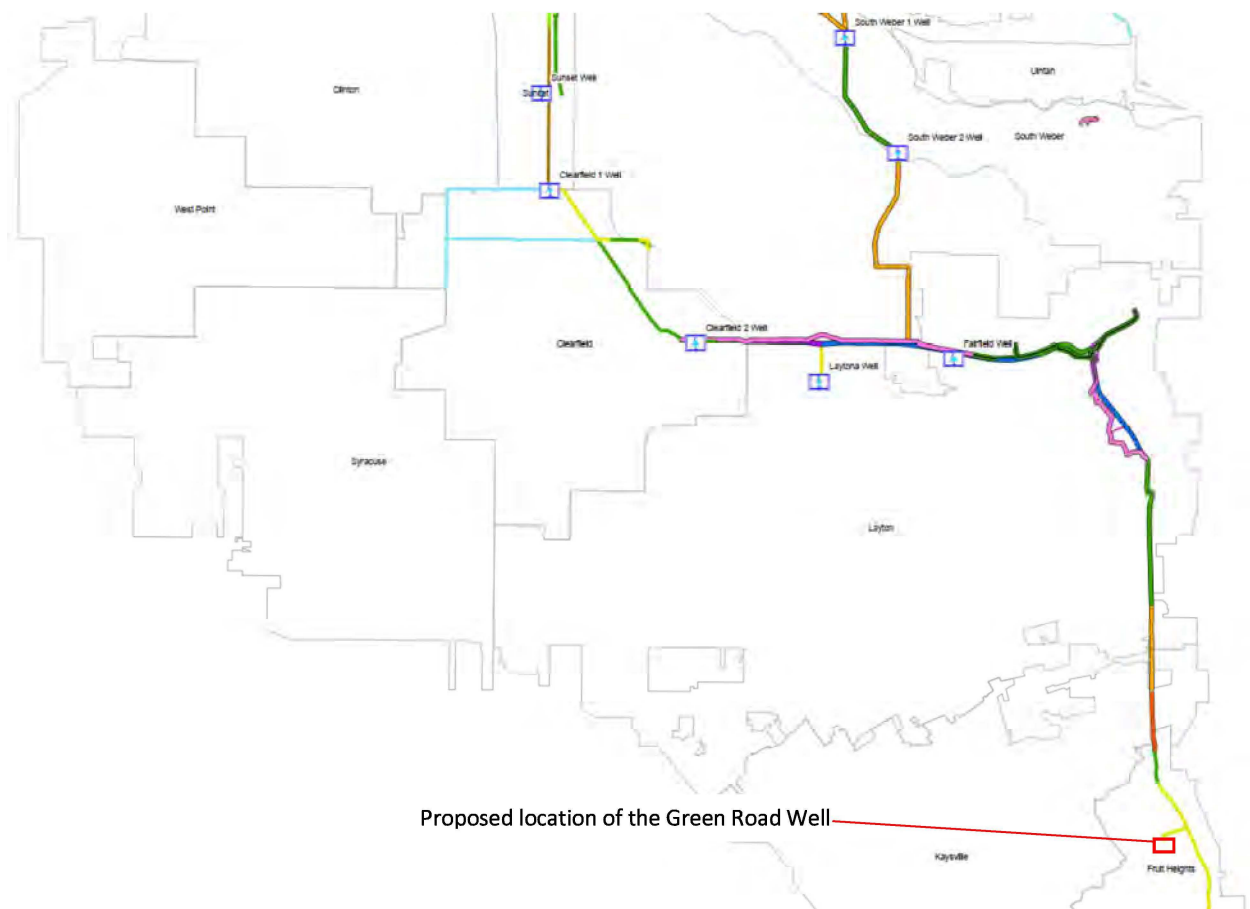


Figure 3: Map of Existing Wells in the Surrounding Region.

- Physical descriptions of the proposed well(s) (depth, diameter, casing description, etc.).

The proposed well will be 16-inch diameter casing drilled to 1,500 feet. The well has not yet been equipped. For more details, please see Attachment E – Well Drilling Log.

- If available, information should be provided on nearby wells (sizes, capacities, yields, etc.), aquifer test results, and if the area is currently experiencing aquifer overdraft or land subsidence.

Capacities in the nearby active wells are shown in the table below, along with the sizes and yields.

Culinary Wells South of Layton City					
Name	Location	Size	Capacity (cfs)	Yield (gpm)	Depth (ft)
South Weber Well 1	South Weber	20-inch	10	4500	1,000
South Weber Well 2	South Weber	28, 20, 16, 12-inch	10	4500	1,173
Clearfield Well 1	Clearfield	20, 12-inch	5	2250	995

Clearfield Well 2	Clearfield	20-inch	5	2250	902
Laytona Well	Layton	24, 20, 18, 16, 12-inch	5	2250	802
Fairfield Well	Layton	36, 24, 22, 23-inch	10	4500	990

- *Please describe the groundwater monitoring plan that will be undertaken and the associated monitoring triggers for mitigation actions. Describe how the mitigation actions will respond to or help avoid any significant adverse impacts to third parties that occur due to ground water pumping.*

In October of 1995, the State of Utah completed a groundwater management plan for the aquifer impacted by this well. Some of the aspects of this plan that apply to this well include the following:

