

Attachment to the Agenda

Tuesday-Wednesday, November 9-10, 2021 8:30 a.m. Joint Meeting Agenda Attachment:

Dams and Reservoirs Program – Account III

Level III Projects – Amendments

- Middle Piney Reservoir – Time Extension Only (A)
- Sponsor’s Contingency Fund – Account III (B)

Level II Projects – Amendments

- West Fork Reservoir, Phase III – Time Extension Only (C)

Rehabilitation Program – Account II

Level III Projects

- Big Horn Canal Adobe Check Structure 2022 (D)
- Cottonwood Irrigation District Pipeline Replacement 2022 (E)
- Deaver ID Rehabilitation 2022 (F)
- Dry Creek Irrigation District Pipeline Replacement 2022 (G)
- Goshen ID 29.4 Pipeline Project Phase II 2022 (H)
- Goshen ID Tunnel Rehabilitation 2022 (I)
- Highland Hanover ID System Improvements 2022 (J)
- Interstate Irrigation & Reservoir Irrigation District Improvements Phase II (K)
- Lovell Moncur Lateral Phase II 2022 (L)
- Owl Creek Irrigation District System Improvements (M)

Level III Projects – Amendments

- Laramie Valley Diversion Structure 2020 (Mc)
- Small Water Project Program – Rehabilitation (N)

Level II Projects

- Dowlin Diversion Rehabilitation (O)

Level I Projects

- Critical Aging Irrigation Infrastructure Assessment (P)
- West Afton/Nield String Master Plan (Q)

New Development Program – Account I

Level III Projects

- Cloud Seeding: Medicine Bow & Sierra Madre Mountain Ranges 2023 (aerial) (R)
- Cloud Seeding: Wind River & Sierra Madre Mountain Ranges 2023 (ground based) (S)
- Crystal Bypass Pipeline 2022 (T)
- Evanston Transmission Pipeline 2022 (U)
- Gillette Regional Extensions, Phase VI 2022 (V)
- Northwest Rural Water System Improvements 2022 (W)

Level III Projects – Amendments

- Broken Wheel Ranch Water Supply 2017 **(XYZ)**
- Gillette Madison Pipeline **(A2)**
- Gillette Regional Extensions 2017 **(B2)**
- GR/RS/SC Raw Water Reservoir **(C2)**
- Laramie North Side Tank **(D2)**
- Small Water Project Program – New Development **(E2)**

Level II Projects

- Cloud Seeding: Operations Hydrological Assessment – Medicine Bow/Sierra Madres **(F2)**
- LaGrange Groundwater Supply & Improvements **(G2)**
- Pavillion Groundwater Supply **(H2)**

Level I Projects

- Clarks Fork/Upper Shoshone Watershed Study **(I2)**
- Dayton Water Master Plan **(J2)**
- Riverton Regional Water Master Plan **(K2)**

General

- UW Office of Water Programs **(L2)**
- UW Water Research Program **(M2)**
- Account Transfer **(Mc2)**

2022 RECOMMENDATION-CONSTRUCTION PROJECTS

Project Name: Middle Piney Reservoir

Program: Dams and Reservoirs

Project Type: Multipurpose

County: Sublette

Sponsor: State of Wyoming (WWDC)

Sponsor's Request: Two Year Time Extension

Proposed Budget Increase: \$0

WWDO Recommendation: Extend the reversion date from July 1, 2022 to July 1, 2024.

Previously Approved Budget: \$ 14,228,000

Project Manager: Jason Mead

Project Description:

This project is located in Sublette County, approximately 25 miles west of Big Piney, Wyoming. The project is to reconstruct the Middle Piney Reservoir and bring the dam up to Dam Safety standards. The project includes excavation of a cut-off trench, installation of a grout curtain, abandonment, relocation, and modernization of the outlet works, widening of the auxiliary spillway to meet Dam Safety standards and stabilization of downstream channel and access road.

A construction contract was awarded, and work commenced in July of 2018. Construction has been slower than expected due to the short construction seasons at 8,800 feet above sea level and greater than expected site dewatering efforts. Furthermore, groundwater conditions have led to additions to the design and further monitoring in advance of final grouting work. The ancient landslide material associated with the project site is complex and a robust seepage collection, cutoff and monitoring system is required for a successful project. The project is anticipated to be complete in the fall of 2022.

2022 WATER DEVELOPMENT PROGRAM RECOMMENDATION

AGRICULTURAL WATER PROJECTS

Project Name: West Fork Reservoir, Phase III

Program: Dam and Reservoir

Project Type: Multipurpose

County: Carbon

Sponsor: Savery-Little Snake River Water Conservancy District

Proposed Budget: \$0

Legislative Approved / Existing Budget: \$6,220,000

WWDO Recommendation: Extend the reversion date by five years from July 1, 2022 to July 1, 2027

Project Manager: Jason Mead

Project Description: The Savery-Little Snake River Water Conservancy District received funding in 2017 to complete water quality analysis, update hydrologic modeling with temporary stream gauging, procure NEPA liaison services, and complete permitting and final design for the West Fork Reservoir project. Hydrologic modeling has been updated and refined with additional data, resulting in estimated average annual irrigation shortages in the West Fork Reservoir service area of 3,600 acre-feet and 10,000 acre-feet in the 30% driest years. A series of water quality and sediment samples have been collected and analyzed, and compared against historic water quality data. Results indicate that post-project conditions will be equal to or better than current water quality conditions experienced in Haggarty Creek, therefore confirming the feasibility in moving forward with permitting and design of the West Fork Reservoir site. In 2019, the Savery-Little Snake River Water Conservancy District and the Pothook Water Conservancy District jointly applied for financial assistance through the NRCS PL-566 program. A 50% grant in the amount of \$1.25M was awarded for watershed planning and NEPA. A Third-Party NEPA Consultant has now been hired to complete a Watershed Project Plan – EIS that will address the issues and analyze a range of alternatives for the West Fork Reservoir Project and associated USFS administrative Land Exchange. Preserving the appropriation will allow NRCS funding to continue to be leveraged into final design, assuming a favorable record of decision results from the NEPA process.

Construction of West Fork Dam and Reservoir will provide supplemental late season irrigation water to lands within the Little Snake River Basin which includes lands in both Wyoming and Colorado. At the same time, the project will provide secondary environmental benefits to the watershed. The 10,000 acre-foot reservoir could have a 6,500 acre-foot active irrigation account, 2,000 acre-foot conservation pool, and a 1,500 acre-foot minimum streamflow bypass account. Managing the new reservoir in conjunction with the existing High Savery Reservoir would have benefits throughout the Basin.

2022 RECOMMENDATION-CONSTRUCTION PROJECTS

Project Name: Big Horn Canal Adobe Check Structure 2022

Program: Rehabilitation

Project Type: Agricultural Irrigation

County: Big Horn

Sponsor: Big Horn Canal Irrigation District

WWDO Recommendation: Level III

Proposed Budget: \$154,100

WWDC Grant ¹ (67%)	\$ 154,100
<u>Sponsor (33%)</u>	<u>\$ 75,900</u>
Total	\$ 230,000

¹ Not to exceed 67% of project eligible costs.

² No loan the matching funds will be paid by sponsor

Project Manager: William Brewer

Project Description: This application funding request is to replace the Adobe Creek Check Structure. This is a priority area the was identified in our Level II Study and is currently non-functional. This structure has a significant amount of irrigated ground that is serviced below it and its failure makes adequate delivery of water above and below it difficult to almost impossible.

1. Describe existing status in the program and previous appropriations.

Prior Legislation

<u>Year</u>	<u>Project</u>	<u>Appropriation</u>
1993	Level III, Big Horn Spillway Improvement	\$ 120,000
1998	Level III, Big Horn Canal Improvements	\$ 693,000
2005	Level II, Big Horn Canal Rehabilitation Study	\$ 150,000
2008	Level III, Big Horn Canal Lining	\$ 500,000
2009, 2010	Level III, Big Horn Canal Rehabilitation 2009	\$ 1,180,000
2012	Level III, Big Horn Canal Rehabilitation 2012	\$ 1,440,000
2019	Level III, Big Horn Canal Wasteway Rehabilitation 2019	\$ 960,000
2020	Level III, Big Horn Canal Wasteway/Check Replacement 2020	\$ 1,660,000

2. Describe existing water supply using information in the application.

Direct flow water is diverted from the Big Horn River and travels through the canal system to the sponsor's irrigators. There are 23,802 irrigated acres with 315 landowners within the district.

3. Summarize the request.

The sponsor is requesting 67% grant funds to replace the Adobe Check Structure.

4. Summarize the reasons for the request.

Replacing the old check structure will improve safety, reliability and reduce canal maintenance.

Estimated Level III WWDC Eligible Costs:

Preparation of Final Designs and Specifications	\$	15,350	
Permitting and Mitigation	\$	2,200	
Title of Opinion	\$	1,000	
Acquisition of Access and Rights of Way	\$	4,000	
Pre-Construction Costs (Subtotal # 1)			\$ 22,550

Cost of Project Components

Mobilization	\$	15,000
Check/Drop Structure	\$	104,000
RipRap	\$	17,500
SiltFence	\$	500
Bank/Site Restoration and Grading	\$	15,000
Seeding	\$	1,500

Construction Cost (Subtotal #2)	\$	153,500
Construction Engineering Costs (Subtotal # 2 x 10%)	\$	15,350
Components and Engineering Costs (Subtotal # 3)	\$	168,850
Contingency (Subtotal #3 x 15%)	\$	25,328
Construction Cost Total (Subtotal #4)	\$	194,178

Total Project Cost (Subtotal #1 + Subtotal #4)	\$	216,728
Inflation Costs (3% per one year)	\$	13,199

Total Project Costs \$ 229,926

Total Project Costs (Rounded) \$ 230,000

Level III Recommended Funding @ 67% Grant: \$ 154,100

Level III Recommended Funding @ 00% Loan: \$ 0

Ineligible Expenses

Total Ineligible Project Costs – None Identified \$ 0

PROJECT INFORMATION:

A. FINANCIAL INFORMATION

1. Service Area Information.	Pre-Project	Post-Project
a. Total acres are in the District?	23,802	23,802
b. Assessed acres?	23,802	23,802
c. Irrigated acres?	23,802	23,802
d. Average annual water delivery (acre-feet/acre assessed)?	6	6
e. How many individual landowners receive water?	315	315

f. What type(s) of on-farm irrigation water application is used? Center pivot, flood

g. Briefly describe the main crops and cropping patterns: Sugar beets, malt barley, corn (grain & silage), beans, alfalfa seed, alfalfa hay, irrigated pasture.

h. Describe the water measuring devices currently in use: Rated gauging stations on main canal, flow measurement devices (instantaneous, notch weir, rectangular weir, parshall flume) on turnouts.

2. Water Usage	Pre-Project	Post-Project
a. Total water (AF) provided by the system annually:	150,000	150,000
b. Average Day Demand (AF):	800	800
c. Peak Day Demand (AF):	1,000	1,000

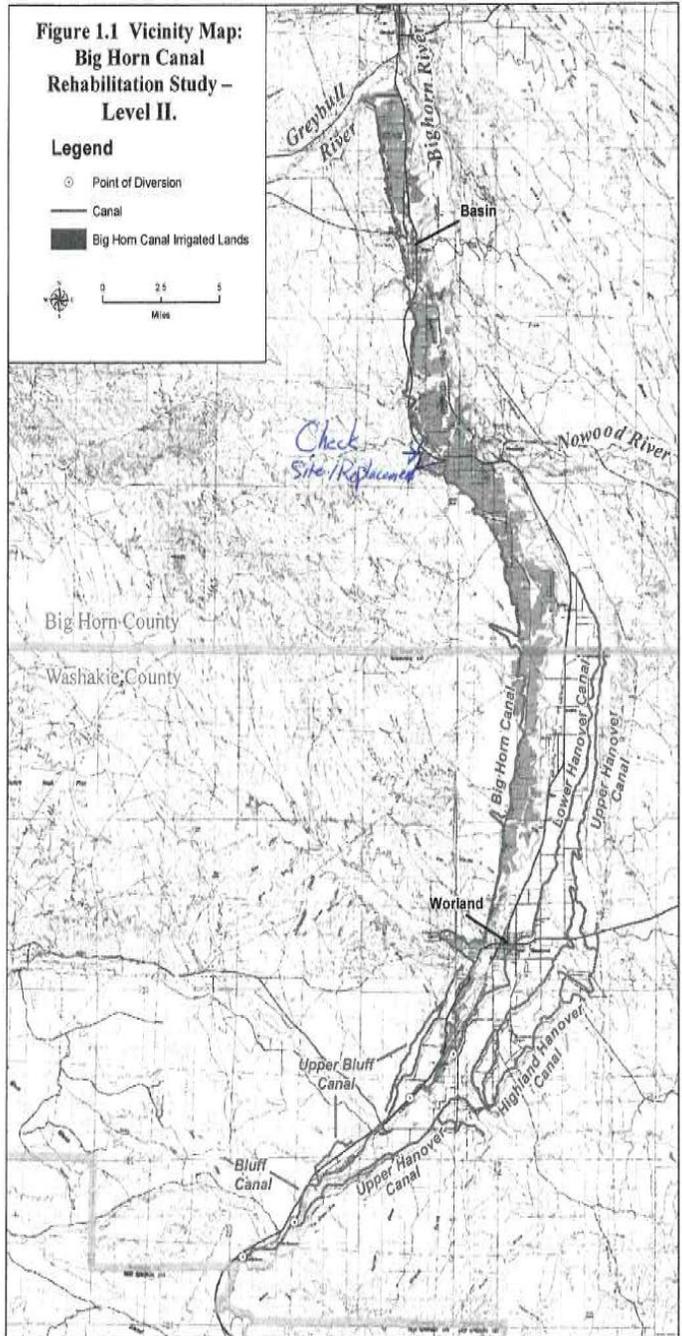
3. System Capacity:	Pre-Project	Post-Project
a. Maximum capacity of the water supply system (acre feet per day)	1,100	1,100
b. What is the factor (bottleneck) limiting the ability to provide water (supply, canals, etc.): The current condition of check structures at Adobe Creek and physical size of canal		
c. Increased capacity needed (acre feet per day):	0	0
d. Estimated system water losses (percentage):	25%	25%

4. District Financing		
a. Is the assessment based on acres, acre-feet delivered, acre-feet of storage space, or other? Acres		
b. How is voting authority delegated to water users? Number of acres		
c. What is the per unit amount of the current assessment?	Pre-Project \$16.75	Post-Project \$17.00
d. If there is a basic service charge in addition to assessments, how much is it?	0	0

5. Financial Statement	Pre-Project	Post-Project
Annual revenues generated from assessments:	\$ 395,000	\$ 402,000
Annual revenues from other sources:	<u>\$ 6,000</u>	<u>\$ 6,000</u>
Total annual revenues:	\$ 401,000	\$ 408,000
Annual budget for operation and maintenance expenses:	\$ 280,000	\$ 280,000
Annual payments for debt retirement:	\$ 40,000	\$ 40,000
Annual payments to a repair and replacement fund:	\$ 3,000	\$ 3,500
Annual payments to an emergency fund:	\$ 2,000	\$ 2,000
Annual payments for other purposes:	<u>\$ 45,000</u>	<u>\$ 45,000</u>
Total annual payments:	\$ 370,000	\$ 374,500
Balance in repair and replacement fund:	\$ 66,721	\$ 70,000
Balance in emergency fund:	\$ 326,209	\$ 330,000

B. COMPARISON WITH OPERATING CRITERIA

1. Project Priority according to the Criteria? 1. Level III rehabilitation of water diversion or control structures
2. Will the project serve at least 2,000 water righted acres? Yes Number of acres 23,802
3. Is the sponsor eligible for funding from other state or federal programs? Yes
If so, what are they? USBOR WaterSMART
4. What water conservation measures are employed by the sponsor? Pivots and other sprinkler systems, application of polymer to canal before water is turned in, concrete lining and piping some delivery ditches.
5. Is the operation of the water supply system self-supporting in terms of revenues offsetting costs for operation, maintenance, debt retirement, replacement funds and emergency funds? Yes
6. Can the project be delayed or staged? No. Should it be? No.
7. Basis for the funding recommendation: The existing structure is non-operational and needs to be replaced. The sponsor has successfully completed previous Level III projects.



RESOLUTION

As per motion and unanimous vote by the Board of Commissioners of the Big Horn Canal Irrigation District at the special Board Meeting of the Board of Commissioners of the Big Horn Canal Irrigation District held on August 24, 2021 the Board of Commissioners by formal resolution, does hereby apply for funding to rehabilitate the Adobe Creek Check structure for the Big Horn Canal described in the Level II Study done by the Wyoming Water Development Commission.

As per this resolution, the Big Horn Canal Irrigation District Board of Commissioners does hereby authorize an application to Wyoming Water Development Commission for funding (67% grant) to rehabilitate the Alamo Creek structure located on the Big Horn Canal.

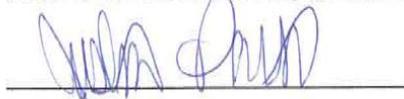
Big Horn Canal Irrigation District



Richard Russell, President

State of Wyoming)
)
County of Big Horn)

Sworn before me this 25th day of August, 2021



Notary
My Comm. Exp: November 13, 2024



2022 RECOMMENDATION-CONSTRUCTION PROJECTS

Project Name: Cottonwood Irrigation District
Pipeline Replacement 2022

Program: Rehabilitation

Project Type: Agricultural Irrigation

County: Lincoln

Sponsor: Cottonwood Irrigation District

WWDO Recommendation: Level III

Proposed Budget: \$ 1,600,000*

*** Project funding is contingent on the Legislature approving a \$7,000,000 transfer of funds from WDA I to WDA II**

WWDC Grant ¹ (67%)	\$ 1,072,000
WWDC Loan ² (33%)	<u>\$ 528,000</u>
Total	\$ 1,600,000

¹ Not to exceed 67% of WWDC project eligible costs

² 33% loan at 4% interest and a term of 40 years

Project Manager: Sol Brich

Project Description: This project replaces the existing mainline on laterals L-7 upstream from the PRV to its junction with L-22.

1. Describe existing status in the program and previous appropriations.

Prior Legislation

<u>Year</u>	<u>Project</u>	<u>Appropriation</u>
2016	LI, Cottonwood Irrigation District Master Plan	\$ 165,000
2018	LIII, Cottonwood ID Pipeline Replacement	\$ 834,000
2020	LIII, Cottonwood Irrigation District Transmission Pipeline 2020	\$ 1,540,000

2. Describe existing water supply using information in the application.

Direct flow is diverted from Cottonwood Creek and travels through pipelines to the sponsor's irrigators. There are 5,185 irrigated acres with 340 landowners in the district.

3. Summarize the request.

The district would like to replace approximately 3,600 linear feet of 30-inch diameter transmission including appurtenances such as irrigation risers, valves, drains, cathodic protection, and multiple ties to existing laterals. The request also includes the rehabilitation of a major PRV Station and several Blow-offs.

4. Summarize the reasons for the request.

This project will complete the replacement of the steel mainline from the upstream source to the PRV.

Estimated Level III WWDC Eligible Costs:

Preparation of Final Designs and Specifications	\$ 110,550	
Permitting and Mitigation	\$ 20,000	
Title of Opinion	\$ 2,500	
Acquisition of Access and Rights of Way	<u>\$ 22,000</u>	
Pre-Construction Costs (Subtotal # 1)		\$ 155,050
Cost of Project Components		
Mobilization & Traffic Control	\$ 50,000	
Pipe and Imported Bedding	\$ 805,500	
Pipe Appurtenances	\$ 70,500	
Tie into Existing Laterals	\$ 12,000	
PRV Station Rebuild	\$ 95,000	
Blow-off Rebuild	\$ 8,000	
Pipeline Testing	\$ 6,000	
Reclamation	<u>\$ 53,500</u>	
Construction Cost (Subtotal #2)		\$ 1,105,500
Construction Engineering Costs (Subtotal # 2 x 10%)		<u>\$ 110,550</u>
Components and Engineering Costs (Subtotal # 3)		<u>\$ 1,121,050</u>
Contingency (Subtotal #3 x 15%)		<u>\$ 182,408</u>
Construction Cost Total (Subtotal #4)		\$ 1,398,458
Total Project Cost (Subtotal #1 + Subtotal #4)		\$ 1,553,507
Inflation Costs (3% per one year)		<u>\$ 46,605</u>
Total Project Costs		\$ 1,600,112
Total Project Costs (Rounded)		\$ 1,600,000
Level III Recommended Funding @ 67% Grant:		\$ 1,072,000
Level III Recommended Funding @ 33% Loan:		\$ 528,000
Ineligible Expenses		
Total Ineligible Project Costs – None noted		\$ 0

PROJECT INFORMATION:

A. FINANCIAL INFORMATION

1. Service Area Information.	Pre-Project	Post-Project
a. Total acres are in the District?	6,020	6,020
b. Assessed acres?	5,185	5,185
c. Irrigated acres?	5,185	5,185
d. Average annual water delivery (acre-feet/acre assessed)?	2.0	2.0
e. How many individual landowners receive water?	340	340

f. What type(s) of on-farm irrigation water application is used? Center Pivot, Wheel Lines, and Hand Lines

g. Briefly describe the main crops and cropping patterns: Grass/Alfalfa, Grain Hay, Barley, and Oats

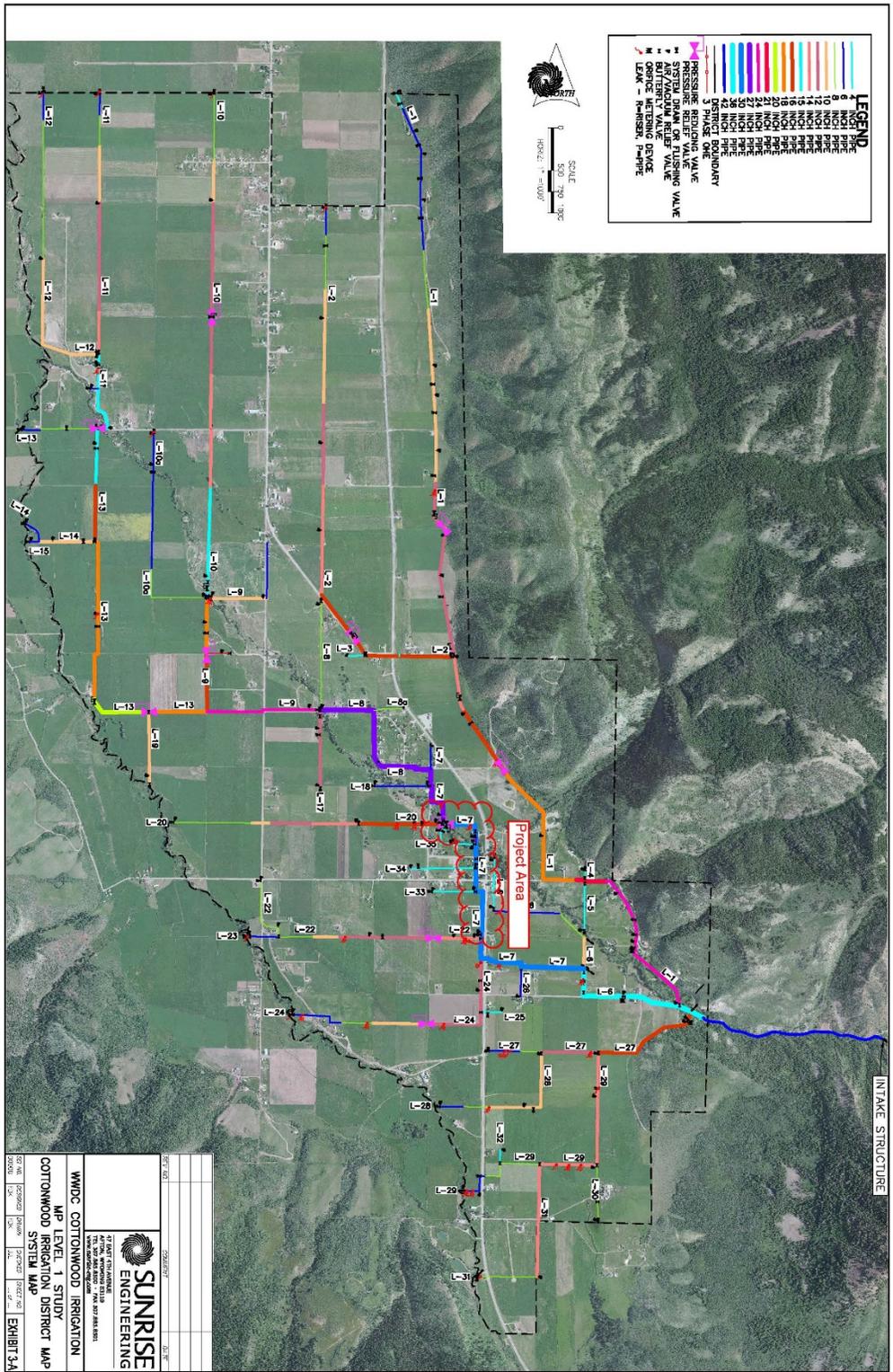
h. Describe the water measuring devices currently in use: 3 Orifice Meters; 36", 24", and 16"

2. Water Usage		Pre-Project	Post-Project
a. Total water (AF) provided by the system annually:		13,000	13,000
b. Average Day Demand (AF):		118	118
c. Peak Day Demand (AF):		134	134
3. System Capacity:		Pre-Project	Post-Project
a. Maximum capacity of the water supply system (acre feet per day)		135	135
b. What is the factor (bottleneck) limiting the ability to provide water (supply, canals, etc.):	Increased maintenance interrupting water delivery and high losses in the transmission line.		Downstream segments of the system may Interrupt service. if lines break.
c. Increased capacity needed (acre feet per day):		0	0
d. Estimated system water losses (percentage):		30	30
4. District Financing			
a. Is the assessment based on acres, acre-feet delivered, acre-feet of storage space, or other? Acres			
b. How is voting authority delegated to water users? Number of Acres			
c. What is the per unit amount of the current assessment?		Pre-Project \$22/ac	Post-Project \$22/ac
d. If there is a basic service charge in addition to assessments, how much is it?		\$150	\$150

5. Financial Statement	Pre-Project	Post-Project
Annual revenues generated from assessments:	\$ 133,995	\$ 133,995
Annual revenues from other sources:	<u>\$ 0</u>	<u>\$ 0</u>
Total annual revenues:	\$ 133,995	\$ 133,995
Annual budget for operation and maintenance expenses:	\$ 40,000	\$ 40,000
Annual payments for debt retirement:	\$ 0	\$ 66,785
Annual payments to a repair and replacement fund:	\$ 16,000	\$ 16,000
Annual payments to an emergency fund:	\$ 0	\$ 0
Annual payments for other purposes:	<u>\$ 0</u>	<u>\$ 0</u>
Total annual payments:	\$ 56,000	\$ 122,785
Balance in repair and replacement fund:	\$ 200,000	\$ 200,000
Balance in emergency fund:	\$ 0	\$ 0

B. COMPARISON WITH OPERATING CRITERIA

1. Project Priority according to the Criteria? 3. Level III replacement of existing transmission pipelines
2. Will the project serve at least 1,000 water righted acres? Yes Number of acres 5,185
3. Is the sponsor eligible for funding from other state or federal programs? Yes
If so, what are they? The District is applying for BOR and NRCS funding, but whether they will receive funding is unknown.
4. What water conservation measures are employed by the sponsor? The District actively monitors users for on-farm repair of leaks, and uses a portable flow meter to evaluate overuse.
5. Is the operation of the water supply system self supporting in terms of revenues offsetting costs for operation, maintenance, debt retirement, replacement funds and emergency funds? Yes
6. Can the project be delayed or staged? Yes Should it be? No
7. Basis for the funding recommendation: CID relies on this segment of transmission pipeline to provide service to a large portion of the district. Replacement of this segment was Project Number 8 in the 2017 Master plan, and a Phase II priority. Completing the project will reduce water system downtime due to maintenance and water losses.



1 Pipeline Replacement Map

SITE PHOTOS: L-7 and PRV Vault



2 Exposed pipe on L-7 at Creek Crossing



5 Leak on L-7 upstream of PRV



3 PRV Vault all pipes connect to downstream header at left of photo



6 PRV valves in vault (2 of 3 PRV valves)



4 Blowoff in in PRV Vault (header at right)



7 Displaced outlet on the pressure relief valve

Resolution

Cottonwood Irrigation District

Kelly Johnson, President
John Hunsaker, Board Member
Ron Potter, Board Member
Roger Coles, Board Member

The Board of the Cottonwood Irrigation District met August 19, 2021 and approved action to apply for a grant from the Wyoming Water Development and other sources. Funding will be applied to the major repair project to replace the water line running from Cottonwood Lane north to the pressure reducing valve station in Lone Helm's property, a 30 inch line and possibly to include a section of pipe going west from the Lone Helm box for about 3/8s of a mile that is 16 inch pipe depending on the price of the whole project.

IN WITNESS WHEREOF, This Resolution is executed this 20th day of Sept, 2021.

Kelly A Johnson President

Kelly A Johnson President Cottonwood Irrigation District

THE STATE OF WYOMING)
COUNTY OF LINCOLN)

20th The foregoing instrument was acknowledged before me by Kelly A Johnson this day of Sept. 2021.

Witness my hand and official seal.

Terrece Siddoway

NOTARY PUBLIC



My commission Expires:

July 27, 2023

2022 RECOMMENDATION-CONSTRUCTION PROJECTS

Project Name: Deaver ID Rehabilitation 2022

Program: Rehabilitation

Project Type: Agricultural Irrigation

County: Big Horn

Sponsor: Deaver Irrigation District

WWDO Recommendation: Level III

Proposed Budget: \$817,000

WWDC Grant ¹ (30%)	\$ 817,000
<u>Sponsor² (70%)</u>	<u>\$ 1,905,700</u>
Total	\$ 2,722,700

¹ Not to exceed 30% of project eligible Construction costs, Engineering covered by WEEG.

² The matching funds will be paid with a Bureau of Reclamation Water and Energy Efficiency Grant (WEEG) and District funds

Project Manager: William Brewer

Project Description: Replacement the D52 and D52-11 Laterals Phase 1. Portions of both of these laterals were piped (but not pressurized) over 30 years ago. This project would replace the old pipe with new pressurized pipe and would also pipe and pressurize currently open canal sections of both laterals. This project will save water lost to seepage, evaporation and flowing past the end of the ditch back into drainages. It will also allow for more efficient application of water on the farms once pressurized.

1. Describe existing status in the program and previous appropriations.

Prior Legislation

<u>Year</u>	<u>Project</u>	<u>Appropriation</u>
2015	Level I, Deaver Master Plan	\$ 162,000
2017	Level III, Flume Replacement/Laterals 2017	\$ 91,000
2018	Level II, Deaver Irrigation District Rehab 2018	\$ 230,000
2019	Level III, Deaver Irrigation District Rehab 2019	\$ 424,000
2020	Level III, Frannie Canal Drop Chute #1 2020	\$ 166,200

2. Describe existing water supply using information in the application.

The Deaver Irrigation District has a direct flow water right from the Shoshone River and stored water from Buffalo Bill Reservoir, all delivered through the Frannie Canal. The District currently irrigates 15,545 acres, with 205 individual landowners receiving water.

3. Summarize the request.

The sponsor is requesting 30% grant funds to replace Phase 1 of the D52 and D52-11 laterals with pipe.

4. Summarize the reasons for the request.

Replacing the old pipe and open canal part of D52 and D52-11 lateral will improve efficiency, reliability and reduce water loss from seepage.

Estimated Level III WWDC Eligible Costs:

Preparation of Final Designs and Specifications*	\$	0	
NEPA Compliance*	\$	0	
Title of Opinion	\$	2,000	
Acquisition of Access and Rights of Way	\$	0	
Pre-Construction Costs (Subtotal # 1)			\$ 2,000

Cost of Project Components

Mobilization	\$	100,000
Pipe	\$	1,074,400
Fittings	\$	184,000
Turnouts	\$	765,000
Structures	\$	70,500
Earthwork	\$	128,300

Construction Cost (Subtotal #2)	\$	2,322,200
Construction Engineering Costs (Subtotal # 2 x 10%)*	\$	0
Components and Engineering Costs (Subtotal # 3)	\$	2,322,200
Contingency (Subtotal #3 x 15%)	\$	348,330
Construction Cost Total (Subtotal #4)	\$	2,670,530

Total Project Cost (Subtotal #1 + Subtotal #4)	\$	2,672,530
Inflation Costs	\$	50,170

Total Project Costs \$ 2,722,700

Level III Recommended Funding @ 30% Grant: \$ 817,000

Level III Recommended Funding @ 00% Loan: \$ 0

Ineligible Expenses

*Engineering and NEPA compliance are to be funded with BOR funding.

Total Ineligible Project Costs \$ 0

PROJECT INFORMATION:

A. FINANCIAL INFORMATION

1. Service Area Information.	Pre-Project	Post-Project
a. Total acres are in the District?	53,000	53,000
b. Assessed acres?	15,545	15,545
c. Irrigated acres?	15,545	15,545
d. Average annual water delivery (acre-feet/acre assessed)?	5	5
e. How many individual landowners receive water?	205	205

f. What type(s) of on-farm irrigation water application is used? Center pivot, flood, tubes and gated pipe

g. Briefly describe the main crops and cropping patterns: Rotation of sugar beets, barley and beans. Consistent alfalfa hay, grass hay, pasture and corn.

h. Describe the water measuring devices currently in use: Ramp flumes, telemetry, parshall, weir, mag meter

2. Water Usage	Pre-Project	Post-Project
a. Total water (AF) provided by the system annually:	60,000	60,000
b. Average Day Demand (AF):	530	530
c. Peak Day Demand (AF):	530	530

3. System Capacity:	Pre-Project	Post-Project
a. Maximum capacity of the water supply system (acre feet per day)	600	600
b. What is the factor (bottleneck) limiting the ability to provide water (supply, canals, etc.): Corbett Tunnel limits the amount of water the project can receive.		
c. Increased capacity needed (acre feet per day):	0	0
d. Estimated system water losses (percentage):	20%	20%

4. District Financing		
a. Is the assessment based on acres, acre-feet delivered, acre-feet of storage space, or other? Irrigable Acres		
b. How is voting authority delegated to water users? Irrigable acres		
c. What is the per unit amount of the current assessment?	Pre-Project \$27.80	Post-Project \$27.80
d. If there is a basic service charge in addition to assessments, how much is it?	150	150

5. Financial Statement	Pre-Project	Post-Project
Annual revenues generated from assessments:	\$ 417,000	\$ 417,000
Annual revenues from other sources:	<u>\$ 263,000</u>	<u>\$ 263,000</u>
Total annual revenues:	\$ 680,000	\$ 680,000
Annual budget for operation and maintenance expenses:	\$ 632,738	\$ 632,738
Annual payments for debt retirement:	\$ 47,564	\$ 47,564
Annual payments to a repair and replacement fund:	\$ 0	\$ 0
Annual payments to an emergency fund:	\$ 0	\$ 0
Annual payments for other purposes:	<u>\$ 0</u>	<u>\$ 0</u>
Total annual payments:	\$ 680,302	\$ 680,302
Balance in repair and replacement fund:	\$ 30,000	\$ 30,000
Balance in emergency fund:	\$ 93,000	\$ 93,000

B. COMPARISON WITH OPERATING CRITERIA

1. Project Priority according to the Criteria? 2. Level III rehabilitation of existing irrigation canal (4 on combined priority list)
2. Will the project serve at least 2,000 water righted acres? Yes Number of acres 15,545
3. Is the sponsor eligible for funding from other state or federal programs? Yes
If so, what are they? USBOR WaterSMART
4. What water conservation measures are employed by the sponsor? Installing new or additional measuring devices, automated gates, SCADA, placing open dirt ditches into enclosed pipe and replacing old pipe.
5. Is the operation of the water supply system self supporting in terms of revenues offsetting costs for operation, maintenance, debt retirement, replacement funds and emergency funds? Yes
6. Can the project be delayed or staged? Yes Should it be? No. the District has received the majority of funding from other sources and the project should be completed as presented to those funding sources.
7. Basis for the funding recommendation:
By placing the existing laterals in pipe would virtually eliminate seepage and allow for pressurizing these laterals. Pressuring these laterals would reduce flood irrigation and allow for more pivots. The sponsor has successfully completed previous Level III projects. The majority of the funding is being supplied by other grant funds.

Resolution

As per motion and unanimous vote by the Deaver Irrigation District Board of Commissioners at a Special Meeting of the Board of Commissioners of the Deaver Irrigation District held on August 18th, 2021, the Board, by formal resolution, does hereby approve submitting an application to the Wyoming Water Development Commission, to apply for Level III construction funding for the rehabilitation of District Agricultural projects during 2022-2023. Through this resolution of the Board of Commissioners of the Deaver Irrigation District, the Board sets the following project funding request: Replacement of Lateral D52. This project is listed within the Deaver Irrigation District Level 1 Master Plan Study. This project and funding request was set by unanimous vote by the Board of Commissioners at a Special Meeting held on August 18th, 2021 and made part of this resolution.

Through this resolution, the Board of Commissioners of the Deaver Irrigation District authorize David Winninger, Deaver Irrigation District Board President, to sign all necessary documents for the participation in the proposed program. The Board of Commissioners of the Deaver Irrigation District authorize Jerry Dart, Deaver Irrigation District Manager, to negotiate schedules for work completion and required meetings, order of projects, and funding reconciliation and reporting.

Deaver Irrigation District



David Winninger

David Winninger, Board President

The foregoing was acknowledged before me by, David Winninger this 18th day of August, 2021.

Savannah Herd

Notary Public

My commission expires: 7/17/2023

2022 RECOMMENDATION-CONSTRUCTION PROJECTS

Project Name: Dry Creek Irrigation District
Pipeline Replacement 2022

Program: Rehabilitation

Project Type: Agricultural Irrigation

County: Lincoln

Sponsor: Dry Creek Irrigation District (DCID)

WWDO Recommendation: Level III

Proposed Budget: \$1,850,000*

*** Project funding is contingent on the Legislature approving a \$7,000,000 transfer of funds from WDA I to WDA II**

WWDC Grant ¹ (67%)	\$ 1,240,000
WWDC Loan ² (33%)	<u>\$ 610,000</u>
Total	\$ 1,850,000

¹ Not to exceed 67% of project eligible costs

² 33% loan at 4% interest and a term of 20 years

Project Manager: Sol Brich

Project Description: The Dry Creek Irrigation District is located in Star Valley just south of Afton, Wyoming. The District services approximately 3600 acres for 230 landowners. The District is currently experiencing increasing lateral failures of the steel pipe that has been in the ground for more than 40 years. This project is associated with replacing pipe for laterals L-0 West and L-0A, and is project is the fourth phase of pipe replacement for the District as was recommended in the 2016 Dry Creek Infrastructure Master Plan.

1. Describe existing status in the program and previous appropriations.

Prior Legislation

<u>Year</u>	<u>Project</u>	<u>Appropriation</u>
2015	LII, DCID Infrastructure Master Plan	\$ 150,000
2017	LIII, DCID Pipeline Replacement	\$ 670,000
2019	LIII, DCID Rehabilitation	\$ 1,628,000
2020	LIII, DCID Rehabilitation	\$ 1,340,000

2. Describe existing water supply using information in the application.

The Dry Creek Irrigation System is supplied from Dry Creek at a diversion located ¾ of a mile up the Dry Creek canyon from its mouth. Water flows over an intake screen at the structure and into a 36" Asbestos Cement transmission line down to a header pipe that runs north and south. Gravity pressurizes the nineteen miles of pipeline. The gravity fed, pressurized laterals have risers approximately every 40-50 feet. Individual irrigators connect to the risers to irrigate acreage along each of the laterals. Available pressure can range from 30-60 psi in the upper parts of the system and 60-100 psi in the lower parts of the system depending on property location and system demand.

3. Summarize the request.

The request is to replace 2,300 linear feet of L-0 West steel pipe and 5,100 linear feet of L-0A steel pipe.