- 1) Diversions from wells in the entire sub-area will be limited to a total of 90,000 acre-feet annually on a 5-year moving average and shall not exceed 120,000 acre-feet in any single calendar year.
- 2) Wells which are drilled subsequent to the implementation of this plan shall be spaced such that a maximum of 15 feet of drawdown results on any well with an earlier priority date. Users in a particular area may enter into a written agreement for a variance from this requirement subject to approval by the State Engineer, and if no more than 15 feet of drawdown results with third party rights.
- 3) Applications to appropriate water will be considered on a limited basis under the following guidelines:
  - a) Applications to appropriate water from the principal ground water aquifer for single family domestic wells shall be limited to diversions of 1.0 acre-foot annually and must be located in areas not served by a public water system. These applications will be approved for a fixed period of time subject to the condition that when a public water system becomes available, the well will be properly sealed and the water right will terminate.
  - b) In considering new applications to appropriate water for quantities greater than single family domestic wells, preference will be given to municipal water

suppliers who can demonstrate an immediate need for the water. No new applications to appropriate water will be approved in those areas where the historical water level declines are determined to be critical.

- c) Applications to appropriate water from drains or shallow wells of 30 feet or less in depth will still be considered based on the individual merits of the application.
- 4) Change applications will be considered on their own individual merits and critically evaluated for effects on other wells and the ground-water system. Applications will be critically reviewed if they seek to move a water right a large distance, into an area which is experiencing significant declines in water level, or propose to convert surface or shallow ground water rights to a deep well (greater than 30 feet deep). No change applications which propose to transfer water into the Layton-Riverdale area, which has the largest declines in the area, will be approved.
- 5) Requests for extension of time to place water to beneficial use for pending applications will be critically reviewed as per Section 73-3-12 of the Utah Code. If the State Engineer finds unjustified delays or a lack of due diligence, the request may be granted in part, the priority of the application reduced, or the request may be denied entirely.
- 6) All wells which potentially could divert 100 acre-feet or more per year shall be equipped with a totalizing meter and the water user shall report the annual withdrawals recorded by the meters to the State Engineer.
- ...8) Water users are requested to submit copies of any water quality information or testing results to the State Engineer. Additional diversion restrictions or other measures deemed necessary may be imposed, after public review, if it is determined that water quality in the aquifer is deteriorating. Any information relating to determinations of aquifer characteristics should also be provided to the State Engineer.

### E.1.2. Evaluation Criterion B – Drought Planning and Preparedness (15 Points)

*Proposals that demonstrate that the proposed project is clearly supported by an existing drought plan will be awarded the most points under this criterion. For purposes of evaluating this criterion, please:*

- *Attach a copy of the applicable drought plan, or sections of the plan as an appendix to your application.*

Please see Attachment B for the Drought Contingency Plan.

- *Explain how the applicable plan addresses drought.*

Providing the additional necessary well will allow for greater resiliency in the event of a drought. The proposed well will be providing more water associated with Reclamation's water right (a24880).

- *Explain whether the drought plan was developed with input from multiple stakeholders. Was the drought plan developed through a collaborative process?*

The District does not have control over how all the water is managed within the district boundaries. As such, it is very important that irrigation districts, municipal water systems, industrial water users, environmental water user groups and other stakeholders participate in the creation and implementation of the Drought Contingency Plan. The planning process included two levels of stakeholder involvement. Level one included a small group of stakeholders who were invited to be a part of the "Task Force." Level two included a larger group called an "Advisory Group." These two groups comprised of agriculture users, decision-makers, community residents, local businesses, environmental advocates, and other stakeholders. This extensive stakeholder involvement helped to provide an excellent foundation for the more in-depth work required to formulate an all-inclusive drought plan.

- *Does the drought plan include consideration of climate change impacts to water resources or drought?*

Yes, understanding the impact of drought on the District's ability to provide water for its customers requires looking critically at the incidence of drought; both in the past and in the future. Future conditions may hinder the ability of the District to deliver adequate water supplies. An evaluation was completed on potential future climate change scenarios to identify the possible climate effects on future water supplies.

One of the recommendations from the Drought Contingency Plan reads: Finish a climate change study specific to the District service area for better understanding on how storage levels may be impacted. The climate change study is currently being conducted and will be completed in 2020.



- *Describe how your proposed drought resiliency project is supported by an existing drought plan.*

A key drought vulnerability listed on the Drought Contingency Plan is “Available Water Supply During Drought (Junior Water Rights and Potential Climate Change)”. The mitigation objectives associated with that vulnerability is to increase the annual water supply for drought years. Constructing this well will increase the water supply because it is developing more water and will alleviate that drought vulnerability.

- *Does the drought plan identify the proposed project as a potential mitigation or response action?*

The proposed well is a mitigation action to increase the annual water supply for drought years.

- *Does the proposed project implement a goal or need identified in the drought plan?*

Yes, for the District’s service area to run efficiently, especially in times of drought, available water supply is critical.

- *Describe how the proposed project is prioritized in the referenced drought plan.*

The proposed well addresses the vulnerability of available water supply during a drought. This vulnerability has been prioritized as medium risk.

### E.1.3. Evaluation Criterion C – Severity of Actual or Potential Drought Impacts to be addressed by the Project (15 Points)

*Describe the severity of the impacts that will be addressed by this project:*

- *What are the ongoing or potential drought impacts to specific sectors in the project area if no action is taken (e.g. impacts to agriculture, environment, hydropower, recreation and tourism, forestry), and how severe are those impacts? For example, impacts could include, but are not limited to:*

- *Whether there are public health concerns or social concerns associated with current or potential drought conditions (e.g. water quality concerns including past or potential violations of drinking water standards, increased risk of wildfire, or past or potential shortages of drinking water supply)? Does the community have another water source available to them if their water service is interrupted?*

As with any drought, there are public health concerns associated with increased wildfire risk or potential shortages of drinking water supply. Constructing the proposed well will help alleviate those concerns by providing an additional source of water to the users should their services be interrupted.

- *Whether there are ongoing or potential environmental impacts (e.g. impacts to endangered, threatened or candidate species or habitat).*

No, there are not ongoing or potential environmental impacts. An environmental document will be conducted to ensure this.

- *Whether there are ongoing, or potential, local, or economic losses associated with current drought conditions (e.g. business, agriculture, reduced real estate values).*

In the event of a drought, there are several economic concerns that surface.

These concerns relate to the impact on fisheries, the potential inability of water suppliers to collect fees as a result of the inability to deliver the water, the impact of drought on the Great Salt Lake industry, companies and/or industries may go out of business or relocate, times of significant drought will drive up the cost of water and limit power generation.

- *Whether there are other drought-related impacts not identified above (e.g. tensions over water that could result in water-related crisis or conflict).?*

When there is a significant drought and water shortages are required to be initiated, conflicts will naturally arise. The installation of this well will help postpone making the necessary water cuts when a drought is occurring.

- *Describe existing or potential drought conditions in the project area.*

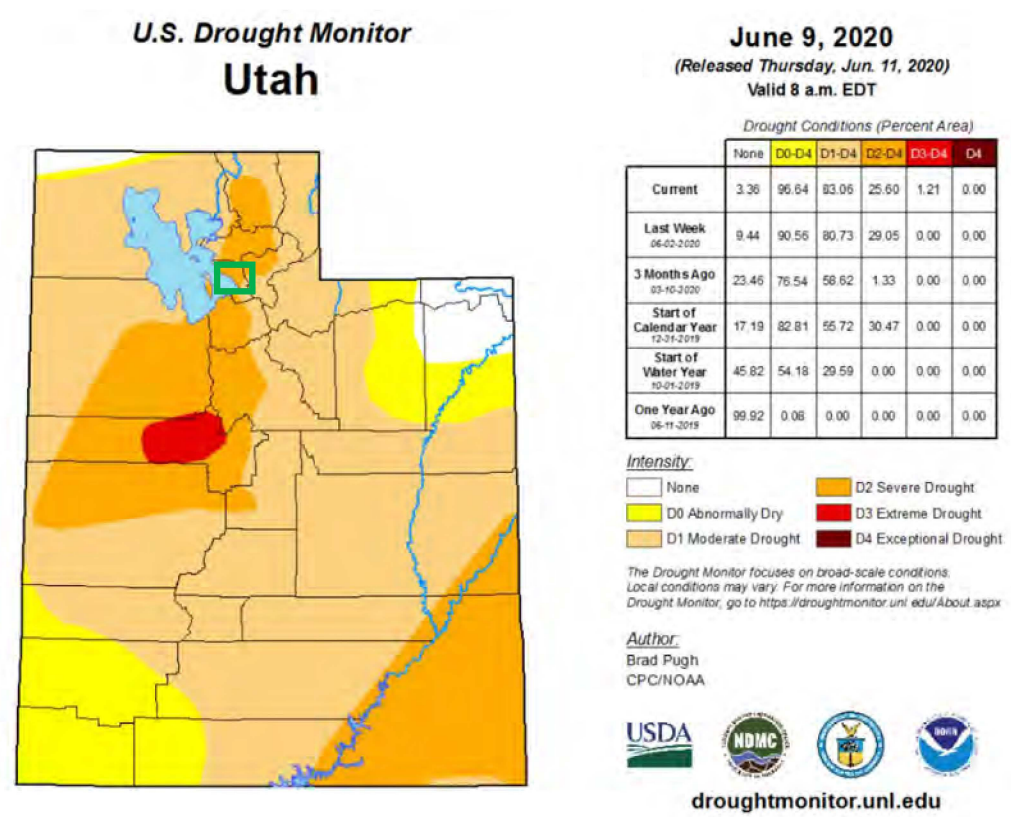
Over the last twenty years, the District's service area has been predominately in drought conditions. Scientists have found that this is a direct result of climate change. There is not a single answer to the question of what future climate within the District will look like. Different climate models simulate a range of future climates in the District service area, and different emissions scenarios alter the output of each climate model. Of the scenarios that were selected to further investigate, the most critical scenario is the hot and dry scenario.

The Hot/Dry scenario, or the worst-case scenario, predicts an increase in temperature by 2.3° F and a decrease in precipitation by as much as 6%. Another critical factor that could take place should the hot-dry scenario unfold is the peak spring runoff from snow melting shifts from on average occurring in June to May. These models also show that future precipitation will come more in the form of rain than as has been observed in the past as snow.