4. Summarize the reasons for the request.

Estimated Level III WWDC Eligible Costs:

Preparation of Final Designs and Specifications	\$ 131,000	
Permitting and Mitigation	\$ 0	
Title of Opinion	\$ 7,000	
Acquisition of Access and Rights of Way	<u>\$</u>	
Pre-Construction Costs (Subtotal # 1)		\$ 138,000
Cost of Project Components		
Mobilization and Traffic Control	\$ 78,000	
Pipe	\$ 923,000	
Fittings	\$ 85,000	
Risers	\$ 193,000	
Reclamation	<u>\$ 31,000</u>	
Construction Cost (Subtotal #2)		\$ 1,310,000
Construction Engineering Costs (Subtotal # 2 x 10%)		<u>\$ 131,000</u>
Components and Engineering Costs (Subtotal # 3)		<u>\$ 1,441,000</u>
Contingency (Subtotal #3 x 15%)		<u>\$ 216,150</u>
Construction Cost Total (Subtotal #4)		<u>\$ 1,657,150</u>
Total Project Cost (Subtotal #1 + Subtotal #4)		\$ 1,795,150
Inflation Costs (3% per one year)		<u>\$ 53,855</u>
Total Project Costs		\$ 1,849,004
Total Project Costs (Rounded)		\$ 1,850,000
Level III Recommended Funding @ 67% Grant:		\$ 1,240,000
Level III Recommended Funding @ 33% Loan:		\$ 610,000

Ineligible Expenses

Total Ineligible Project Costs – none noted **\$ 0**

PROJECT INFORMATION:

A. FINANCIAL INFORMATION

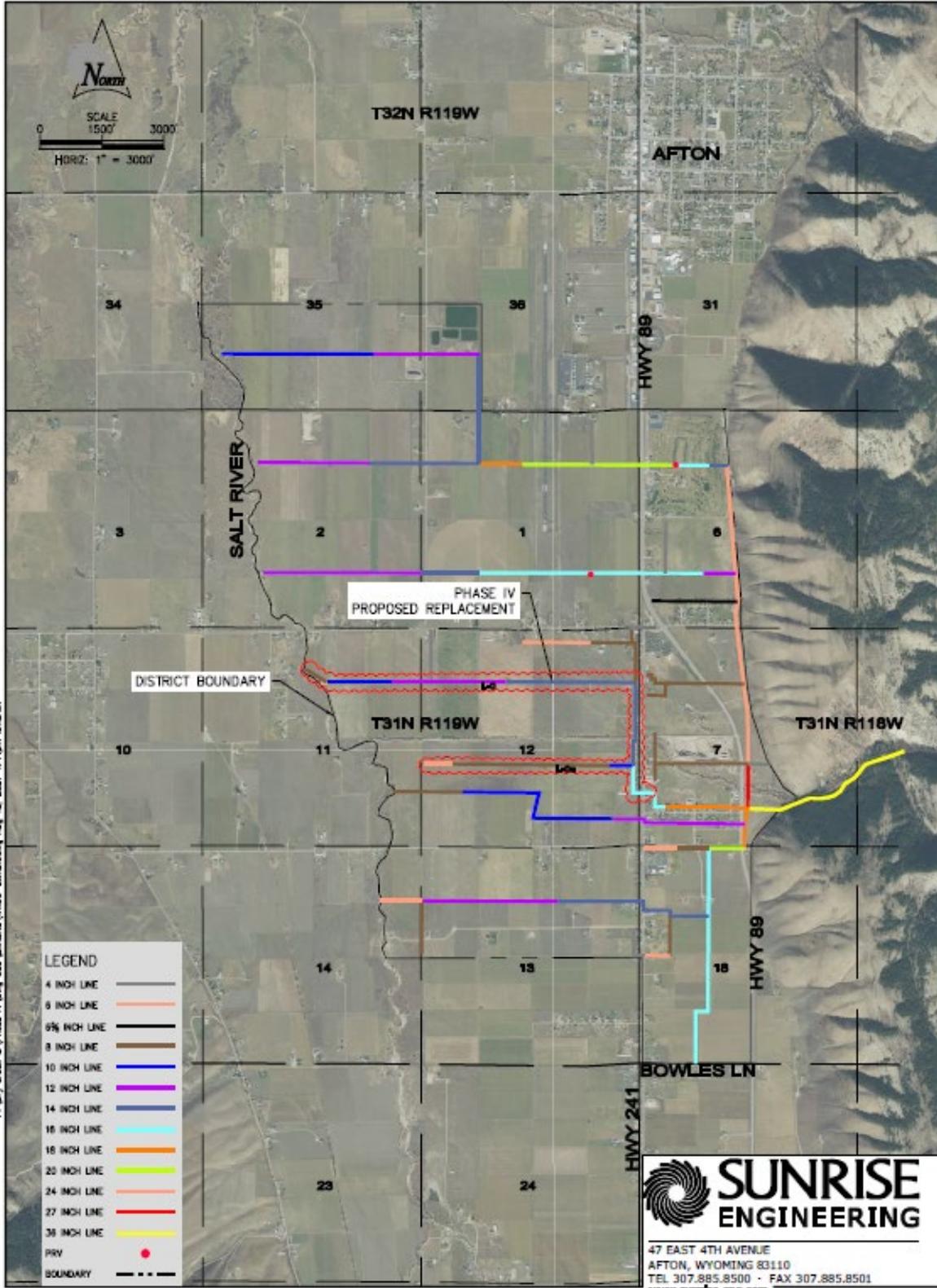
1. Service Area Information.	Pre-Project	Post-Project
a. Total acres are in the District?	3,642	3,642
b. Assessed acres?	3,525	3,525
c. Irrigated acres?	3,525	3,525
d. Average annual water delivery (acre-feet/acre assessed)?	2.9	2.9

e. How many individual landowners receive water?	106	106
f. What type(s) of on-farm irrigation water application is used? Center Pivot, Side Roll, and Hand Lines		
g. Briefly describe the main crops and cropping patterns: Primary crops are alfalfa, barley, and oats. Some areas are used for pasture and small lawn irrigation. Crop patterns include crop rotation and rotational fallowing.		
h. Describe the water measuring devices currently in use: Flow meters and restricted nozzle sizes		
2. Water Usage	Pre-Project	Post-Project
a. Total water (AF) provided by the system annually:	10,300	10,300
b. Average Day Demand (AF):	60	60
c. Peak Day Demand (AF):	80	80
3. System Capacity:	Pre-Project	Post-Project
a. Maximum capacity of the water supply system (acre feet per day)	81	81
b. What is the factor (bottleneck) limiting the ability to provide water (supply, canals, etc.):	Leakage and Lateral down time	Other failing pipes
c. Increased capacity needed (acre feet per day):	0	0
d. Estimated system water losses (percentage):	20	15
4. District Financing		
a. Is the assessment based on acres, acre-feet delivered, acre-feet of storage space, or other? \$200 flat fee per land owner plus \$20/acre		
b. How is voting authority delegated to water users? Number of Acres		
c. What is the per unit amount of the current assessment?	Pre-Project	Post-Project
d. If there is a basic service charge in addition to assessments, how much is it?	\$200	\$200
5. Financial Statement	Pre-Project	Post-Project
Annual revenues generated from assessments:	\$ 132,000	\$ 132,000
Annual revenues from other sources:	\$ 0	\$ 0
Total annual revenues:	\$ 132,000	\$ 132,000
Annual budget for operation and maintenance expenses:	\$ 12,066	\$ 12,066
Annual payments for debt retirement:	\$ 0	\$ 45,000
Annual payments to a repair and replacement fund:	\$ 9,218	\$ 9,218
Annual payments to an emergency fund:	\$ 10,000	\$ 10,000

Annual payments for other purposes:	\$	0	\$	0
Total annual payments:	\$	31,284	\$	76,284
Balance in repair and replacement fund:	\$	10,000	\$	10,000
Balance in emergency fund:	\$	150,000	\$	75,000

B. COMPARISON WITH OPERATING CRITERIA

1. Project Priority according to the Criteria? 3. Level III replacement of existing transmission pipelines
2. Will the project serve at least 1,000 water righted acres? Yes Number of acres 3,525
3. Is the sponsor eligible for funding from other state or federal programs? Yes
If so, what are they? NRCS
4. What water conservation measures are employed by the sponsor? Sprinkler systems are used to improve irrigation efficiency. Once all proposed repairs are complete, we anticipate a reduction in water loss of at least 20%.
5. Is the operation of the water supply system self supporting in terms of revenues offsetting costs for operation, maintenance, debt retirement, replacement funds and emergency funds? Yes
6. Can the project be delayed or staged? Yes Should it be? No. The District's pipeline is failing throughout, but replacing the entire system will cost \$14,000,000. This project is Phase IV of the DCID irrigation system pipeline rehabilitation program. This staged approach allows the community to make incremental improvements that can be paid off from annual revenues.



RESOLUTION

The Board of Directors of Dry Creek Irrigation District hereby resolve that Dry Creek Irrigation District, on August 28, 2021, proceed with application for pipe replacement.

Dated this 30th day of August, 2021



Rollin Gardner, President



Kyle Vogel, Commissioner

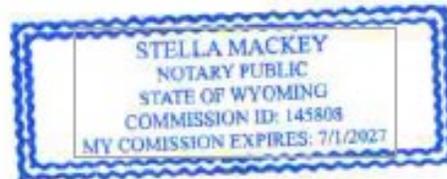


Daniel Erickson, Commissioner

STATE OF WYOMING:

ss.

COUNTY OF LINCOLN:



Subscribed and sworn to in my presence this 30th day of August, 2021



Notary Public

2022 RECOMMENDATION-CONSTRUCTION PROJECTS

Project Name: Goshen ID 29.4 Pipeline Project
Phase II 2022

Program: Rehabilitation

Project Type: Agricultural Irrigation

County: Goshen County

Sponsor: Goshen Irrigation District

WWDO Recommendation: Level III

Proposed Budget: \$290,000*

* Project funding is contingent on the Legislature approving a \$7,000,000 transfer of funds from WDA I to WDA II

WWDC Grant ¹ (100%)	\$ 290,000
Sponsor's cost ² (00%)	\$ 0
Total	\$ 290,000

¹ 100% materials grant only.

² Sponsor's share is all costs excluding materials.

Project Manager: William Brewer

Project Description: The project "Goshen ID 29.4 Phase II" is a project to replace 3,600 feet of 30" concrete tile with 30" PVC.

1. Describe existing status in the program and previous appropriations.

Existing Legislation

<u>Year</u>	<u>Project</u>	<u>Appropriation</u>
2018	Level III, Goshen Check Structure 2018	\$ 468,330
2017	Level III, Goshen Rehabilitation 2017	\$ 214,000
2015	Level III, Goshen - Guernsey Spillway Rehab	\$ 449,570
2013	Level III, Goshen Rehabilitation 2013	\$ 1,400,000

Prior Legislation

<u>Year</u>	<u>Project</u>	<u>Appropriation</u>
2008	Level III, Goshen Rehabilitation 2009	\$ 1,200,000
2006	Level I, Goshen Irrigation District Master Plan 2006	\$ 209,087
2004	Level III, Goshen Irrigation District Water System	\$ 500,000
2000	Level III, Goshen Irrigation District Water System	\$ 1,726,000
1993	Level III, Goshen Canal Improvements	\$ 24,303
1986	Level III, Goshen Irrigation District Rehabilitation	\$ 437,688

2. Describe existing water supply using information in the application.

Goshen Irrigation District was formed in 1926 and serves 52,484 acres with a conveyance system diverting from the North Platte River at the Whalen Diversion Dam above Ft. Laramie and traversing to the Nebraska Stateline. Water rights include direct flow and stored water from the North Platte River.

3. Summarize the request.

The project "29.4 phase 2" is a project to replace 3,600 feet of 30" concrete tile with 30" PVC. Goshen Irrigation District is asking for grant funds to finance 100% of the materials. Goshen will finance from other sources the engineering services and construction cost excluding invoiced materials. This tile

line leaks in several areas due to the joints separating under the pressure of use, and breakage from erosion and farming over it. This line runs about 20' of water and can have up to 10% to 20% of water loss. Along with the loss of water, the leakage leave access to the field difficult and the farm ground impossible to farm.

4. Summarize the reasons for the request.

By replacing this tile line Goshen will be able to eliminate the water loss and improve operation and maintenances to this area of the lateral. With the shortage of water and our aging infrastructure always being a major concern, it is importance to maintain and replace the system's failing components when possible. Anytime crop loss can be reduced is beneficial to all our landowners.

Estimated Level III WWDC Eligible Costs:

Cost of Project Components

30" PVC Pipe	\$ 228,000	
30" PVC fittings	\$ 10,000	
Miscellaneous fitting and Appurtenance	<u>\$ 14,000</u>	
Construction Cost (Subtotal #2)		\$ 252,000
Construction Engineering Costs (Subtotal # 2 x 10%)		<u>\$ 0</u>
Components and Engineering Costs (Subtotal # 3)		\$ 252,000
Contingency (Subtotal #3 x 15%)		<u>\$ 37,650</u>
Construction Cost Total (Subtotal #4)		\$ 288,650
Total Project Cost (Subtotal #1 + Subtotal #4)		\$ 288,650
Inflation Costs (3% per one year)		<u>\$ 0</u>
Total Project Costs		\$ 288,650
Total Project Costs (Rounded)		\$ 290,000
Level III Recommended Funding @ 100% Grant:		\$ 290,000
Level III Recommended Funding @ 00% Loan:		\$ 0
Ineligible Expenses		
Total Ineligible Project Costs – none noted		\$ 0

PROJECT INFORMATION:

A. FINANCIAL INFORMATION

1. Service Area Information.	Pre-Project	Post-Project
a. Total acres are in the District?	52,484	52,484
b. Assessed acres?	52,484	52,484
c. Irrigated acres?	52,484	52,484

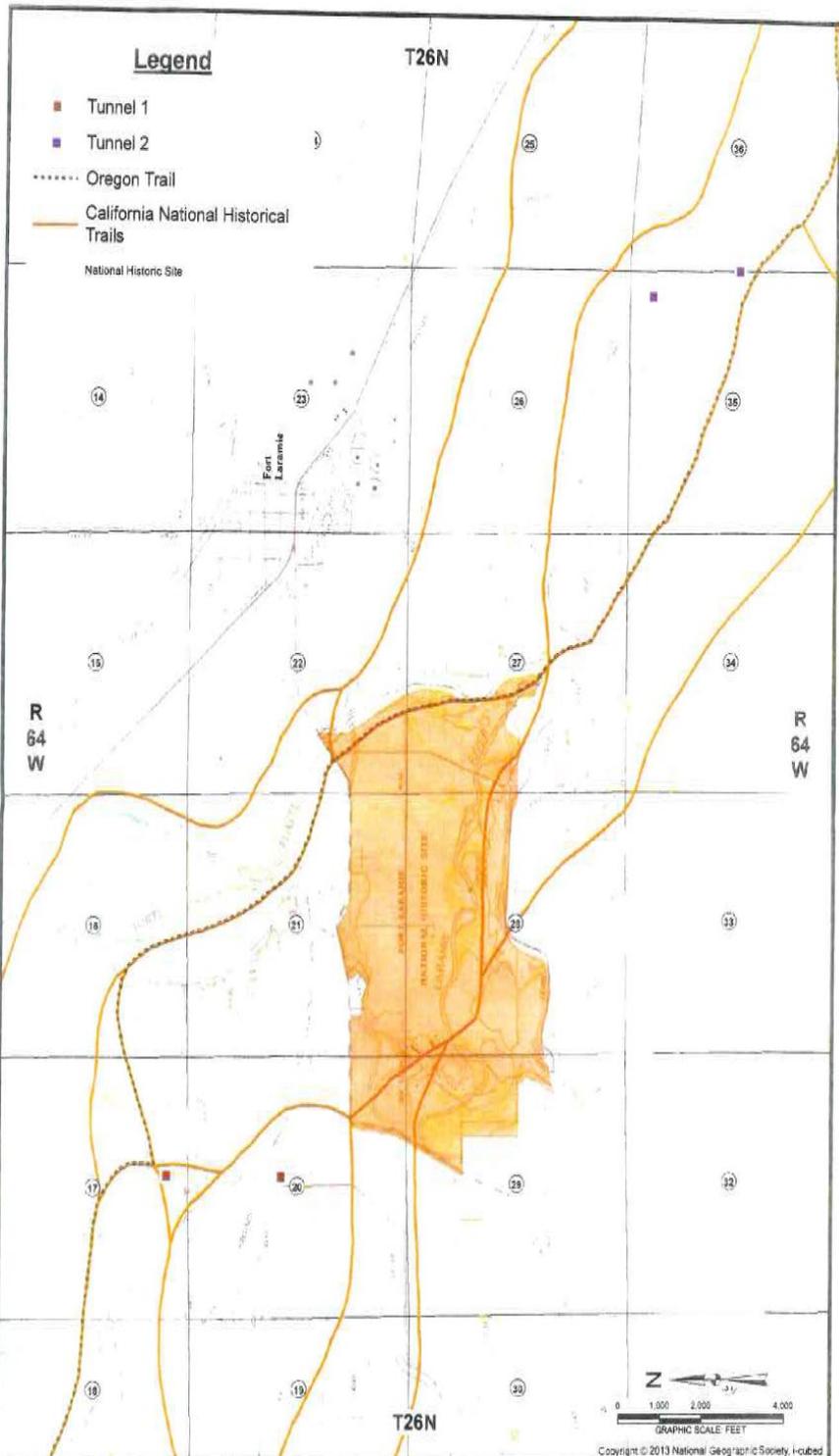
d. Average annual water delivery (acre-feet/acre assessed)?	1.85	1.85
e. How many individual landowners receive water?	420	420
f. What type(s) of on-farm irrigation water application is used? The District's on the farms irrigation applications are pivots, side roll, flood, and gated pipe		
g. Briefly describe the main crops and cropping patterns: Alfalfa, corn, bean, sugar beets. irrigated pastures and wheat are the main crops in the district.		
h. Describe the water measuring devices currently in use: Flow meters, Parshall flumes, cippolletti weirs and rectangular weirs are the measuring devices currently in use.		
2. Water Usage	Pre-Project	Post-Project
a. Total water (AF) provided by the system annually:	130,000	130,000
b. Average Day Demand (AF):	900	900
c. Peak Day Demand (AF):	1000	1000
3. System Capacity:	Pre-Project	Post-Project
a. Maximum capacity of the water supply system (acre feet per day)	1,400	1,400
b. What is the factor (bottleneck) limiting the ability to provide water (supply, canals, etc.): Presently the concrete tile line 29.4 leaks excessively resulting in a significant amount of water loss. The damaged tunnels are also limiting our maximum CFS, therefore water loss in the canal and laterals is affecting the system significantly.		
c. Increased capacity needed (acre feet per day):	0	0
d. Estimated system water losses (percentage):	36%	35%
4. District Financing		
a. Is the assessment based on acres, acre-feet delivered, acre-feet of storage space, or other? Acres		
b. How is voting authority delegated to water users? Number of acres		
c. What is the per unit amount of the current assessment?	Pre-Project \$27.00	Post-Project \$27.00
d. If there is a basic service charge in addition to assessments, how much is it?	200	200
5. Financial Statement	Pre-Project	Post-Project
Annual revenues generated from assessments:	\$ 1,417,068	\$ 1,417,068
Annual revenues from other sources:	\$ 1,771,148	\$ 1,771,148
Revenues from special assessment:	<u>\$ 262,420</u>	<u>\$ 262,420</u>
Total annual revenues:	\$ 3,450,636	\$ 3,450,636

Annual budget for operation and maintenance expenses:	\$ 3,188,216	\$ 3,188,216
Annual payments for debt retirement:	\$ 46,956	\$ 46,956
Annual payments to a repair and replacement fund:	\$ 46,956	\$ 46,956
Annual payments to an emergency fund:	\$ 4,200	\$ 4,200
Annual payments for other purposes:	\$ <u>0</u>	\$ <u>0</u>
Total annual payments:	\$ 3,286,328	\$ 3,286,328
Balance in repair and replacement fund:	\$ 105,396	\$ 122,487
Balance in emergency fund:	\$ 141,589	\$ 30,880

B. COMPARISON WITH OPERATING CRITERIA

1. Project Priority according to the Criteria? 2. Level III rehabilitation existing irrigation canals
2. Will the project serve at least 2,000 water righted acres? Yes Number of acres 52,484
3. Is the sponsor eligible for funding from other state or federal programs? Yes
If so, what are they? USBOR WaterSMART
4. What water conservation measures are employed by the sponsor? The district has pipelines. on farm pivots, automation, and computerized water accounting in place to help with water conservation.
5. Is the operation of the water supply system self-supporting in terms of revenues offsetting costs for operation, maintenance, debt retirement, replacement funds and emergency funds? Yes
6. Can the project be delayed or staged? Delayed - Yes Staged - No Should it be? No. This section of the canal is leaking and requires considerable maintenance and there is no logical location to split the construction work.
7. Basis for the funding recommendation:
Placing the existing laterals in pipe would virtually eliminate seepage, eliminating the loss of water and damage to adjacent land. The sponsor has successfully completed previous Level III projects and the project is in line with previous studies.



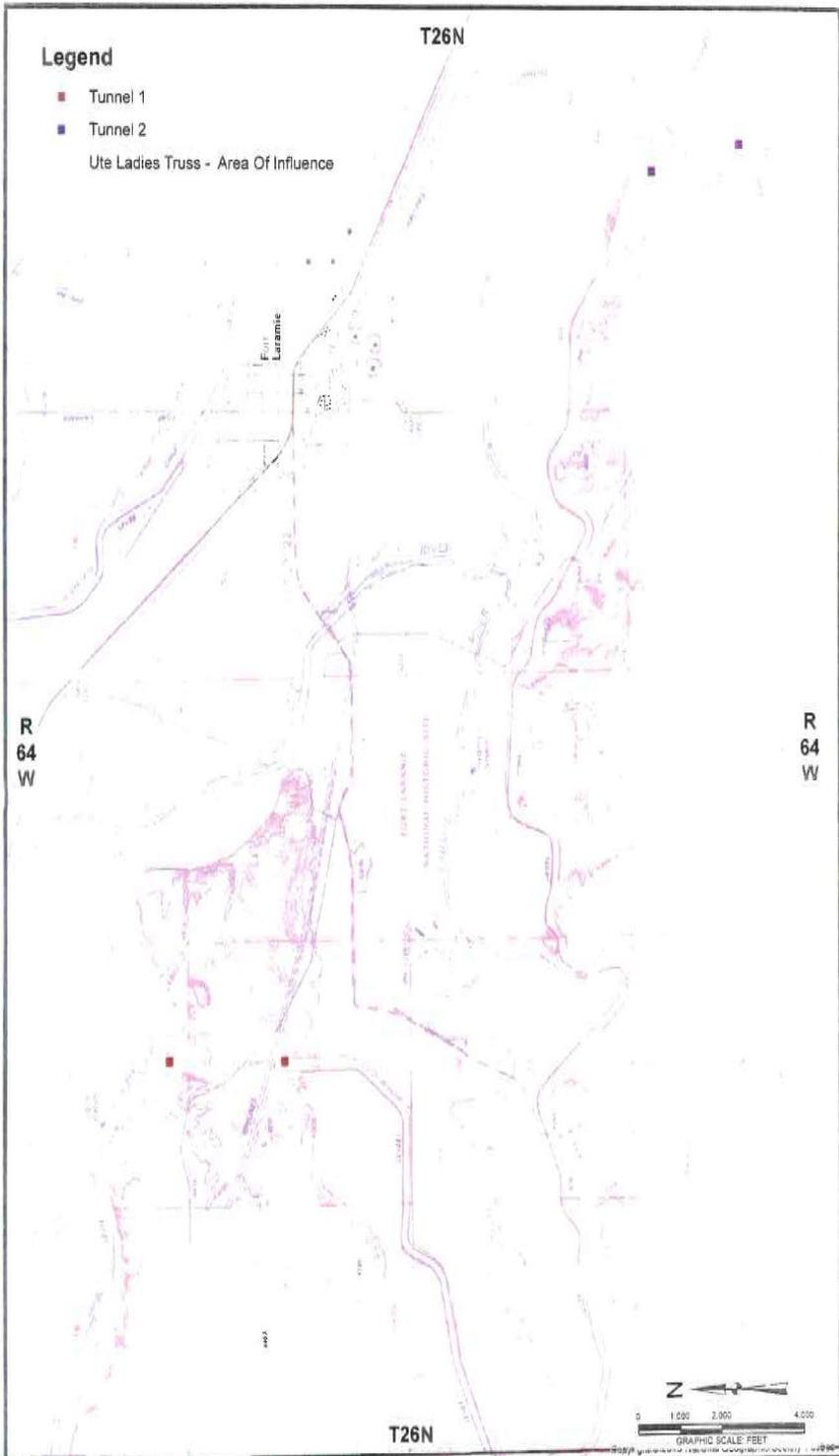


PREPARED BY:
WWC ENGINEERING
 1849 Terra Avenue,
 Sheridan WY, 307-672-0761

PREPARED FOR:
 GOSHEN IRRIGATION DISTRICT
 PO BOX 717
 TORRINGTON, WY 82240

FIGURE 3
CULTURAL MAP

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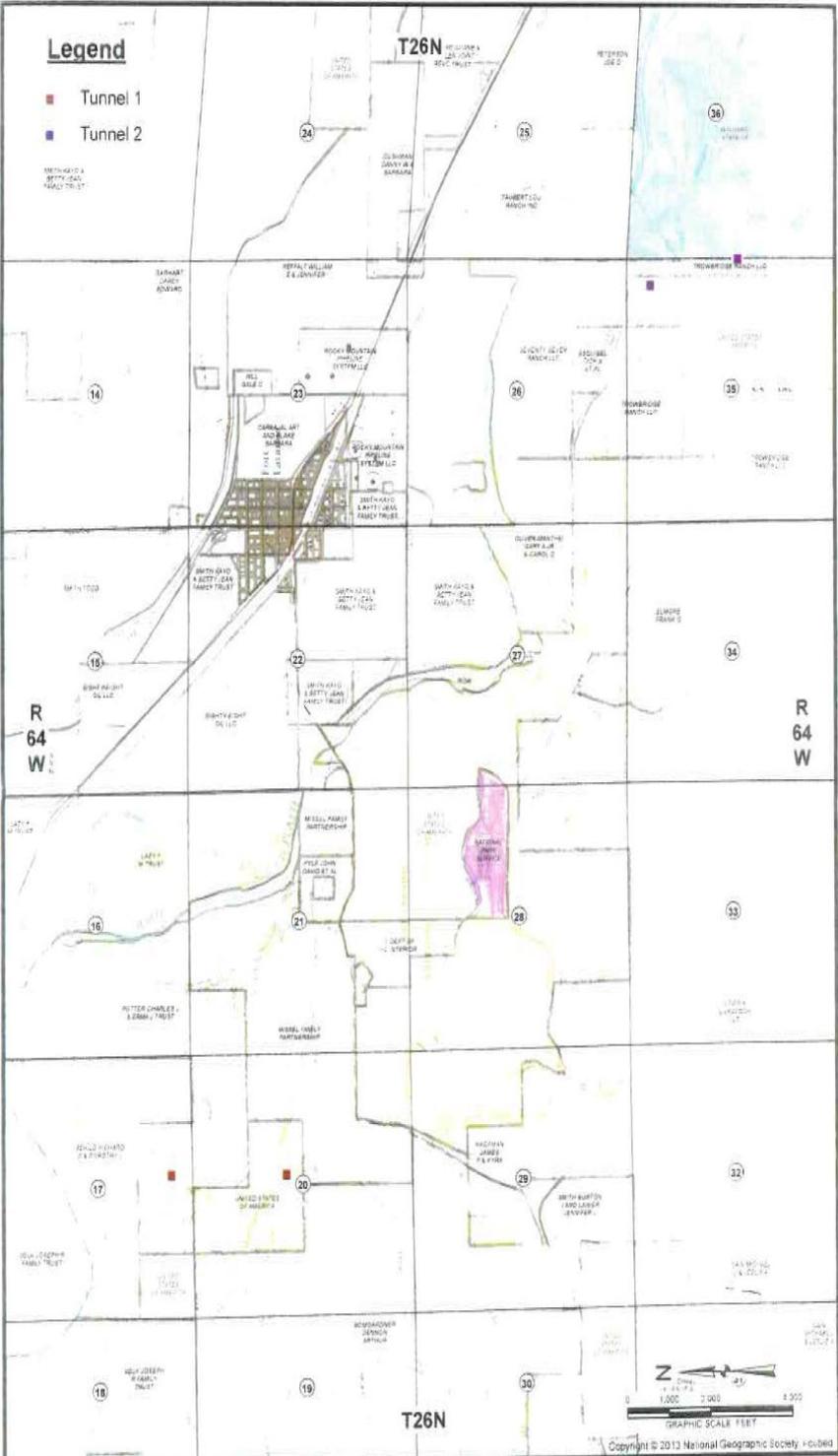
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 PO BOX 717
 TORRINGTON, WY 82240

**FIGURE 2
 WILDLIFE**

NOTE: ALL OF GOSHEN COUNTY WITHIN
 WHITE NOISE SYNDROME (WNS) INFECTED
 HIBERNACULA OR BATS AREA.

X:\Drawings\Goshen\Projects\2014\WY Tunnel Replacement\MDA\Power\880421\WY_750_R_2\12.dwg



PREPARED BY
 **WVC ENGINEERING**
 1849 Terra Avenue
 Sheridan WY 82701-0761

PREPARED FOR
 GOSHEN IRRIGATION DISTRICT
 PO BOX 717
 TORRINGTON, WY 82240

FIGURE 1
 LOCATION/SURFACE OWNERSHIP

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**RESOLUTION OF THE GOSHEN COUNTY IRRIGATION DISTRICT
AUTHORIZING THE INTENT AND APPROVAL TO CONSTRUCT
REPLACEMENT TUNNELS FOR TUNNELS #1 AND #2.**

I hereby certify, that a meeting of the Board of Directors of Goshen Irrigation District was duly called and held at its office located in Torrington, Wyoming on the 31 of August 2021, and that at said meeting a quorum was present and voting throughout, and that the following resolution was duly adopted.

BE IT HEREBY RESOLVED that the Goshen Irrigation District Board of Commissioners intend and approve to have constructed and complete "the Tunnel #1 and Tunnel #2 Rehabilitation/Replacement Project", with funding through the Wyoming Water Development Commission and the Goshen Irrigation District. The Board of Commissioners authorizes the Manager, Rob Posten to sign payment requests submitted to the WWDC.

David Saul, - President
Randy Steben, Vice-President
Shawn Booth, Secretary/Treasurer
Robert Coxbill, Commissioner
Raymond Lynde, Commissioner
Rob Posten, – Manager

I further certify that this resolution is within the power of the Board of Commissioners to pass as provided in the Charter and By-Laws of the Goshen Irrigation District.

FOR THE COMMISSIONERS OF GOSHEN IRRIGATION DISTRICT



David Saul, President

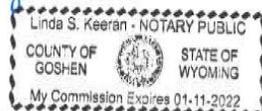
STATE OF WYOMING)

) SS

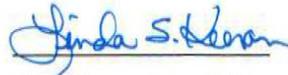
COUNTY OF GOSHEN)

Subscribed in my presence and sworn to before me by David on this,

31st August, 2021



My Commission Expires: January 11, 2022



Linda S. Keeran, Notary Public

2022 RECOMMENDATION-CONSTRUCTION PROJECTS

Project Name: Goshen ID Tunnel Rehabilitation 2022 **Program:** Rehabilitation

Project Type: Agricultural Irrigation **County:** Goshen County

Sponsor: Goshen Irrigation District

WWDO Recommendation: Level III **Proposed Budget:** \$1,151,500¹

WWDC Grant ² (67%)	\$ 771,500
WWDC Loan ³ (33%)	\$ 380,000
Total	\$ 1,151,500

¹ \$1,151,500 which is Wyoming's 49% share of \$2,350,000

² Not to exceed 67% of project eligible costs.

³ 33% loan at 4% interest and a term of 50 years.

Project Manager: William Brewer

Project Description: This phase of the project is to fund the design and pre-construction activities to rehabilitate Tunnels 1 and 2 for the Goshen Irrigation District (GID).

1. Describe existing status in the program and previous appropriations.

Existing Legislation

<u>Year</u>	<u>Project</u>	<u>Appropriation</u>
2018	Level III, Goshen Check Structure 2018	\$ 468,330
2017	Level III, Goshen Rehabilitation 2017	\$ 214,000
2015	Level III, Goshen - Guernsey Spillway Rehab	\$ 449,570
2013	Level III, Goshen Rehabilitation 2013	\$ 1,400,000

Prior Legislation

<u>Year</u>	<u>Project</u>	<u>Appropriation</u>
2008	Level III, Goshen Rehabilitation 2009	\$ 1,200,000
2006	Level I, Goshen Irrigation District Master Plan 2006	\$ 209,087
2004	Level III, Goshen Irrigation District Water System	\$ 500,000
2000	Level III, Goshen Irrigation District Water System	\$ 1,726,000
1993	Level III, Goshen Canal Improvements	\$ 24,303
1986	Level III, Goshen Irrigation District Rehabilitation	\$ 437,688

2. Describe existing water supply using information in the application.

Goshen Irrigation District was formed in 1926 and serves 52,484 acres with a conveyance system diverting from the North Platte River at the Whalen Diversion Dam above Ft. Laramie and traversing to the Nebraska Stateline. Water rights include direct flow and stored water from the North Platte River.

3. Summarize the request.

The proposed project seeks to fund the design and pre-construction work to rehabilitate Tunnels 1 and 2 for the Goshen Irrigation District (GID). Tunnel 2 suffered catastrophic failure in 2019 requiring significant but temporary repairs.

4. Summarize the reasons for the request.

The district's temporary repairs included sinkhole excavation, installation of interior tunnel ribbing/arching, exterior tunnel grouting, and ribbing modifications to improve hydraulic performance. These measures, although effective for allowing the continued operation of the system, are all considered temporary in nature. Permanent solutions are required to deliver sufficient water to effected area.

Estimated Level III WWDC Eligible Costs:

Pre-Construction Components

Alternatives Analysis Summary	\$ 25,000	
Geotech	\$ 500,000	
Preparation of Final Designs and Specifications	\$ 1,500,000	
Permitting and Mitigation	\$ 200,000	
Title of Opinion	\$ 25,000	
Acquisition of Access and Rights of Way	<u>\$ 100,000</u>	
Pre-Construction Costs (Subtotal # 1)		\$ 2,350,000
Wyoming's 49% Total Project Costs		\$ 1,151,500
Level III Recommended Funding @ 67% Grant: (rounded)		\$ 771,500
Level III Recommended Funding @ 33% Loan: (rounded)		\$ 380,000

Ineligible Expenses

Total Ineligible Project Costs: None Noted **\$ 0**

PROJECT INFORMATION:

A. FINANCIAL INFORMATION

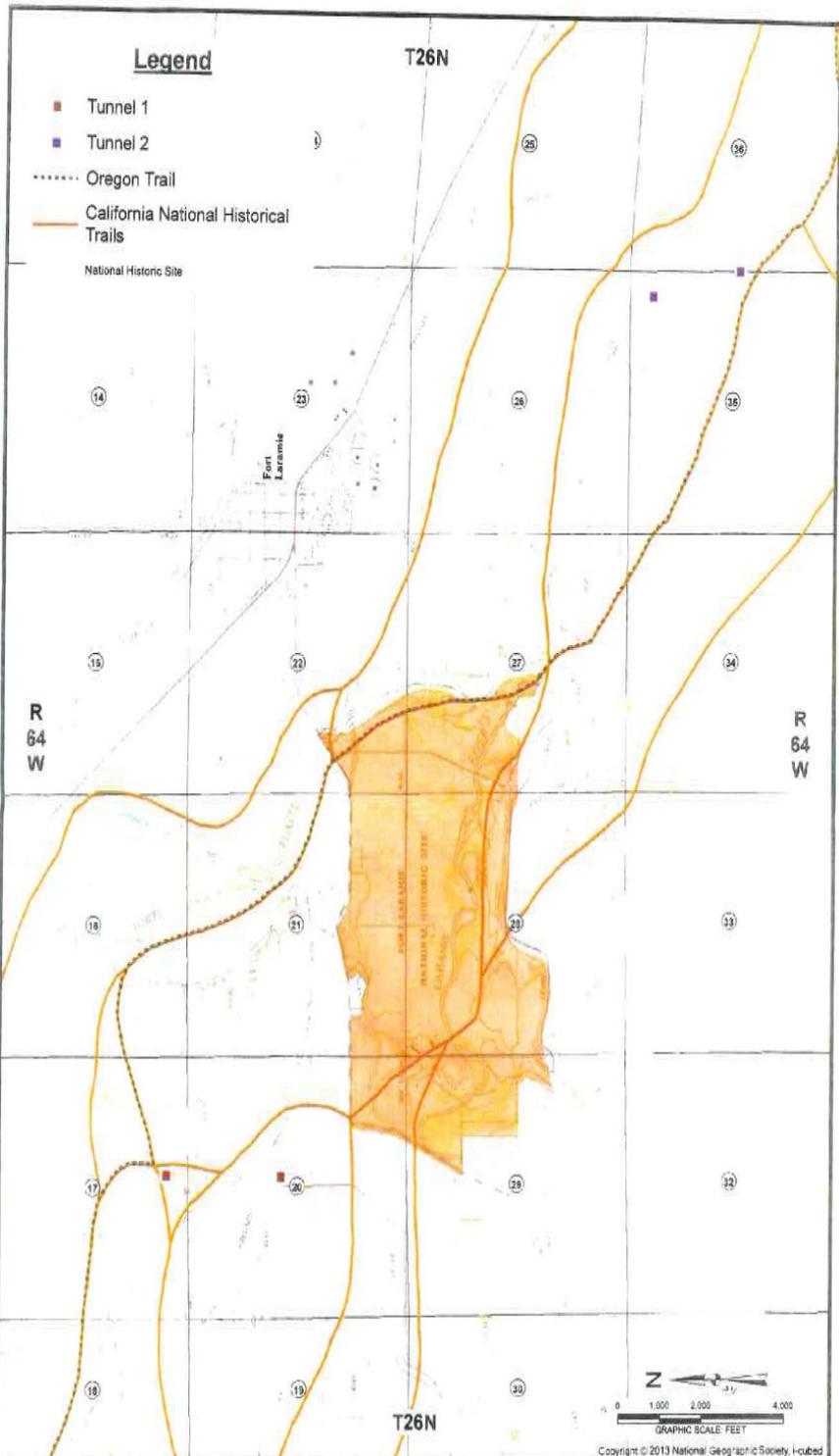
1. Service Area Information.	Pre-Project	Post-Project
a. Total acres are in the District?	52,484	52,484
b. Assessed acres?	52,484	52,484
c. Irrigated acres?	52,484	52,484
d. Average annual water delivery (acre-feet/acre assessed)?	1.85	1.85
e. How many individual landowners receive water?	420	420
f. What type(s) of on-farm irrigation water application is used? The District's on farm irrigation applications are pivots, side roll, flood, and gated pipe		
g. Briefly describe the main crops and cropping patterns: Alfalfa, corn, bean, sugar beets. irrigated pastures and wheat are the main crops in the district.		

h. Describe the water measuring devices currently in use: Flow meters, Parshall flumes, cippolletti weirs and rectangular weirs are the measuring devices currently in use.

2. Water Usage	Pre-Project	Post-Project
a. Total water (AF) provided by the system annually:	130,000	130,000
b. Average Day Demand (AF):	900	900
c. Peak Day Demand (AF):	1000	1000
3. System Capacity:	Pre-Project	Post-Project
a. Maximum capacity of the water supply system (acre feet per day)	1,400	1,400
b. What is the factor (bottleneck) limiting the ability to provide water (supply, canals, etc.):	The damaged tunnel is limiting the system from flowing the normal maximum CFS. Therefore at this time, the maximum capacity of the water supply system is less than the designed 1,400 AF/D.	
c. Increased capacity needed (acre feet per day):	0	0
d. Estimated system water losses (percentage):	36%	35%
4. District Financing		
a. Is the assessment based on acres, acre-feet delivered, acre-feet of storage space, or other? Acres		
b. How is voting authority delegated to water users? Number of acres		
c. What is the per unit amount of the current assessment?	Pre-Project \$27.00	Post-Project \$32.00
d. If there is a basic service charge in addition to assessments, how much is it?	200	200
5. Financial Statement	Pre-Project	Post-Project
Annual revenues generated from assessments:	\$ 1,417,068	\$ 1,417,068
Annual revenues from other sources:	\$ 1,771,148	\$ 1,771,148
Revenues from special assessment:	\$ <u>262,420</u>	\$ <u>262,420</u>
Total annual revenues:	\$ 3,450,636	\$ 3,450,636
Annual budget for operation and maintenance expenses:	\$ 3,188,216	\$ 3,188,216
Annual payments for debt retirement:	\$ 46,956	\$ 46,956
Annual payments to a repair and replacement fund:	\$ 46,956	\$ 46,956
Annual payments to an emergency fund:	\$ 4,200	\$ 4,200
Annual payments for other purposes:	\$ <u>0</u>	\$ <u>0</u>
Total annual payments:	\$ 3,286,328	\$ 3,286,328
Balance in repair and replacement fund:	\$ 105,396	\$ 122,487
Balance in emergency fund:	\$ 141,589	\$ 30,880

B. COMPARISON WITH OPERATING CRITERIA

1. Project Priority according to the Criteria? 1. Level III rehabilitation of water control structure (tunnel)
2. Will the project serve at least 2,000 water righted acres? Yes Number of acres 52,484
3. Is the sponsor eligible for funding from other state or federal programs? Yes
If so, what are they? TBD
4. What water conservation measures are employed by the sponsor? The district has pipelines, on farm pivots, automation, and computerized water accounting in place to help with water conservation.
5. Is the operation of the water supply system self-supporting in terms of revenues offsetting costs for operation, maintenance, debt retirement, replacement funds and emergency funds? Yes
6. Can the project be delayed or staged? Yes, the recommendation is to stage the project into a design phase / easement acquisition at this time and a construction phase at a later date. The construction phase may be staged as well if needed.
7. Basis for the funding recommendation.
The existing structure needs to be rehabilitated or replaced. The district is currently involved in a study for alternative analyses and funding scenarios. Upon completion of the study the District will have a path to move the project forward. This recommendation will fund the design and pre-construction activities based on the study results.



PREPARED BY:

WWC ENGINEERING

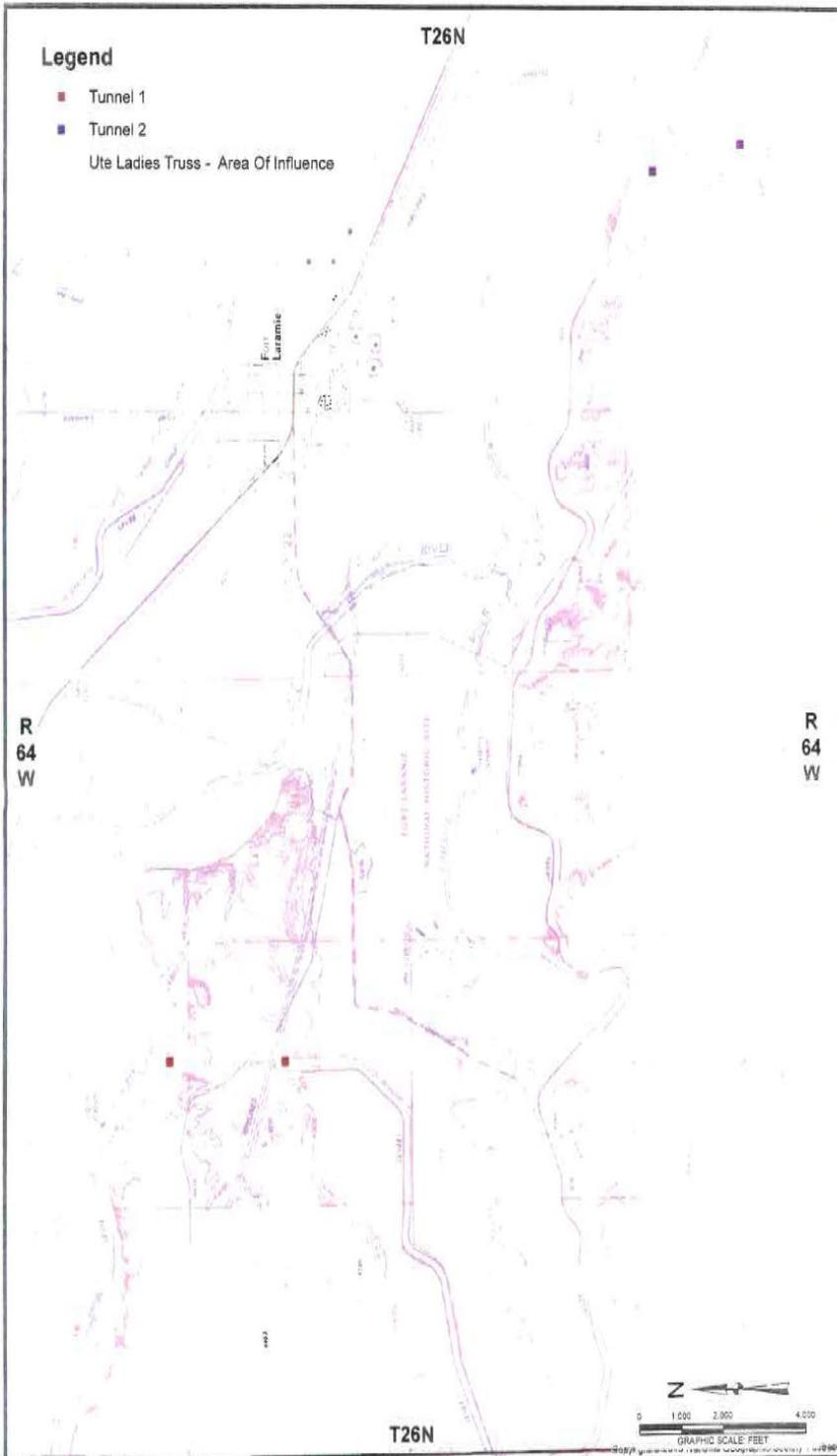
1849 Terra Avenue,
Sheridan WY. 307-672-0761

PREPARED FOR:

GOSHEN IRRIGATION DISTRICT
PO BOX 717
TORRINGTON, WY 82240

FIGURE 3
CULTURAL MAP

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PREPARED BY:

 1949 Terra Avenue,
 Sheridan WY, 307-672-0761

PREPARED FOR:
 GOSHEN IRRIGATION DISTRICT
 PO BOX 717
 TORRINGTON, WY 82240

**FIGURE 2
 WILDLIFE**
 NOTE: ALL OF GOSHEN COUNTY WITHIN
 WHITE NOSE SYNDROME (WNS) INFECTED
 HIBERNACULA OR BATS AREA.

X:\Shelton\GIS\Map\Draw\001\26 North\Reservoirs\MDR\Area\000002708_T10_W-5.rpt

**RESOLUTION OF THE GOSHEN COUNTY IRRIGATION DISTRICT
AUTHORIZING THE INTENT AND APPROVAL TO CONSTRUCT
REPLACEMENT TUNNELS FOR TUNNELS #1 AND #2.**

I hereby certify, that a meeting of the Board of Directors of Goshen Irrigation District was duly called and held at its office located in Torrington, Wyoming on the 31 of August 2021, and that at said meeting a quorum was present and voting throughout, and that the following resolution was duly adopted.

BE IT HEREBY RESOLVED that the Goshen Irrigation District Board of Commissioners intend and approve to have constructed and complete "the Tunnel #1 and Tunnel #2 Rehabilitation/Replacement Project", with funding through the Wyoming Water Development Commission and the Goshen Irrigation District. The Board of Commissioners authorizes the Manager, Rob Posten to sign payment requests submitted to the WWDC.

David Saul, - President
Randy Steben, Vice-President
Shawn Booth, Secretary/Treasurer
Robert Coxbill, Commissioner
Raymond Lynde, Commissioner
Rob Posten, – Manager

I further certify that this resolution is within the power of the Board of Commissioners to pass as provided in the Charter and By-Laws of the Goshen Irrigation District.

FOR THE COMMISSIONERS OF GOSHEN IRRIGATION DISTRICT



David Saul, President

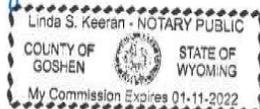
STATE OF WYOMING)

) SS

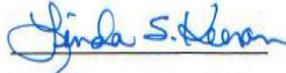
COUNTY OF GOSHEN)

Subscribed in my presence and sworn to before me by David on this,

31st August, 2021



My Commission Expires: January 11, 2022



Linda S. Keeran, Notary Public

2022 RECOMMENDATION-CONSTRUCTION PROJECTS

Project Name: Highland Hanover ID System Improvements 2022 **Program:** Rehabilitation

Project Type: Irrigation System **County:** Washakie

Sponsor: Highland Hanover Irrigation District

WWDO Recommendation: Level III **Proposed Budget:** \$4,611,000

WWDC Grant ¹ (67%)	\$ 3,089,370
WWDC Loan ² (33%)	<u>\$ 1,521,630</u>
Total	\$ 4,611,000

¹ Not to exceed 67% of project eligible costs

² 33% loan at 4% interest and a term of 30 years

Project Manager: Keith Clarey/Sol Brich

Project Description: The Highland Hanover Irrigation District (HHID) requests a 2022 Level III construction project to replace the pumps in pump Station #2 and associated improvements to the irrigation system for the District.

1. Describe existing status in the program and previous appropriations.

Prior Legislation

<u>Year</u>	<u>Project</u>	<u>Appropriation</u>
2016	Level I, Hanover Irrigation Master Plan, Phase II	\$ 175,000
1989	Level III, Highland Hanover Rehabilitation	\$ 536,000
1988	Level II, Highland Hanover Canal Improvement Study	\$ 25,000

Existing Legislation

<u>Year</u>	<u>Project</u>	<u>Appropriation</u>
2020	Level II, Highland Hanover ID Pump Station	\$ 75,000

2. Describe existing water supply using information in the application.

The District is located in the Big Horn River Basin near Worland, within Washakie County, Wyoming. The Highland Hanover Canals' water source is primarily a direct flow right via the Hanover Canal from the Bighorn River, with additional storage rights in Boysen Reservoir. The District coordinates with Hanover Irrigation District for water, who coordinates with Bureau of Reclamation for from Boysen Reservoir water releases to the Big Horn River. Pump Station #2 is located approximately 13 miles down-canal from the Hanover Canal diversion, or two miles southwest of the Worland airport (see attached map).

3. Summarize the request.

The Highland Hanover Irrigation District (HHID) is located in Worland area and operates 24.5 miles of canal servicing approximately 6,992 acres. The project area focuses on Pump Station #2, which is the largest of the five (5) pump stations operated by the District. Pump Station #2 supplies Big Horn River water to two canals, Canal 2 and Lateral 2-0.5 (Coutis Ditch), servicing approximately 5,663 acres. Additionally, Canal 2 supplies water to Canals 3 and 4, the Laird Ditch, and the Dooley Ditch.

Pump Station #2 was constructed from 1955 to 1956; with HHID assuming full responsibility of operation and maintenance beginning on January 1, 1958. Two horizontal centrifugal pumping units discharge water to Canal 2 and originally had a combined capacity of 84 cubic feet per second (cfs). The pumps and motors are original to Pump Station #2 with over 64 years of operation.

Located adjacent to Pump Station #2 is Pump Station #5, which is an outdoor plant. Pump Station #5 supplies water to the Coutis Ditch through two (2) vertical turbine pumps with a capacity of 16 cfs. Pump Station #5 was added to supplement Pump Station #2 and designed to deliver an additional capacity of 25 cfs to Canal 2.

Preliminary designs for three (3) options were developed under the Level II study including cost estimates based on WWDC requirements. The identified top priority for the District was to address the Canal 2 pumps (Pump Station #2) with additional improvements to the Coutis Ditch pumps, the building structural repairs and mechanical systems, and site grading.

During the Level II evaluation of the Canal 2 pumps, it was determined that replacing the pumps at Pump Station #2 would be required. The existing pumps are operating at a reduced capacity of approximately 80% of the design (originally 18,800 gpm each) and the motors are very high voltage (2,300V3P/600 HP each) motors requiring specialty electrical components and technicians.

Currently, the adjacent Pump Station #5 is being used to supplement the Pump Station #2 pumps. The District would like to return Pump Station #5 back to its original intended use as a backup system.

In addition to new pumping units, operational upgrades are required using variable-frequency-drives (VFDs), which feed programmable-logic-controllers (PLCs). Also, flow meters will be installed to adjust capacity and optimize the functionality of the system.

4. Summarize the reasons for the request.

A Level III project is requested by the HHID to replace the pumps at Pump Station #2, with associated improvements to the irrigation system for the District. The Sponsor selected Option 1 of the 2021 Final Report, Highland Hanover ID Pump Station, Level II Study, to be supported for a 2022 Level III construction project application.

Estimated Level III WWDC Eligible Costs:

Preparation of Final Designs and Specifications	\$ 337,800	
Permitting and Mitigation	\$ 0	
Title of Opinion	\$ 0	
Acquisition of Access and Rights of Way	\$ 0	
Pre-Construction Costs (Subtotal # 1)	\$ 0	\$ 337,800

Cost of Project Components	
Mobilization	\$ 300,000
Bonds & Insurance	\$ 83,000
Demolition & Dispose of Equipment	\$ 150,000
F&I Canal 2 Pumps/Motors	\$ 678,000
F&I Canal 2 VFDs, Controls & Equipment	\$ 635,000
F&I Electrical Service Entrance Upgrades	\$ 1,027,000
Fabricated Piping & valves (Canal 2 & Coutis Pumps)	\$ 145,000
Building Modifications for Equipment/Piping	\$ 25,000
F&I Coutis Pumps, VFDs, Controls & Equipment	\$ 227,000
F&I Flow Meter and Associated Equipment	\$ 6,000
Building Foundation Repairs	\$ 4,000
Building HVAC Upgrades	\$ 12,000
System Programming & Testing	\$ 20,000

Site Grading Improvements	\$ 58,000
SC & FC Walkthrough	\$ 5,000
Contract Closeout	<u>\$ 3,000</u>

Construction Cost (Subtotal #2)	\$ 3,378,000
Construction Engineering Costs (Subtotal # 2 x 10%)	<u>\$ 337,800</u>
Components and Engineering Costs (Subtotal # 3)	\$ 3,715,800
Contingency (Subtotal #3 x 15%)	<u>\$ 557,400</u>
Construction Cost Total (Subtotal #4)	\$ 4,273,200

Total Project Cost (Subtotal #1 + Subtotal #4)	\$ 4,611,000
Inflation Costs (3% per one year)	<u>\$ 0</u>

Total Project Costs **\$ 4,611,000**

Level III Recommended Funding @ 67% Grant: \$ 3,089,370

Level III Recommended Funding @ 33% Loan: \$ 1,521,630

Ineligible Expenses

None Noted

Total Ineligible Project Costs \$ 0

PROJECT INFORMATION:

A. FINANCIAL INFORMATION

1. Service Area Information.	Pre-Project	Post-Project
a. Total acres are in the District?	6,992	6,992
b. Assessed acres?	7,137	7,137
c. Irrigated acres?	7,137	7,137
d. Average annual water delivery (acre-feet/acre assessed)?	~3	~3
e. How many individual landowners receive water?	117	117
f. What type(s) of on-farm irrigation water application is used? Center pivots, side roll, flood: dirt ditch gated pipe.		
g. Briefly describe the main crops and cropping patterns: Sugar beets, malt barley, wheat, hay, beans, grass, alfalfa		
h. Describe the water measuring devices currently in use: Measuring devices set by the State Engineer's Office at discharge pipes. Some measuring devices on farm turnouts. Four crest weirs with electronic monitors.		

2. Water Usage	Pre-Project	Post-Project
a. Total water (AF) provided by the system annually:	~25,000	~25,000
b. Average Day Demand (AF):	198	198
c. Peak Day Demand (AF):	297	297
3. System Capacity:	Pre-Project	Post-Project
a. Maximum capacity of the water supply system (acre feet per day)	1984	1984
b. What is the factor (bottleneck) limiting the ability to provide water (supply, canals, etc.): Per the Sponsor's Level III application: "Aging pump infrastructure, pumps are past their life and if they fail, water would not be provided to landowners."		
c. Increased capacity needed (acre feet per day):	N/A	N/A
d. Estimated system water losses (percentage):	15%	15%
4. District Financing		
a. Is the assessment based on acres, acre-feet delivered, acre-feet of storage space, or other? Acres owned.		
b. How is voting authority delegated to water users? Number of acres.		
c. What is the per unit amount of the current assessment?	Pre-Project \$36/acre	Post-Project \$52/acre
d. If there is a basic service charge in addition to assessments, how much is it?	No	No
5. Financial Statement	Pre-Project	Post-Project
Annual revenues generated from assessments:	\$ 259,339	\$ 371,108
Annual revenues from other sources:	<u>\$ 2,066</u>	<u>\$ 2,066</u>
Total annual revenues:	\$ 206,255	\$ 373,174
Annual budget for operation and maintenance expenses:	\$ 218,200	\$ 218,200
Annual payments for debt retirement:	\$ 5,555	\$ 92,278
Annual payments to a repair and replacement fund:	\$ 0	\$ 0
Annual payments to an emergency fund:	\$ 8,000	\$ 8,000
Annual payments for other purposes:	<u>\$ 0</u>	<u>\$ 0</u>
Total annual payments:	\$ 231,755	\$ 318,928
Balance in repair and replacement fund:	\$ 0	\$ 0
Balance in emergency fund:	\$ 58,604	\$ 66,604

B. COMPARISON WITH OPERATING CRITERIA

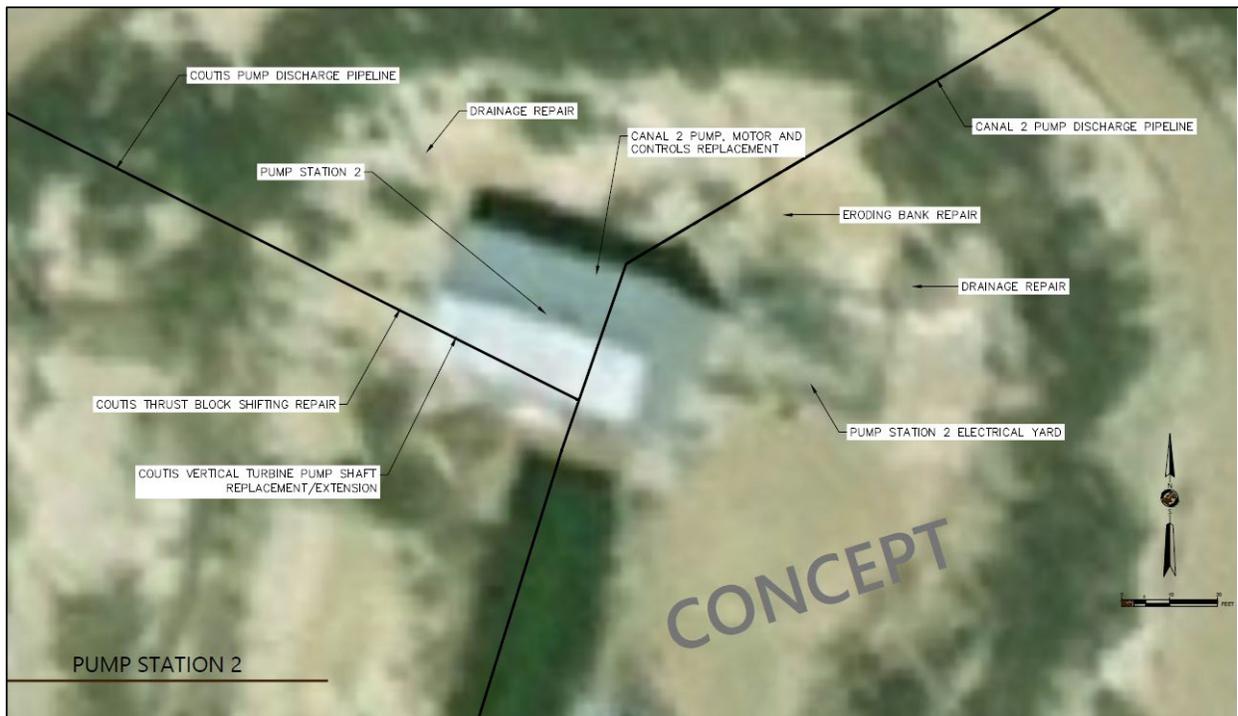
1. Project Priority according to the Criteria? Project Priority 1 – Level III rehabilitation of existing of water diversion or control structures.
2. Will the project serve at least 2,000 water righted acres? Yes Number of acres 7,084
3. Is the sponsor eligible for funding from other state or federal programs? Yes
If so, what are they? Apply for Bureau of Reclamation WaterSMART grant and also apply for USDA programs through Natural Resource Conservation Service (NRCS).
4. What water conservation measures are employed by the sponsor? On farm pivots, closed water systems, and VFD motors. Water conservation also occurs with the ditch rider monitoring usage daily. Closed systems on any new irrigation devices.
5. Is the operation of the water supply system self-supporting in terms of revenues offsetting costs for operation, maintenance, debt retirement, replacement funds and emergency funds? Yes
6. Can the project be delayed or staged? No. Should it be? No, the Canal 2 pumps are over sixty years old, and specialty parts would be required to repair them due to their age and high operating voltage. Pump Station #2 provides irrigation for 5,563 acres, and there is not enough backup capacity to supply enough water to meet the Average Day Demand. It would be difficult to stage because a large portion of the project is an electrical upgrade that will lower the voltage of the station; and the study recommends standardizing new pumps to the same voltage.
7. Basis for the funding recommendation: A 2022 Level III construction project is requested by the Highland Hanover Irrigation District (HHID) to replace the pumps at Pump Station #2 and Pump Station #5, with associated improvements to increase the overall operation of the irrigation system. The Sponsor selected Option 1 of the 2021 Final Report, Highland Hanover ID Pump Station, Level II Study, to be supported for a 2022 Level III construction project application.

Pump Station #2 Area and Detail Map.





Inside Pump Station #2



Overview of Pump Station #2 Improvements

RESOLUTION
A RESOLUTION SUPPORTING AN APPLICATION TO THE
WYOMING WATER DEVELOPMENT COMMISSION FOR LEVEL III
CONSTRUCTION FUNDING

WHEREAS, the Highland Hanover Irrigation District desires to make application for Wyoming Water Development Commission for Level III Construction funding

WHEREAS, the Highland Hanover Irrigation District will submit this Resolution to the Wyoming Water Development Commission as a requirement in the application process; and

WHEREAS, the President is authorized to submit this application to Wyoming Water Development Commission on September 01, 2021

WHEREAS, as an applicant of the Highland Hanover Irrigation District commits to comply with all federal statutes and regulations; and

NOW, THEREFORE, BE IT RESOLVED that the Treasurer of Highland Hanover Irrigation District fully endorse and support this application for submission to Wyoming Water Development Commission

RESOLVED THIS 1 DAY OF September, 2021.

Highland Irrigation District

David McKamey, Treasurer

State of Wyoming
County of Washakie

This instrument entitled "Resolution" was acknowledged before me on September 01, 2021 by David McKamey



Bethany Measles
Notary Public

My Commission Expires: 8/30/2023

2022 RECOMMENDATION-CONSTRUCTION PROJECTS

Project Name: Interstate Irrigation & Reservoir Irrigation District Improvements Phase II **Program:** Rehabilitation

Project Type: Agricultural Irrigation **County:** Sweetwater

Sponsor: Interstate Irrigation & Reservoir Irrigation District

WWDO Recommendation: Withdrawn until 2022 **Proposed Budget:** \$0

WWDC Grant ¹ (64%)	\$ 2,993,280
<u>USBOR² (36%)</u>	<u>\$ 1,683,720</u>
Total	\$ 4,677,000

¹ Not to exceed 64% of project eligible costs

² USBOR Salinity Control Funds

Project Manager: Sol Brich

Project Description: The purpose of the project is to design and construct a pipeline and necessary appurtenances to rehabilitate 6.3 miles of open canal.

1. Describe existing status in the program and previous appropriations.

Prior Legislation

<u>Year</u>	<u>Project</u>	<u>Appropriation</u>
2013	L-I, Interstate Canal & Beaver Meadows Reservoir Rehab	\$ 180,000
2019	L-III, Interstate Diversion Structure Rehabilitation 2019	\$ 420,000
2021	L-III, Interstate Improvements 2021	\$ 2,827,400

2. Describe existing water supply using information in the application.

The water supply for IIRID is based on Utah water rights which include direct flow rights and storage rights in the Burnt Fork drainage, a tributary of Henrys Fork. The direct flow rights are junior water rights and provide water to IIRID only during the snowmelt runoff. The Interstate Canal was designed to carry a capacity of 70 cfs. The diversion history of the IIRID's direct stream flow rights is much less than the 70 cfs amount. In a typical year IIRID runs out of water in early July when their reservoir storage is depleted. This situation has left the IIRID heavily dependent on their storage rights to supply any water for an irrigation season. IIRID has storage in two high mountain reservoirs, Island Lake (778 acre-feet) and Beaver Meadow Reservoir (2,461 acre-feet). Water from these reservoirs is released into Burnt Fork and then diverted into the Interstate Canal.

3. Summarize the request.

The request is for a 64% grant to convert 6.3 miles of open canal to a buried HDPE pipeline to eliminate seepage losses and associated salt loading. This is Segment #2 of a project to rehabilitate a total of 13.1 miles of canal. The project is an Interstate Canal Salinity Reduction Project with 36% of the cost coming from Bureau of Reclamation Salinity Control Funds.

4. Summarize the reasons for the request.

The Interstate Canal diverts an average of 4,525 acre-feet of water per year. Of that amount, 25 percent or 1,131 acre-feet is lost to seepage. The proposed Project is to eliminate seepage losses and associated salt loading by piping the existing earthen Interstate Canal with HDPE pipe materials.

Estimated Level III WWDC Eligible Costs:

Preparation of Final Designs and Specifications	\$ 331,200	
Permitting and Mitigation	\$ 15,000	
Title of Opinion	\$ 5,000	
Acquisition of Access and Rights of Way	<u>\$ 0</u>	
Pre-Construction Costs (Subtotal # 1)		\$ 351,200
Cost of Project Components		
Pipe & Materials	\$ 1,608,000	
Installation	\$ 926,000	
Structures & Turnouts	\$ 363,000	
Contractor Costs	<u>\$ 415,000</u>	
Construction Cost (Subtotal #2)		\$ 3,312,000
Construction Engineering Costs (Subtotal # 2 x 10%)		<u>\$ 331,200</u>
Components and Engineering Costs (Subtotal # 3)		\$ 3,643,200
Contingency (Subtotal #3 x 15%)		<u>\$ 546,480</u>
Construction Cost Total (Subtotal #4)		\$ 4,189,680
Total Project Cost (Subtotal #1 + Subtotal #4)		\$ 4,540,880
Inflation Costs (3% per one year)		<u>\$ 136,226</u>
Total Project Costs		\$ 4,677,106
Total Project (Rounded)		\$ 4,677,000
Level III Recommended Funding @ 64% Grant:		\$ 2,993,280
USBOR Salinity Control Funds @ 36% Match:		\$ 1,683,720
Total Ineligible Project Costs – none noted		\$ 0

PROJECT INFORMATION:

A. FINANCIAL INFORMATION

1. Service Area Information.	Pre-Project	Post-Project
a. Total acres are in the District?	7,249	7,249
b. Assessed acres?	2,035	2,035
c. Irrigated acres?	2,035	2,035
d. Average annual water delivery (acre-feet/acre assessed)?	1.67	2.40
e. How many individual landowners receive water?	19	19
f. What type(s) of on-farm irrigation water application is used? Sprinkler, Pivot, Handline, K-line, and flood irrigation.		
g. Briefly describe the main crops and cropping patterns: Grass hay, alfalfa hay and irrigated pasture.		

h. Describe the water measuring devices currently in use: Parshall flumes at major structures and division of flows at turnouts. The division is based on an allocated percentage of weir length at each turnout.

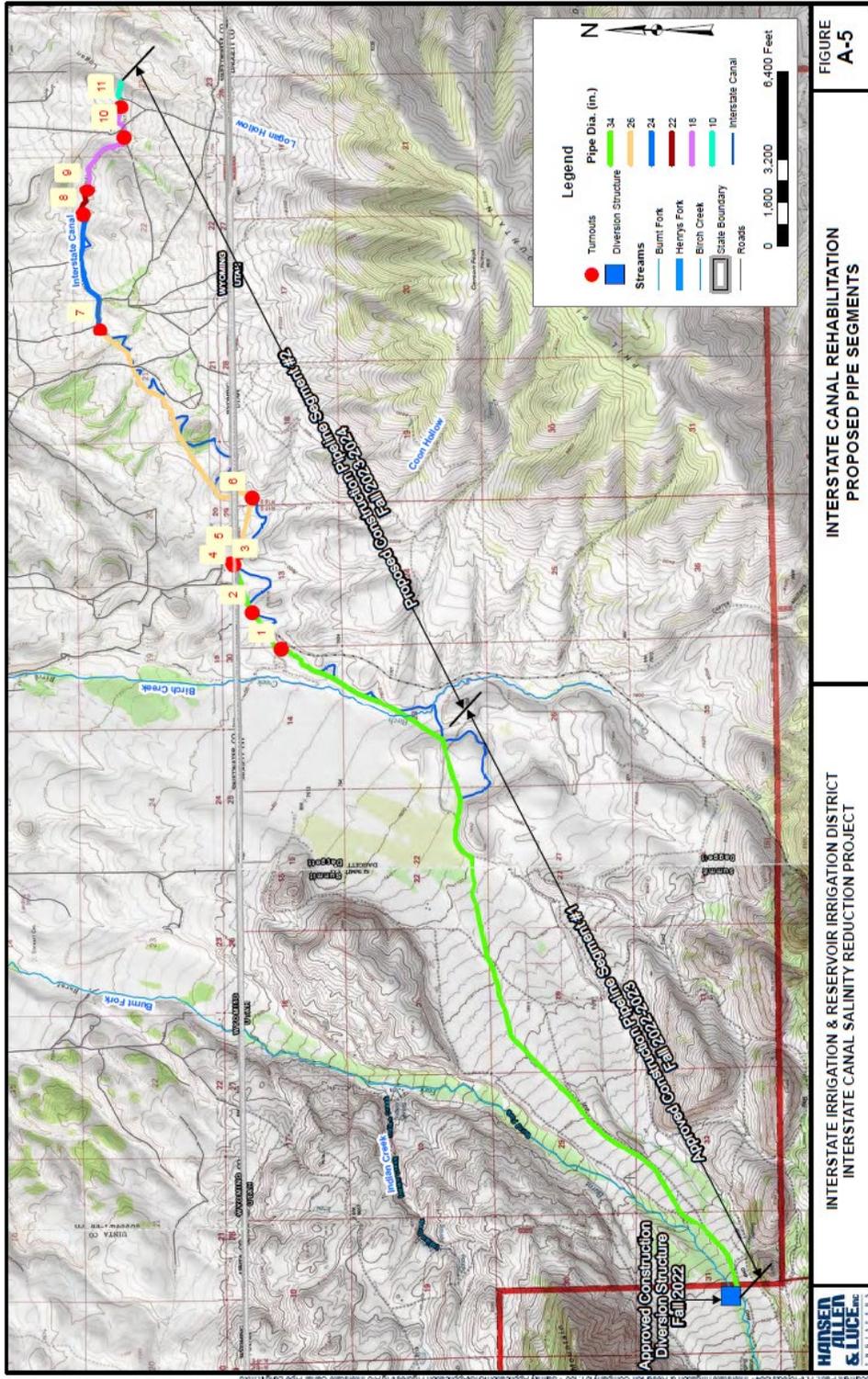
2. Water Usage	Pre-Project	Post-Project
a. Total water (AF) provided by the system annually:	3,394	4,525
b. Average Day Demand (AF):	45	60
c. Peak Day Demand (AF):	60	70
3. System Capacity:	Pre-Project	Post-Project
a. Maximum capacity of the water supply system (acre feet per day)	60	70
b. What is the factor (bottleneck) limiting the ability to provide water (supply, canals, etc.):	Canal Seepage	Water Supply
c. Increased capacity needed (acre feet per day):	0	0
d. Estimated system water losses (percentage):	35	10
4. District Financing		
a. Is the assessment based on acres, acre-feet delivered, acre-feet of storage space, or other? Acres		
b. How is voting authority delegated to water users? Acres		
c. What is the per unit amount of the current assessment?	Pre-Project 34.00	Post-Project 34.00
d. If there is a basic service charge in addition to assessments, how much is it?	No	No
5. Financial Statement	Pre-Project	Post-Project
Annual revenues generated from assessments:	\$ 69,226.86	\$ 69,226.86
Annual revenues from other sources:	<u>\$ 10,000.00</u>	<u>\$ 10,000.00</u>
Total annual revenues:	\$ 79,226.86	\$ 79,226.86
Annual budget for operation and maintenance expenses:	\$ 54,530.00	\$ 54,530.00
Annual payments for debt retirement:	\$ 0.00	\$ 0.00
Annual payments to a repair and replacement fund:	\$ 0.00	\$ 0.00
Annual payments to an emergency fund:	\$ 0.00	\$ 0.00
Annual payments for other purposes:	<u>\$ 24,696.86</u>	<u>\$ 24,696.86</u>
Total annual payments:	\$ 79,226.86	\$ 79,226.86
Balance in repair and replacement fund:	\$ 0.00	\$ 0.00
Balance in emergency fund:	\$ 35,690.86	\$ 23,103.61

B. COMPARISON WITH OPERATING CRITERIA

1. Project Priority according to the Criteria? 2 - Level III rehabilitation of existing irrigation canals.
2. Will the project serve at least 1,000 water righted acres? Yes Number of acres 1,967 in Wyoming and 68 in Utah.
3. Is the sponsor eligible for funding from other state or federal programs? Yes
If so, what are they? BOR Colorado River Basin Salinity Control Funds
4. What water conservation measures are employed by the sponsor? Converting flood irrigation to sprinkler irrigation and piping existing earthen canal with HDPE pipe.
5. Is the operation of the water supply system self supporting in terms of revenues offsetting costs for operation, maintenance, debt retirement, replacement funds and emergency funds? Currently Yes, however no funds are being put into a Repair and Replacement Fund or to increase the revenues in the Emergency fund. There does not appear to be available funds for a loan, if needed.
6. Can the project be delayed or staged? Yes Should it be? Yes. The request is to rehabilitate the entire 13.1 miles of canal. However, the IIRID has proposed phasing the project into two segments based on availability of funding and construction windows. Based on the size and cost of the project, it should be staged.
7. Basis for the funding recommendation: The 2019 Structure Rehabilitation and 2021 Canal Rehabilitation projects are still in the design phase, and the project engineer is in the process of obtaining the necessary easements and permits for the projects.

Special Note: The Interstate Canal diversion structure and approximately 8.7 miles of the IIRID's 13.1 mile canal system are located in Utah to provide irrigation water for lands located in Utah and Wyoming. The majority (1,967 acres or 96.6%) of IIRID's irrigated lands are located in Wyoming.

Project Map



INTERSTATE IRRIGATION & RESERVOIR IRRIGATION DISTRICT
 INTERSTATE CANAL SALINITY REDUCTION PROJECT

FIGURE A-5
INTERSTATE CANAL REHABILITATION PROPOSED PIPE SEGMENTS

Project Resolution

Interstate Irrigation & Reservoir Irrigation District

HCR 65 Box 767,
2919 County Rd 1
McKinnon, WY 82938
(307) 780-7282

Allen
West District Commissioner – *Allen Young*
Central District Commission – Michael Potter
East District Commission – Scott Slagowski
Secretary & Treasurer – Carol Gardiner

OFFICIAL RESOLUTION

For Wyoming Water Development Commission 2021

Project Application for Level III Construction Funding

FOR AGRICULTURAL PROJECTS

A RESOLUTION OF THE COMMISSIONERS OF THE INTERSTATE IRRIGATION AND RESERVOIR IRRIGATION DISTRICT APPROVING SUBMISSION OF A PROPOSAL FOR THE INTERSTATE CANAL SALINITY REDUCTION PROJECT TO THE WYOMING WATER DEVELOPMENT COMMISSION.

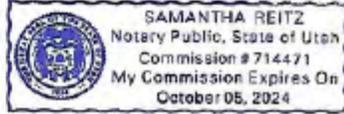
WHEREAS the Interstate Irrigation and Reservoir Irrigation District (IIRID) desires to submit a funding proposal to the Wyoming Water Development Commission (WWDC) to apply for funding to construct the Interstate Canal Salinity Reduction Project using funding from WWDC and the Colorado River Basin Salinity Control Program.

NOW THEREFORE, BE IT RESOLVED BY THE COMMISSIONERS OF THE IIRID:

- 1) IIRID authorizes submittal of a funding application to the WWDC for said Project.
- 2) IIRID designates Bryon Thomas as the Manager and Contact Person for the Project for the IIRID and authorizes him to sign the funding application on behalf of the District.
- 3) IIRID designates Hansen, Allen & Luce, Inc. as the Engineer for the Project and authorizes them to prepare the Proposal.

PASSED AND APPROVED by the IIRID Commissioners in a meeting held on the 25 day of August, 2021.

IIRID: _____
 By: *Allen Young*
 Its: Commissioner
 Attest: *Samantha Reitz*
 Its: _____



2022 RECOMMENDATION-CONSTRUCTION PROJECTS

Project Name: Lovell Moncur Lateral phase II 2022 **Program:** Rehabilitation

Project Type: Agricultural Irrigation **County:** Park and Big Horn

Sponsor: Lovell Irrigation District

WWDO Recommendation: Level III **Proposed Budget:** \$991,000

*** Project funding is contingent on the Legislature approving a \$7,000,000 transfer of funds from WDA I to WDA II**

WWDC Grant ¹ (100%)	\$ 991,000
<u>Sponsor's cost² (00%)</u>	<u>\$ 0</u>
Total	\$ 991,100

¹ 100% materials grant only.

² Sponsor's share is all costs excluding materials.

Project Manager: William Brewer

Project Description: The Moncur Lateral project will consist of converting 9,900 ft. of irrigation canal to pipe.

1. Describe existing status in the program and previous appropriations.

Prior Legislation

<u>Year</u>	<u>Project</u>	<u>Appropriation</u>
2012	Level III, canal rehabilitation	\$ 299,000
2014	Level III, Ditch to pipe conversion	\$ 889,000
2016	Level I, Master Plan	\$ 165,000
2019	Level III, Ditch to pipe conversion	\$ 1,670,000

2. Describe existing water supply using information in the application.

Direct flow is diverted from the Shoshone River and delivered through the Elk-Lovell Canal past the Elk Water Users to the Lovell Irrigation District irrigators.

3. Summarize the request.

This project is the second Phase of the Moncur Lateral enclosure. This application is for 100% materials only grant. This project would enable the Lovell Irrigation District to cover approximately 9900 LF of lateral on the Moncur Lateral (map attached). This is the second and final project for the Moncur Lateral Project. It will allow the Irrigation District to recoup some of the water losses due to erosion and water seepage, reduce maintenance on the system and have better control of the water.

4. Summarize the reasons for the request.

Piping the Moncur Lateral will prevent erosion, reduce seepage, reduce maintenance, and facilitate better control of the water. The sponsor has completed previous projects with the formula of using WWDC grant funds to purchase materials and providing other funding to pay a contractor to construct and install the project. The plan is to repeat the formula with this project.

Estimated Level III WWDC Eligible Costs:

Cost of Project Components

Pipe	\$	580,000	
fittings	\$	170,000	
valves	\$	41,500	
steel	\$	20,000	
concrete	\$	20,000	
bedding material	\$	<u>30,000</u>	
Construction Cost (Subtotal #2)			\$ 861,500
Construction Engineering Costs (Subtotal # 2 x 10%)			<u>\$ 0</u>
Components and Engineering Costs (Subtotal # 3)			\$ 861,500
Contingency (Subtotal #3 x 15%)			<u>\$ 129,225</u>
Construction Cost Total (Subtotal #4)			\$ 990,725
Total Project Cost (Subtotal #1 + Subtotal #4)			\$ 990,725
Inflation Costs (3% per one year)			<u>\$ 0</u>
Total Project Costs			\$ 990,725
Level III Recommended Funding @ 100% Grant (Rounded):			\$ 991,000
Level III Recommended Funding @ 00% Loan:			\$ 0
Ineligible Expenses			
Total Ineligible Project Costs – None Identified			\$ 0

PROJECT INFORMATION:

A. FINANCIAL INFORMATION

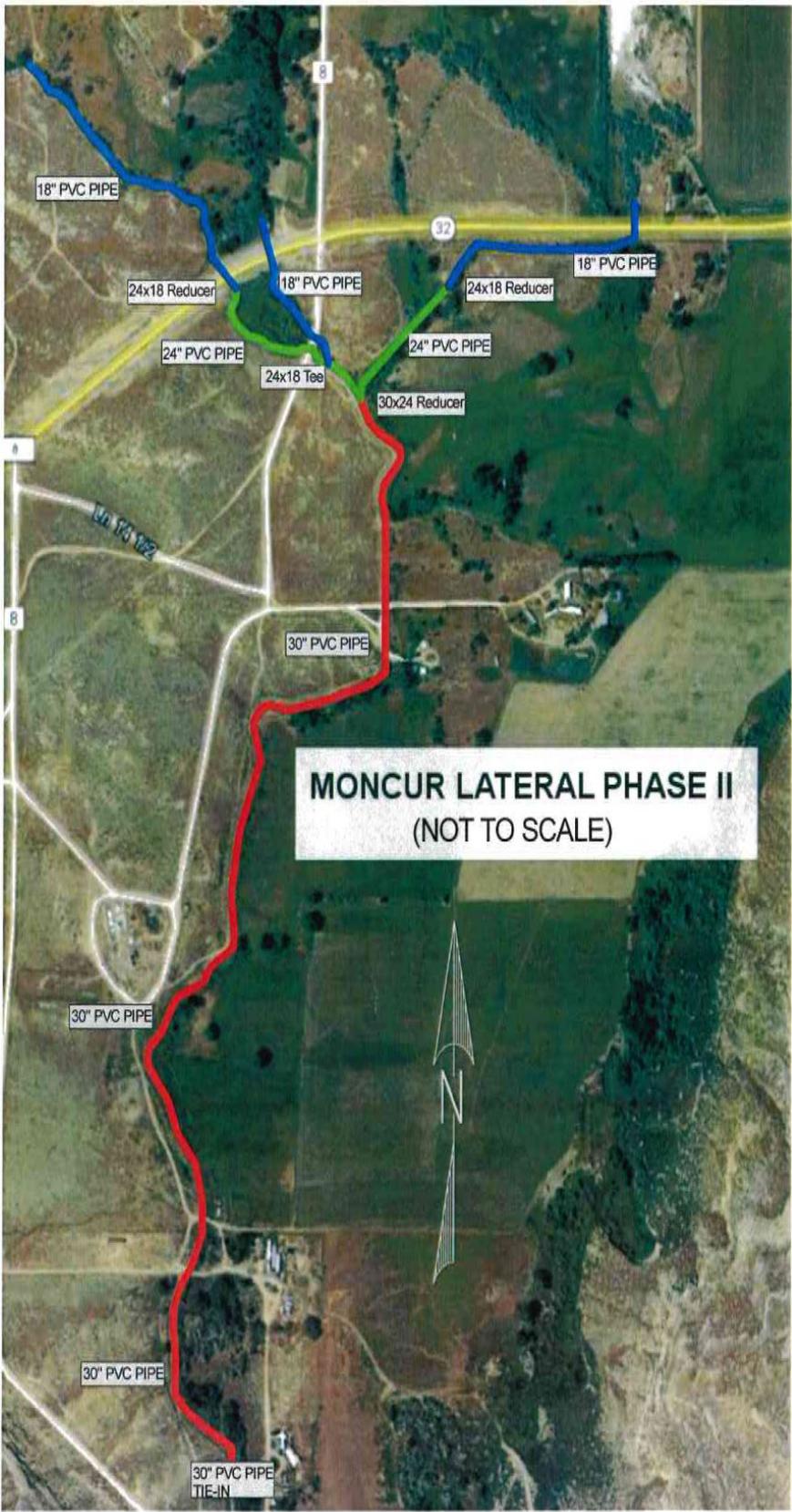
1. Service Area Information.	Pre-Project	Post-Project
a. Total acres are in the District?	10,858	10,858
b. Assessed acres?	10,858	10,858
c. Irrigated acres?	9,601	9,601
d. Average annual water delivery (acre-feet/acre assessed)?	13	13
e. How many individual landowners receive water?	266	266
f. What type(s) of on-farm irrigation water application is used? Typically flood irrigation with gated pipe with some center pivot and side roll.		
g. Briefly describe the main crops and cropping patterns: The main crops grown in the district are sugar beets, corn, barley, alfalfa and beans.		

h. Describe the water measuring devices currently in use: Weirs and parshall flumes. A flow meter was installed in the first phase of this project.