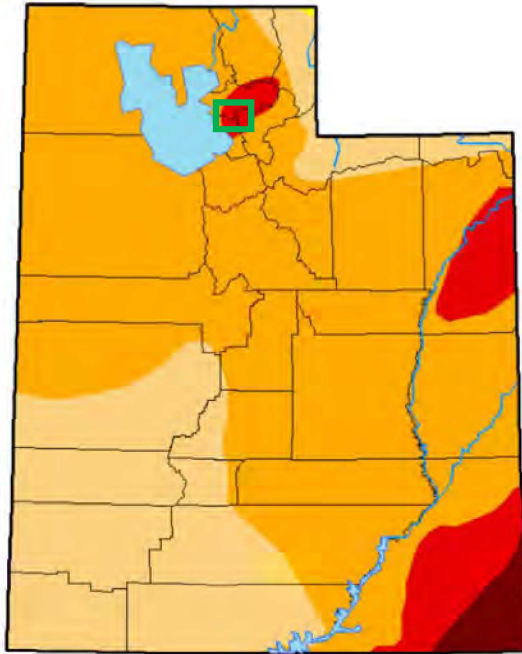
- *Is the project in an area that is currently suffering from drought or which has recently suffered from drought? Please describe existing or recent drought conditions, including when and the period of time that the area has experienced drought conditions (please provide supporting documentation).*

Based on the Drought Monitor posted on June 9, 2020, the service area is currently classified as being in drought. Part of the District's service area is classified as D2 – Severe Drought and the remainder of the area is classified as

D1 – Moderate Drought. The Drought Monitor classified the service area is D3 – Extreme Drought as recent as December 4, 2018. The Drought Monitor maps can be seen in the following figures.



## U.S. Drought Monitor Utah



**December 4, 2018**  
(Released Thursday, Dec. 6, 2018)  
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.00	100.00	99.96	73.33	8.44	1.83
Last Week 11-27-2018	0.00	100.00	99.96	76.10	17.79	3.01
3 Months Ago 09-04-2018	0.00	100.00	99.96	73.48	37.33	7.24
Start of Calendar Year 01-01-2018	9.73	90.27	61.37	19.64	0.00	0.00
Start of Water Year 09-25-2018	0.00	100.00	99.96	87.58	46.68	7.24
One Year Ago 12-05-2017	15.33	84.67	53.40	0.00	0.00	0.00

### Intensity

D0 Abnormally Dry      D3 Extreme Drought  
D1 Moderate Drought      D4 Exceptional Drought  
D2 Severe Drought

The Drought Monitor focuses on broad-scale conditions.  
Local conditions may vary. See accompanying text summary  
for forecast statements.

### Author

Deborah Bathke  
National Drought Mitigation Center



<http://droughtmonitor.unl.edu/>

- Describe any projected increases to the severity or duration of drought in the project area resulting from changes to water supply availability. Please provide support for your response.

An analysis conducted from the paleo-hydrology study showed that from 1430 to 1971, a moderate drought would occur once every 36 years. However, from 1971 to present conditions, a moderate drought has been observed once every seven years. A moderate drought is classified based on the reservoir storage levels containing 64%-72% of their capacities. Severe droughts (53%-64% reservoir storage) have occurred once every 60 years from 1430-1970 and extreme droughts (less than 53% reservoir storage) have occurred once every 135 years. Neither severe nor extreme droughts have been recorded since 1971. Based on these conclusions, projections indicate that a moderate drought is expected to occur once every 30 years, a severe drought to occur once every 10 years and an extreme drought once every 6 years.

#### E.1.4. Evaluation Criterion D – Project Implementation (10 Points)

- *Describe the implementation of the plan of the proposed project. Please include an estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones and dates.*

The project is ready to move forward as soon as it is awarded but will not begin prior to July 2021. An environmental document will be prepared as part of the project, and it is anticipated that a Categorical Exclusion will be approved since the project will take place in previously disturbed area. The environmental document will take two to six months. The installation of the well will take 12-24 months. The project will be completed within the required two-year time frame.

- *Describe any permits that will be required, along with the process for obtaining such permits.*

Potential permitting will most likely include conditional use permit from the city and Division of Drinking Water plan approval.

- *Identify and describe and engineering or design work performed specifically in support of the proposed project.*

A consultant has been hired to perform the engineering design necessary to construct the proposed well.

- *Describe any new policies or administrative actions required to implement the project.*

There will not be any new policies required to implement this project.

- *Describe how the environmental compliance estimate was developed. Have the compliance costs been discussed with the local Reclamation office?*

The environmental compliance estimate was developed based off extensive experience in working with the Bureau of Reclamation. The proposed well project has been discussed with the local Reclamation office.

#### E.1.7. Evaluation Criterion E – Nexus to Reclamation (10 Points)

*Describe the nexus between the proposed project and a Reclamation project or activity, including:*

- *How is the proposed project connected to a Reclamation project or activity?*

The proposed project is directly related to Reclamation activities, since the water supplying the Kaysville area is part of the Weber Basin Project. Much of the infrastructure, pumping, and other activities are connected to Reclamation-owned land, facilities, and infrastructure that the District operates to provide the water where needed.

- *Will the project benefit any tribe(s)?*

This proposed project will not benefit any Tribes.



- *Does the applicant receive Reclamation project water?*  
The majority of the District's water is original Weber Basin Project water. Weber Basin is the central entity for Reclamation Project water for the entire region.
- *Is the project on Reclamation project lands or involving Reclamation facilities?*  
The project is not on Reclamation lands and does not directly involve facilities.
- *Is the project in the same basin as a Reclamation project or activity?*  
The proposed project is within the District boundaries, which is a Reclamation project.
- *Will the proposed work contribute water to a basin where a Reclamation project is located?*  
This proposed project will serve to support Reclamation objectives and will augment water supplies in the Weber Basin area, thus reducing future conflicts for water to this area. Water saved in this project will be used for future demands in the Weber Basin service area, which is part of a Reclamation project.

#### E.1.5. Evaluation Criterion F – Department of the Interior and Bureau of Reclamation Priorities (10 Points)

*Address those priorities that are applicable to your project. Points will be allocated based on the degree to which the project supports one or more of the priorities listed, and whether the connection to the Priority(ies) is well supported in the proposal.*

##### **Department of Interior Priorities**

#### *1. Creating a conservation stewardship legacy second only to Teddy Roosevelt*

On the topic of conservation, Teddy Roosevelt wisely instructed, "Conservation means development as much as it does protection. I recognize the right and duty of this generation to develop and use the natural resources of our land; but I do not recognize the right to waste them, or to rob, by wasteful use, the generations that come after us." The District agrees with Teddy Roosevelt that America's precious water resources must be available and reliable for current and future generations. The District operates the Weber Basin Project which belongs to the Federal Government, and ultimately, this project will expand the capacity of this existing infrastructure by reducing demand on the system. The District will take a major step towards ensuring water availability and reliability for current and future generations by providing the required amount of volume water storage to its users. The District has prepared a Drought Contingency Plan that will help them better understand their response to drought and how to work with all its users.

#### *2. Utilizing our natural resources*

The proposed project will contribute to ensuring American Energy is available to meet our security and economic needs by providing the resiliency and redundancy needed for this service area, which will result in decreased energy used for existing pumping wells or from transporting the needed water by other means.

3. *Restoring trust with local communities*

As the District works with the local cities located within their service area to address major issues regarding the limited water storage in the area, they work to restore trust with those local cities and the water users within city jurisdiction.

4. *Striking a regulatory balance*

Not applicable to the proposed project.

5. *Modernizing our infrastructure*

The installation of the proposed well supports the White House Public/Private Partnership Initiative to modernize U.S. infrastructure.

### Bureau of Reclamation Priorities

1. *Increase Water Supplies, Storage, and Reliability under WIIN and other Authorities*

This proposed project will increase the available water supply for the area.

2. *Streamline Regulatory Processes and Remove Unnecessary Burdens to Provide More Water and Power Supply Reliability*

Not applicable to this project.

3. *Leverage Science and Technology to Improve Water Supply Reliability to Communities*

A meter will be installed along with equipping the Green Road well which will allow for accurate readings of the amount of water pumped from the aquifer. The meter will be included in the SCADA system which provides instantaneous meter reads.

4. *Address Ongoing Drought*

Providing the additional proposed well will allow for greater resiliency in the event of a drought. Water stored in the aquifer will become available in the event of an emergency, like a drought, and will help mitigate the effects of drought on the end users.

5. *Improve the Value of Hydropower to Reclamation Power Customer*

Not applicable to the proposed project.

6. *Improve Water Supplies for Tribal and Rural Communities*

Not applicable to the proposed project.

7. *Implementation of new Title Transfer authority pursuant to P.L. 116-9*

Not applicable to the proposed project.

## Project Budget

### Funding Plan and Letters of Commitment

*Describe how the non-Federal share of project costs will be obtained.*

*Identify the sources of the non-Federal cost share contribution for the project, including:*

- *Any monetary contribution by the applicant towards the cost-share requirement and source of funds (e.g., reserve account, tax revenue, and/or assessments)*

**The District will fund all non-Federal contributions entirely with Weber Basin Water Conservancy District operating revenues and bond proceeds.**

- *Any costs that will be contributed by the applicant*  
N/A
- *Any third-party in-kind costs (i.e., goods and services provided by a third party)*  
N/A
- *Any cash requested or received from other non-Federal entities*  
N/A
- *Any pending funding requests (i.e. grants or loans) that have not yet been approved, and explain how the project will be affected if such funding is denied*  
N/A

*In addition, identify whether the budget proposal includes any project costs that have been or may be incurred prior to award. For each cost, describe:*

- *The project expenditure and amount*  
N/A
- *The date of cost incurrence*  
N/A
- *How the expenditure benefits the Project*  
N/A

### Budget Proposal

*Table 1 - Total Project Cost Table*

Source	Amount
Costs to be reimbursed with the requested Federal funding	\$500,000
Costs to be paid by the applicant	\$1,250,000
Value of third-party contributions	\$0.00
<b>Total Project Cost</b>	<b>\$1,750,000</b>