2. Water Usage	Pre-Project	Post-Project
a. Total water (AF) provided by the system annually:	141,000	141,000
b. Average Day Demand (AF):	792	792
c. Peak Day Demand (AF):	824	824
3. System Capacity:	Pre-Project	Post-Project
a. Maximum capacity of the water supply system (acre feet per day)	824	824
b. What is the factor (bottleneck) limiting the ability to provide water (supply, canals, etc.): Loss of water due to inefficient canal system structures. While enclosing the lateral will not increase capacity, it will allow the Irrigation District to conserve water and decrease erosion.		
c. Increased capacity needed (acre feet per day):	0	0
d. Estimated system water losses (percentage):	30%	0%
4. District Financing		
a. Is the assessment based on acres, acre-feet delivered, acre-feet of storage space, or other? Acres		
b. How is voting authority delegated to water users? Number of acres		
c. What is the per unit amount of the current assessment?	Pre-Project \$14.00	Post-Project \$14.00
d. If there is a basic service charge in addition to assessments, how much is it?	0	0
5. Financial Statement	Pre-Project	Post-Project
Annual revenues generated from assessments:	\$ 142,000	\$ 142,000
Annual revenues from other sources:	\$ 0	\$ 0
Total annual revenues:	\$ 142,000	\$ 142,000
Annual budget for operation and maintenance expenses:	\$ 132,000	\$ 132,000
Annual payments for debt retirement:	\$ 0	\$ 0
Annual payments to a repair and replacement fund:	\$ 0	\$ 0
Annual payments to an emergency fund:	\$ 10,000	\$ 10,000
Annual payments for other purposes:	\$ 0	\$ 0
Total annual payments:	\$ 142,000	\$ 142,000
Balance in repair and replacement fund:	\$ 0	\$ 0
Balance in emergency fund:	\$ 26,000	\$ 26,000

B. COMPARISON WITH OPERATING CRITERIA

1. Project Priority according to the Criteria? 2. Level III rehabilitation existing irrigation canals
2. Will the project serve at least 2,000 water righted acres? Yes Number of acres 10,858
3. Is the sponsor eligible for funding from other state or federal programs? Yes
If so, what are they? USBOR WaterSMART
4. What water conservation measures are employed by the sponsor? Canal lining: some parts of the canal are buried and with funding the Irrigation District will continue to place pipe and bury the canal waterways.
5. Is the operation of the water supply system self-supporting in terms of revenues offsetting costs for operation, maintenance, debt retirement, replacement funds and emergency funds? Yes
6. Can the project be delayed or staged? yes. Should it be? No. The laterals are already being staged for replacement.
7. Basis for the funding recommendation: The requested project complies with program criteria. The sponsor has successfully completed prior projects. The sponsor has indicated a willingness to finance its share of the project.



Resolution No. 2021-2

Entitled: A RESOLUTION AUTHORIZING SUBMISSION OF A WYOMING WATER DEVELOPMENT GRANT APPLICATION TO THE WYOMING WATER DEVELOPMENT COMMISSION ON BEHALF OF THE GOVERNING BODY FOR THE LOVELL IRRIGATION DISTRICT

(name of applicant)

FOR THE PURPOSE OF (state purpose of project):

ENCLOSING PORTIONS OF THE MONCUR LATERAL FOR THE PREVENTION OF EROSION AND WATER LOSS AND TO AID IN EFFICIENT MAINTENANCE AND OPERATION.

WITNESSETH

WHEREAS, the Governing Body for the LOVELL IRRIGATION DISTRICT

(name of applicant)

desires to participate in the WYOMING WATER DEVELOPMENT GRANT program to assist in financing this project; and

WHEREAS, the Governing Body of the LOVELL IRRIGATION DISTRICT

(name of applicant)

recognizes the need for the project; and

WHEREAS, the WYOMING WATER DEVELOPMENT Grant program requires that certain criteria be met, as described in the Wyoming Water Development Commission's Rules and Regulations governing the program, and to the best of our knowledge this application meets those criteria.

NOW, THEREFORE, BE IT RESOLVED BY THE GOVERNING BODY OF THE

LOVELL IRRIGATION DISTRICT, that a grant application in the amount of \$ 990,915.00

(name of applicant)

be submitted to the Wyoming Water Development Commission for consideration to assist in funding the LOVELL IRRIGATION DISTRICT MONCUR LATERAL PHASE II REHABILITATION PROJECT

(name of project)

BE IT FURTHER RESOLVED, that BRAD MOODY, PRESIDENT

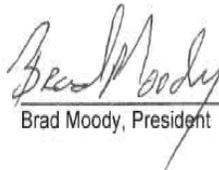
(name and title of persons)

is hereby designated as the authorized representative of the LOVELL IRRIGATION DISTRICT

(name of applicant)

to act on behalf of the Governing Body on all matters relating to this grant application.

PASSED, APPROVED AND ADOPTED THIS 27TH day of August, 2021.



Brad Moody, President

Attest



Stan Asay, Secretary/Treasurer

2022 RECOMMENDATION-CONSTRUCTION PROJECTS

Project Name: Owl Creek Irrigation District System Improvements **Program:** Rehabilitation

Project Type: Irrigation System **County:** Hot Springs

Sponsor: Owl Creek Irrigation District

WWDO Recommendation: Level III **Proposed Budget:** \$5,040,000

WWDC Grant ¹ (67%)	\$ 4,690,000
WWDC Loan ² (5%)	\$ 350,000
<u>Other Funds-Water Smart³ (28%)</u>	<u>\$ 1,960,000</u>
Total	\$ 7,000,000

¹ Not to Exceed 67% of project eligible costs

² 5% loan at 4% interest and a term of 30 years

³ Sponsor's responsibility

Project Manager: Mabel Jones/Bill Brewer

Project Description: Level III funding is being requested for irrigation system improvements within the Lower Area of the Owl Creek Irrigation District (District). The project includes three grouped projects identified as priorities in the 2021 Level I Master Plan including the Main Pump Station, Re-Lift Station, and Inlet Headgate.

1. Describe existing status in the program and previous appropriations.

<u>Year</u>	<u>Project</u>	<u>Appropriation</u>
2016	Level I, Owl Creek Watershed Study	\$ 375,000
2005	Level II, Owl Creek ID Conservation Study	\$ 100,000
2005	Level II, Owl Creek ID Storage Study	\$ 200,000
2003	Level I, Owl Creek Irrigation District Master Plan	\$ 150,000

Existing Legislation

<u>Year</u>	<u>Project</u>	<u>Appropriation</u>
2020	Level I, Owl Creek Irrigation District Master Plan	\$ 170,000

2. Describe existing water supply using information in the application.

The District has storage rights in Boysen Reservoir to allow for an 84 CFS diversion off the Big Horn River to the main pump station. The canal system relies on the main pump station to direct flows to the Lucerne Ditch (40 CFS) and the Re-Lift Canal (44 CFS).

3. Summarize the request.

The Owl Creek Irrigation District has requested funding to address Priority Group 1 and 2 projects, including pump stations and the main diversion headgate, identified in the 2021 Master Plan. One hundred twenty-seven unique structures and 97 farm turnouts were evaluated based on condition, acres served and critical need. The individual structures were then grouped into logical combinations for construction or rehabilitation. This Level III Construction request includes the following projects:

- Priority 1. Main Pump Station Replacement
- Priority 1: Re-Lift Pump Station Rehabilitation
- Priority 2: Inlet Canal Headgate

Main Pump Station Replacement

The Main Pump Station utilizes four pumps to lift the allocated flow of 84 CFS up to the Lucerne Ditch (67-foot lift) and the Re-Lift Canal (136-foot lift). The infrastructure supporting the Main Pump Station includes the receiving canal and alga screens, the building housing the pumps, four high capacity vertical turbine pumps, steel discharge pipe manifolds, buried asbestos concrete pipe, and a high capacity transformer. Pumps 1 and 2 are 200 horsepower and serve the Lucerne Ditch while pumps 3 and 4 are 450-horsepower and serve the Re-Lift Canal.

Two Alternatives were developed in the 2021 Master Plan to address the Main Pump Station deficiencies:

1. Rehabilitate the existing Main Pump Station, and
2. Construct a new facility to house the Main Pump Station adjacent to the existing facility.

Rehabilitation of the existing building would require structural upgrades to the hoist system along with access to the wet well and it cannot be assumed that the floor is capable of carrying loads from the new pumps. A primary challenge surrounding the alternative to rehabilitate the existing lift station is the allowable schedule for construction. The irrigation system typically operates from May through September. This means that construction of proposed improvements to the Main Pump Station will need to occur over the span of seven months during the winter (October through April). Winter construction can be time consuming, challenging, and add to the total cost of the project. Compounding this point further, a consolidated construction schedule may also add unforeseen increases to construction costs. Performing the necessary work at the Main Lift Station is certainly possible over a single winter season, however, the schedule affords little flexibility for delays.

The second alternative for the Main Pump Station includes the construction of a new lift station building on site. This alternative identified several advantages with the largest being the ability to maintain operation of the existing system during the construction of a new facility. Schematic plans and cost estimates for the construction of a new facility aimed to utilize identical equipment to the extent possible in order to provide concise comparisons between alternatives. Both alternatives propose to replace the pumps with two 300 and two 500 horsepower pumps. The cost difference between the two alternatives is estimated to be approximately one million dollars more for construction of a new facility. The Districts preference, per their funding application, is to opt for construction of a new facility.

The Main Pump Station replacement project for both alternatives include improvements to the wasteway/sediment sluice to reduce inputs to the pumps, installation of alga screens, new electrical service and upgrades to the transformer.

Re-Lift Pump Station Rehabilitation

Many of the components at the Re-Lift Station are in good or fair condition despite the age of the facility. The majority of the concrete, channel, and site features are not due for replacement or major maintenance. The funding request for rehabilitating this lift station primarily focuses on replacing the existing pumps, controls, electrical service, and piping. A new enclosure at the Re-Lift station is proposed to prolong the lifespan of planned equipment.

The schematic design plans for the Re-Lift pump station propose a replacement of the existing vertical turbine pumps with new units. New pumps will include 75-horsepower motors with outdoor rated enclosures. The existing pump bases and openings are adequate to support new pumps without modifications to the bases.

A very simple steel structure will be installed to shield pumps and equipment from sun and precipitation. This enclosure is proposed to include a removable roof in order to service and remove the pumps with a boom truck or crane. Also included in cost estimates for the Re-Lift Station are provisions for replacing the existing transformer, in kind.

Inlet Canal Headgate

This project includes improvements needed to support delivering water from the Big Horn River through the Inlet Canal to the pumping facilities. The Inlet Canal Headgate and access bridge were identified as being in poor and failing condition respectively. Funding is requested for headgate demolition and in-kind replacement. For the bridge replacement, the District proposed utilizing a flatbed rail car to save materials costs. This was determined to be a feasible option and this funding request is based on corresponding design specs using repurposed materials.

4. Summarize the reasons for the request.

The Owl Creek Irrigation District Board requested funding in 2019 for a Level I Study to provide an assessment of the condition and needs (operational as well as rehabilitation) for pump systems, spillways, and conveyance structures. A comprehensive evaluation of the major mechanical systems, electrical systems, and infrastructure associated with replacement of both the primary and re-lift pump stations was included. The study evaluated 127 unique structure or conveyance features and 97 farm turnouts (FTOs). To prioritize rehabilitation or replacement of individual structures within the Lucerne Area of the OCID, each structure was classified as 'good', 'fair', 'poor', or 'failing'. Of the 127 unique structures or channel features other than FTOs, 23 structures were identified as poor and failing, while another 28 were characterized as fair but needing some rehabilitation.

The Main Pump Station and Re-lift Station were constructed by the United States Bureau of Reclamation and turned over to the District for operations and maintenance in 1957. With the pumps and transformers being nearly 70 years old, parts for the pumps are difficult to obtain and repairs can take extended periods of time. There is a significant concern that failure of one or both of the aging transformers could result in the loss of a significant portion of an irrigation season. The exposed portions of the pressurized steel pipes exiting the pump stations have been repaired and patched on numerous occasions. During these repairs, the pipe walls have been found to be thin and fragile, likely due to abrasion and perhaps corrosion. Seepage is evident at the base of the buried pipe served by the Main Pump Station, leading to concerns that the buried asbestos-concrete pipes at both the Main Pump Station and Re-Lift Pump Station have developed leaks and may be subject to broader failure. The OCID also desires to increase pump capacity to increase early water delivery when it is available.

The Inlet Canal Headgate consists of two 5-foot steel slide gates. The screw-type stems which operate the gates are bent but remain operable. The concrete around the gates has cracked and spalled extensively and subsequently been patched over by steel plating to provide a solid foundation for the stem housings; however, the underlying concrete is significantly degraded. The gates are reportedly not watertight due to the gate frames no longer being solidly mounted to the concrete face of the structure. Erosion is evident both upstream and downstream of the headgate with concrete riprap having been placed on both downstream banks in an effort to mitigate this erosion. The Bighorn River Diversion Structure and Inlet Canal Headgate are critical to the operation of the entire Lucerne Area system as these facilities supply all allocated flows to the pump stations that serve this portion of the OCID. An access bridge over the Inlet Canal is unsuitable for vehicle traffic and lacks an approach road from the west. When this bridge was in service, it provided the only large vehicle access to the Bighorn River Diversion Structure. Given the current state of this bridge, the OCID cannot access the north end of the diversion to conduct maintenance and repair activities.

Estimated Level III WWDC Eligible Costs:

Preparation of Final Designs and Specifications	\$ 488,375	
Permitting and Mitigation	\$ 50,000	
Title of Opinion	\$ 15,000	
Acquisition of Access and Rights of Way	<u>\$ 65,000</u>	
Pre-Construction Costs (Subtotal # 1)		\$ 618,375
Cost of Project Components		
Main Pump Station	\$ 4,035,476	
Re-Lift Pump Station	\$ 475,268	
Inlet Canal Headgate	<u>\$ 373,003</u>	
Construction Cost (Subtotal #2)		\$ 4,883,747
Construction Engineering Costs (Subtotal # 2 x 10%)		<u>\$ 488,375</u>
Components and Engineering Costs (Subtotal # 3)		\$ 5,372,122
Contingency (Subtotal #3 x 15%)		<u>\$ 805,818</u>
Construction Cost Total (Subtotal #4)		\$ 6,177,940
Total Project Cost (Subtotal #1 + Subtotal #4)		\$ 6,796,315
Inflation Costs (3% per one year)		<u>\$ 203,889</u>
Total Project Costs		\$ 7,000,204
Total Project Costs (Rounded)		\$ 7,000,000
Level III Recommended Funding @ 67% Grant:		\$ 4,690,000
Level III Recommended Funding @ 5% Loan:		\$ 350,000
Other Funds		\$ 1,960,000
Ineligible Expenses		
Total Ineligible Project Costs - None noted		\$ 0

PROJECT INFORMATION:

A. FINANCIAL INFORMATION

1. Service Area Information.	Pre-Project	Post-Project
a. Total acres are in the District?	4,415	4,415
b. Assessed acres?	4,415	4,415
c. Irrigated acres?	4,400	4,400
d. Average annual water delivery (acre-feet/acre assessed)?	5.64	5.64
e. How many individual landowners receive water?	103	103

f. What type(s) of on-farm irrigation water application is used? Flood, gated pipe, side roll, center pivot

g. Briefly describe the main crops and cropping patterns: Alfalfa hay, grass hay, barley, beans, corn, pasture grass

h. Describe the water measuring devices currently in use: Measuring devices set by the State Engineers Office at discharge pipes. Some measuring devices on farm turnouts.

2. Water Usage	Pre-Project	Post-Project
a. Total water (AF) provided by the system annually:	24,700	26,000
b. Average Day Demand (AF):	52.7	53
c. Peak Day Demand (AF):	92.8	96

3. System Capacity:	Pre-Project	Post-Project
a. Maximum capacity of the water supply system (acre feet per day)	184	198

b. What is the factor (bottleneck) limiting the ability to provide water (supply, canals, etc.):

Per the Sponsor's Application: " The aging infrastructure of the pumps is the primary bottleneck. They are over 50 years old and to repair them is extraordinarily costly and it is difficult to find companies who will work on them."

c. Increased capacity needed (acre feet per day):	32	0,000
d. Estimated system water losses (percentage):	20-40%	20-40%

4. District Financing

a. Is the assessment based on acres, acre-feet delivered, acre-feet of storage space, or other?
Acres

b. How is voting authority delegated to water users? 1 Vote/Irrigable Acre of Land

	Pre-Project	Post-Project
c. What is the per unit amount of the current assessment?	36.81/acre	38.81/acre

d. If there is a basic service charge in addition to assessments, how much is it?	\$125	\$130
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5. Financial Statement	Pre-Project	Post-Project
Annual revenues generated from assessments:	\$ 141,384	\$ 160,000
Annual revenues from other sources:	<u>\$ 6,600</u>	<u>\$ 6,600</u>
Total annual revenues:	\$ 147,984	\$ 166,600
Annual budget for operation and maintenance expenses:	\$ 103,000	\$ 160,000
Annual payments for debt retirement:	\$ 0	\$ 20,000
Annual payments to a repair and replacement fund:	\$ 40,000	\$ 40,000

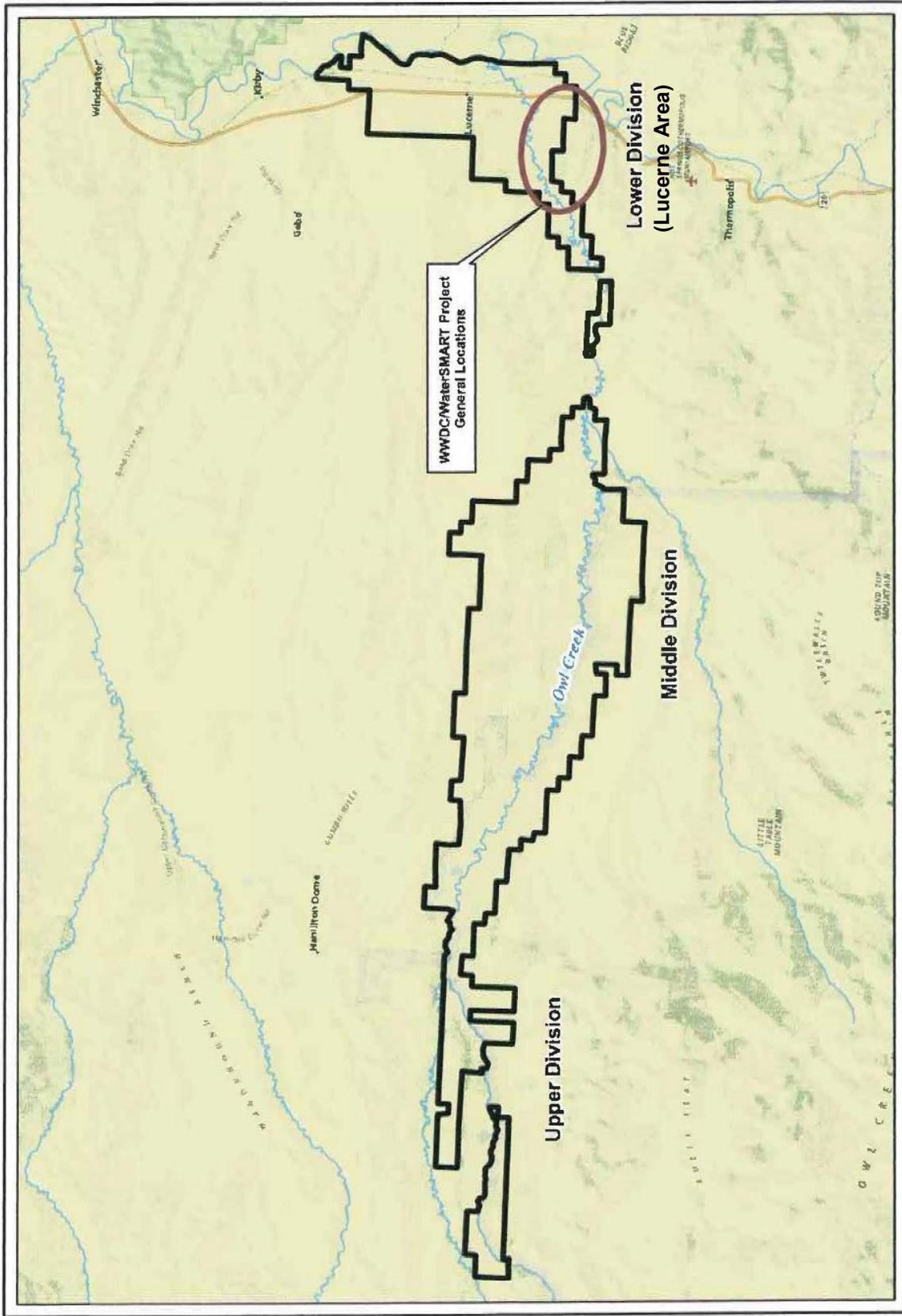
Annual payments to an emergency fund:	\$	0	\$	0
Annual payments for other purposes:	\$	0	\$	0
Total annual payments:	\$	143,000	\$	163,000
Balance in repair and replacement fund:	\$	73,400	\$	70,000
Balance in emergency fund:	\$	65,300	\$	65,000

B. COMPARISON WITH OPERATING CRITERIA

1. Project Priority according to the Criteria? 1 Rehabilitation of water control structures
2. Will the project serve at least 2,000 water righted acres? Yes Number of acres 4,000
3. Is the sponsor eligible for funding from other state or federal programs? Yes
If so, what are they? Bureau of Reclamation WaterSMART
4. What water conservation measures are employed by the sponsor? The water conservation occurs with the ditch rider monitoring usage daily.
5. Is the operation of the water supply system self supporting in terms of revenues offsetting costs for operation, maintenance, debt retirement, replacement funds and emergency funds? Yes
6. Can the project be delayed or staged? Yes Should it be? No.
Staging the project could include breaking it into three phases based on the projects presented. This approach could minimize the risk of system shutdown during the irrigation season due to components having construction issues or delays. The District is requesting BOR WaterSMART funding and if the BOR funding is not received completion of the project with loans would place a large burden on the District. Delaying the project until outside funds are secured for all or portions of the project may reduce the uncertainty associated with granting funding through WWDO.

Alternatively, with the assumption that WaterSMART funds would be available, addressing all three projects as part of a large project could create cost savings in terms of mobilization of equipment and expertise especially in regards to the pump station and transformer work. Completion of all the projects under one funding umbrella would also reduce uncertainty for the District in regards to addressing their poor and failing infrastructure issues.

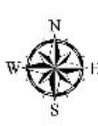
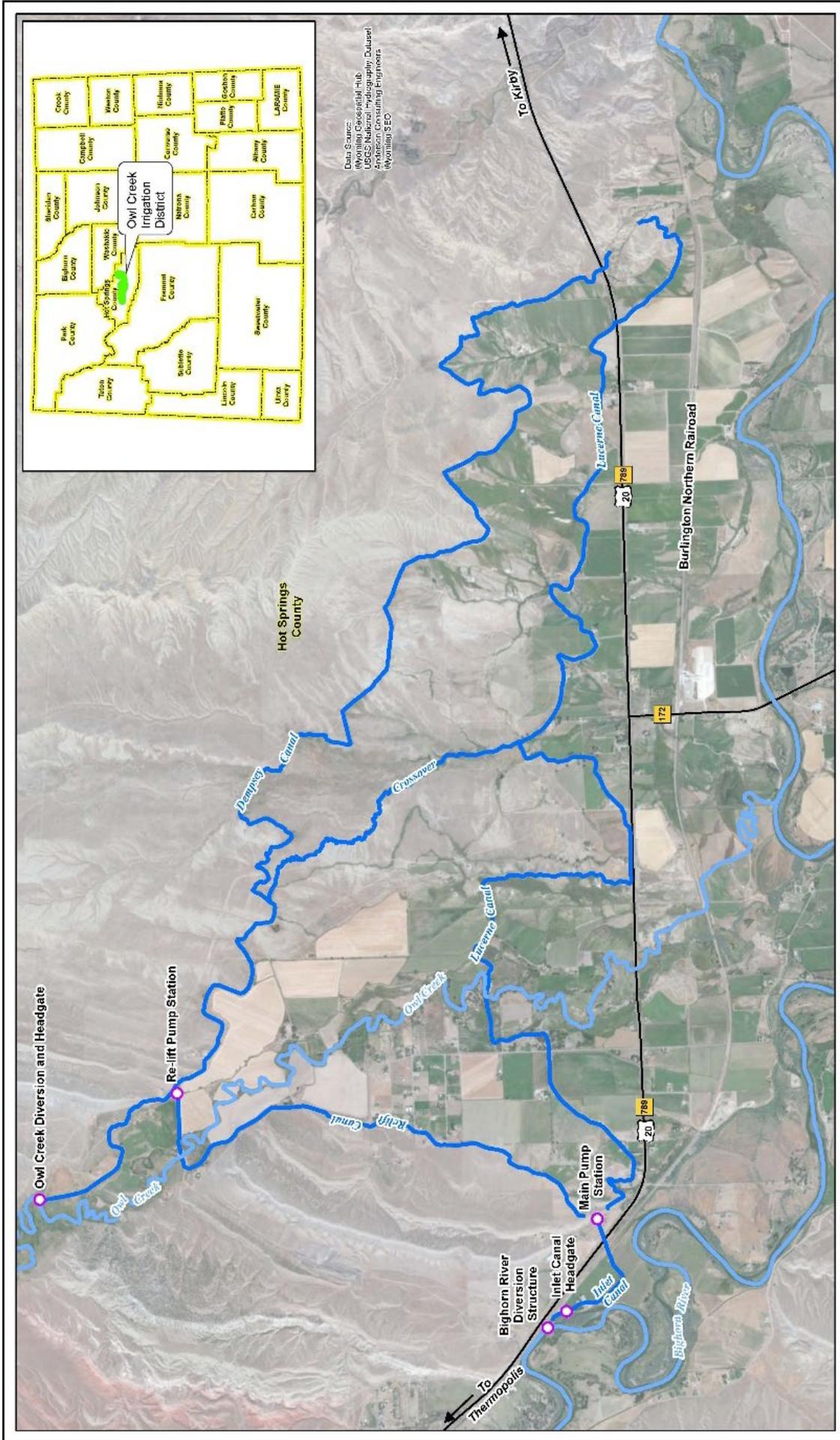
7. Basis for the funding recommendation:
This system was built nearly 70 years ago and has reach its serviceable life. The highest priority concern for the District is the Main Pump Station. The other two projects are also critical infrastructure where failure could impact service areas in most of the District. Full funding is recommended to create a more serviceable and efficient system. An option for cost savings which could be considered is replacement of the pumps in-kind. This would only impact project costs for equipment and would not impact other aspects of construction costs.



Legend

 Owl Creek Irrigation District Divisions

Location Map for Owl Creek Irrigation District - Upper, Middle, and Lower Divisions



- Legend**
- Key Infrastructure
 - River/Stream
 - Primary Roads
 - Canal
 - Counties

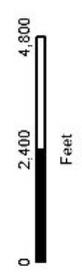
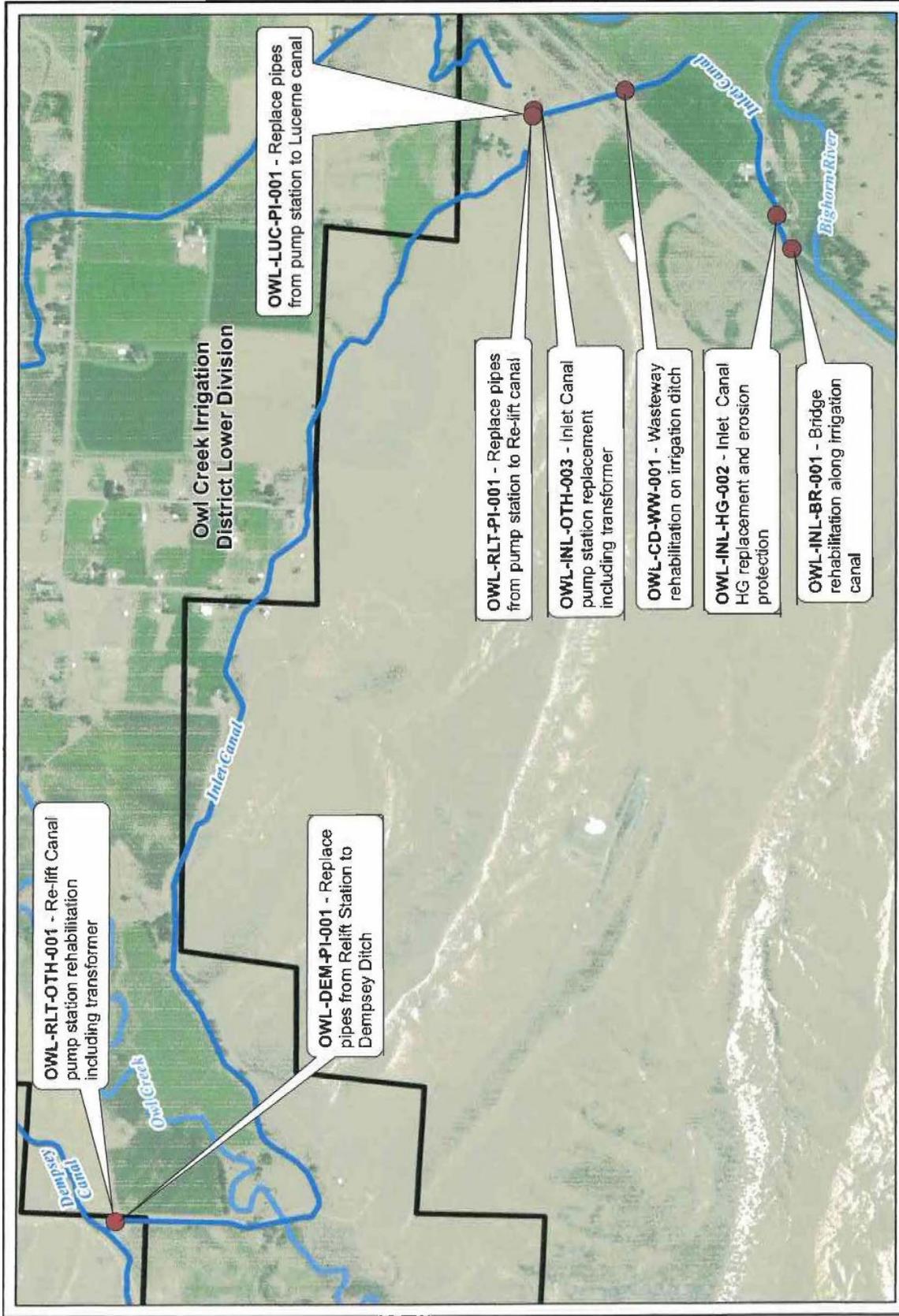


Figure 1.2 Vicinity Map for Owl Creek Irrigation District, Lucerne Area



Legend
 ● River/Stream
 □ WWDC/Water-SMART Project
 — Owl Creek Irrigation District Divisions
 — Canal

**Owl Creek Irrigation District:
 WWDC/WaterSMART Project Locations**

Main Pump Station



Main Pump Station



Re-Lift Pump Station



Headgate and Access Bridge



Owl Creek Irrigation District

RESOLUTION #2101 SUPPORT OF LEVEL 3 APPLICATION TO WYOMING WATER DEVELOPMENT COMMISSION

Whereas it is the Owl Creek Irrigation District Board's obligation to provide irrigation water to the members of the Owl Creek Irrigation District; and

Whereas the potential failure of the infrastructure of the main pumps, the relief pumps and the inlet canal structures would be catastrophic for the Lucerne Valley; and

Whereas the engineering firm of Anderson Consulting Engineers, Inc. has performed a Master Plan Level 1 study and stated the necessity of replacing the current pumps and related infrastructure; and,

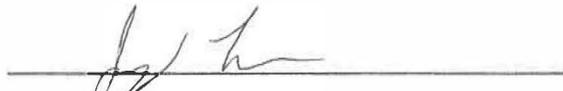
Whereas, the Owl Creek Irrigation Board believes time is of the essence;

Therefore, be it resolved, the Owl Creek Irrigation District Board of Directors fully supports the Level 3 Application to Wyoming Water Development Office for funding and additional support to upgrade our current main pumps, relief pumps and inlet canal and their respective supporting structures.

Signed 10 August 2021



Matt Brown, Chairman, Owl Creek Irrigation District



Jerry Lake, Vice Chairman, Owl Creek Irrigation District



Paul Ward, Secretary Treasurer, Owl Creek Irrigation District

Owl Creek Irrigation District

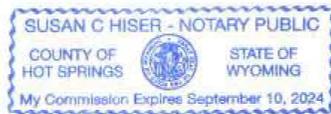
RESOLUTION #2101 SUPPORT OF LEVEL 3 APPLICATION TO WYOMING WATER DEVELOPMENT COMMISSION

The Owl Creek Irrigation District Board of Directors (Matt Brown, Jerry Lake and Paul Ward) signed this resolution in front of me, Jean E Skelton at their monthly board meeting on August 10, 2021.

Jean E Skelton 8/30/2021

Jean E Skelton, Accountant

Notarized by Susan C Hiser 8/30/2021



2020 RECOMMENDATION-CONSTRUCTION PROJECTS

Project Name: Laramie Valley Diversion Structure 2020 **Program:** Rehabilitation

Project Type: Agricultural Irrigation **County:** Albany

Sponsor: Laramie Valley Municipal Irrigation District

WWDO Recommendation: Level III **Proposed Budget:** \$ 1,850,000

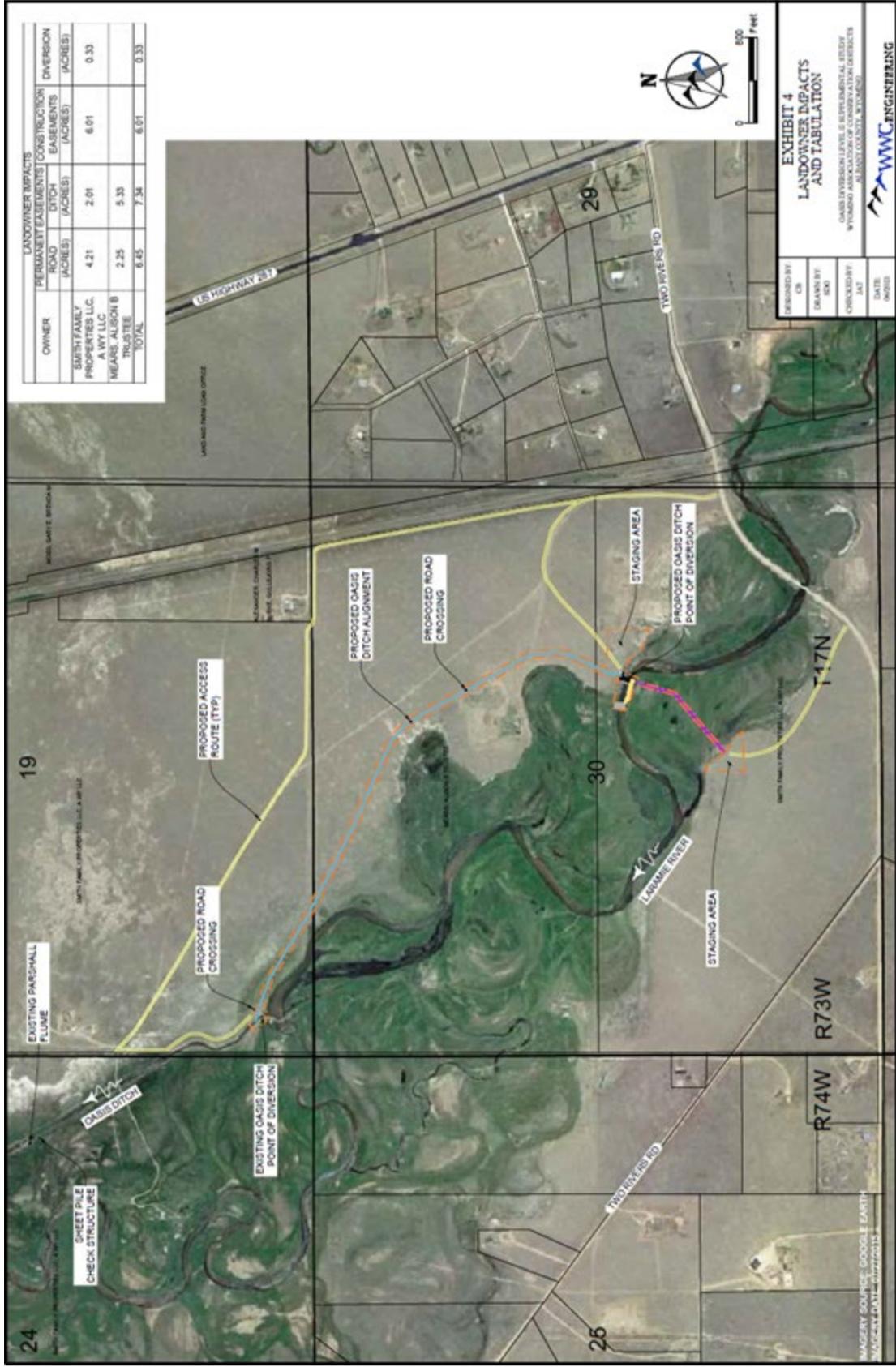
	<u>Existing (Phase I)</u>	<u>Changes (Phase II)</u>	<u>Revised Budget</u>
WWDC Grant ¹	\$ 770,500 (67%)	\$ 469,000 (67%)	\$ 1,239,500 (67%)
<u>WWDC Loan² (33%)</u>	<u>\$ 379,500 (33%)</u>	<u>\$ 231,000 (33%)</u>	<u>\$ 610,500 (33%)</u>
Total	\$ 1,150,000 (100%)	\$ 700,000 (100%)	\$ 1,850,000 (100%)

¹ Not to exceed 67% of project eligible costs.

² 33% loan at 4% interest and a term of 20 years.

Project Manager: Sol Brich

Project Description: In 2020, the Laramie Valley Diversion Structure 2020 project was funded in the amount of \$1,150,000 with a WWDC 67% grant and 33% loan. During the design, there were several factors that lead LVMID to reassess the project. Sink holes developed behind the head gate, and a section of the main river channel upstream of the diversion washed out into an adjacent inactive river channel. A LIDAR topographic survey showed that there was a potential for the main river channel to continue to breach its banks in multiple places, which could cause the river to bypass the existing diversion structure. Based on these factors, the LVMID sought technical assistance from the Natural Resources Conservation Service (NRCS). The NRCS funded a small study to evaluate the alternatives of rehabilitating the existing structure versus locating an entirely new diversion structure upstream. Based on the study, the LVMID determined that constructing a new diversion approximately one mile upstream of the existing structure better served their needs for a long-lasting structure without perpetual maintenance issues. The proposed amendment adds \$700,000 to the original appropriation to fund the construction of a new point of diversion upstream of the existing structure.