Table 2 - Budget Proposal

Budget Item Description	Computation		Quantity Type	Total Cost
	\$/Unit	Quantity		
<b>Salaries and Wages</b>				<b>\$0.00</b>
<b>Fringe Benefits</b>				<b>\$0.00</b>
<b>Equipment</b>				<b>\$0.00</b>
<b>Supplies and Materials</b>				<b>\$0.00</b>
<b>Contractual /Construction</b>				<b>\$1,750,000</b>
Equipping 16-inch diameter casing, depth of 1,500 ft	\$1,749,000	1	EA	\$1,749,000
Environmental and Regulatory Compliance	\$1,000	1	EA	\$1,000
<b>Third-Party In-Kind Contributions</b>				<b>\$0.00</b>
<b>Other</b>				<b>\$0.00</b>
<b>Total Direct Costs</b>				<b>\$1,750,000</b>
<b>Indirect Costs</b>				<b>\$0.00</b>
Type of rate	Percentage	\$base		\$0.00
<b>Total Estimated Project Costs</b>				<b>\$1,750,000</b>

## Budget Narrative

### *Salaries and Wages*

No District Salaries or Wages will be included. All services will be contracted. The District's staff time will be over and above the cost of the project and will not be counted toward the project cost.

### *Fringe Benefits*

No fringe benefits will be required.

### *Travel*

No travel will be required.

### *Equipment*

Equipment will be part of the contracted portion of the project.

### *Materials and Supplies*

Materials and Supplies will be part of the contracted portion of the project and will be documented as required.

### *Contractual*

In order to determine unit costs, which were included in the cost estimate for this project, the District relied upon contract unit prices from similar projects.

The District will bid the construction portion of the project to several prequalified construction companies. The contractual costs shown are estimates for each of the components to furnish and install all the equipment. Generally, the low bidder will be selected based on a determination of acceptable qualifications.

Contract will include equipping a 16-inch diameter casing well to a depth of 1,500 ft.

#### *Third-Party In-Kind Contributions*

No third-party in-kind contributions will be part of the project.

#### *Environmental and Regulatory Compliance Costs*

The cost is estimated to be \$1,000.

#### *Other Expenses*

No other expenses will be part of the project.

#### *Indirect Costs*

No indirect costs will be part of the project.

#### *Total Costs*

District Portion: \$1,250,000	Fed Portion: \$500,000	Total: \$1,750,000
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## Environmental and Cultural Resources Considerations

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*Will the proposed project impact the surrounding environment (e.g., soil [dust], air, water [quality and quantity], animal habitat)? Briefly describe all earth-disturbing work and any work that will affect the air, water, or animal habitat in the project area. Explain the impacts of such work on the surrounding environment and any steps that could be taken to minimize the impacts.*

The project will require a minimal level of earthwork to install the well. No animal habitats will be negatively impacted, and work impacts will be very minimal.

*Are you aware of any species listed or proposed to be listed as a Federal threatened or endangered species, or designated critical habitat in the project area? If so, would they be affected by any activities associated with the proposed project?*

The District is not aware of any impacts concerning threatened or endangered species in this area.

*Are there wetlands or other surface waters inside the project boundaries that potentially fall under CWA jurisdiction as "Waters of the United States?" If so, please describe and estimate any impacts the proposed project may have.*

The District is not aware of any impacts to wetlands in this area.

*When was the water delivery system constructed?*

The original District/Reclamation Project began in the late 1950s and continued over several year periods in the early 1960s. Since then, additional infrastructure with conveyance canals and pipes have been added to meet the growing population water needs.

*Will the proposed project result in any modification of or effects to, individual features of an irrigation system (e.g., headgates, canals, or flumes)? If so, state when those features were constructed and describe the nature and timing of any extensive alterations or modifications to those features completed previously.*

There will be no significant modifications to the main conveyance system.

*Are any buildings, structures, or features in the irrigation district listed or eligible for listing on the National Register of Historic Places? A cultural resources specialist at your local Reclamation office or the State Historic Preservation Office can assist in answering this question.*

The District is not aware of any building, structures or features that would be impacted or would qualify. A cultural resource inventory will be completed as part of the submitted environmental document.

*Are there any known archeological sites in the proposed project area?*

The District is not aware of any impacts to any archeological sites. An archeological resource inventory will be completed as part of the submitted environmental document.



*Will the proposed project have a disproportionately high and adverse effect on low income or minority populations?*

The project will not require a right-of-way or relocations from adjacent properties and will have no impact on residential uses within the study area.

*Will the proposed project limit access to and ceremonial use of Indian sacred sites or result in other impacts on tribal lands?*

No.

*Will the proposed project contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area?*

No.

## Required Permits or Approvals

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*Applicants must state in the application whether any permits or approvals are required and explain the plan for obtaining such permits or approvals.*

Kaysville City will be involved and notified of all well installation project implications and timelines. Any concerns they have will also be addressed prior to the project construction. The District will work with UDOT to minimize installation.

## Existing Drought Contingency Plan

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Please see Attachment B for the Executive Summary. The full report is available upon request.