LANDOWNER IMPACTS

OWNER	PERMANENT EASEMENTS (ACRES)	CONSTRUCTION EASEMENTS (ACRES)	DIVERSION (ACRES)
SOUTH FAMILY PROPERTIES LLC	4.21	2.01	6.01
A WY LLC	2.25	5.33	0.33
MEARL ALISON B TRUSTEE	6.45	7.34	0.33
TOTAL			



EXHIBIT 4
LANDOWNER IMPACTS
AND TABULATION

DESIGNED BY: []
 OR: []
 DRAWN BY: []
 SOIL: []
 CHECKED BY: []
 DATE: []
 INDEX: []

OWARD ENGINEERING
 60485 INDEPENDENCE BL. #100
 WYOMING ASSOCIATION OF COUNTY PLANNING COMMISSIONERS
 401 SOUTH COUNTY WYOMING



Diversion Structure and Headgate 1



Rock Weir 1

RESOLUTION AUTHORIZING LEVEL III AMENDED APPLICATION

LARAMIE VALLEY MUNICIPAL IRRIGATION DISTRICT

Whereas, in November, 2016, the Wyoming Water Development Commission (WWDC) received the report for the *Upper Laramie River Watershed Study, Level I project*. The Level I Study examined the entire Laramie River watershed and identified the Laramie Valley Municipal Irrigation District's (LVMID) Oasis Ditch diversion structure as being in need of replacement and as creating a fish barrier. An in-depth evaluation of the diversion was not completed at that time.

Whereas, in June, 2018, Short Elliot Hendrickson Inc. (SEH) entered into a contract with the WWDC to perform a Level II study to assess the condition of the diversion structure and evaluate alternative designs to rehabilitate the diversion structure.

Whereas, the *Final Level II Study of the Big Laramie River Oasis Ditch Diversion Rehabilitation Project* was completed by SEH on August 1, 2019 (the "Level II Study"). Based on the information collected during the Level II Study, a preferred alternative design for the rehabilitation of the diversion structure was identified.

Whereas, in August 2019, the LVMID made application to the WWDC for funding to complete a Level III Construction Project (the "Level III Project") based on the design determined in the Level II Study. LVMID made application for \$1,110,483.00 for the Level III Project.

Whereas, funding for the Level III Project was approved and in May 2020 the LVMID entered into a *Project Agreement* with the WWDC. Subsequently, in September 2020, LVMID entered into an *Agreement Between Owner and Engineer for Professional Services* with SEH to perform the engineering work for the Level III Project.

Whereas, several factors developed during the initial phase of the Level III Project which caused LVMID to pause the Level III Project and reassess the diversion rehabilitation project. The principal factors are as follows:

- The Level III Project involved a LIDAR scan of the entire river channel above the diversion structure. The data shows that the riverbed above the diversion structure is extremely flat and that several inactive channels upstream of the diversion structure have elevations below the river channel where the diversion is located.
- Following completion of the Level II Study, it was discovered that the bank of the main river channel upstream of the diversion had washed out causing a breach of the main river channel to an adjacent river channel. Based on the elevations discovered in the LIDAR data, it appeared that the river flows in the adjacent channel could result in the river bypassing the diversion structure.
- In addition to the breach, the LIDAR data also showed numerous evulsions in the bank of the main river channel upstream of the diversion structure that could cause additional breaches of the main river channel
- In the work leading up to the Level II Study, sink holes were identified behind a newer, concrete wall portion of the diversion structure. The sink holes were repaired at that time, and it was determined during the Level II Study that the concrete portion of the diversion structure would not be replaced. Following completion of the Level II Study, the sink holes reappeared indicating that water was passing under the concrete portion of the diversion structure. The proper rehabilitation of the diversion structure would require work to stop this flow and was not anticipated in the Level II Study.

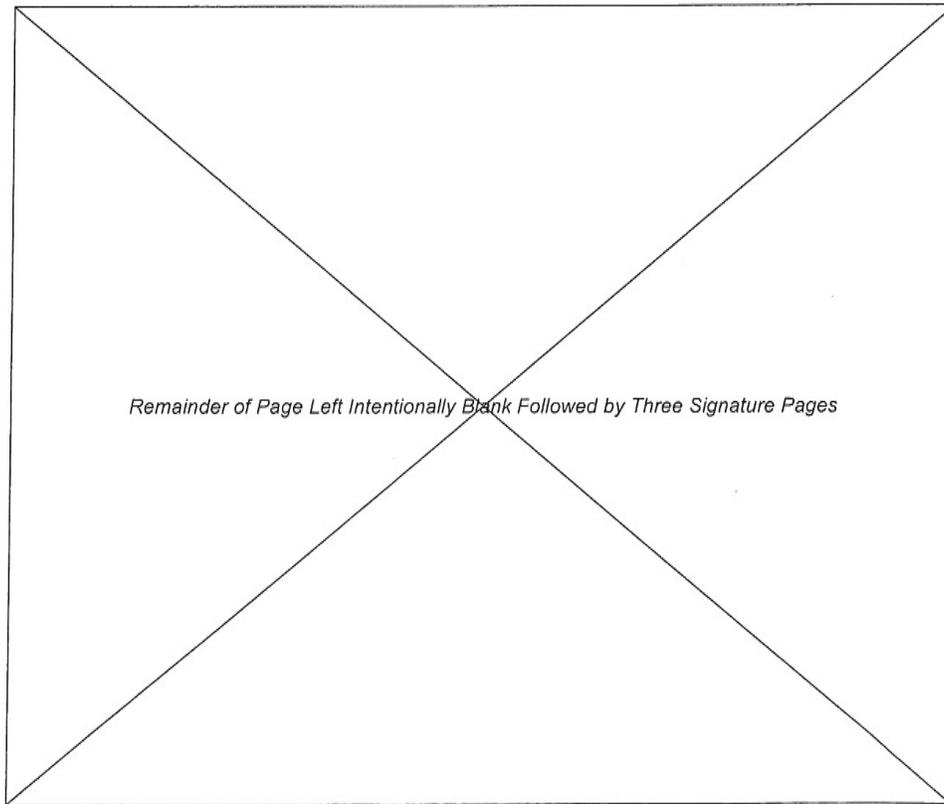
Whereas, based on these factors, LVMID conducted a "homebrew" study of the rehabilitation of the diversion structure with the NRCS and WWC Engineering. WWC Engineering prepared a *Big Laramie River Oasis Ditch Diversion Rehabilitation Project Level II Study Amendment* (the "Amendment"). In reviewing the rehabilitation project anew and considering the above factors identified during the Level III Project, the Amendment presented an alternative to move the diversion structure approximately one mile upstream to

a portion of the river that is more suitable to the long-term efficiency, longevity, and maintenance of a diversion structure for the LVMID.

Whereas, the LVMID Commissioners have determined that the LVMID will benefit from the alternative identified in the Amendment and have discussed proceeding with the alternative with WWDC staff.

Whereas, the LVMID Commissioners have determined that the LVMID will benefit from an amendment to the existing Level III Project or a new Level III Project, implementing the preferred alternative identified in the Amendment, whereby improving the long-term efficiency, longevity, and maintenance of the main diversion structure of the Oasis Ditch located in the Big Laramie River.

NOW, THEREFORE, BE IT RESOLVED that, the Commissioners of the Laramie Valley Municipal Irrigation District do hereby unanimously approve the *Wyoming Water Development Commission Project Application for Level III Construction Funding for Agricultural Projects* attached hereto; authorize Ryan Wilson, a duly elected Commissioner and the duly elected President of the Laramie Valley Municipal Irrigation District to execute the said Application; and that, upon submission of the Application to the WWDC, the said Commissioners shall work with the WWDC to process the Application and allow the WWDC to make a determination on whether to proceed with the Application and Level III Project.



Executed this 25 day of August 2021.



RYAN WILSON, Commissioner

STATE OF WYOMING)
) ss.
COUNTY OF ALBANY)

The foregoing instrument was signed and acknowledged personally before me this 25 day of August 2021 by RYAN WILSON, Commissioner of the Laramie Valley Municipal Irrigation District.

Witness my hand and official seal.



NOTARY PUBLIC



Executed this 25 day of August 2021.



CODY HUMPHREY, Commissioner

STATE OF WYOMING)
) ss.
COUNTY OF ALBANY)

The foregoing instrument was signed and acknowledged personally before me this 25 day of August 2021 by CODY HUMPHREY, Commissioner of the Laramie Valley Municipal Irrigation District.

Witness my hand and official seal.



NOTARY PUBLIC



Executed this 13 day of August 2021.



DAVID SPEISER, Commissioner

STATE OF WYOMING)
) ss.
COUNTY OF JOHNSON)

The foregoing instrument was signed and acknowledged personally before me this 13th day of August 2021 by DAVID SPEISER, Commissioner of the Laramie Valley Municipal Irrigation District.

Witness my hand and official seal.



NOTARY PUBLIC

My Commission Expires: October 28, 2023



2022 RECOMMENDATION-CONSTRUCTION PROJECTS

Small Water Projects Program

Project Name: Small Water Project Program

Program: Rehabilitation

Project Type: Multipurpose

County: Statewide

Sponsor: WWDC

WWDO Recommendation: Level III (continuing)

Proposed Budget Increase: \$500,000¹

¹ Project funding is contingent on the Legislature approving a \$7,000,000 transfer of funds from WDA I to WDA II.

	Rehabilitation (WDA II)
Presently available (as of 11/01/2021)	\$ 710,325
Proposed budget increase	<u>\$ 500,000</u>
Revised available	\$1,210,325

This is the program’s first year with the newly adjusted November 15th application deadline. With the new application deadline, we will be able to provide a more detailed breakdown of actual funding requests at the January WWDC and SWC meetings.

Project Description: This program provides funding for small water projects including small reservoirs, wells, pipelines and conveyance facilities, springs, solar platforms, irrigation works, windmills, environmental, rural community fire suppression, recreational, and wetland developments.

1. Description of the existing status in the program and previous appropriations.

EXISTING LEGISLATION-Rehabilitation

<u>Purpose</u>	<u>Chapter</u>	<u>Session</u>	<u>Account</u>	<u>Appropriation</u>	<u>Due Date</u>
Small Projects	88	2002	II	\$500,000	2014
Small Projects	118	2004	II	\$750,000	2014
Small Projects	114	2005	II	\$500,000	2014
Small Projects	32	2010	II	-\$200,000	2014
Small Projects	14	2014	II	\$300,000	2025
Small Projects	100	2015	II	\$400,000	2025
Small Projects	100	2016	II	\$300,000	2025
Small Projects	121	2018	II	\$100,000	2025
Small Projects	55	2019	II	\$700,000	2025
Small Projects	113	2020	II	\$701,795	2025
Small Projects	12	2021	II	\$500,000	2025

2. Summary of the request.

The WWDO is recommending that the authorization of the program be ongoing and an additional \$500,000 be appropriated to meet project application demands.

3. Summary Statistics:

Current Active Account II Projects: 29

Application History:

Year	# of Account II Applications	Total # of Project Applicants (between both accounts)	Estimated WWDC Account II Project Cost
2012	3	5	\$ 75,000
2013	10	6	\$250,000
2014	19	7	\$337,190

2015	14	8	\$276,580
2016	11	6	\$230,000
2017	11	9	\$273,461
2018	19	10	\$529,000
2019	18	14	\$480,910
2020	33	17	\$939,150
2021	9	12	\$268,050

2022 WATER DEVELOPMENT PROGRAM RECOMMENDATION

AGRICULTURAL WATER PROJECTS

Project Name: Dowlin Diversion Rehabilitation

Program: Rehabilitation

Project Type: Agricultural Irrigation Supply

County: Albany

Sponsor: City of Laramie

WWDO Recommendation: Level II

Proposed Budget: \$110,000

Basis for the Funding Recommendation:

The Sponsor is eligible for a Level II Rehabilitation Study for this diversion structure on the Laramie River. The project was identified in the Upper Laramie River Watershed Study. The study is recommended to evaluate and develop design options for the diversion which provide efficient water delivery, increase operator safety and enhance fish passage.

Project Manager: Mabel Jones

I. PROJECT DESCRIPTION

The City of Laramie has requested a Level II feasibility study to examine the current condition of the Dowlin Diversion and provide conceptual designs and cost estimates for future rehabilitation of the structure to improve water deliveries and enhance fish passage.

1. Existing and Prior Legislation:

<u>Project</u>	<u>Level</u>	<u>Chapter</u>	<u>Session</u>	<u>Account</u>	<u>Appropriation</u>	<u>Reversion Year</u>
Laramie Water Master Plan	I	74	2014	I	\$ 250,000	2017
Upper Laramie River Watershed Study	I	168	2015	I	\$ 375,000	2018

2. Describe the location of the project:

The project is located in the Laramie Basin approximately 12 miles southwest of the community of Laramie (City) (N41.21998° W105.68749°). The source of water for the Dowlin Diversion is the northeasterly flowing Laramie River. The service area for the project includes 2500 irrigated acres of land held by the City (1400 acres) and private landowners. The diversion structure and headgates are on property owned by the Bath Land Company (see attached statement of support). The City acquired their property in 1981 with the long-term plan of providing municipal water supplies for approximately 7000 homes.

3. Summarize the request:

The Sponsor is requesting a rehabilitation study to examine the current condition of the Dowlin Diversion and provide conceptual designs and cost estimates for future rehabilitation to upgrade and manage water delivery. The diversion structure was identified as a priority for rehabilitation in both the WWDC 2016 Upper Laramie Watershed Study and the 2015 Laramie Water Master Plan. Reconnaissance level designs to enhance fish passage were presented in the 2016 Study.

4. Summarize the reasons for the request:

The existing diversion was constructed over 100 years ago. Rehabilitation of the diversion will improve efficiency and reliability of water delivery, enhance operational safety of both the diversion and intake (especially during high water), reduce major and routine maintenance, and provide for fish passage.

Some loss of water occurs in both the diversion and at the headgates. During low water years, to maintain minimum flows in the Laramie River, the diversion base is tarped to prevent leakage. The City has done a good job with routine maintenance to keep the system operational. However, operating aging infrastructure presents what are often unforeseen challenges. Operational hazards are a primary concern. During high water, operation of the diversion is hazardous due to the elevation of the walk way, accumulation of woody debris and ease at which gates can be adjusted. The Upper Laramie River Level I Watershed Study (2016) recognized the Dowlin Diversion as one of the top two fish barriers in the watershed. The diversion impacts fish passage on 27.2 river miles including 9.3 miles downstream and 17.9 miles upstream of the structure.

II. WWDC ELIGIBILITY CONSIDERATIONS

1. Is the Sponsor a public entity? Yes

A. If not, is the recommendation for a Level I study or Level I or II study for a dam and reservoir project?

N/A

2. Project Priority According to WWDO Criteria: Acct II - Priority 7: LII Feasibility Studies
(Use Attachment III of the operating criteria.)

3. Will the project serve at least 1,000 water righted acres? Yes

A. Number of Acres: 2,527

4. Is the sponsor eligible for funding from other state or federal programs? Yes

A. If so, what are they? The Sponsor has identified partners whose programs may be able to provide funding for construction including the Wyoming Wildlife and Natural Resources Trust, United States Fish and Wildlife Service, Wyoming Game and Fish Department and the Laramie Rivers Conservation District.

5. Is the Sponsor currently served by a regionalized water supply system (specify)? No Or will the Sponsor consider regional solutions to the purpose and needs of its water supply system? N/A

6. Can the project be delayed or staged? Yes

A. Should it be? On the heels of the Watershed Study and other efforts to enhance the Laramie River this project has strong community support and implementation has the potential for significant financial support from partners. Given future budget uncertainties the City would like to be in a position to act on this project as soon as the opportunity avails itself. The City has allocated funds for improvements to the turnout headgate. Cost savings could be seen if work on the headgate improvements are timed to pair with rehabilitation of the Dowlin Diversion.

III. PERTINENT INFORMATION

1. Existing Water Supply System

A. Description of Direct Flow Supply

(1) Direct Flow Diversion Right (CFS): 36.10

(2) Direct Flow Source (Name of River, Stream, etc.): Laramie River

(3) Type of Diversion (Headgate, Pump, etc.): Headgate

(4) Water Transmission System (Canal, Pipeline, etc.): Canal

B. Description of Stored Water Supply

(1) Name(s) of Storage Facility (Reservoir): N/A

- (2) Location: N/A
- (3) Amount of Stored Water Right (Acre-Feet): N/A
- (4) Is any of the stored supply obtained from a federal facility? N/A
 - a. Percent of Total Supply from Federal Facility: N/A
 - b. Amount of Stored Supply from Federal Facility (Acre-Feet): N/A
 - c. Name(s) of Federal Facility: N/A

C. Description of Groundwater Supply

- (1) Number of Wells: N/A
- (2) Primary Supply Aquifer(s) or Formation(s): N/A
- (3) Total Average Production Yield of All Wells (GPM): N/A

D. Water Rights

- (1) For the water source supply (or supplies) described above, does the Sponsor possess valid and/or adjudicated water rights?

Yes

E. System Capacity

- (1) Maximum Capacity of the Water Supply System (Acre-Feet per Day or CFS): 50 CFS
- (2) Increased Capacity Needed (If Known) (Acre-Feet per Day or CFS): N/A

F. Water Usage

- (1) Estimate of Total Water Provided by the System Annually (Acre-Feet per Year): 7,200
- (2) Average Day Demand (Acre-Feet per Day or CFS): 30 CFS
- (3) Maximum Day Demand (Acre-Feet per Day or CFS): 36 CFS

2. Existing Service Area and On-Farm Information

A. Service Area Information

- (1) How many total acres are in the district? 2,527
- (2) How many acres are assessed? N/A
- (3) How many acres are irrigated? 2,527
- (4) What is the annual water delivery assessed (acre-feet per acre)? N/A
- (5) How many individual land owners receive water? 2 individuals, 1 municipality

B. On-Farm Information

- (1) What is the normal irrigation season (e.g., May 1 – Sept. 30)? April 1 to September 30
- (2) What type(s) of on-farm irrigation water applications is used (e.g., center pivot, side roll, flood, etc.)? Flood and Center Pivot.
- (3) Briefly describe the main crops and cropping patterns:
Single cutting grass hay and two cuttings (245 acres) alfalfa hay.
- (4) Describe the water measuring devices currently in use:
Teledyne Isco Data Loggers with A/V Sensors or Ultrasonic Sensors and Parshall Flumes
- (5) Percentage of Farm Turnouts with Measuring Devices: 100%
- (6) Are water deliveries recorded? Yes
- (7) Estimated System Water Losses (Percentage): 10%
- (8) What water conservation measures are employed by the Sponsor?

Water measurement, timing of irrigation and soils/crop management by an agronomist

3. Financial Information

A. District Financing

(1) Is the assessment based on acres, acre-feet delivered, acre-feet of storage, or other (specify)?

N/A

(2) How is voting authority delegated to water users (e.g., shares, individuals, number of acres, etc.)?

N/A

(3) What is the per-unit amount of the current assessment? N/A

(4) Is there is a basic service charge or first acre assessment in addition to assessments? If so, specify amount: N/A

B. Financial Statement

(1) Revenues

a. Annual Revenues Generated from Assessments:	\$	0
b. Annual Revenues from Other Sources (*Grazing Lease/Hay):	\$	100,000*
c. Total Annual Revenues:	\$	100,000

(2) Expenditures

a. Annual Budget for Operation and Maintenance Expenses:	\$	115,588
b. Annual Payments for Debt Retirement:	\$	N/A
c. Annual Payments to a Repair and Replacement Fund:	\$	N/A
d. Annual Payments to an Emergency Fund:	\$	N/A
e. Annual Payments for Other Purposes:	\$	N/A
f. Total Annual Payments:	\$	0

(3) Other

a. Balance in Repair and Replacement Fund:	\$	N/A
b. Balance in Emergency Fund:	\$	N/A
c. Explanation (If Needed):		

The Monolith Ranch budget is subsidized by additional monies from the City of Laramie Water Enterprise Fund if necessary.

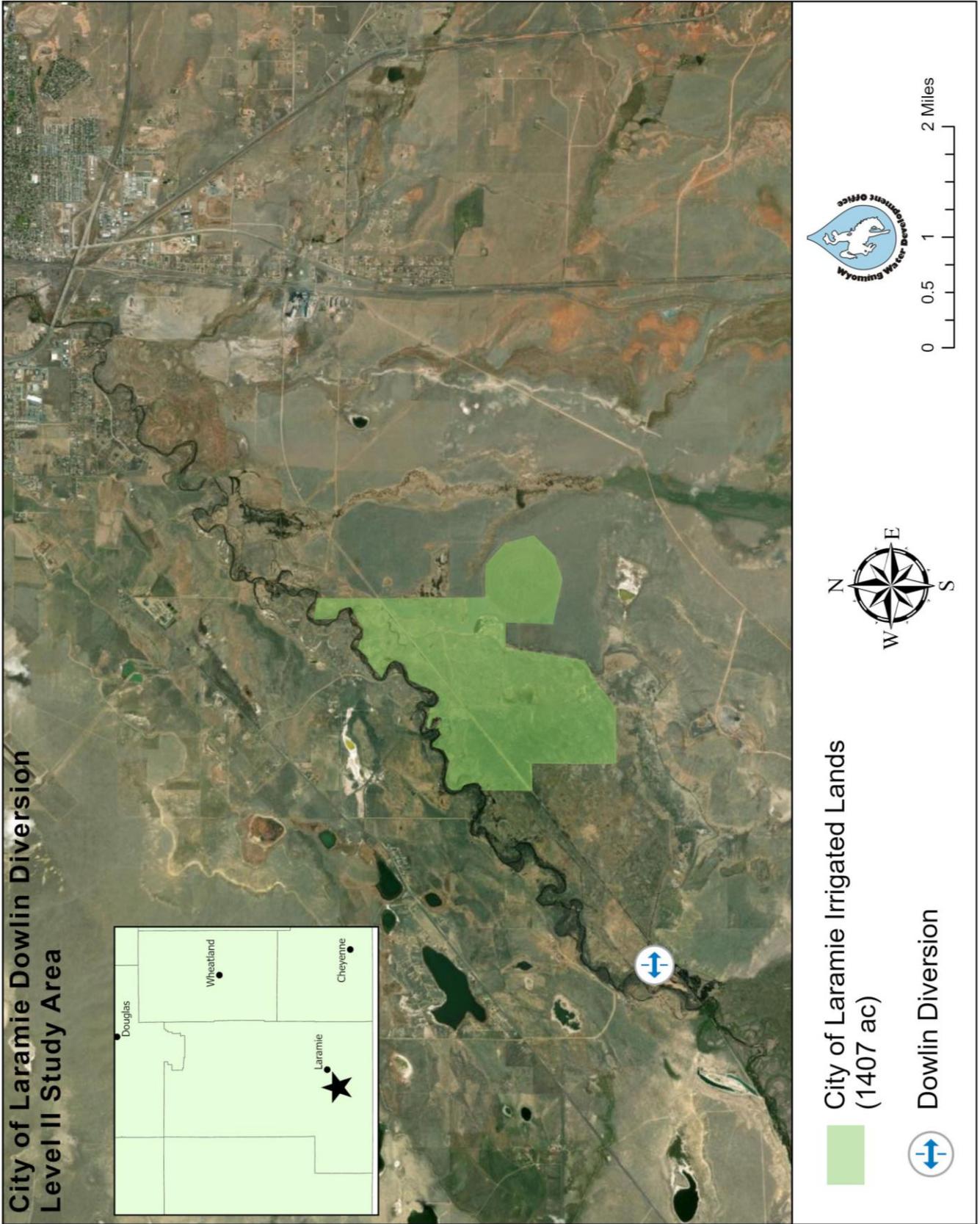
(4) Is the operation of the water system self-supporting in terms of revenues offsetting costs for operation, maintenance, debt retirement, replacement funds, emergency funds, etc.?

No

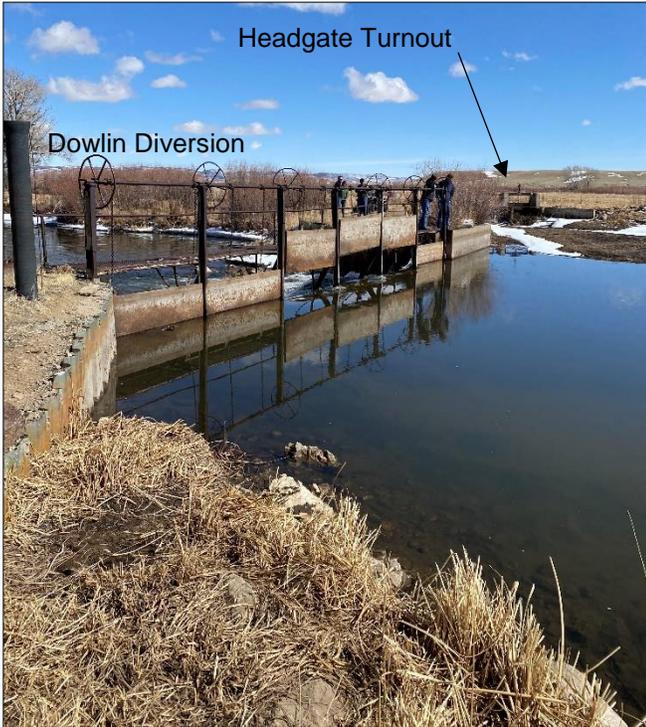
a. If not, how is the difference subsidized?

Differences are subsidized through the City of Laramie Water Enterprise Fund.

PROJECT AREA MAP



Dowlin Diversion Level II Project Application Site Visit



The **Dowlin Diversion**, on the Laramie River, is designed for flows up to 50 cfs. The site visit was conducted at low flow in March of 2021. **TOP LEFT:** Dowlin diversion, diversion pool and headgate for City turnout and Bath Ranch turnout **TOP RIGHT:** Early spring low flows to Laramie River. **BOTTOM:** Dowlin Diversion at High water. Operator safety is a concern during high water runoff (photos from Gary Browning and City of Laramie).





Operational maintenance mitigating erosion, seepage, and accumulation of large woody debris is required to maintain flows during both high and low water. The Sponsor indicated the diversion is tarped in low water years to maintain minimum flow requirements in the Laramie River.

ABOVE: Turnout headgate to City property and Bath property with Sheep Mountain in the background.

BELOW: Piling downstream of the diversion (**left**), inlet to turnout headgates (**center**), and woody debris removed from both structures (**right**).



RESOLUTION

**CITY OF LARAMIE, WYOMING
RESOLUTION 2021-14**

**RESOLUTION OF THE LARAMIE CITY COUNCIL AUTHORIZING THE SUBMISSION OF A
WWDC LEVEL II STUDY GRANT APPLICATION FOR THE DOWLIN FISH PASSAGE**

WHEREAS, the City of Laramie, Wyoming (herein after referred to as "City") adopted the Monolith Ranch Committee Management and Long-Term Goals and Objectives, Resolution 2017-56;

WHEREAS, the Goals and Objectives included the preservation and protection of the Laramie River and protecting riparian/wetland areas and irrigated meadows while continuing current ranching activities to realize a revenue return to the City;

NOW THEREFORE THE CITY COUNCIL OF LARAMIE, WYOMING, RESOLVES:

Section 1. That the City Council hereby declares that this is for a Level II study worth up to \$100,000 funded 100% by WWDC.

Section 2. That this is to preserve water rights and improve conditions for the ranch lessee, wildlife, and for the public.

Section 3. That the application fee will be \$1,000.

PASSED, APPROVED, AND ADOPTED the 22nd day of February, 2021.



Paul Weaver
Mayor and President of the City Council

ATTEST:

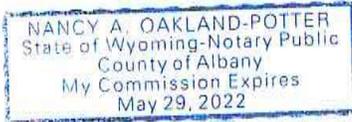
Nancy Bartholomew
City Clerk

ACKNOWLEDGEMENT

STATE OF WYOMING)
) SS
COUNTY OF ALBANY)

The foregoing instrument was acknowledged before me by Paul Weaver and Nancy Bartholomew, the Mayor and City Clerk of the City of Laramie, Wyoming, this 2nd day of February, 2021.

Witness my hand and official seal.





Notary Public

My Commission expires: 1 May 29, 2022

STATEMENT OF SUPPORT



City of Laramie
City Manager's Office
P.O. Box C
Laramie, WY 82073

(307) 721-5226
FAX (307) 721-5211
TDD (307) 721-5295

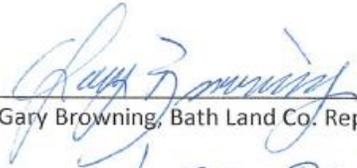
Mabel Jones
Project Manager, WWDC
6920 Yellowtail Road
Cheyenne, WY 82002

RE: Statement of Support - Dowlin Diversion Dam Rehabilitation and Fish Passage – Level II Study

Ms. Jones:

Please accept this Statement of Support as an attachment to the application.

The Bath Land Company, Laramie Wyoming, is in general support of the concept and intent of the Level II study. This support in no way obligates the Bath Land Company to any level of financial commitment or expectations of any kind.



Gary Browning, Bath Land Co. Representative



Date

2022 WATER DEVELOPMENT PROGRAM RECOMMENDATION

AGRICULTURAL WATER PROJECTS

Project Name: Critical Aging Irrigation Infrastructure Assessment

Program: Rehabilitation

Project Type: Statewide Infrastructure Assessment

County: All

Sponsor: WWDO

WWDO Recommendation: Level I

Proposed Budget: \$500,000

Project Manager: Chace Tavelli

Project Description

In 2021 the WWDO augmented the bi-annual Irrigation System Survey by adding several new questions that were a direct result of a 2020 legislative interim topic to consider aging infrastructure. The new questions asked irrigation entities to identify structures and conveyances by type and to include information regarding age and condition as well as what challenges they are facing. One of the most identified challenges was aging infrastructure. Aging infrastructure has become a pressing topic in the State with issues like the LaPrele Dam and the the Goshen Irrigation District Tunnel collapse. To address the issue the WWDC is recommending a study to assess the State's critical aging irrigation infrastructure.

The Critical Aging Irrigation Infrastructure Assessment will build upon the 2021 Irrigation System Survey, in a phased approach, with progression to each phase approved by the WWDC and SWC. Phase 1 will draw upon the expertise of a selected consultant team and WWDO staff. This phase will be to review existing studies, evaluations, and other information; define infrastructure criticality; provide outreach and establish relationships with owners of the infrastructure such as the Bureau of Reclamation and other entities; determine comparison criteria; identify assessment technology needs to evaluate facilities; develop a preliminary list of facilities to consider in future phases; provide a recommended scope and budget for the subsequent phases of work; identify potential funding partnerships.

Phase 2 will execute what was defined in Phase 1 and is anticipated to: begin an inventory, evaluation, and documentation of critical infrastructure; develop recommendations for additional investigation if needed; develop conceptual designs and cost estimates for rehabilitation and/or replacement; establish a prioritization of projects; identify issues, permitting, and constraints that may affect rehabilitation/replacement; determine timeframes for implementation of work (shovel ready, within 5 years, etc.); identify funding, funding partners, and cost share; and provide reporting of results.

The project goals are to use the established Water Development Program to assist irrigation entities into the future by creating a program to:

- Develop an on-going program to address aging irrigation infrastructure
- Develop prioritized projects to address identified aging infrastructure
- Identify funding needs and funding partnerships
- Encourage and help entities secure outside funding
- Advance priority projects to Level III

2022 WATER DEVELOPMENT PROGRAM RECOMMENDATION

AGRICULTURAL WATER PROJECTS

Project Name: West Afton/Nield String Master Plan

Program: Rehabilitation

Project Type: Agricultural Irrigation Supply

County: Lincoln

Sponsor: West Afton/Nield String Sprinkler Companies

WWDO Recommendation: Level I

Proposed Budget: \$88,000

Recommend waiving, for this Level only, the requirement that the Sponsor be a public entity.

Basis for the Funding Recommendation: The Sponsor is eligible for a Planning Program irrigation system master plan based on the WWDC Operating Criteria allowing the requirement to be a public entity to be waived for Level I studies. The Sponsors have both initiated the process to become an Irrigation District (see Page 11 for related correspondence). This study will inventory and evaluate the current condition of the irrigation system and identify deficiencies and provide a schedule for improvements with cost estimates.

Project Manager: Mabel Jones

I. PROJECT DESCRIPTION

The West Afton and Nield String Sprinkler Companies have requested a Level I Reconnaissance Irrigation Master Plan to inventory and assess their system(s) and provide guidance for the planning and phasing of future rehabilitation and upgrades.

1. Existing and Prior Legislation:

The project Sponsors have not received funding for prior WWDO projects.

2. Describe the location of the project:

The project area encompasses just under 1500 acres in the Upper Star Valley adjacent to and just west of the town of Afton, Wyoming. The source stream is Swift Creek which flows west to its' confluence with the Salt River (110.9498166°W 42.7258642°).

3. Summarize the request:

The West Afton and Nield String Sprinkler Companies (Companies) are requesting a reconnaissance study to determine the current condition and future needs for agricultural water delivery to 101 landowners. The pipeline serving both Companies originates at a common diversion structure at the mouth of Swift Creek Canyon just east of Afton. The pipeline is estimated to be 12 to 14 miles in length and provides gravity flow irrigation water to the service area. The Level I study will examine the condition of the agricultural irrigation system to provide the Companies with guidance for planning and phasing future rehabilitation and upgrades.

4. Summarize the reasons for the request:

The irrigation systems were installed in 1976 (West Afton) and 1961 (Nield String). The conveyances include both metal pipe and PVC and when leakage is discovered within the system it is considerable. Currently, the diversion feeding the system functions well. There are minor issues with the headgates and the diversion screens need to be replaced.

The condition of the pipeline is not documented. Some sections of pipe have recently been replaced or repaired when problems surface. However, a comprehensive assessment of needs is lacking making it difficult for the Companies to prioritize major maintenance and rehabilitation projects. Operation of the system could be improved with additional measuring devices. As ownership of properties change hands or land use changes, future rehabilitation and additional gaging will be of benefit to ensure water is used efficiently and allocated appropriately.

II. WWDC ELIGIBILITY CONSIDERATIONS

1. Is the Sponsor a public entity? No

A. If not, is the recommendation for a Level I study or Level I or II study for a dam and reservoir project?

Yes

2. Project Priority According to WWDO Criteria: Acct II - Priority 8: LI Reconnaissance Studies
(Use Attachment III of the operating criteria.)

3. Will the project serve at least 1,000 water righted acres? Yes

A. Number of Acres: 1468 (combined) West Afton: 837 acres; Nield String: 631 acres.

4. Is the sponsor eligible for funding from other state or federal programs? Yes

A. If so, what are they? Multiple Programs Administered by NRCS

5. Is the Sponsor currently served by a regionalized water supply system (specify)? Or will the Sponsor consider regional solutions to the purpose and needs of its water supply system?

The Sponsors are seeking solutions which jointly meet the needs of both of the Company's service areas. Swift Creek also provides municipal water for the Town of Afton and irrigation for the Grover area. Regional solutions which would bring these other groups together are not actively being considered.

6. Can the project be delayed or staged? Yes

A. Should it be? The Star Valley and Afton area are currently undergoing change and experiencing pressure due to growth and land sales given the desirability of the area. The Sponsor's infrastructure flanks the town of Afton on both the north and south sides and the service area is west of and adjacent to the town of Afton. The Sponsors feel a reconnaissance study identifying rehabilitation needs and key areas which would benefit from the installation of measurement devices is important to maintain current agricultural operations and to respond to growth.

III. PERTINENT INFORMATION

1. Existing Water Supply System

A. Description of Direct Flow Supply

- (1) Direct Flow Diversion Right (CFS): 40 cfs
- (2) Direct Flow Source (Name of River, Stream, etc.): Swift Creek
- (3) Type of Diversion (Headgate, Pump, etc.): Headgate
- (4) Water Transmission System (Canal, Pipeline, etc.): Pipeline

B. Description of Stored Water Supply

- (1) Name(s) of Storage Facility (Reservoir): N/A
- (2) Location: N/A
- (3) Amount of Stored Water Right (Acre-Feet): N/A
- (4) Is any of the stored supply obtained from a federal facility? N/A
 - a. Percent of Total Supply from Federal Facility: N/A
 - b. Amount of Stored Supply from Federal Facility (Acre-Feet): N/A
 - c. Name(s) of Federal Facility: N/A

C. Description of Groundwater Supply

- (1) Number of Wells: N/A
- (2) Primary Supply Aquifer(s) or Formation(s): N/A
- (3) Total Average Production Yield of All Wells (GPM): N/A

D. Water Rights

(1) For the water source supply (or supplies) described above, does the Sponsor possess valid and/or adjudicated water rights?

Yes

E. System Capacity

(1) Maximum Capacity of the Water Supply System (Acre-Feet per Day or CFS): 40 CFS

(2) Increased Capacity Needed (If Known) (Acre-Feet per Day or CFS): N/A

F. Water Usage

(1) Estimate of Total Water Provided by the System Annually (Acre-Feet per Year): 7,722

(2) Average Day Demand (Acre-Feet per Day or CFS): 32 cfs

(3) Maximum Day Demand (Acre-Feet per Day or CFS): 32 cfs

2. Existing Service Area and On-Farm Information

A. Service Area Information

(1) How many total acres are in the district? 2000 (combined)

(2) How many acres are assessed? 1468 (combined)

(3) How many acres are irrigated? 1468 (combined)

(4) What is the annual water delivery assessed (acre-feet per acre)? N/A

(5) How many individual land owners receive water? 101 (combined)

B. On-Farm Information

(1) What is the normal irrigation season (e.g., May 1 – Sept. 30)? May 15 to September 15

(2) What type(s) of on-farm irrigation water applications is used (e.g., center pivot, side roll, flood, etc.)? Hand lines and wheel lines.

(3) Briefly describe the main crops and cropping patterns:

Alfalfa hay in rotation with small grains, grass/alfalfa mixed hay, grass hay and grass utilized for grazing.

(4) Describe the water measuring devices currently in use:

N/A

(5) Percentage of Farm Turnouts with Measuring Devices: None

(6) Are water deliveries recorded? No

(7) Estimated System Water Losses (Percentage): 10 to 15%

(8) What water conservation measures are employed by the Sponsor?

Members repair broken pipes, leaky and broken rainbirds and broken risers as needed. The Nield String Sprinkler Company has replaced a significant amount of pipe over the last 20 years.

3. Financial Information

A. District Financing

(1) Is the assessment based on acres, acre-feet delivered, acre-feet of storage, or other (specify)?

Acres

(2) How is voting authority delegated to water users (e.g., shares, individuals, number of acres, etc.)?

Number of Acres

(3) What is the per-unit amount of the current assessment?