## Letters of Project Support

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*Include letters from interested stakeholders supporting the proposed project.*

Letters of support from the following entities are included in [Attachment C – Letters of Support](#):

- » Kaysville City
- » Fruit Heights

## Official Resolution

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*Include an official resolution adopted by the applicant's board of directors or governing body. The official resolution may be submitted up to 30 days after the application deadline.*

The Official Resolution for the Green Road Well Project is included at the end of this application in Attachment D.

## Attachment A - WBWCD Delivery System Information

### Weber Basin Water Principal Infrastructure

#### DAMS & RESERVOIRS

Name	Location	Type of Dam	Height (ft)	Total Capacity (AF)	Usable District Capacity (AF)	Acquisition Dates
Causey	Eastern Weber County	Earth & Rock	200	7,870	6,870	1962-1964
East Canyon	Southern Morgan County	Concrete Arch	245	51,200	20,100	1965-1967
Lost Creek	Eastern Morgan County	Earth & Rock	220	22,500	20,010	1964-1966
Pineview	Ogden Valley, Weber County	Earth & Rock	91	110,150	66,228	1955-1957
Smith & Morehouse	South-eastern Summit County	Earth & Rock	82	8,350	6,560	1984-1988
Wanship	Summit County	Earth & Rock	156	62,120	60,860	1954-1957
Willard	Southern Box Elder County	Earth	36	227,189	202,160	1957-1963

#### AQUIFER STORAGE & RECOVERY

Name	Location	Pond Area (acres)	Capacity (cfs)	Acquisition Dates
ASR	Weber County	7.5	10	2002

#### DIVERSIONS

Name	Location	Pass-Through Capacity (cfs)	Acquisition Dates
Ogden Valley	South Fork of Ogden River	2,000	1962-1964
Slaterville	Weber River west of Ogden	9,000	1956-1957
Stoddard	Weber River north of Morgan	6,000	1955-1956

#### HYDRO GENERATION POWER PLANTS

Name	Location	Type	Capacity (kw)	Acquisition Dates
Causey	Eastern Weber County	2 unit	2,100	1999-2000
Gateway	Mountain Green	1 unit	4,275	1957-1958
Wanship	Wanship	1 unit	1,950	1957-1958

#### CANALS, TUNNELS & PIPELINES

Name	Location	Type	Capacity (cfs)	Length (miles)	Acquisition Dates
Davis Aqueduct	Davis County	Concrete pipe	355	23.0	1954-1957
Gateway Canal	Morgan County	Concrete-lined	700	8.5	1954-1956
Gateway Tunnel	Morgan and Davis County	Concrete-lined	435	3.3	1952-1954
Layton Canal	Davis County	Earth-lined/concrete-lined/pipe	260	18.0	1962-1964
M&I Pipelines	Davis and Weber County	Varies 6"-48"	varies	80.0	1955-2012
Ogden Valley Canal	Weber County	Part earth-lined	35	9.2	1962-1964
Secondary Pipelines	Davis and Weber County	Varies 2"-36"	varies	325.0	1955-2012
Weber Aqueduct	Weber County	Concrete pipe	80	5.0	1954-1956
Western Summit County	Summit County	Ductile Iron	8.9	9.0	2013
Willard Canal	West Weber County	Earth-lined/concrete-lined	1,050	11.0	1961-1963

#### PUMPING PLANTS

Name	Location	Capacity (cfs)	Height of Lift (ft)	Acquisition Dates
Antelope Booster	Layton	22	50	1978
East Bountiful	Bountiful	18	475	1955
East Layton	Layton	9	65	1955
Gateway	Mountain Green	150	150	1995
Kanesville #1	West Haven	3	218	2000
Kanesville #2	West Haven	10	315	2001
Layton Canal	West Haven	260	23	1955
Old Post Rd Booster	Ogden	6	200	1960
Rockport	Wanship	25	45	2009
Roy Drought Relief	Roy	150	340	1981
Sand Ridge East	Layton	9	92	1955
Sand Ridge West	Layton	15	138	1955
South Davis	Bountiful	18	530	1955
Unitah Bench	South Ogden	18	365	1955
Val Verda	Bountiful	6	240	1955
West Haven #1	West Haven	10	218	2003
West Haven #2	West Haven	3	230	2010
Willard No. 1	West Weber County	500	45	1960
Willard No.2	West Weber County	250	20	1960

#### UNDERGROUND WATER WELLS

Name	Location	Type	Capacity (cfs)	Acquisition Dates
Ben Lomond	Harrisville	M&I	1.8	2001
Clearfield #1	Clearfield	M&I	5.0	1961
Clearfield #2	Clearfield	M&I	5.0	1961
Davis Boulevard	Bountiful	M&I	2.2	2003
District Well #2	South Weber	M&I	11.0	1985
District Well #3	South Weber	M&I	10.0	1990
Fairfield	Layton	M&I	10.0	1992
Farmington #1	Farmington	Irrigation	5.0	1995
Farmington #2	Farmington	Irrigation	5.0	1996
Laytona	Layton	M&I	5.0	1958
Mills Park	West Bountiful	Irrigation	2.2	2011
North Ogden	North Ogden	M&I	1.8	1967
North Weber	Harrisville	M&I	1.6	2006
Orchard Dr. Well	Bountiful	M&I	0.8	1991
Riverdale	Riverdale	M&I	6.6	1960
South Davis	Woods Cross	M&I	5.2	1961
South Weber #1	South Weber	M&I	10.0	1962
South Weber #2	South Weber	M&I	10.0	1962
Washington Terrace	Washington Ter.	Irrigation	4.0	2013
West Bountiful 5th South	West Bountiful	Irrigation	4.0	1992
West Bountiful Golf	West Bountiful	Irrigation	2.0	1993