Fee Schedule for West Afton Sprinkler Company	
Less than 2 acres	\$35 per lot
2-5 acres	\$12 per acre
5.1-15 acres	\$10 per acre
Greater than 35 acres	\$6 per acre
Fee Schedule for Nield String Sprinkler Company	
Less than 5 acres	\$50 per lot
Greater than 5 acres	\$10 per acre

(4) Is there is a basic service charge or first acre assessment in addition to assessments? If so, specify amount:

N/A

B. Financial Statement

(1) Revenues

a. Annual Revenues Generated from Assessments:	\$	8,090
b. Annual Revenues from Other Sources:	\$	0
c. Total Annual Revenues:	\$	8,090

(2) Expenditures

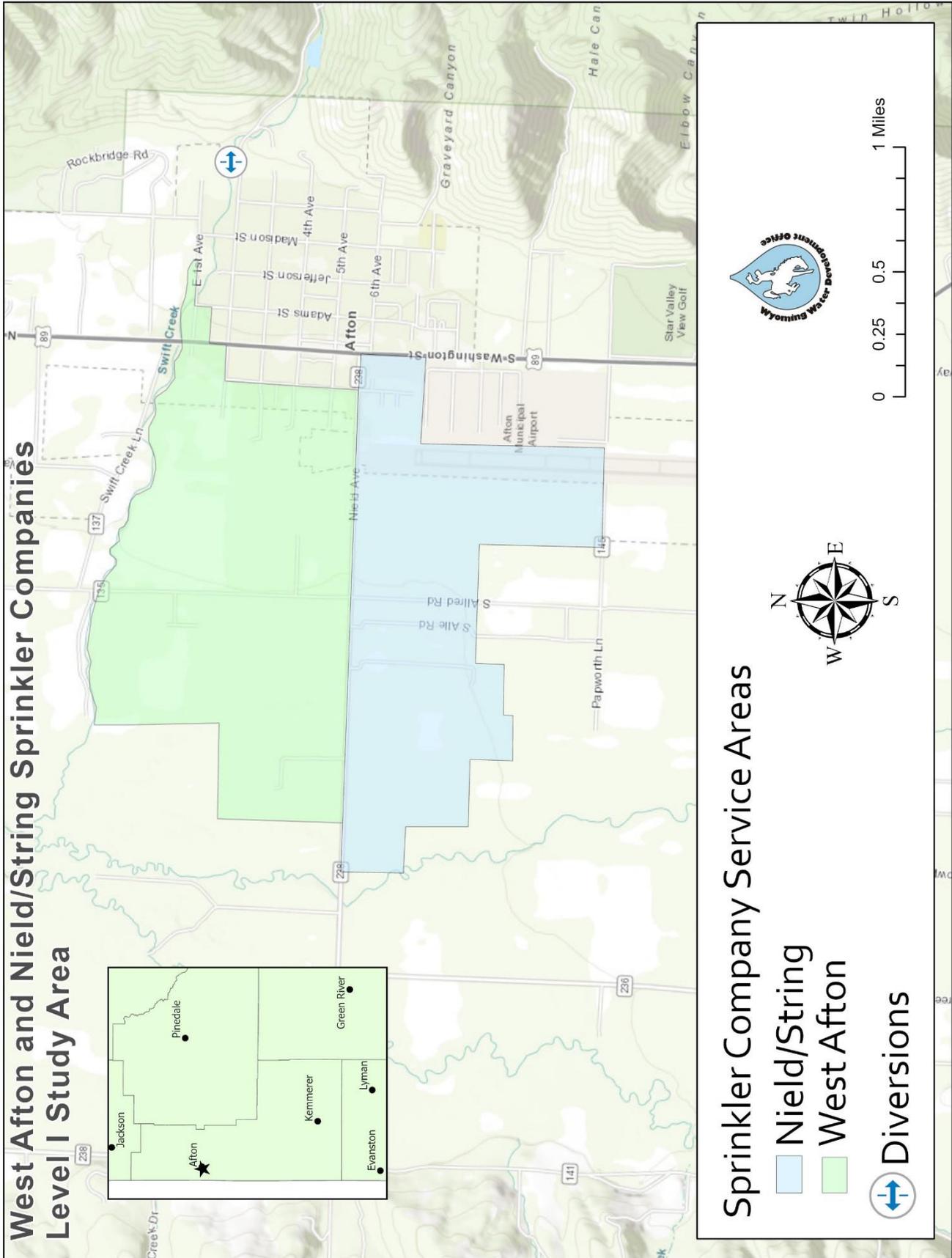
a. Annual Budget for Operation and Maintenance Expenses:	\$	2,000
b. Annual Payments for Debt Retirement:	\$	0
c. Annual Payments to a Repair and Replacement Fund:	\$	1,500
d. Annual Payments to an Emergency Fund:	\$	2,000
e. Annual Payments for Other Purposes:	\$	2,590
f. Total Annual Payments:	\$	8,090

(3) Other

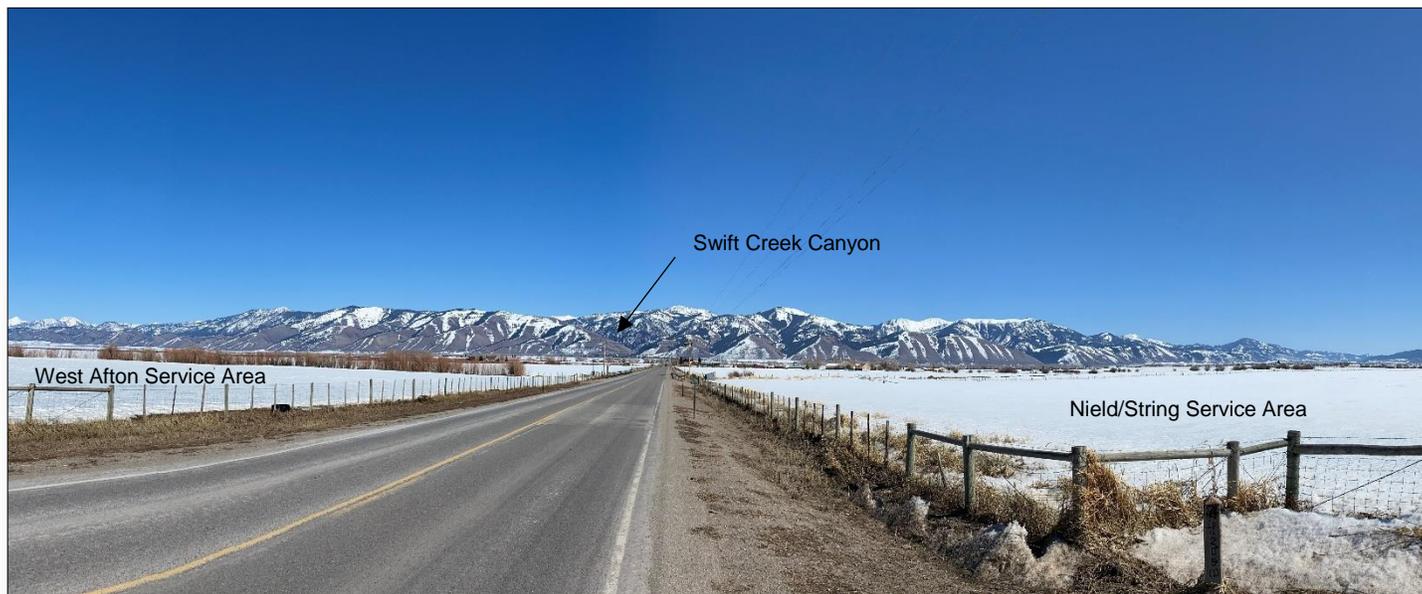
a. Balance in Repair and Replacement Fund:	\$	54,958
b. Balance in Emergency Fund:	\$	10,000
c. Explanation (If Needed):	N/A	

(4) Is the operation of the water system self-supporting in terms of revenues offsetting costs for operation, maintenance, debt retirement, replacement funds, emergency funds, etc.? Yes

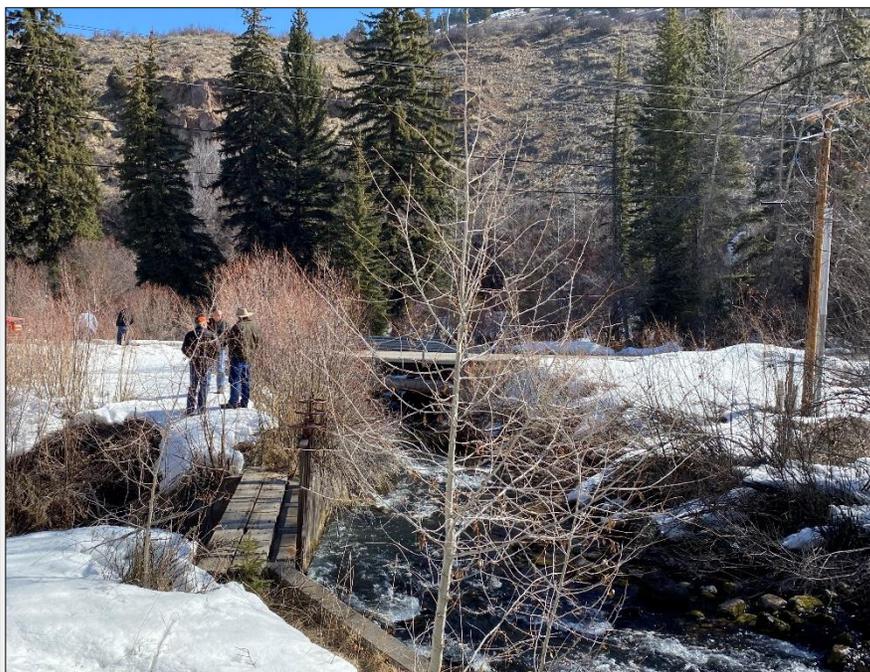
PROJECT AREA MAP



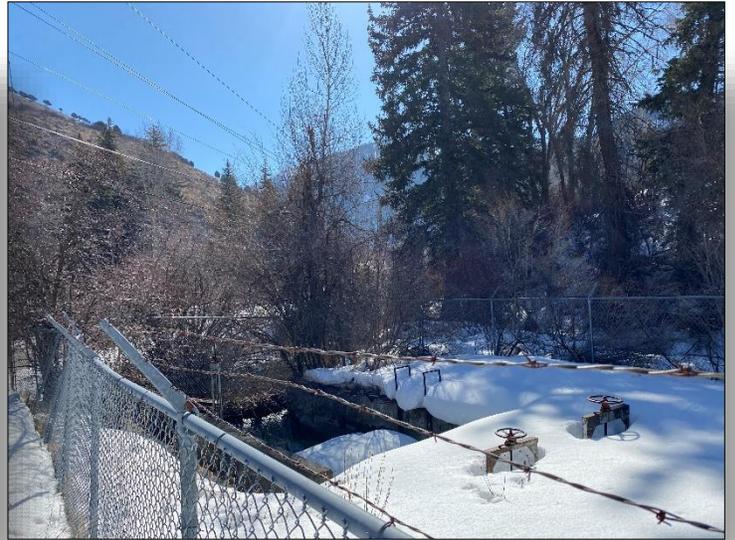
West Afton and Nield/String LI Study Site Visit Photos



Salt River Range. Swift Creek Canyon is at the center of the image. West Afton and Nield/String service areas are north (left) and south (right) of State Highway 238 respectively.



Swift Creek Canyon. Swift Creek is a reliable water source for hydropower, municipal/domestic use, and irrigation. Swift Creek is a popular fishery and Intermittent Spring is a recreation destination. **The WASC and Nield/String Diversion off Swift Creek** (right) carries water approximately 200 feet to a second diversion which provides water, via the pipelines, to the Sponsor's irrigation service areas



Secondary Diversion to Company Pipelines (above). The system is entirely gravity fed from a pipeline starting at the secondary diversion shown above. The near headgate services the West Afton Sprinkler Company and the pipeline flows west along the northern edge of the town of Afton.

The Nield/String pipeline originates at the far headgate and extends to the south along the base of the Salt River foothills (**shown below**) and then heads west to the service area along the southern edge of the town of Afton.



West Afton and Nield/String Sprinkler Companies service area (see photos for reference) includes a diverse membership and uses including hay production, winter feeding grounds, small acreage owners, rural residential housing, community amenities and a subdivision.

The conveyance pipelines for both Companies flank the town of Afton extending along roads, under parking areas and in places are in close proximity to private and community owned infrastructure.



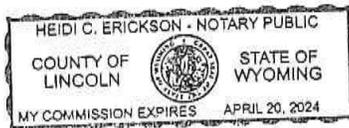
(Attachment # 2)

Resolution and Signature Authority

At a regular meeting of The West Afton Sprinkler Company (WASC) Board of Directors, held February 18, 2021 a resolution was passed supporting an application for funding of a Level 1 or Level 2 feasibility study, as applicable, from the Wyoming Water Development Commission.

In addition, WASC President Jody Kennington was given signature authority to commit The West Afton Sprinkler Company to a binding contract.

Signed: 
Matt Kallgren, WASC Vice President



Matt Kallgren signed this document in front of me on February 22, 2021 in Lincoln County, Wyoming.

Heidi C. Erickson

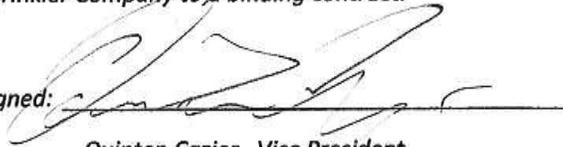
(Attachment #3)

Resolution and Signature Authority

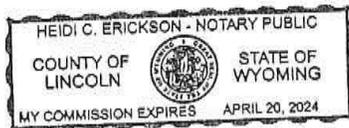
At a meeting of The Nield String Sprinkler Company Board of Directors, held February 22, 2021 a resolution was passed supporting an application for funding of a Level 1 or Level 2 feasibility study, as applicable, from the Wyoming Water Development Commission.

In addition, The Nield String Sprinkler Company President Joe Nield was given signature authority to commit The Nield String Sprinkler Company to ^{this} a binding contract.

Signed:



Quinten Cazier, Vice President



Quinten Cazier signed this document before me on February 22, 2021 in Lincoln County, Wyoming.



LETTERS REGARDING STATUS OF SPRINKLER COMPANIES

February 24, 2021

**Wyoming Water Development Commission
6920 Yellowtail Rd
Cheyenne, WY 82002**

RECEIVED

FEB 26 2021

WY WATER DEVELOPMENT OFFICE

WWDC Director Gebhart:

The West Afton Sprinkler Company (WASC) and The Nield String Sprinkler Company are submitting an application for funding of a WWDC Level 1/Level 2 feasibility study.

WASC is a non-profit corporation that was established on 9/16/1976. We have 80 landowners on approximately 837 acres. We are in the process of becoming the West Afton Irrigation District (WAID) through the District Court, Third Judicial District of Lincoln County. Please see Attachment #1 which is a letter from our Attorney regarding the formation of the Irrigation District.

The Nield String Sprinkler Company was established in 1961. It has 21 landowners on 631 acres. With it's legal counsel the Company is currently updating it's status with The Wyoming Secretary of State's Office. Also, beginning the process of becoming an Irrigation District.

We respectfully request your approval of funding for a feasibility study to help us determine the current condition and future needs of our 45 and 60 year-old irrigation systems.

Respectfully yours

The West Afton Sprinkler Company

The Nield String Sprinkler Company

Jody Kennington, (WASC) President

Matt Kallgren, Vice President

Jim Allred, Sec/Treasurer

Farren Haderlie, Director

Guy Jacobsen, Director

Joe Nield, Nield String President

Quinten Cazier, Vice President

Rick Sessions, Secretary

(Attachment #1)

80 E. 1ST Ave.
P. O. Box 850
Afton, WY 83110
307-885-7745

6234 Yellowstone Rd.
Cheyenne, Wyoming 82009
307-638-7745



Henry F. Bailey, Jr.
Lance T. Harmon*
Wallace L. Stock
Dale W. Cottam**
Douglas W. Bailey*
Ronald J. Lopez
Andrew Bailey
Brandon B. Taylor*^

*Also licensed in Colorado
**Also licensed in Nebraska
^Also licensed in New Mexico

February 23, 2021

RE: West Afton Sprinkler Company forming an Irrigation District

To whom it may concern,

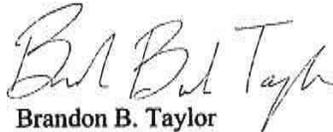
We represent West Afton Sprinkler Company. We are currently in the process of drafting a petition to form an irrigation district pursuant to Wyo. Stat. 41-7-201. As you are aware, the formation of an irrigation district requires a Petition submitted to the District Court and requires preliminary engineering reports and approval from the State Engineer's office. We have drafted the petition and are in the process of obtaining the statutory requirement of necessary signatures. The Sprinkler Company has also hired an engineering firm to draft the preliminary engineering report and are working with the State Engineer's office to obtain the requisite approval.

We will continue to follow the statutory requirements for the formation of such an irrigation district and will submit our completed application to the District Court. Once submitted to the District Court we will begin the process of the statutory notice requirements and continue on the path of approval. We anticipate the formation of the West Afton Irrigation District and the transfer of assets from the West Afton Sprinkler Company by the end of 2021.

If you have any questions or concerns about the timeline of the formation of the West Afton Irrigation District, please do not hesitate to reach out to me.

Yours very truly,

BAILEY | STOCK | HARMON | COTTAM | LOPEZ LLP


Brandon B. Taylor

2022 RECOMMENDATION-CONSTRUCTION PROJECTS

Project Name: Cloud Seeding: Medicine Bow and Sierra Madre Mountain Ranges 2023 (aerial)

Program: New Development

Project Type: Winter Snowpack Augmentation

County: Albany and Carbon

Sponsor: WWDO

WWDO Recommendation: Level III

Proposed Budget: \$823,490

Project Manager: Julie Gondzar

Project Description

The WWDO requests financial support from the Wyoming State Legislature for the continuation of aerial cloud seeding operations targeting the Medicine Bow and Sierra Madre Mountain Ranges, located in southeast Wyoming within the North Platte River Basin and Little Snake River Basin (western flanks of the Sierra Madres), for the 2022-2023 winter season. This would be the 5th year of operational seeding targeting these mountain ranges. This project also includes a second-priority extension of operations over Colorado's Never Summer Mountains, benefiting Wyoming's Upper North Platte River Basin, paid for by the Jackson County Water Conservancy District out of Walden, Colorado. This project is focused on mountain snow augmentation in order to increase streamflow, as part of a strategy for flow enhancement within the affected basins.

The WWDO has been successful in securing a long-standing local funding partner for the current winter season and past season operations. The City of Cheyenne Board of Public Utilities makes generous contributions to the project, as they have a vested interest in additional runoff and water supplies coming from the Medicine Bow and Sierra Madre Mountain Ranges. The WWDO anticipates future contributions from this funding partner.

Research and Support

Based on cloud seeding impact analyses from the Wyoming Weather Modification Pilot Program (completed in 2014) and the Medicine Bow/Sierra Madre Final Design and Permitting Study (completed in 2018), a cost benefit and average increase in streamflow was projected to be approximately 12,500 additional acre feet at approximately \$11 to \$22 cost per acre foot, due to seeding activities throughout a winter season. However, in comparison to the constrained parameters in the research studies, it can be assumed that this operational cloud seeding project is producing more yield for the following reasons: 1) the operating season is longer allowing for more seeding events and increased streamflow, 2) more flares are being used during each event allowing for increased snow production, 3) the atmospheric criteria for cloud seeding in an operational setting is less stringent leading to more increased snow production, and 4) a more powerful aircraft increases the length of many the seeding missions.

With this operational project likely producing a higher yield of actual spring time streamflow (as compared to the research study's suggested yield), confidence increases in using a different set of modeled values (as projected in the Medicine Bow/Sierra Madre Final Design and Permitting Study) suggesting additional streamflow anywhere between 12,000 and 49,000 acre feet between April to July (annually). If we assume this project will produce the median of that range, then anticipated yield is closer to 30,450 acre feet of additional streamflow. Adjusted cost per acre foot of water, based on our recommended budget of \$873,490, would then be \$28.68 (cost per acre foot). It is proposed that a robust assessment of cloud seeding effectiveness and additional yield be performed for these target areas based on actual operational costs and conducted seeding events over the previous operational seasons. A recommendation for that assessment can be found separately.

Medicine Bow and Sierra Madre Mountain Ranges Winter 2022-2023 Estimated Budget

Nearby states (Idaho, North Dakota) have a long history of conducting aerial cloud seeding operations. With neighboring states as a model, the WWDO is focused on continuing aerial cloud seeding over the Medicine Bow and Sierra Madre Mountain Ranges for the winter season of 2022-2023. Funds are being requested for the operations contractor to prepare operational forecasts, decision support, fly one aircraft, maintain the equipment, and conduct aerial seeding operations across southeast Wyoming. The requested budget includes a 3% inflationary factor, contingencies and the WWDO’s administration of the program.

Winter 2022-2023 Operations Budget	\$ 873,490
Anticipated Cheyenne Board of Public Utilities Local Funding Contribution	- \$ 50,000
Project Total Requested Appropriation	\$ 823,490

Current Winter Cloud Seeding Operations in the Medicine Bow and Sierra Madre Mountains:

Aerial cloud seeding operations for the current 2021-2022 winter season were funded by the 2021 Wyoming State Legislature (in the “Omnibus Water Bill – Construction), with additional contributions from the City of Cheyenne Board of Public Utilities. Operations, utilizing one aircraft, began on November 1, 2021. This project includes a second phase to extend cloud seeding over the western slope of the Never Summer Mountains in Colorado (as a second priority to Wyoming’s target area), with all operational expenses paid for by the Jackson County Water Conservancy District. Any increase in runoff produced through cloud seeding is considered additional “system” water, benefiting all water users within the North Platte River Basin.



As proposed in this recommendation, airborne cloud seeding would continue during the winter of 2022-2023 across the Medicine Bow and Sierra Madre Mountain Ranges.

Important Facts about Cloud Seeding:

- Cloud seeding is one of many tools to manage water resources, and is relatively inexpensive.
- Airborne cloud seeding, especially over more complex terrain like the Medicine Bow and Sierra Madre Mountains, is expected to be less expensive as compared to ground-based cloud seeding (*Medicine Bow/Sierra Madre Final Design and Permitting Study, 2018*).
- Cloud seeding has been utilized since the 1940's, however, incredible advances in research have been made within the past 15 years. The cloud seeding community views the WWDO's Wyoming Weather Modification Pilot Study (completed in 2014) as the forefront of new innovative research, and one of the most recent cutting-edge studies actually builds on Wyoming's original Pilot Study.
- Winter cloud seeding is a natural technique to increase the amount of ice nuclei within a cloud, allowing ice formation (and ultimately snow formation) to begin sooner.
- Studies have shown that the use of Silver Iodide in cloud seeding is safe, as it is a natural salt-compound. Silver is widespread in the natural environment, and sampling within cloud seeding target areas found silver to be undetectable above naturally-occurring background levels. Silver from cloud seeding is incredibly hard to find, even with the most advanced equipment.
- Extra Area Effects: The theory that cloud seeding reduces moisture downwind is a common misunderstanding. Long-term studies (44+ years) consistently show no precipitation decreases resulting from seeding. In fact, many studies show the potential for a slight increase downwind.
- Cloud seeding allows for an incremental increase in mountain snowpack, and is not the initial cause of springtime flooding events. Every year, the project must adhere to a strict suspension criteria. One of the thresholds for suspension is if snowpack reaches a specific above-normal level.

2022 RECOMMENDATION-CONSTRUCTION PROJECTS

Project Name: Cloud Seeding: Wind River & Sierra Madre Mountain Ranges 2023 (ground based)

Program: New Development

Project Type: Winter Snowpack Augmentation

County: Fremont, Sublette, Carbon

Sponsor: WWDO

WWDO Recommendation: Level III

Proposed Budget: \$316,000

Project Manager: Julie Gondzar

Project Description

The WWDO requests partial financial support from the Wyoming State Legislature for the continuation of cloud seeding operations over the Wind River Mountains, and an expansion of the project to include the western slope of the Sierra Madre Mountains as a new additional ground-based target area for the 2022-2023 winter season. This project represents the continuation and growth of snow augmentation efforts as part of a larger strategy for flow enhancement within Wyoming's drainages of the larger Colorado River Basin. The initiative for expanding this project comes in light of the recent Tier 1 Colorado River Shortage for 2022, declared by the U.S. Secretary of Interior in August 2021.

Since 2014, cloud seeding operations over the Wind River Mountains have been funded in part by the Wyoming State Legislature in each session's "Omnibus Water Bill – Construction." Funding for this target area has consistently been a cost share between the State of Wyoming and other interested water users. Wyoming's cost share for the 2021-2022 season was capped at 37%, with 63% of remaining project funds required from other funding partners.

Wyoming's Leadership in Cloud Seeding Efforts

Since the Wyoming Weather Modification Pilot Program in the early 2000's, the Lower Basin parties (Central Arizona Water Conservation District, Colorado River Board of California/Six Agency Committee, and Southern Nevada Water Authority) have been long-standing funding partners contributing to the cost share of the program. As of 2018, the WWDO was a signatory to an Agreement Establishing Programmatic Funding for Colorado River Basin Weather Modification with the Lower Basin (also known as "The Agreement"), which ensures that the State of Wyoming remains a leader in efforts to augment snowpack and increase water supply within the Colorado River Basin, while remaining an active participant to the quickly advancing science that cloud seeding is successful and economic. The science continues to strongly suggest that increasing snowpack through cloud seeding incrementally augments water supply through spring runoff.

All seven of the Colorado River Basin States (Colorado, New Mexico, Utah, Wyoming, Arizona, California and Nevada) and their water users, benefit from increased water supply. Any increase in runoff produced through Upper Basin cloud seeding is considered additional "system" water, benefiting all states within the Colorado River Basin.

Wyoming's Allocation as Stated in The Upper Colorado River Compact

The Upper Colorado River Basin Compact allocates 14% of the upper basin water supply to Wyoming. The total estimated cloud seeding expenditures in the upper basin (CO, UT, & WY) for the 2021-2022 season is approximately \$2,421,107. For the 2022-2023 winter season, the recommendation is that Wyoming continue the same 37/63 funding split as last year. The requested 37% of Wyoming funding is \$310,644 which would be approximately 12.8% of total anticipated cloud seeding program costs in the upper basin

for next season (assuming similar Upper Basin project budgets increases). Wyoming's contribution continues to be below 14% of all costs of Upper Basin cloud seeding efforts.

Wind River Mountain Range 2022-2023 Estimated Budget

The following budget has been prepared for a continued cost sharing scenario for cloud seeding operations targeting the Wind River Mountains during the winter of 2022-2023. Funds are being requested for the contractor to continue cloud seeding operations using ten ground-based generators in the Wind River Mountains, and install and operate two new generators in the Sierra Madre Mountains (including preparing weather forecasts, decision support, and maintaining equipment).

Winter 2022-2023 Operations Budget	\$ 639,580.00
63% Cost Share from Funding Partners	- \$ 402,935.40
37% Cost Share from WWDO	\$ 236,644.60
Wyoming Water Development Office (oversight) Travel/Communications	\$ 5,000.00
Project Total Requested Appropriation	\$ 241,644.60
Project Total Requested Appropriation (Adjusted)	\$ 242,000

Recommendation for Project Expansions

A Collaborative Opportunity

As stated in The Agreement, the Lower Basin parties recognize and support augmenting Colorado River System runoff through this cooperative cost-share funding mechanism. More importantly, they also provide opportunities to expand Upper Basin States' projects. For example, some terms of The Agreement include: 1) The Lower Basin Parties agree to contribute up to \$500,000 each, and up to \$1,500,000 collectively, in funding for Activities approved in a single Water Year in the Upper Basin; 2) The Lower Basin Parties further agree to contribute up to \$4,500,000 individually, and \$13,500,000 collectively, in funding the Upper Basin Programs provided the Agreement does not terminate prior to the end of the Term; 3) a cost-sharing relationship of generally 50%/50% between the Lower Basin Parties and the Upper Basin Entities; and 4) The Lower Basin Parties do not expect to fund any Activities when Lake Powell and Lake Mead are projected to collectively exceed 80% of live storage capacity in the upcoming Water Year. Notice of the decision of whether to fund Activities will be based on the results of the United States Bureau of Reclamation's August 24 Month Study projections of collective inflow and storage at Lake Powell and Lake Mead.

The project expansion presented in this recommendation will become part of the total project cost share.

Additional New Target Area: Sierra Madre Mountains

With the recent Tier 1 Colorado River Shortage declared for 2022, drought mitigation efforts have taken center stage in Wyoming, and other western states. There is encouragement and support to expand cloud seeding operations within Wyoming's Little Snake River drainage of the Colorado River Basin. The WWDO

proposes to add the western slopes of the Sierra Madre Mountains as a new ground-based target area for this project, which would include installing and operating two additional cloud seeding generators for the winter of 2022-2023 operations. The additional cost to the project would be approximately \$150,000.

Extending the Operating Season

In addition to adding a new ground-based cloud seeding target area to the project, expansion will also include extending the operating season to capture an additional two weeks. Other Upper Basin states begin their cloud seeding programs earlier in the season in order to target early season winter storms. Over the past several years of seeding in Wyoming between the traditional time frame of November 15 through April 15, it has been recognized that there are missed opportunities to seed winter storms earlier and later outside of the traditional season time frame. It is recommended that the 2022-2023 operating season begin November 7, 2022 and end April 22, 2023. The additional cost to extend the season would be approximately \$50,000.

A Break-Down of Additional Total Project Costs

Project Expansion	Additional Total Cost	37% State of WY Cost-Share	63% Funding Partner Cost-Share
Installing and operating two (2) new generators on western slope of the Sierra Madre Mountains	\$150,000	\$55,500	\$ 94,500
Extending operating season by two (2) additional weeks	\$ 50,000	\$18,500	\$ 31,500
<i>TOTAL:</i>	<i>\$200,000</i>	<i>\$74,000</i>	<i>\$126,000</i>

Wind River & Sierra Madre Mountain Ranges 2022-2023 Estimated Budget (With Project Expansion)

The following budget has been prepared for a continued cost sharing scenario for cloud seeding operations targeting the Wind River Mountains and western slope of the Sierra Madre Mountains for an extended winter 2022-2023 season. Funds are being requested for the contractor to continue cloud seeding operations using ten ground-based generators in the Wind River Mountains, and to install and operate two new generators in the Sierra Madre Mountains (including preparing weather forecasts, decision support, and maintaining equipment).

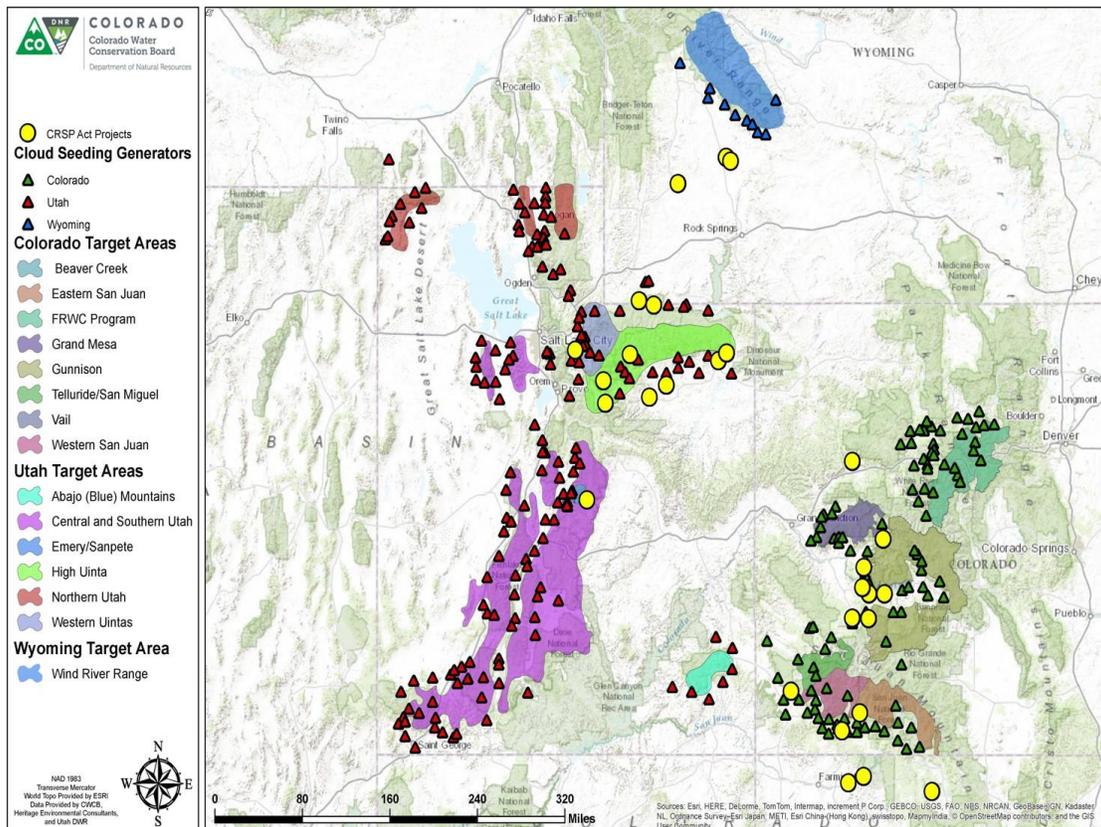
Winter 2022-2023 Operations Budget	\$ 839,580.00
63% Cost Share from Funding Partners	- \$ 528,935.40
37% Cost Share from WWDO	\$ 310,644.60
Wyoming Water Development Office (oversight) Travel/Communications	\$ 5,000.00
Project Total Requested Appropriation	\$ 315,644.60
Project Total Requested Appropriation (Adjusted)	\$ 316,000

RECOMMENDED

Important Facts about Cloud Seeding:

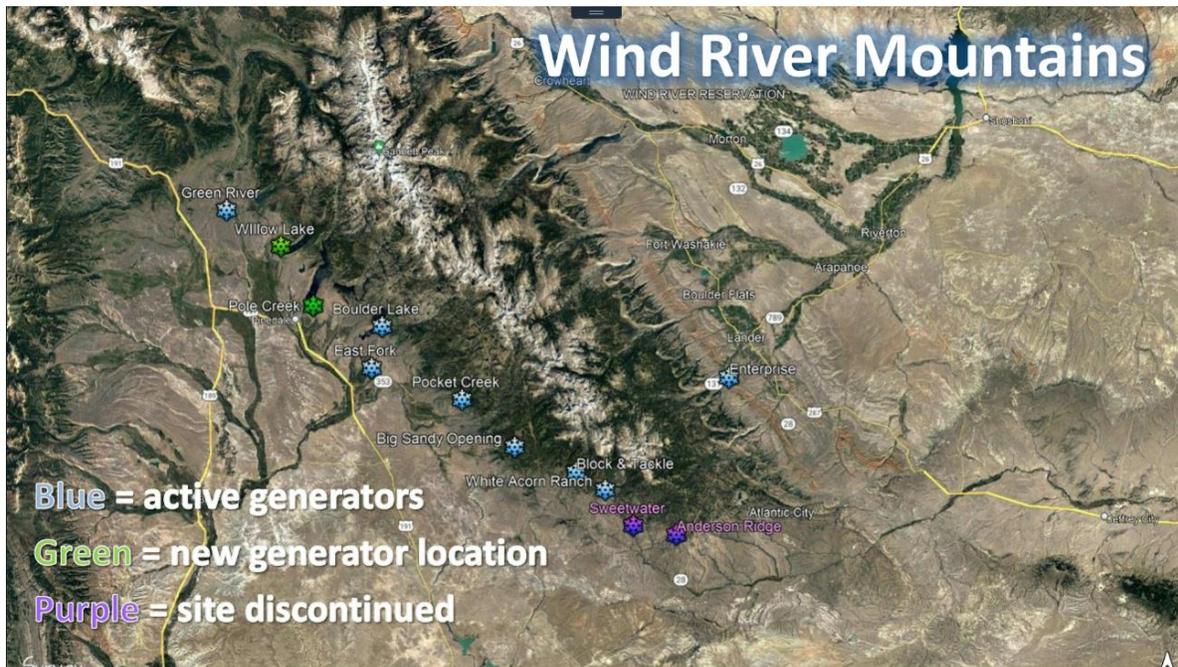
- Cloud seeding is one of many tools to manage water resources, and is relatively inexpensive.
- Cloud seeding has been utilized since the 1940's, however, incredible advances in research have been made within the past 15 years. The cloud seeding community views the WWDO's Wyoming Weather Modification Pilot Study (completed in 2014) as the forefront of new innovative research, and one of the most recent cutting-edge studies actually builds on Wyoming's original Pilot Study.
- Winter cloud seeding is a natural technique to increase the amount of ice nuclei within a cloud, allowing ice formation (and ultimately snow formation) to begin sooner.
- Studies have shown that the use of Silver Iodide in cloud seeding is safe, as it is a natural salt-compound. Silver is widespread in the natural environment, and sampling within cloud seeding target areas found silver to be undetectable above naturally-occurring background levels. Silver from cloud seeding is incredibly hard to find, even with the most advanced equipment.
- Extra Area Effects: The theory that cloud seeding reduces moisture downwind is a common misunderstanding. Long-term studies (44+ years) consistently show no precipitation decreases resulting from seeding. In fact, many studies show the potential for a slight increase downwind.
- Cloud seeding allows for an incremental increase in mountain snowpack, and is not the initial cause of springtime flooding events. Every year, the project must adhere to a strict suspension criteria. One of the thresholds for suspension is if snowpack reaches a specific above-normal level.

Upper Basin States Cloud Seeding Efforts As Funded by "The Agreement"



Current Winter Cloud Seeding Operations in the Wind River Mountains

Contracts have been negotiated, and cloud seeding operations in the Wind River Mountains will begin on November 15, 2021. In addition to long-standing Lower Basin cost-share support, local funding support has been contributed from Wyoming's trona mining industry along with Rocky Mountain Power, and the Green River/Rock Springs/Sweetwater County Joint Powers Water Board, all located in the Green River Basin. Several improvements to the project have been made prior to this upcoming season, including advancing weather model forecasting accuracy, cutting costs where necessary, and relocating two ground-based cloud seeding generators to improved locations.



As proposed in this recommendation, ground-based cloud seeding operations would continue during the winter of 2022-2023 in the Wind River Mountain Range.

Wind River Mountains Ground-Based Generator Seeding Events by Season

	November	December	January	February	March	April	TOTAL
2020-21	3	5 / 2	4 / 1	6	2 / 5	0 / 4	32
2019-20	2 / 1	3	10	4	5 / 2	3	30
2018-19	n/a	2	3	6	1	n/a	12
2017-18	n/a	4 / 1	3	5	4 / 1	n/a	18
2016-17	0	6	5	3**	SUSP	SUSP	14
2015-16	1 / 2	6 / 1	5	2 / 2	3 / 3	2	27
2014-15	2	4 / 3	2	5	3	2	21

Events in RED indicate the sole use of the east-slope generator ("Enterprise")

**Snowpack conditions mandated early suspension of operations on February 10, 2017

Resources Deployed in the Wind River Mountains Target Area

- Ten Ground-Based Generators (5 on state lands, 5 on private lands)
- On-site meteorologist and technicians
- WWDO-owned Radiometer – located in Pinedale, WY

2022 RECOMMENDATION-CONSTRUCTION PROJECTS

Project Name: Crystal Bypass Pipeline 2022

Program: New Development

Project Type: Municipal

County: Albany County

Sponsor: Cheyenne Board of Public Utilities

WWDO Recommendation: Level III

Proposed Budget: \$2,546,000

WWDC Grant ¹ (67%)	\$ 2,546,000
<u>Other Funding Source² (33%)</u>	<u>\$ 1,254,000</u>
Total	\$ 3,800,000

¹ Not to exceed 67% of eligible project costs.

² DWSRF or other source chosen by the CBPU

Project Manager: Andrew Linch / Wade Verplancke

Project Description: This project is for the design and construction of a new 20-inch, 10,471-ft raw water transmission pipeline. The pipeline will bypass Crystal Dam and Reservoir, which all Stage I/II and Middle Crow Creek water must pass through to reach the Sherard Water Treatment Plant (WTP). The proposed pipeline will allow a path for source water to reach the WTP without passing through Crystal Reservoir. This allows flow to bypass of Crystal Reservoir in the event of water contamination from upstream pollutants (e.g., forest fire, contaminant spill, algae blooms, etc.) and allows for additional redundancy to ensure this major water source is usable. In addition, the bypass allows flow to the WTP in case of dam failure or planned maintenance. Crystal Dam is over 100-years old and, based on recent inspection, likely requires outlet works rehabilitation within the next 5-10 years.

1. Describe existing status in the program and previous appropriations.

Prior Legislation

<u>Year</u>	<u>Level</u>	<u>Project</u>	<u>Appropriation</u>
1993	I	Cheyenne Supply Pipeline	\$ 250,000
1993	III	Cheyenne Stage I Pipeline	\$ 6,500,000
1995	III	Cheyenne Stage I Pipeline	\$ 6,000,000
1995	II	Cheyenne Raw Water Supply	\$ 250,000
1996	III	Cheyenne Stage I Pipeline	\$ 1,200,000
1997	III	Cheyenne Raw Water Supply	\$ 1,800,000
1999	II	Cheyenne South Crow Diversion	\$ 80,000
2000	III	Cheyenne Supply Pipeline	\$ 11,000,000
2001	III	Cheyenne South Crow Diversion	\$ 70,000
2002	II	Cheyenne Hydro Power	\$ 60,000
2002	III	Cheyenne South Crow Diversion	\$ 680,000
2003	III	Cheyenne Supply Pipeline	\$ 2,000,000
2003	III	Cheyenne Raw Water Supply #2	\$ 5,000,000
2005	III	Cheyenne Supply Pipeline	\$ 1,000,000
2006	II	Cheyenne / Laramie County Water Service Area	\$ 450,000
2008	III	Cheyenne's Granite Dam Spillway Improvements	\$ 670,000

2011	III	Cheyenne Southern Pipeline	\$ 14,029,800
2013	III	Cheyenne Southern Pipeline	\$ 4,261,200
2014	III	Cheyenne Southern Pipeline Phase III	\$ 1,206,000
2016	III	Cheyenne Southern Pipeline Phase III	\$ 10,720,000
2018	II	Cheyenne Municipal Storage	\$ 328,500

2. Describe existing water supply using information in the application.

The City of Cheyenne, Board of Public Utilities (BOPU) uses a complex water system that includes trans-basin diversions, water-right exchanges, reservoirs, pipelines, and other infrastructure that spans across Carbon, Albany, and Laramie counties in southeast Wyoming to supply surface and groundwater to approximately 75,000 people in the City. The current BOPU water supply system consists of eight reservoirs and dams, four groundwater wellfields, various pipelines and diversions, and a water treatment facility. Approximately 70% of the City’s water is supplied by surface water, while 30% is supplied by groundwater.

3. Summarize the request.

The BOPU is requesting 67% grant funding to construct a bypass pipeline around Crystal Reservoir.

4. Summarize the reasons for the request.

A bypass pipeline around Crystal Reservoir would allow Stage II water to be conveyed to the Sherard Water Treatment plant which would allow the Crystal Reservoir outlet works to be rehabilitated and to increase the resiliency of the BOPU’s raw water supply system.

The Crystal Reservoir outlet works were constructed between approximately 1902 and 1910 and are critical components of the BOPU’s system. Because of their importance and age, the 100 plus year-old infrastructure represent a notable risk to the BOPU’s system. Currently, all water imported from Stage I and II is routed through the Crystal outlet works to the water treatment plant. Surface water supply from these sources is necessary to meet demand; without Stage I and II water the BOPU would be left with groundwater and a limited amount of surface water from North Crow. The recently completed Level II Cheyenne Municipal Storage project recommended rehabilitation of the outlet works at Crystal Dam as critical due to their age and consequences that would occur if the outlet pipes were to catastrophically fail. This bypass pipeline (Alternative 2A) is a necessary precursor of the outlet works rehabilitation project recommended in the Level II study since the rehabilitation project would require either draining or lowering the reservoir and shutting down conveyance of Stage I and II water. Having this pipeline constructed and functional is necessary for the BOPU to provide uninterrupted water supply to the City of Cheyenne while the outlet works are rehabilitated at Crystal Reservoir.

Estimated Level III WWDC Eligible Costs:

Preparation of Final Designs and Specifications	\$ 245,968
Permitting and Mitigation	\$ 78,507
Title of Opinion	\$ 27,583
Acquisition of Access and Rights of Way	\$ 18,035
Pre-Construction Costs (Subtotal # 1)	\$370,018

Cost of Project Components

Mobilization/Demobilization	\$ 417,186
Signs and Traffic Handling	\$ 5,305
Trench and Excavation Safety Program	\$ 11,109

Sediment, Erosion Control and Storm Water Management	\$ 44,435
Surveying	\$ 8,487
20" PVC Water Main DR18: includes pipe, install, and fitting	\$ 1,106,631
20" Plug Control Valve	\$ 64,131
36" Plug Control Valve	\$ 133,673
Air Release Valve	\$ 334,184
Blowoff Assembly	\$ 42,436
Connect to existing 24-inch water line (Crystal Spur)	\$ 26,523
Connect to existing 36-in water line	\$ 31,827
New Meter House	\$ 106,090
SCADA	\$ 31,827
Power Control	\$ 38,192
Dewatering	\$ 7,426
Bedding Material	\$ 32,416
Surface Reclamation	\$ 3,819
10-foot wide gravel road, 8" depth	\$ 10,605
Earthwork	\$ <u>2,623</u>

Construction Cost (Subtotal #2)	\$ 2,458,924
Construction Engineering Costs (Subtotal # 2 x 10%)	\$ <u>245,892</u>
Components and Engineering Costs (Subtotal # 3)	\$ 2,704,816
Contingency (Subtotal #3 x 15%)	\$ <u>405,722</u>
Construction Cost Total (Subtotal #4)	\$ 3,110,538

Total Project Cost (Subtotal #1 + Subtotal #4)	\$ 3,480,556
Inflation Costs (3% per year / three years)	\$ <u>322,742</u>

Total Project Costs \$ 3,803,298

Total Project Costs Rounded \$ 3,800,000

Level III Recommended Funding @ 67% Grant: \$ 2,546,000

PROJECT INFORMATION:

A. FINANCIAL INFORMATION

1. Service Area Information

a. Population (2010 Census) 59,466 (Current Estimate) 64,413 (service area 75,000)

b. Does the entity have a comprehensive planning boundary? Yes
If so, what is the estimated additional population that could be served in the future? 20,000

	Pre-Project	Post Project
c. Taps served within the entity boundaries?	23,696	23,696

d. Taps outside the entity boundaries?	141	141
---	-----	-----

e. Names of other water systems served?	Warren Air Force Base and South Cheyenne Water and sewer District	
--	---	--

2. Water Usage (Potable water system only)	Pre-Project	Post Project
---	-------------	--------------

a. Total number of gallons produced by the water sources annually:	4,100,000 MG	4,100,000MG
b. Gallons used <u>per capita</u> per day:		
Average Day:	95 gal	95 gal
Peak Day:	247 gal	247 gal
3. System capacity (Potable water system only):	Pre-Project	Post-Project
a. Maximum capacity of the water supply system		
Acre feet per day:	128.9	128.9
Gallons per day:	42MGD	42MGD
b. What is the factor (bottleneck) limiting the ability to provide water (supply, canals, etc.): All Stage I/II and middle Crow Creek water must pass through Crystal Reservoir. If Crystal Reservoir or Dam jeopardized, other water sources cannot supply sufficient water to meet demand.		
c. Increased capacity needed:		
Acre feet per day	0	0
Gallons per day	0	0
d. Estimated system water losses (percentage):	5%	5%
4. Does the entity have an independent raw water irrigation system? Yes		
a. Raw water system capacity (gallons per day):	1.5 MGD	
b. Average annual raw water usage (gallons):	141 MG	
5. Rates	Pre-Project	Post-Project
a. Tap fees:		
Residential:	\$ 8,950	\$ 9,398
Commercial:	\$ 7,910	\$ 8,306
b. Average monthly water bill:	\$ 33	\$ 35
c. Water Rates Tiered water rates		
6. Financial Statement	Pre-Project	Post-Project
Annual revenues generated from water sales:	\$ 19,973,521	\$19,148,200
Annual revenues from tap fees:	\$ 3,633,892	\$ 1,820,000
Annual revenues from other sources:	\$ <u>586,014</u>	\$ <u>943,000</u>
Total annual revenues:	\$ 24,193,427	\$21,911,200
Annual budget for operation and maintenance expenses:	\$ 12,231,688	\$15,204,080
Annual payments for debt retirement:	\$ 2,785,231	\$ 2,799,000
Annual payments to a repair and replacement fund:	\$ 5,623,199	\$ 5,796,500
Annual payments to an emergency fund:	\$ 0	\$ 0

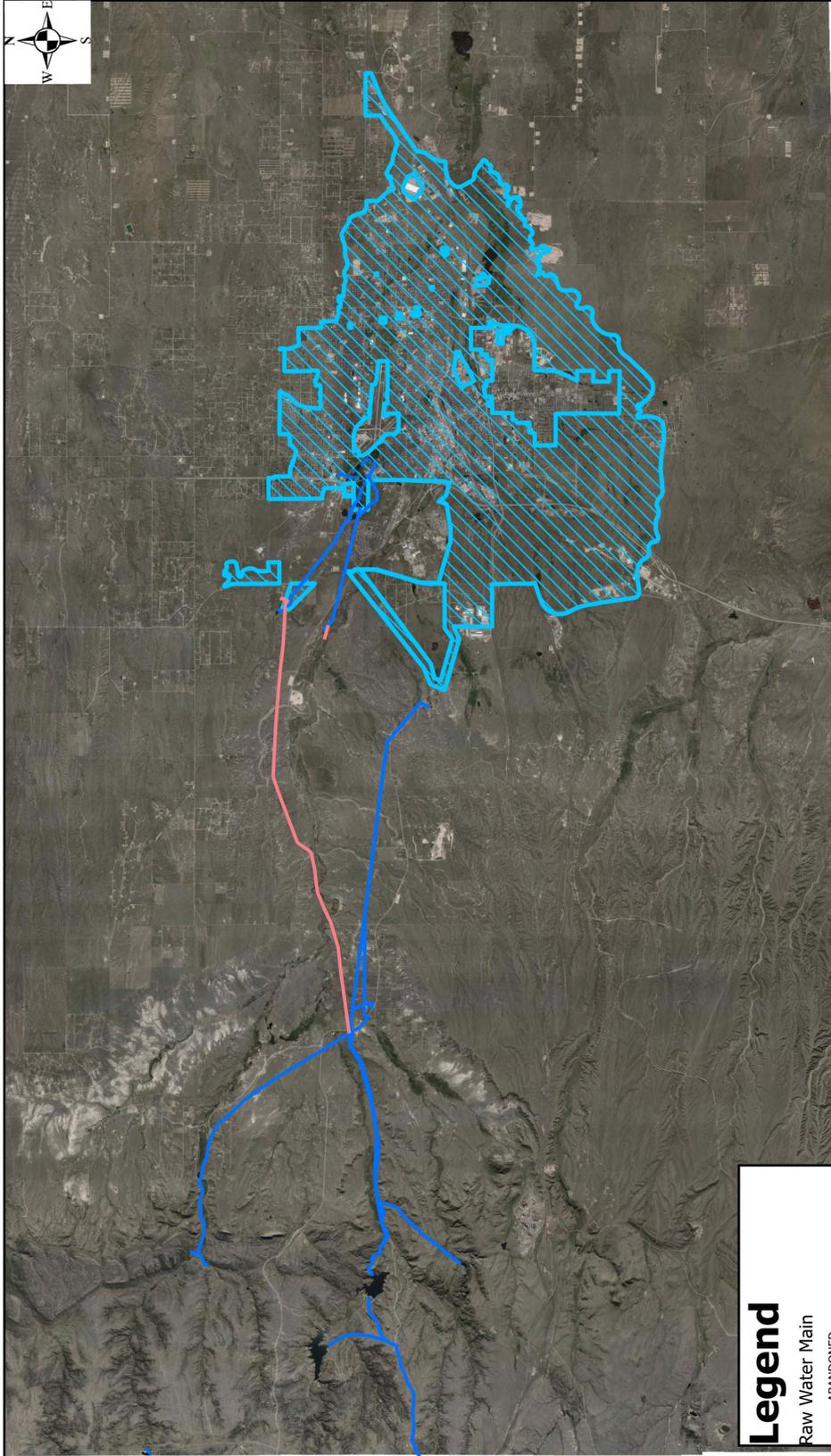
Annual payments for other purposes:	\$ <u> 0</u>	\$ <u> 0</u>
Total annual payments:	\$ 20,640,118	\$23,619,580
Balance in repair and replacement fund:	\$ 4,715,653	\$ 4,831,583
Balance in emergency fund:	\$ 5,063,128	\$ 7,873,193
Annual cost of water quality testing:	\$ 190,203	\$ 256,100

B. COMPARISON WITH OPERATING CRITERIA

1. Project Priority according to the Criteria? Priority 3, transmission pipeline (5 combined)
2. Is the project supported by the City Council or County Commission, which has jurisdiction over the project area? Yes. See attached resolution.
3. Will the project serve at least 15 water taps? Yes Number of taps 23,837
4. Is the sponsor under any federal (EPA) mandates to improve your system? (eg. Administrative orders, violations, actions taken): No
5. Does anyone in the service area haul water? No
6. Is the sponsor eligible for funding from other state or federal programs? Yes
If so, what are they: SRF
7. Is water metered? Yes Are billings based on meter readings? Yes
8. What is monthly water bill for 5,000 gallons? \$28.22 20,000 gallons? \$109.08
9. Theoretical reasonable monthly water bill (\$64,598 (AMHI) x 2.5%/12) \$134.58
10. What water conservation measures are employed by the sponsor? Yes. Previously implemented Wise Water Use plan including tiered water rates and watering restrictions. Recycled water system currently in use. Currently working to implement drought-tolerant landscaping for development projects.
11. Is the operation of the water supply system self-supporting in terms of revenues offsetting costs for operation, maintenance, debt retirement, replacement funds and emergency funds? Yes
12. Will the project consider regional solutions? Yes
13. Can the project be delayed or staged? No Should it be? No. Constructing this pipeline in stages would likely increase costs to protect the unfinished ends between stages and provide opportunity for vandalism and/or damage from natural disasters. The environmental permits required for construction would likely be further complicated with a staged construction.
14. Basis for the funding recommendation:

The Crystal Reservoir outlet works are over 100 years old and are critical components of the BOPU's system and therefore represent a notable risk to the BOPU's system. Currently, all water imported from Stage I and II is routed through the Crystal outlet works to the water treatment plant. Supply from other sources is inadequate to meet demand. The Level II Cheyenne Municipal Storage project recommended rehabilitation of the outlet works at Crystal Dam as critical due to their age and consequences that would occur if the outlet pipes were to catastrophically fail. This bypass pipeline (Alternative 2A) is a necessary precursor of the outlet works rehabilitation project recommended in

the Level II study since the rehabilitation project would require either draining or lowering the reservoir and shutting down conveyance of Stage I and II water.



Legend

- Raw Water Main
- ABANDONED
- ACTIVE
- INACTIVE
- STATUS PENDING
- BOPU Service Area Boundary
- BOPU Service Area Boundary



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UBH
Date: 9/27/21

BOPU RESOLUTION NO. 2021-09

Entitled: A RESOLUTION AUTHORIZING SUBMISSION OF AN APPLICATION TO THE WYOMING WATER DEVELOPMENT COMMISSION FOR GRANT FUNDING FOR THE CRYSTAL BYPASS PIPELINE PROJECT IN THE AMOUNT OF \$2,546,000.00 AND AUTHORIZING THE DIRECTOR OF THE BOARD OF PUBLIC UTILITIES TO EXECUTE THE APPLICATION AND ALL RELATED DOCUMENTS.

WHEREAS, Wyoming Statute 15-7-401, provides for a Board of Public Utilities (BOPU) to manage, operate, maintain, and control municipal waterworks, sanitary sewer system and sewage disposal plants; and

WHEREAS, Cheyenne City Code, Section 2.68.010, established the BOPU to have exclusive authority to manage, operate, maintain and control the Cheyenne Municipal Waterworks, Sanitary Sewage System and Sewage Disposal Plants of the City and to make all rules and regulations necessary for the safe, economical and efficient operation and maintenance of the above facilities; and

WHEREAS, all Stage I/II and Middle Crow Creek raw water must pass through Crystal Reservoir to reach the Sherard Water Treatment Plant; and

WHEREAS, the 2013 Water and Wastewater Master Plan and Cheyenne Municipal Storage, Level II, Study recommend the installation of a pipeline to bypass Crystal Reservoir in the event of dam failure, dam maintenance, or water contamination; and

WHEREAS, the Cheyenne Municipal Storage, Level II, Study recommends rehabilitation of the Crystal Dam outlet works; and

WHEREAS, the BOPU desires to pursue the Crystal Bypass Pipeline project to install a pipeline to connect the Stage II Crystal Reservoir inflow line to the Crystal Reservoir discharge line in order to bypass Crystal Reservoir; and

WHEREAS, the PROJECT cost estimate for engineering, construction, and other administrative costs is \$3,800,000.00, which includes engineering services, easements, construction and miscellaneous costs; and

WHEREAS, the PROJECT meets the criteria and is eligible for consideration of grant funding from the Wyoming Water Development Commission (WWDC) Level III Construction Account in the amount of \$2,546,000.00, sixty seven percent (67%); and

WHEREAS, the BOPU will submit an application to the Wyoming State Loan and Investment Board for a \$1,254,000.00, thirty three percent (33%), loan from the Wyoming Drinking Water State Revolving Fund; and

WHEREAS, the BOPU recognizes that the PROJECT is necessary and that it is essential to maintain redundancy to supply water from the Stage II pipeline to the Sherard Water Treatment Plant.

NOW, THEREFORE, BE IT RESOLVED BY THE GOVERNING BODY OF THE CITY OF CHEYENNE, that an application be submitted to the Wyoming Water Development Commission for a Level III Construction Account grant funding in the amount of \$2,546,000.00 for the Crystal Bypass Pipeline Project; and

BE IT FURTHER RESOLVED, that the Director of the Board of Public Utilities is hereby designated as the authorized representatives of the City of Cheyenne to act on behalf of the City of Cheyenne in all matters related to this application and related documents, including any amendments to the Project Agreement.

PRESENTED, READ AND ADOPTED this 20 day of September, 2021.

BOARD OF PUBLIC UTILITIES
BY:

Mary B Guthrie
Mary B. Guthrie, President

(SEAL)

ATTEST:

Matthew Pope
Matthew Pope, Secretary

Approved as to
form only:
[Signature]
Date: 9/27/21

RESOLUTION NO. 6182

Entitled: A RESOLUTION AUTHORIZING SUBMISSION OF AN APPLICATION TO THE WYOMING WATER DEVELOPMENT COMMISSION FOR GRANT FUNDING FOR THE CRYSTAL BYPASS PIPELINE PROJECT IN THE AMOUNT OF \$2,546,000.00 AND AUTHORIZING THE DIRECTOR OF THE BOARD OF PUBLIC UTILITIES TO EXECUTE THE APPLICATION AND ALL RELATED DOCUMENTS.

WHEREAS, Wyoming Statute 15-7-401, provides for a Board of Public Utilities (BOPU) to manage, operate, maintain, and control municipal waterworks, sanitary sewer system and sewage disposal plants; and

WHEREAS, Cheyenne City Code, Section 2.68.010, established the BOPU to have exclusive authority to manage, operate, maintain and control the Cheyenne Municipal Waterworks, Sanitary Sewage System and Sewage Disposal Plants of the City and to make all rules and regulations necessary for the safe, economical and efficient operation and maintenance of the above facilities; and

WHEREAS, all Stage I/II and Middle Crow Creek raw water must pass through Crystal Reservoir to reach the Sherard Water Treatment Plant; and

WHEREAS, the 2013 Water and Wastewater Master Plan and Cheyenne Municipal Storage, Level II, Study recommend the installation of a pipeline to bypass Crystal Reservoir in the event of dam failure, dam maintenance, or water contamination; and

WHEREAS, the Cheyenne Municipal Storage, Level II, Study recommends rehabilitation of the Crystal Dam outlet works; and

WHEREAS, the BOPU desires to pursue the Crystal Bypass Pipeline project to install a pipeline to connect the Stage II Crystal Reservoir inflow line to the Crystal Reservoir discharge line in order to bypass Crystal Reservoir; and

WHEREAS, the PROJECT cost estimate for engineering, construction, and other administrative costs is \$3,800,000.00, which includes engineering services, easements, construction and miscellaneous costs; and

WHEREAS, the PROJECT meets the criteria and is eligible for consideration of grant funding from the Wyoming Water Development Commission (WWDC) Level III Construction Account in the amount of \$2,546,000.00, sixty seven percent (67%); and

WHEREAS, the BOPU will submit an application to the Wyoming State Loan and Investment Board for a \$1,254,000.00, thirty three percent (33%), loan from the Wyoming Drinking Water State Revolving Fund; and

WHEREAS, the BOPU recognizes that the PROJECT is necessary and that it is essential to maintain redundancy to supply water from the Stage II pipeline to the Sherard Water Treatment Plant.

NOW, THEREFORE, BE IT RESOLVED BY THE GOVERNING BODY OF THE CITY OF CHEYENNE, that an application be submitted to the Wyoming Water Development Commission for a Level III Construction Account grant funding in the amount of \$2,546,000.00 for the Crystal Bypass Pipeline Project; and

BE IT FURTHER RESOLVED, that the Mayor, the City Clerk, and the Director of the Board of Public Utilities are hereby designated as the authorized representatives of the City of Cheyenne to act on behalf of the City of Cheyenne in all matters related to this application and related documents, including any amendments to the Project Agreement.

PRESENTED, READ AND ADOPTED this 25th day of October, 2021.

CITY OF CHEYENNE

BY:



Patrick Collins, Mayor

(SEAL)

ATTEST:



Kristina F. Jones, City Clerk

2022 RECOMMENDATION-CONSTRUCTION PROJECTS

Project Name: Evanston Transmission Pipeline 2022 **Program:** New Development

Project Type: Municipal **County:** Uinta

Sponsor: City of Evanston

WWDO Recommendation: Level III **Proposed Budget:** \$1,219,400

WWDC Grant ¹ (67%)	\$ 1,219,400
<u>Other Funding Source² (33%)</u>	<u>\$ 600,600</u>
Total	\$ 1,820,000

¹ Not to Exceed 67% of project eligible costs

² 33% of project eligible costs (Sponsor, DWSRF, SLIB, and USDA funding sources)

Project Manager: William Brewer

Project Description: New dedicated transmission pipeline from treatment plant to existing tank.

1. Describe existing status in the program and previous appropriations.

Prior Legislation

<u>Year</u>	<u>Project</u>	<u>Appropriation</u>
2019	L-I master Plan	\$ 126,000

2. Describe existing water supply using information in the application.

The City of Evanston receives its raw water from Sulphur Creek Reservoir or a direct flow intake on the Bear River, both located south of the city. The raw water is conveyed from the reservoir and intake through separate 36-inch transmission lines to a diversion box. From the diversion box, a 30-inch line conveys the raw water about 10 miles north to the water treatment plant located in the city. The distribution system consists of eight buried cement storage tanks that range in capacity from 80,000 to 1,000,000 gallons.

3. Summarize the request.

Request is to install a new dedicated transmission line to replace an undersized transmission pipeline to an existing tank.

4. Summarize the reasons for the request.

Current pipeline is undersized and cannot be used to fill the tank during high demand. The existing pipeline also has distribution system turnouts and further reduces the ability to fill the tank.

Estimated Level III WWDC Eligible Costs:

Preparation of Final Designs and Specifications	\$ 124,280	
Permitting and Mitigation	\$ 0	
Title of Opinion	\$ 4,000	
Acquisition of Access and Rights of Way	<u>\$ 15,000</u>	
Pre-Construction Costs (Subtotal # 1)		\$ 143,280

Cost of Project Components		
Mobilization, Bonding Insurance	\$ 118,000	
Dedicated transmission line (installed, valves, etc.)	\$ 986,000	
Water line connections (2)	\$ 6,000	
10' (max) pavement replacement	\$ 71,800	
Traffic Control	\$ 11,000	
Protection of in-place structures and utilities	<u>\$ 50,000</u>	

Construction Cost (Subtotal #2)		\$ 1,242,800
Construction Engineering Costs (Subtotal # 2 x 10%)		<u>\$ 124,280</u>
Components and Engineering Costs (Subtotal # 3)		<u>\$ 1,367,080</u>
Contingency (Subtotal #3 x 15%)		<u>\$ 205,062</u>
Construction Cost Total (Subtotal #4)		\$ 1,572,142
Total Project Cost (Subtotal #1 + Subtotal #4)		\$ 1,715,422
Inflation Costs (3% per year, two years)		<u>\$ 104,469</u>

Total Project Costs **\$ 1,819,891**

Total Project Costs Rounded **\$ 1,820,000**

Level III Recommended Funding @ 67% Grant: **\$ 1,219,400**

Ineligible Expenses

Upgrades to existing distribution system		<u>\$ 60,000</u>
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Total Ineligible Project Costs **\$ 60,000**

PROJECT INFORMATION:

A. FINANCIAL INFORMATION

1. Service Area Information

a. Population (2000 Census) 11,507 (Current Estimate) 11,848

b. Does the entity have a comprehensive planning boundary? Yes
If so, what is the estimated additional population that could be served in the future? 1,100 in 10 years

	Pre-Project	Post Project
c. Taps served within the entity boundaries?	4,464	4,547
d. Taps outside the entity boundaries?	472	475
e. Names of other water systems served?	Bear River Joint Powers Board	

2. Water Usage (Potable water system only)

a. Total number of gallons produced by the water sources annually:

	Pre-Project	Post Project
	1,060MG	1,060MG

b. Gallons used per capita per day:

	Pre-Project	Post Project
Average Day:	248 gal	249 gal
Peak Day:	807 gal	811 gal

3. System capacity (Potable water system only):

a. Maximum capacity of the water supply system
Acre feet per day:

	Pre-Project	Post-Project
	37	37

b. What is the factor (bottleneck) limiting the ability to provide water (supply, canals, etc.):

	Pre-Project	Post-Project
	Pipe size is restricting flow	Plant capacity

c. Increased capacity needed:
Acre feet per day

	Pre-Project	Post-Project
	0	0

d. Estimated system water losses (percentage):

	Pre-Project	Post-Project
	23%	23%

4. Does the entity have an independent raw water irrigation system? No

a. Raw water system capacity (acre feet per day & gallons per day):

	Pre-Project	Post-Project
	na	na

b. Average annual raw water usage (acre feet & gallons):

	Pre-Project	Post-Project
	na	na

5. Rates

a. Tap fees:

	Pre-Project	Post-Project
Residential:	\$ 1,250	\$ 1,250

Commercial:	\$	2-5k	\$	2-5k
b. Average monthly water bill:	\$	48.20	\$	50.61

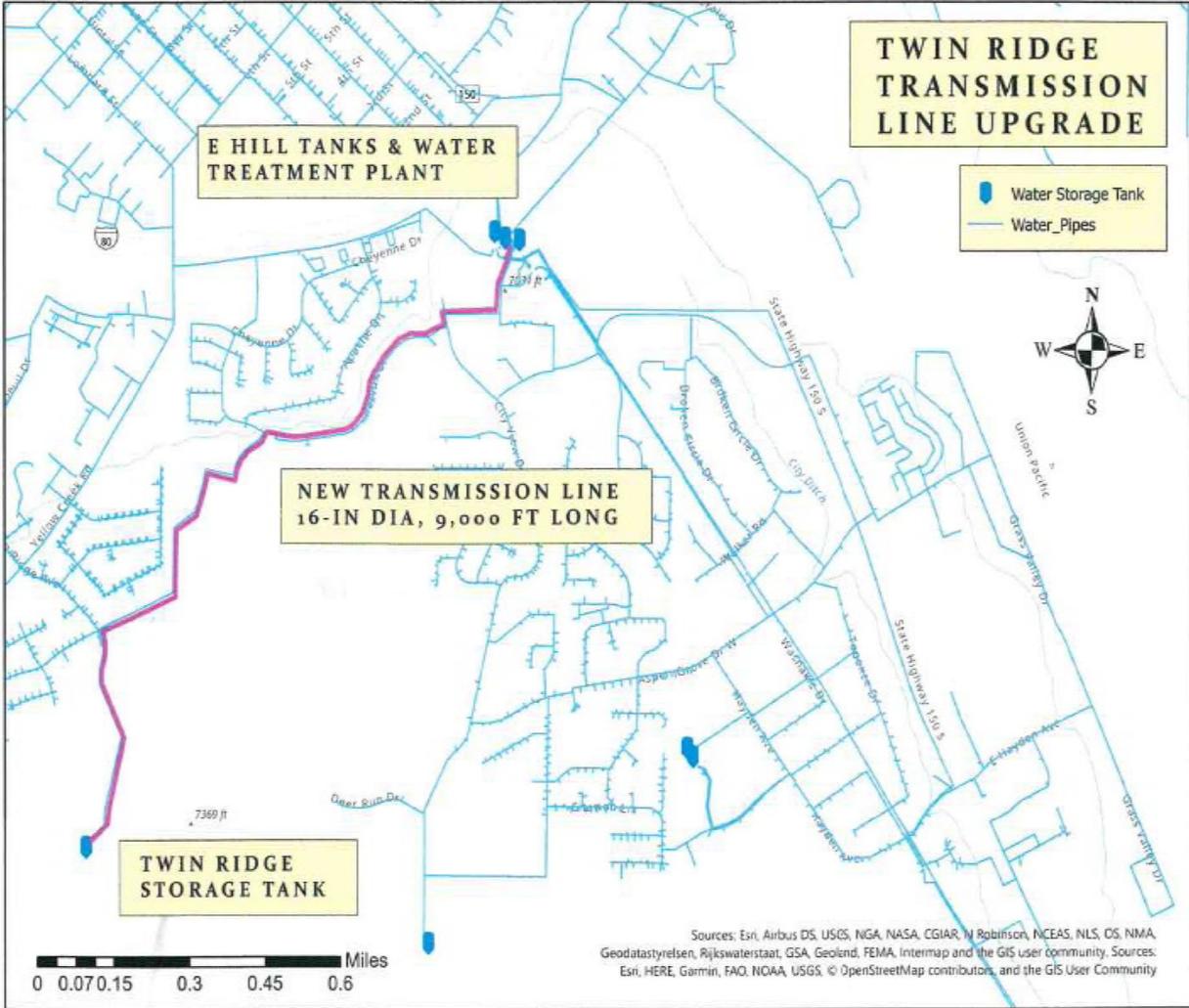
c. Water Rates
Residential ¾ and 1 inch line \$9.64 per 1000 gallons

6. Financial Statement	Pre-Project	Post-Project
Annual revenues generated from water sales:	\$ 2,303,800	\$ 2,494,351
Annual revenues from tap fees:	\$ 20,228	\$ 26,000
Annual revenues from other sources:	\$ 44,265	\$ 33,000
Total annual revenues:	\$ 2,268,292	\$ 2,565,351
Annual budget for operation and maintenance expenses:	\$ 1,061,982	\$ 1,100,468
Annual payments for debt retirement:	\$ 0	\$ 0
Annual payments to a repair and replacement fund:	\$ 191,172	\$ 205,298
Annual payments to an emergency fund:	\$ varies	\$ varies
Annual payments for other purposes:	\$ 263,511	\$ 887,370
Total annual payments:	\$ 1,517,940	\$ 2,193,136
Balance in repair and replacement fund:	\$ 700,000	\$ 700,000
Balance in emergency fund:	\$ 17,154,377	\$ 17,154,377
Annual cost of water quality testing:	\$ 8,491	\$ 16,929

B. COMPARISON WITH OPERATING CRITERIA

1. Project Priority according to the Criteria? 3 Level III transmission lines
2. Is the project supported by the City Council or County Commission, which has jurisdiction over the project area? Yes
3. Will the project serve at least 15 water taps? Yes Number of taps 4,464
4. Is the sponsor under any federal (EPA) mandates to improve your system? (eg. Administrative orders, violations, actions taken): No
5. Does anyone in the service area haul water? No
6. Is the sponsor eligible for funding from other state or federal programs? Yes
If so, what are they: MRG, SLIB, SRF
7. Is water metered? Yes Are billings based on meter readings? Yes
8. What is monthly water bill for 5,000 gallons? \$48.20 20,000 gallons? \$192.80
9. Theoretical reasonable monthly water bill (\$58,566 (AMHI) x 2.5%/12) \$122.01
10. What water conservation measures are employed by the sponsor? Yes, lawn watering restrictions and improved metering.
11. Is the operation of the water supply system self-supporting in terms of revenues offsetting costs for operation, maintenance, debt retirement, replacement funds and emergency funds? Yes

- 12.** Will the project consider regional solutions? Yes, In general the City of Evanston is a regional system but could be increased in the future
- 13.** Can the project be delayed or staged? Yes Should it be? No. The transmission line is the current bottleneck in the system preventing an existing water tank from properly filling during high demand.
- 14.** Basis for the funding recommendation: The 2020 Level II Plan identified the installation of the new transmission line addressed by this Level III project as the highest priority for the system.



RESOLUTION 21-59

RESOLUTION OF THE GOVERNING BODY OF THE CITY OF EVANSTON, WYOMING AUTHORIZING THE SUBMISSION OF A GRANT APPLICATION TO THE WYOMING WATER DEVELOPMENT COMMISSION TO FUND THE CONSTRUCTION OF A 16" WATER TRANSMISSION LINE FROM THE EVANSTON WATER TREATMENT PLANT TO THE TWIN RIDGE WATER TANK.

WHEREAS, a Level II Feasibility Study was recently completed regarding concerns about the water storage capacity and the water distribution system of the City of Evanston; and

WHEREAS, one of the findings of the Study was that significant water distribution problems would be alleviated if a new water transmission line was constructed from the Evanston Water Treatment Plant to the Twin Ridge Water Tank;

NOW, THEREFORE, BE IT RESOLVED BY THE GOVERNING BODY OF THE CITY OF EVANSTON, WYOMING THAT:

Section 1: The City of Evanston hereby authorizes the submission of a grant application to the Wyoming Water Development Commission to fund the construction of a 16" water transmission line from the Evanston Water Treatment Plant to Twin Ridge Water Tank.

Section 2: The Mayor and City Clerk are hereby authorized to sign and attest all documents which may be necessary to timely submit the Grant Application to the Wyoming Water Development Commission.

PASSED, APPROVED AND ADOPTED this 17th day of August, 2021.



Kent H. Williams, Mayor

ATTEST:



Diane Harris, City Clerk

Lynch	<u>Y</u>
Outley	<u>Y</u>
Perkes	<u>Y</u>
Williams	<u>Y</u>
Welling	<u>Y</u>
Sellers	<u>Y</u>
M Welling	<u>E</u>

2022 RECOMMENDATION-CONSTRUCTION PROJECTS

Project Name: Gillette Regional Extensions
Phase VI 2022

Program: New Development

Project Type: Municipal

County: Campbell

Sponsor: City of Gillette

WWDO Recommendation: Level III

Proposed Budget: \$1,125,600

WWDC Grant ¹ (67%)	\$ 1,125,600
<u>Other Funding Source² (33%)</u>	<u>\$ 554,400</u>
Total	\$ 1,680,000

¹ Not to exceed 67% of project eligible costs

² Sponsor's 33% share from Campbell County Capital Facilities Tax

Project Manager: Sol Brich

Project Description: This project is the sixth regional extension project and will provide design, right of way acquisition, permitting, and construction to connect the Stroup, Eagle Ridge, and People's Improvement and Sewer Districts to the Gillette Regional Water Supply Project.

1. Describe existing status in the program and previous appropriations.

Existing Legislation

<u>Year</u>	<u>Project</u>	<u>Appropriation</u>
2009, 10, 11, 12, 13 14 15	LIII, Gillette Madison Pipeline	\$ 190,328,358
2016	LIII, Gillette Regional Extensions-Phase II	\$ 2,237,800
2017	LIII, Gillette Regional Extensions-Phase III 2017	\$ 2,735,700
2018	LIII, Gillette Regional Extensions-Phase IV 2018	\$ 1,809,000
2020	LIII, Gillette Regional Extensions – Phase V 2020	\$ 4,610,000

Prior Legislation

<u>Year</u>	<u>Project</u>	<u>Appropriation</u>
1990	LII, Gillette Well Improvement Project	\$ 85,000
1992	LI, Gillette Area Master Plan	\$ 200,000
1993	LI, Gillette Area Master Plan	\$ 50,000
1993	LIII, Gillette Pipeline	\$ 408,700
1994	LII, Gillette Fort Union	\$ 400,000
1994	LII, Gillette Wells	\$ 125,000
1995, 96, 98	LIII, Gillette Fort Union Well Field	\$ 1,725,000
1995, 96	LIII, Gillette Madison Well Field Expansion	\$ 1,628,250
1997	LIII, Gillette Rehabilitation	\$ 300,000
1998	LIII, Gillette Storage & East End Transmission Improv.	\$ 2,040,000
2000	LIII, Gillette Hidden Valley Storage and Transmission	\$ 1,350,000
2001, 02	LIII, Gillette Central Zone I Isolation	\$ 759,500
2002	LII, Gillette CBM ASR	\$ 510,000
2005, 06, 09, 14, 15	LIII, Gillette Madison Pipeline Joint Bonding	\$ 5,077,500
2007	LIII, Gillette Madison and Pine Ridge Tanks	\$ 550,000
2008	LIII, Gillette Fort Union Wells	\$ 6,970,000
2008	LIII, Gillette Fort Union Well Field Phase I	\$ 1,000,000
2008	LI, Gillette Regional Master Plan	\$ 350,000

2. Describe existing water supply using information in the application.

The City of Gillette is supplied water from thirteen Fort Union formation wells, three Fox Hills formation wells, and twelve Madison formation wells. The Fort Union and Fox Hills are within the City of Gillette corporate limits. The Madison formation well field is approximately 14 miles northeast of the Town of Moorcroft, just off US HWY 14. The total capacity of the twenty-eight wells is 15,925 gpm. The City of Gillette disinfects their well water supply using chlorine gas. The City has seven water storage tanks with a total storage capacity of 22 million gallons that supply water to the distribution system.

3. Summarize the request.

The City of Gillette is requesting Level III funding for design, right of way acquisition, permitting, and construction to connect the Stroup, Eagle Ridge, and People's Improvement and Sewer Districts to the Gillette regional water supply system.

4. Summarize the reasons for the request.

This phase of the regional extension project will serve to connect the Stroup, Eagle Ridge, and People's Improvement and Sewer Districts to the Gillette regional water supply system.

Estimated Level III WWDC Eligible Costs:

Preparation of Final Designs and Specifications	\$	106,600	
Permitting and Mitigation	\$	60,000	
Title of Opinion	\$	15,000	
Acquisition of Access and Rights of Way	\$	<u>53,300</u>	
Pre-Construction Costs (Subtotal # 1)			\$ 234,900
Cost of Project Components			
Control Buildings	\$	369,200	
Electrical & SCADA	\$	15,000	
Pipe Material & Installation	\$	293,900	
Mobilization & Bonds	\$	233,500	
Right of Way Preparation	\$	62,100	
Valves & Fittings	\$	<u>59,700</u>	
Construction Cost (Subtotal #2)			\$ 1,066,000
Construction Engineering Costs (Subtotal # 2 x 10%)			\$ 106,600
Components and Engineering Costs (Subtotal # 3)			\$ 1,172,600
Contingency (Subtotal #3 x 15%)			\$ 175,890
Construction Cost Total (Subtotal #4)			\$ 1,348,490
Total Project Cost (Subtotal #1 + Subtotal #4)			\$ 1,583,390
Inflation Costs (3% per year for 2 year)			\$ 96,428
Total Project Costs			\$ 1,679,818
Total Project Costs Rounded			\$ 1,680,000
Level III Recommended Funding @ 67% Grant:			\$ 1,125,600
Estimate Non-Eligible Project Costs:			\$ 0

PROJECT INFORMATION:

A. FINANCIAL INFORMATION

1. Service Area Information

a. Population (2010 Census) 29,087 Current Estimate 33,403 (2020 Census)

b. Does the entity have a comprehensive planning boundary? Yes
If so, what is the estimated additional population that could be served in the future? 57,600

	Pre-Project	Post Project
c. Taps served within the entity boundaries?	11,081	11,081
d. Taps outside the entity boundaries?	1,484	1,484

e. Names of other water systems served? Cook Road, Bennor, Overbrook, Rafter D, Spring Hill Ranch, South Fork, Antelope Valley, Force Road Joint Powers Board, Eight Mile, Stonegate Estates, Rock Road, Freedom Hills, American Road, Meadow Springs, Crestivew, Rozette Ranchettes, Fox Ridge, Buckskin, Town of Moorcroft, Red Hills Subdivision, Gillette-Campbell County Airport, and numerous trailer parks.

2. Water Usage (Potable water system only) Pre-Project Post Project

a. Total number of gallons produced by the water sources annually: 1,772MG 1,772MG

b. Gallons used per capita per day:

Average Day:	190	190
Peak Day:	613	613

3. System capacity (Potable water system only): Pre-Project Post-Project

a. Maximum capacity of the water supply system 22.9MGD 22.9MGD

b. What is the factor (bottleneck) limiting the ability to provide water (supply, canals, etc.):

Pre-Project: Limited supply and differing water quality (high fluorides in the Fort Union and Fox Hills Formations).

Post Project: Upon completion of the separate Gillette Madison Pipeline Project, our future bottleneck that will limit our ability to provide water will be changes to future Federal Safe Drinking Water Requirements, like lower fluoride concentrations.

c. Increased capacity needed: 0 af/day 0 af/day

d. Estimated system water losses (percentage): 2% 2%

4. Does the entity have an independent raw water irrigation system? No

a. Raw water system capacity (acre feet per day & gallons per day): N/A N/A

b. Average annual raw water usage (acre feet & gallons): 0

5. Rates

a. Tap fees:	Pre-Project	Post-Project
Residential:	\$ 1,288	\$ 1,288
Commercial:	\$ 2,287	\$ 2,287
b. Average monthly water bill:	\$ 55.00	\$ 55.00
c. Water Rates		
Tiered water rates		

6. Financial Statement	Pre-Project	Post-Project
Annual revenues generated from water sales:	\$ 7,348,026	\$ 7,361,598
Annual revenues from tap fees:	\$ 45,000	\$ 45,000
Annual revenues from other sources:	\$ 69,600	\$ 69,600
Total annual revenues:	\$ 7,462,626	\$ 7,476,198
Annual budget for operation and maintenance expenses:	\$ 7,049,901	\$ 7,479,240
Annual payments for debt retirement:	\$ 0	\$ 0
Annual payments to a repair and replacement fund:	\$ 2,305,247	\$ 2,535,719
Annual payments to an emergency fund:	\$ 108,411	\$ 53,714
Annual payments for other purposes:	\$ 0	\$ 0
Total annual payments:	\$ 9,463,558	\$10,068,673
Balance in repair and replacement fund:	\$ 2,758,775	\$ 5,800,470
Balance in emergency fund:	\$ 3,523,843	\$ 3,630,097
Annual cost of water quality testing:	\$ 25,000	\$ 25,000

B. COMPARISON WITH OPERATING CRITERIA

- Project Priority according to the Criteria? 3. Level III transmission pipelines
- Is the project supported by the City Council or County Commission, which has jurisdiction over the project area? Yes
- Will the project serve at least 15 water taps? Yes Number of taps 11,081
- Is the sponsor under any federal (EPA) mandates to improve your system? (eg. Administrative orders, violations, actions taken): No
- Does anyone in the service area haul water? No
- Is the sponsor eligible for funding from other state or federal programs? Yes
If so, what are they: MRG, SRF
- Is water metered? Yes Are billings based on meter readings? Yes
- What is monthly water bill for 5,000 gallons? \$ 27.35 20,000 gallons? \$ 86.50
- Theoretical reasonable monthly water bill (\$79,789 (AMHI) x 2.5%/12) \$ 166.23
- What water conservation measures are employed by the sponsor? Odd/Even watering schedule, rebates for smart irrigation controllers, rebates for installation of ET controllers, public outreach.