#### WATER TREATMENT PLANTS

Name	Location	Capacity (MGD)	Acquisition Dates
Davis North WTP	Layton, Davis	46	1955
Davis South WTP	Bountiful, Davis	16	1955
East Canyon WTP	Jeremy, Summit	5.5	2013
Weber South WTP	Ogden, Weber	32	1955

AF=Acre Feet • CFS=Cubic Feet per Second • MGD= Million Gallons per Day

## Attachment B – Drought Contingency Plan

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The 2018 Drought Contingency Plan Executive Summary has been attached as a part of this grant application. In the event that the attachment was corrupted or misplaced, please reach out to Ashley Nay to receive a copy.



Page Flint, General Manager  
Weber Basin Water Conservancy District  
2837 East Highway 193  
Layton, UT 84040

Dear Tage,

Increased drought resiliency to our water supply is a high priority and we understand that this project will facilitate a more resilient water supply into the future. We have implemented similar improvement projects to our system and we are mindful of the importance of providing greater resiliency to your system.

We strongly support your grant application and appreciate the advancements it will make in drought resiliency and decreasing the vulnerabilities within the boundaries of Weber Basin Water Conservancy District. Thank you for your efforts to combat water shortages and conserve water throughout the basin. Kayville appreciates the partnership we have with Weber Basin. Please contact me at (801) 546-1235 with any questions about this letter.

Thayer Scott

23 East Center Street, Kaysville, Utah 84037 phone 801-546-1235 fax 801-544-5646

[www.kaysvillecitytv.com](http://www.kaysvillecitytv.com)





910 South Mountain Road, Fruit Heights, Utah 84037  
www.fruitheightscity.com (801)546-0861 Fax (801)546-0058

July 27, 2020

Tage Flint, General Manager  
Weber Basin Water Conservancy District  
2837 East Highway 193  
Layton, UT 84040

**Re: Letter of Support for Drought Resiliency Grant Application**

Dear Tage,

Fruit Heights City would like to convey our support for Weber Basin Water Conservancy District's "Green Road Well Construction Project" and their grant application to the Bureau of Reclamation for funding under the Bureau's Drought Resiliency Projects grant announcement. Increased drought resiliency to our water supply is a high priority and we understand that this project will facilitate a more resilient water supply into the future. We have implemented similar improvement projects to our system and mindful of the importance providing greater resiliency to your system.

We recognize the importance of resiliency in our often water-short basin due to the effects of drought. The water utilized through this project will provide benefit to water users and the regional environment.

We strongly support your grant application and appreciate the advancements it will make in drought resiliency and decreasing the vulnerabilities within the boundaries of Weber Basin Water Conservancy District.

Sincerely,

A handwritten signature in cursive script that reads "Brandon Green".  
Brandon Green  
City Manager, Fruit Heights City

Mayor: John M. Pohlman  
City Manager/Recorder: R. Brandon Green

Council Members  
Diane Anderson • Gary Anderson  
Julia Busche • Jeanne Groberg • Eileen Moss

## Attachment D – Official Resolution



# WEBER BASIN WATER CONSERVANCY DISTRICT

2837 EAST HIGHWAY 193 • LAYTON, UTAH • PHONE (801)771-1677 • SLC (801) 359-4494 • FAX (801) 544-0103

### OFFICIAL RESOLUTION

Tage I. Flint  
General Manager/CEO

#### Board of Trustees:

Dee Alan Waldron  
President  
Morgan County

Kym O. Buttschardt  
Weber County

Randy B. Elliott  
Davis County

Scott K. Jenkins  
Weber County

Marlin K. Jensen  
Weber County

P. Bret Millburn  
Davis County

Angle Osguthorpe  
Weber County

Paul C. Summers  
Davis County

Dave Ure  
Summit County

WHEREAS, the Weber Basin Water Conservancy District (District) is committed to the concept of drought resiliency;

WHEREAS, the District recognizes the need to be prepared for the inevitable event of a drought and plans to continue to provide water for the needs of the population in the District's Boundaries;

WHEREAS, the District strongly supports the Bureau of Reclamation's goals as set forth in the Drought Response Program;

NOW THEREFORE, BE IT RESOLVED that the Board of Trustees for the Weber Basin Water Conservancy District agrees and authorizes that:

1. The Board has reviewed and supports the proposal submitted;
2. The District will provide up to \$1,250,000.00 of funding for the Green Road Well Construction Project; and
3. If selected for the Green Road Well Construction Project, the District will work with Reclamation to meet established deadlines for entering into a cooperative project.

### ATTEST

I, TAGE I. FLINT, Secretary of the Weber Basin Water Conservancy District, hereby certify that the foregoing is a true and correct copy of a resolution adopted by the Board of Trustees of the Weber Basin Water Conservancy District at a regular meeting held June 25, 2020.



Tage I. Flint, Secretary