- 11.** Is the operation of the water supply system self-supporting in terms of revenues offsetting costs for operation, maintenance, debt retirement, replacement funds and emergency funds? No

If not, how is the difference subsidized? State grants, 1% Local Optional Sales Tax Revenue and 1% Local Capital Facilities Tax Revenue is used to pay for major water system capital replacement and expansion projects.

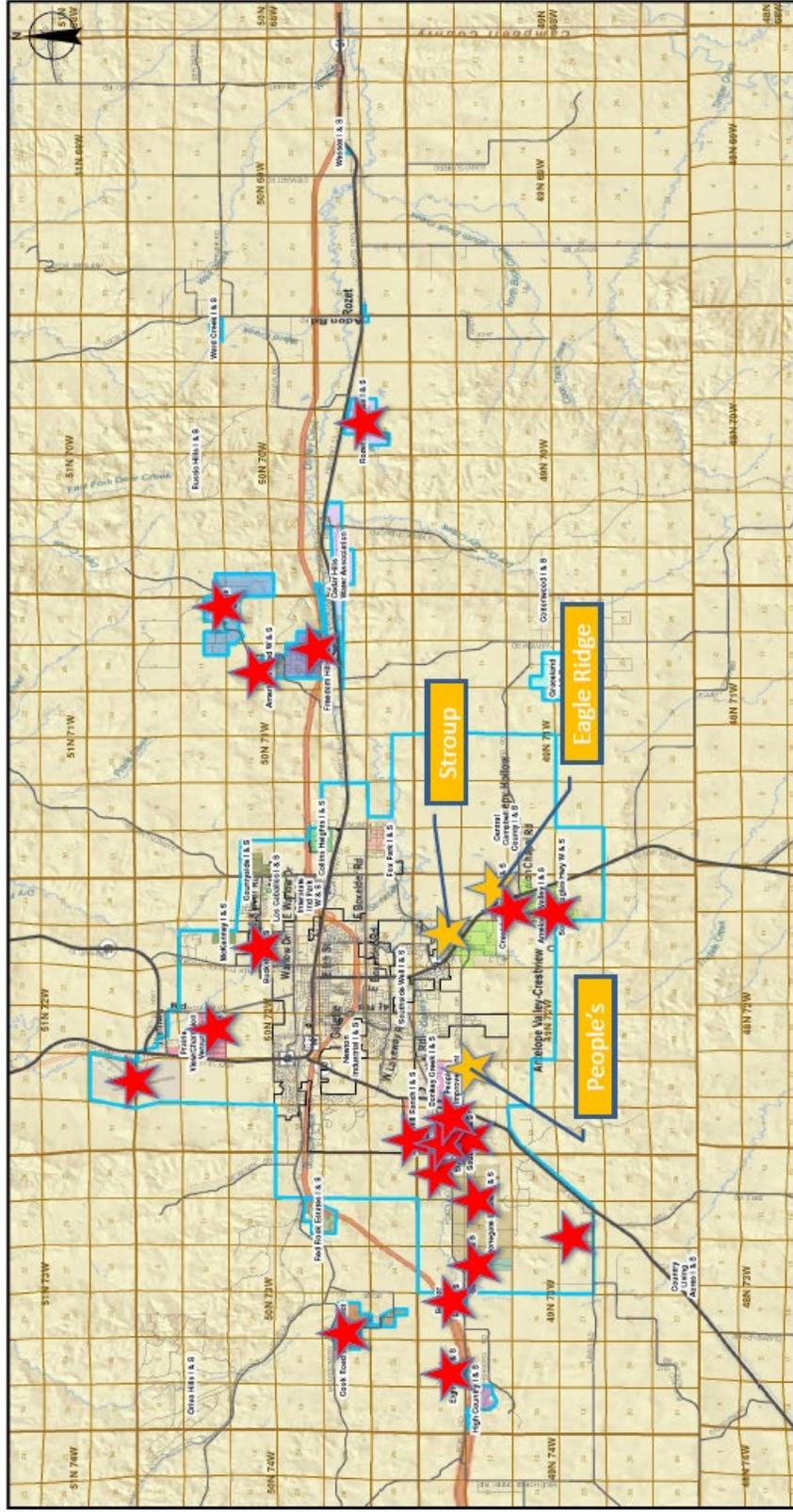
- 12.** Will the project consider regional solutions? Yes This funding request is part of a regional water supply system.
- 13.** Can the project be delayed or staged? Yes Should it be? No The regional extensions projects have been phased, this project is the sixth extensions project. The City of Gillette anticipates water delivery from the Gillette Madison Pipeline next year.
- 14.** Basis for the funding recommendation: This request will provide funding for the design and construction of the infrastructure necessary to supply regional water to the Eagle Ridge, and People's Improvement and Sewer Districts. This project was identified in the Level I regional master plan.

Gillette Regional Water Supply Project

District Connections – 2021 Funding Request



We Are All In This Together



Legend

- Designated Service Area (DSA)
- Gillette City Limits
- Section
- Township



2019 Application (Construction)



Connected and/or Fully Funded



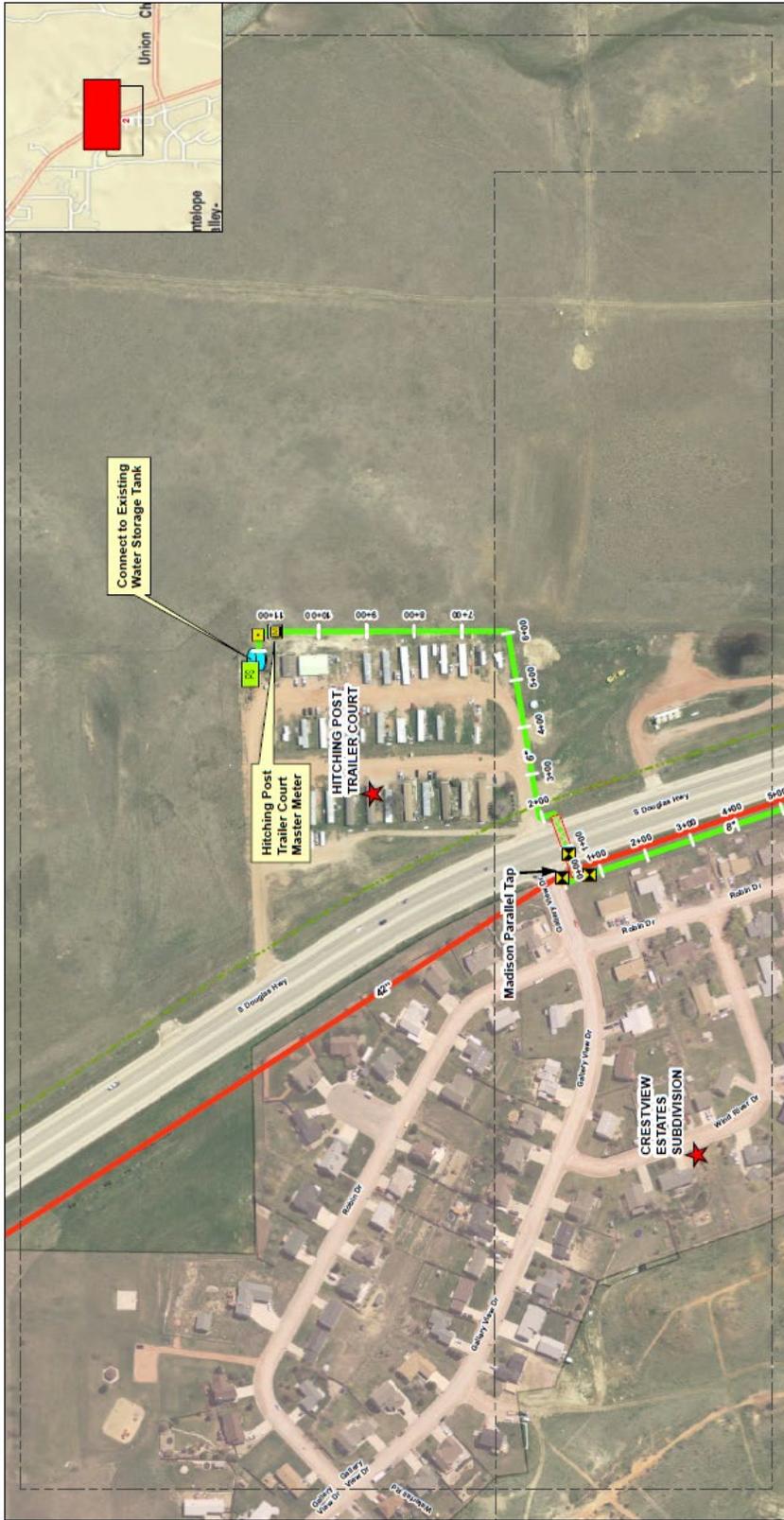
Future Projects (signed WSA)

HR

ONE COMPANY | Many solutions

Exhibit C
Gillette Regional Water Supply System
Designated Service Area

December 16, 2010
 Gillette Regional Water System Service Area - JPA



NOTE: This final map is based on available topographic information and indicates the approximate proposed waterline alignment. Easements, right-of-ways and property boundaries are shown in gray. Structures and features are only indicated where data was readily available. The information shown on this map is for informational purposes only and has not been conducted. Data provided by USGS, State of Wyoming, Campbell County, City of Gillette, and ESR.

Legend

- New Participant Fee:**
 - New Participant Appurtenances
 - Special Construction
- Other Utility Pipelines:**
 - Sanitary Sewer
 - Storm Drainage
 - Overhead Power
 - Overhead Telephone
 - Underground Power
 - Underground Telephone
- Other:**
 - Isolation Valve
 - New Master Meter
 - New Pump Station
 - New Storage Tank
 - AP/MS Valve
 - Altitude Valve
 - Blowoff
 - Chlorine Booster Station
- Water Infrastructure:**
 - Existing Well Head
 - Existing Pump Station
 - Existing Storage Tanks
 - New Madison Parallel
 - Existing Madison Waterline
 - Existing Distribution Waterline
- Regional Information:**
 - Potential Region Participants
 - Cities and Subdivisions
 - Gillette City Limits
 - Gillette Current Planning District
 - Gillette Proposed Planning District

1 inch = 200 feet

Crestview Line
 Sheet 1 of 2
 Gillette Regional System Participant Connections
 MAY 2010

HR
 ONE COMPANY 1 Many solutions



1 inch = 100 feet

**Direct Connect Systems
Stroup Trailer Court**
Sheet 4 of 11

Gillette Regional System Participant Connections
MAY 2010

ONE COMPANY | Many solutions

HR

NOTE: Proposed maps are based on available geographic information and indicate the approximate proposed waterline alignment. Easements, right-of-ways and property boundaries are shown for reference only. Utility locations and underground investigations available and are approximate. No survey, utility location or underground investigation data was used in the preparation of this map. Utility locations are only indicated where data was readily available. This map is provided by GORR, State of Wyoming, City of Gillette, and ERPC.

- Legend**
- New Participant Pipe
 - Special Construction
 - Arctic Valve
 - Atitude Valve
 - Blowoff
 - Chlorine Booster Station
 - Location Valve
 - New Master Meter
 - New Pump Station
 - New Storage Tank
 - Existing Well Head
 - Existing Pump Station
 - Existing Storage Tanks
 - New Madison Panel
 - Existing Collection Waterline
 - Existing Distribution Waterline
 - Other Utility Pipelines
 - Sanitary Sewer
 - Storm Drainage
 - Overhead Power
 - Overhead Telephone
 - Underground Power
 - Underground Telephone
 - Potential Regional Participants
 - Cities and Subdivisions
 - Gillette City Limits
 - Gillette Current Planning District
 - Gillette Proposed Planning District
 - Matchline

RESOLUTION NO. 2768

A RESOLUTION AUTHORIZING CITY STAFF TO SUBMIT A LEVEL III GRANT APPLICATION ON BEHALF OF THE CITY OF GILLETTE TO THE WYOMING WATER DEVELOPMENT COMMISSION FOR PROJECTS TO EXTEND REGIONAL WATER SERVICE TO THE PEOPLE'S IMPROVEMENT AND SERVICE DISTRICT, EAGLE RIDGE MOBILE HOME PARK WATER SYSTEM, AND STROUP MOBILE HOME PARK WATER SYSTEM.

WHEREAS, the Wyoming Water Development Commission completed an October 2009 Gillette Regional Master Plan Level I Study which identified a Regional Water Service area that will benefit existing Water Districts surrounding Gillette.

WHEREAS, the City of Gillette, with assistance from Campbell County, completed a May 2010 Regional System Potential Participant Connections (Level II) Study which provided detailed construction budget cost estimates to extend regional water service to existing Water Districts surrounding Gillette.

WHEREAS, the City of Gillette and Campbell County, with assistance from the Wyoming Water Development Commission, executed a December 21, 2010 Regional Water Joint Powers Agreement that identifies a Designated Service Area, Organization Structure, Financial Strategies and Governance Methods for future management of the Gillette Regional Water Supply System.

WHEREAS, \$20 million in revenues was received through a Specific Purpose Excise Tax (Capital Facilities Tax) to pay for the 33% local match to extend Regional Water Service from the new Gillette Madison Pipeline to existing Water Districts located within the Designated Service Area for the Gillette Regional Water Supply Project.

WHEREAS, the City of Gillette has received funding commitments from the Wyoming Water Development Commission for the Design, Permitting, Easements, and Construction for five (5) separate phases of the Gillette Regional Water Supply Project which will serve twenty (20) Water Districts.

WHEREAS, the City of Gillette has entered into Water Service Agreements with the following Water Districts identified as Priority Six Water Districts: People's Improvement and Service District, the Eagle Ridge Mobile Home Park Water System, and the Stroup Mobile Home Park Water System.

WHEREAS, the City of Gillette will own, operate and maintain the proposed extension pipelines and appurtenances up to wholesale master meter(s) from the new Madison Pipeline Project to the existing Water Districts located within the Designated Service Area as established by the December 21, 2010 Joint Powers Agreement.

NOW, THEREFORE, BE IT RESOLVED BY THE GOVERNING BODY OF THE CITY OF GILLETTE, WYOMING.

CITY STAFF IS AUTHORIZED TO SUBMIT A LEVEL III GRANT APPLICATION ON BEHALF OF THE CITY OF GILLETTE TO THE WYOMING WATER DEVELOPMENT COMMISSION FOR PROJECTS TO EXTEND REGIONAL WATER SERVICE TO THE PEOPLE'S IMPROVEMENT AND SERVICE DISTRICT, EAGLE RIDGE MOBILE HOME PARK WATER SYSTEM, AND STROUP MOBILE HOME PARK WATER SYSTEM.

PASSED, APPROVED AND ADOPTED THIS 17TH DAY OF AUGUST 2021.

PAGE 1 OF 2


Louise Carter-King, Mayor

Attest:


Cindy Staskiewicz, City Clerk

2022 RECOMMENDATION-CONSTRUCTION PROJECTS

Project Name: Northwest Rural Water System Improvements 2022

Program: New Development

Project Type: Municipal

County: Park

Sponsor: Northwest Rural Water District (NRWD)

WWDO Recommendation: Level III

Proposed Budget: \$ 700,000

WWDC Grant ¹ (67%)	\$ 700,000
<u>Other Funding Source² (33%)</u>	<u>\$ 345,000</u>
Total	\$ 1,045,000

¹ Not to Exceed 67% of project eligible costs

² 33% of project eligible costs (will seek DWSRF loan)

Project Manager: Wade Verplancke

Project Description: This project will install three new storage tanks to serve two service areas with more than 700 taps and approximately 1,700 residents of rural Park County. This project is part of a large regionalized system.

1. Describe existing status in the program and previous appropriations.

Prior Legislation

<u>Year</u>	<u>Project</u>	<u>Appropriation</u>
2003	L-III, Northwest Rural Water Storage	\$ 1,120,000
2006	L-III, Northwest Rural Water Storage II	\$ 2,960,000
2012	L-III, Northwest Rural Northern Expansion	\$ 281,400
2013	L-III, Northwest Rural Northern Expansion	\$ 3,690,025
2014	L-I, North Fork Shoshone Water Supply	\$ 150,000
2016	L-I, Northwest Rural Water Master Plan	\$ 230,000
2018	L-III, Northwest Rural Water System Improvements 2018	\$ 1,076,690
2019	L-III, Northwest Rural Water System Improvements 2019	\$ 1,055,250
2020	L-III, Northwest Rural Water System Improvements 2020	\$ 676,700
2021	L-III, Northwest Rural Water System Improvements 2021	\$ 1,413,700

2. Describe existing water supply using information in the application.

Water is contracted between SMP and BOR out of Buffalo Bill Reservoir. NRWD purchases treated water from SMP

3. Summarize the request.

Installation of three new tanks to increase storage in the O'Donnell service area by 105,000 gallons decreasing the number of pump cycles and increasing the longevity of the pumping equipment.

4. Summarize the reasons for the request.

The 2017 NRWD Master Plan identified the installation of three tanks to serve multiple service areas in rural Park County. These tanks will be located in the O'Donnell service area and will give NRWD the flexibility to feed the Garland and North End service areas. The Master Plan projected growth in these areas and identified bottlenecks in some of the existing project components. The three tanks included in this project will help improve the system and address the concerns identified in the Master Plan.

Estimated Level III WWDC Eligible Costs:

Preparation of Final Designs and Specifications	\$ 72,122	
Permitting and Mitigation	\$ 15,000	
Title of Opinion	\$ 0	
Acquisition of Access and Rights of Way	<u>\$ 15,000</u>	
Pre-Construction Costs (Subtotal # 1)		\$ 102,1220
Cost of Project Components		
Mobilization, Bond, and Insurance	\$ 75,500	
Electrical Service Connection	\$ 40,000	
Storage Tanks with Fittings and Piping	\$ 328,500	
Site Grading	\$ 162,050	
Piping	\$ 105,800	
Fencing	\$ 9,375	
Electrical Service Connection	\$ 40,000	
Construction Cost (Subtotal #2)		\$ 721,225
Construction Engineering Costs (Subtotal # 2 x 10%)		<u>\$ 72,123</u>
Components and Engineering Costs (Subtotal # 3)		\$ 793,348
Contingency (Subtotal #3 x 15%)		<u>\$ 119,002</u>
Construction Cost Total (Subtotal #4)		\$ 912,350
Total Project Cost (Subtotal #1 + Subtotal #4)		\$ 1,014,472
Inflation Costs (3% per one year)		<u>\$ 30435</u>
Total Project Costs:		\$ 1,044907
Level III Recommended Funding @ 67% Grant: (Rounded)		\$ 700,000

Ineligible Expenses: None

PROJECT INFORMATION:

A. FINANCIAL INFORMATION

1. Service Area Information

- a. Population (2010 Census) 7,000 (Current Estimate) 8,500
- b. Does the entity have a comprehensive planning boundary? Yes
If so, what is the estimated additional population that could be served in the future? 15,000

	Pre-Project	Post Project
c. Taps served within the entity boundaries?	3,170	3,300
d. Taps outside the entity boundaries?	1	1

- e. Names of other water systems served? The district (outside tap) was recently annexed by the City of Cody and the NRWD has an agreement with the City of Cody to serve the lot.

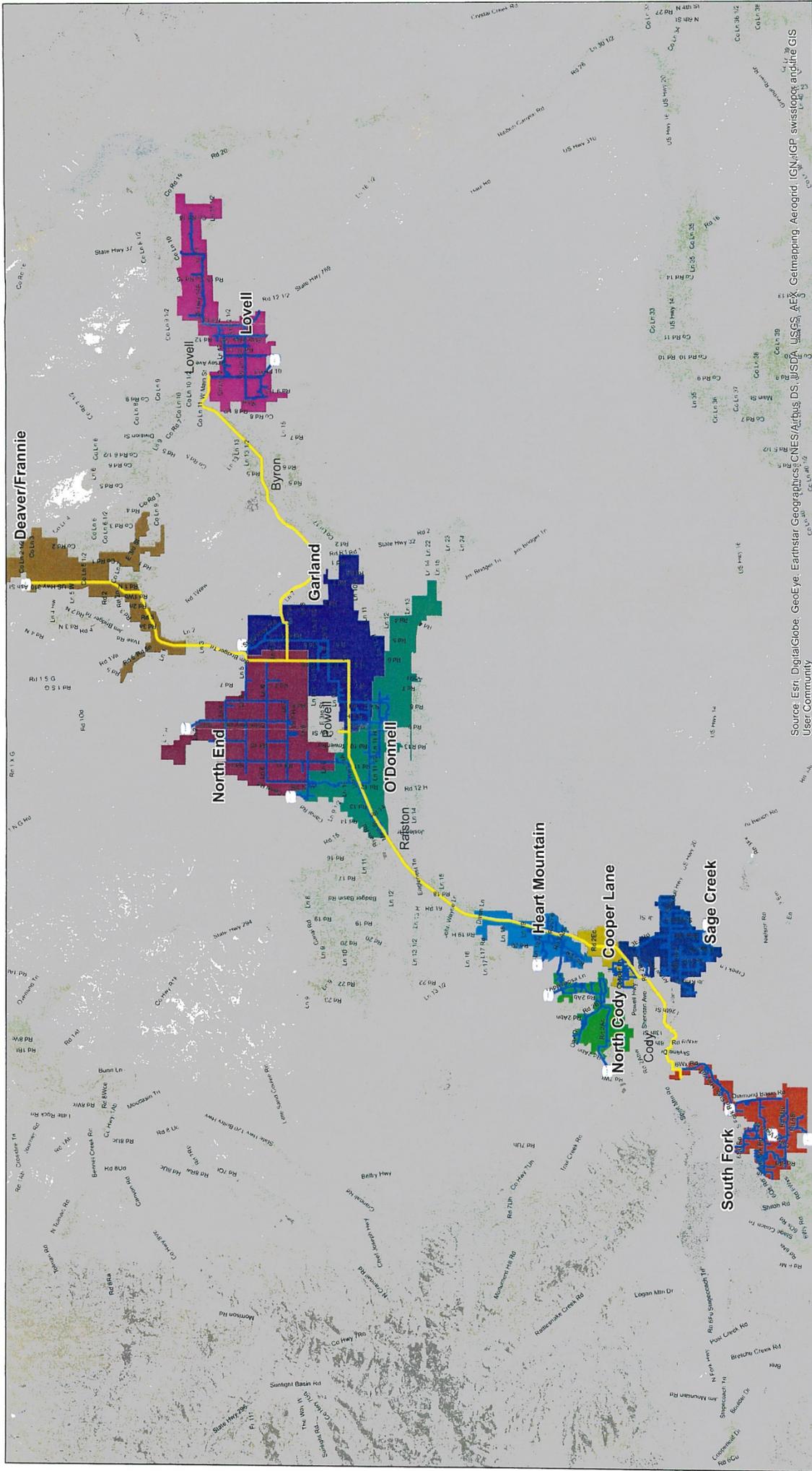
2. Water Usage (Potable water system only) Pre-Project Post Project

a. Total number of gallons produced by the water sources annually:	1.2BG	1.2BG
b. Gallons used <u>per capita</u> per day:		
Average Day:	133 gal	133 gal
Peak Day:	350 gal	350 gal
3. System capacity (Potable water system only):	Pre-Project	Post-Project
a. Maximum capacity of the water supply system		
Acre feet per day:	3.8	4.1
Gallons per day:	1.23MGD	1.34MGD
b. What is the factor (bottleneck) limiting the ability to provide water (supply, canals, etc.):		
Pumping, transmission, and Storage Capacity		None
c. Increased capacity needed:		
Acre feet per day	0.32	0
Gallons per day	105,000	0
d. Estimated system water losses (percentage):	8%	8%
4. Does the entity have an independent raw water irrigation system? No		
a. Raw water system capacity (acre feet per day & gallons per day):	N/A	
b. Average annual raw water usage (acre feet & gallons):	N/A	
5. Rates	Pre-Project	Post-Project
a. Tap fees:		
Residential:	\$ 5,500	\$ 6,000
Commercial:	\$ 8,000	\$ 9,000
b. Average monthly water bill:	\$ 70	\$ 72
c. Water Rates		
Tiered water rates		
6. Financial Statement	Pre-Project	Post-Project
Annual revenues generated from water sales:	\$ 470,000	\$ 510,000
Annual revenues from tap fees:	\$ 100,000	\$ 150,000
Annual revenues from other sources:	\$ <u>2,427,000</u>	\$ <u>2,749,000</u>
Total annual revenues:	\$ 2,997,000	\$ 3,409,000
Annual budget for operation and maintenance expenses:	\$ 2,062,000	\$ 2,165,000
Annual payments for debt retirement:	\$ 527,000	\$ 550,000
Annual payments to a repair and replacement fund:	\$ 201,000	\$ 201,000
Annual payments to an emergency fund:	\$ 50,000	\$ 50,000
Annual payments for other purposes:	\$ <u>0</u>	\$ <u>0</u>
Total annual payments:	\$ 2,841,000	\$ 2,966,100

Balance in repair and replacement fund:	\$ 2,200,000	\$ 2,500,000
Balance in emergency fund:	\$ 307,664	\$ 357,664
Annual cost of water quality testing:	\$ 4,000	\$ 4,000

B. COMPARISON WITH OPERATING CRITERIA

1. Project Priority according to the Criteria? 4 – Level III potable water storage tanks
2. Is the project supported by the City Council or County Commission, which has jurisdiction over the project area? No other entities are being impacted; therefore, there have been no formal discussions regarding support at this time. If support is necessary NRWD will approach the County.
3. Will the project serve at least 15 water taps? Yes Number of taps 3,170
4. Is the sponsor under any federal (EPA) mandates to improve your system? (eg. Administrative orders, violations, actions taken): No
5. Does anyone in the service area haul water? Yes
6. Is the sponsor eligible for funding from other state or federal programs? Yes
If so, what are they: RUS, SLIB, SRF
7. Is water metered? Yes Are billings based on meter readings? Yes
8. What is monthly water bill for 5,000 gallons? \$62.50 20,000 gallons? \$111.50
9. Theoretical reasonable monthly water bill (\$63,582 (AMHI) x 2.5%/12) \$132.46
10. What water conservation measures are employed by the sponsor? Tiered water rates.
11. Is the operation of the water supply system self-supporting in terms of revenues offsetting costs for operation, maintenance, debt retirement, replacement funds and emergency funds? Yes
12. Will the project consider regional solutions? Yes; this is a regional system
13. Can the project be delayed or staged? Yes Should it be? No
14. Basis for the funding recommendation: The 2017 Master Plan identified installation of three new tanks that are addressed by this Level III project.



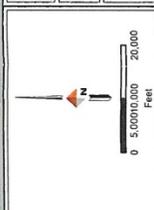
Service Areas and Overall Systems

NRWD Master Plan 2017

Date: August 25, 2017

DOWL

Figure 1



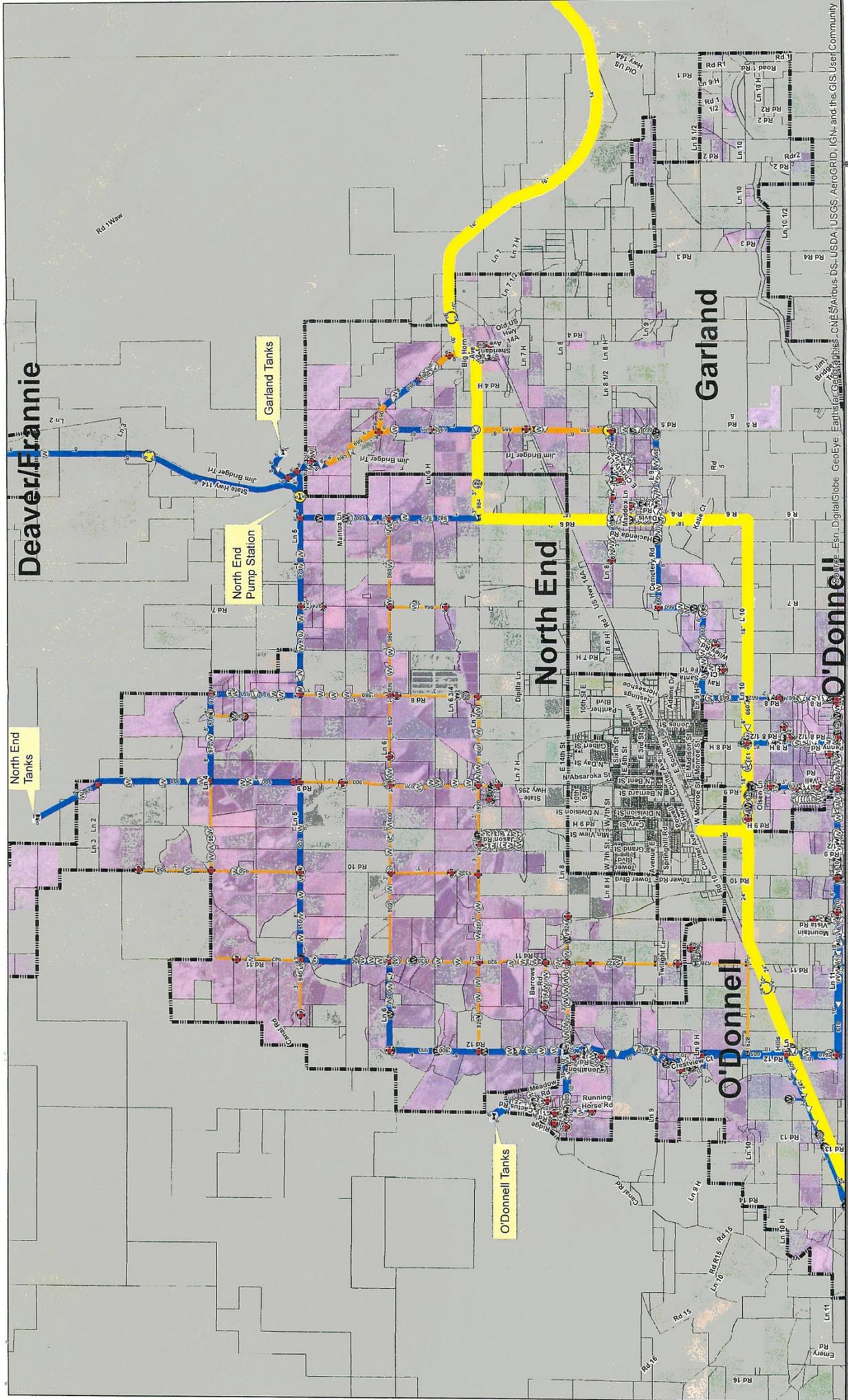
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, IGP, swisstopo, and the GIS User Community

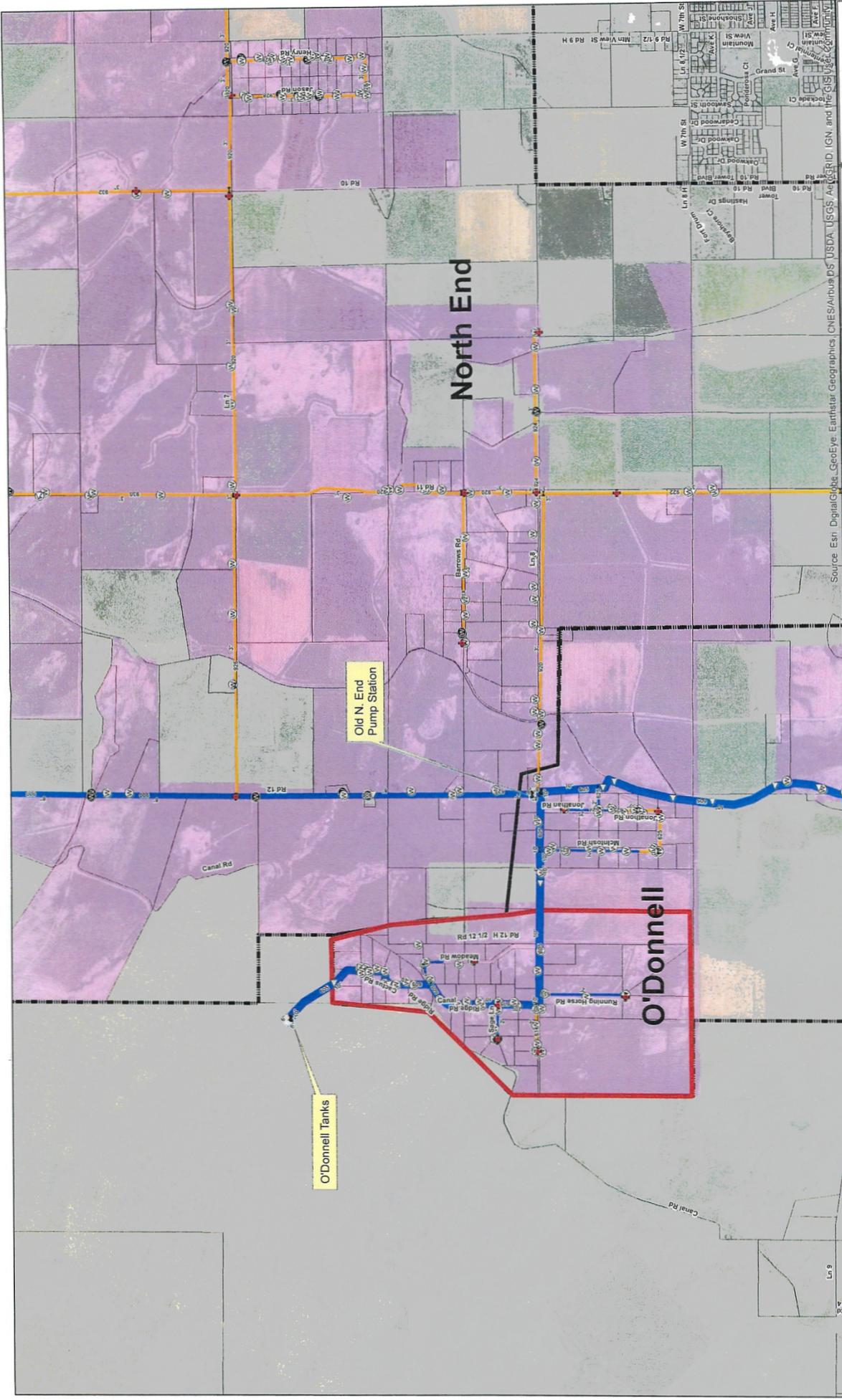
Legend

	North Cody		Pipe
	North End		NRWD
	O'Donnell		SNIP
	Sage Creek		Tank
	South Fork		
	South Fork		
	South Fork		

Water Systems

	Cooper Lane
	Deaver/Frannie
	Garland
	Heart Mountain
	Lovell





Legend

- Water Meter
 - Active
 - Inactive
- Points
 - Hydrant
- Valve
- Pump Stations
- Tank
- PRV Water System Extents
- No Service From N_End

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Scale: 0, 0.2, 0.4, 0.6, 0.8, 1.0

Date: December 31, 2020

Figure 2

O'Donnell Service from N_End

2022 RECOMMENDATION-CONSTRUCTION PROJECTS

Project Name: Broken Wheel Ranch Water Supply 2017

Program: New Development

Project Type: Rural Domestic

County: Lincoln

Sponsor: Broken Wheel Ranch Improvement and Service District

Sponsor's Request: Time Extension

Proposed Budget Increase: \$0

WWDO Recommendation: Extend the reversion date from July 1, 2022, to July 1, 2023.

Previously Approved Budget: \$ 915,000

WWDC Grant ¹ (67%)	\$ 613,050
<u>Sponsor Cost Share (33%)</u>	<u>\$ 301,950</u>
Total	\$ 915,000

¹ Not to exceed 67% of project eligible costs.

Project Manager: Sol Brich

Project Description:

The goal of the Broken Wheel Ranch Water Supply project is to design and construct a groundwater well, storage tank, transmission pipeline, and appurtenances necessary to make it function. The project has been delayed by difficulties in finding a well site. The District worked with six different landowners before finding one in January of 2021 that was willing to allow the drilling of a test well. The District has obtained land access agreements for the well site and transmission line alignment, and is currently developing a proposal for the drilling of a test well to determine if the site can meet District water demand. The District is requesting a 12-month extension to complete the project.

2022 RECOMMENDATION-CONSTRUCTION PROJECTS

Project Name: Gillette Madison Pipeline

Program: New Development

Project Type: Municipal

County: Campbell

Sponsor: City of Gillette

Sponsor's Request: Time Extension

Proposed Budget Increase: \$0

WWDO Recommendation: Extend the reversion date from July 1, 2022 to July 1, 2024

Legislative Approved Budget: \$ 190,120,358

WWDC Grant (67.00%) ¹ :	\$	145,792,000
WWDC Loan (20.37%, 4%, 5 years):	\$	44,328,358
Sponsor Cost Share (12.63%):	\$	<u>27,479,642</u>
Total:	\$	217,600,000

¹ Not to exceed 67% of project eligible costs.

Project Manager: Sol Brich

Project Description: The Gillette Madison Pipeline project is a regional water supply project that will serve water to users in Crook and Campbell Counties. The regional water system will serve water to an estimated 42 districts within the designated service area and the City of Gillette. The project includes five Madison formation wells, well field collection piping, 36-inch and 42-inch transmission pipelines from the well field to the City of Gillette, a 16,800-gpm pump station, a 300,000-gallon storage tank and a sodium hypochlorite disinfection facility.

The project has been delayed over the past two years by delivery delays of equipment necessary for well testing due to supply chain issues resulting from the COVID-19 epidemic, and a valve failure at the pump testing discharge location, which resulted in over pressurization and rupture of the 30" Transmission Line for the City. Pump testing has been suspended to determine the extent of the damage. Once the designs are finished, the City also believes there will continue to be lengthy material lead times for the equipment needed to complete the project. Outstanding construction projects include:

Contract 2a	Complete Development and Testing M13, M14 & M15
Contract 2c	Bid and Construct Electrical and Pumping Equipment for M13, M14 & M15

The City of Gillette has requested a two year time extension to complete the project.

2022 RECOMMENDATION-CONSTRUCTION PROJECTS

Project Name: Gillette Regional Extensions 2017

Program: New Development

Project Type: Municipal

County: Campbell

Sponsor: City of Gillette

Sponsor's Request: Time Extension

Proposed Budget Increase: \$0

WWDO Recommendation: Extend the reversion date from July 1, 2022 to July 1, 2024

Legislative Approved Budget: \$ 2,753,700

WWDC Grant (67.00%) ¹ :	\$	2,753,700
Sponsor Cost Share (33%):	\$	<u>1,356,300</u>
Total:	\$	4,110,000

¹ Not to exceed 67% of project eligible costs.

Project Manager: Sol Brich

Project Description: This project provides funding for rural users in the Meadow Springs Improvement and Service District, American Road Water and Sewer District, Freedom Hills Improvement and Service District and the Crestview Improvement and Service District to connect to the Gillette Regional Water Project. The project is still in the design phase, and has been delayed by efforts to obtain easements. The City of Gillette has requested a two year time extension to complete the project.

2022 RECOMMENDATION-CONSTRUCTION PROJECTS

Project Name: GR/RS/SC Raw Water Reservoir

Program: New Development

Project Type: Storage

County: Sweetwater

Sponsor: Green River/Rock Springs/Sweetwater County Joint Water Powers Board

Sponsor's Request: Time Extension

Proposed Budget Increase: \$0

WWDO Recommendation: Extend the reversion date from July 1, 2022 to July 1, 2023.

Previously Approved Budget: \$ 8,282,000

WWDC Grant ¹ (40.6%)	\$ 8,282,000
DWSRF (39.8%)	\$ 8,118,000
<u>Sponsor (19.6%)</u>	<u>\$ 4,000,000</u>
Total	\$20,400,000

¹ Not to exceed 50.5% of WWDC eligible costs

Project Manager: William Brewer

Project Description:

Construction of a raw water reservoir to provide raw water storage that replaces the need for additional finished water storage. Equivalent finished water storage was estimated to cost approximately \$58M. Additionally, the reservoir acts as a settling basin to remove sediment, which will benefit the efficiency of the Water Treatment Plant (WTP).

Upon initial filling of the reservoir in the fall of 2016 issues with soil cement armoring and slope settlement were noted. The sponsor hired a new engineering design team to develop bid plans and specifications to remediate the issues with the reservoir. The project was recently awarded and construction is scheduled to begin in the winter of 2021.

2022 RECOMMENDATION-CONSTRUCTION PROJECTS

Project Name: Laramie North Side Tank

Program: New Development

Project Type: Municipal

County: Albany

Sponsor: City of Laramie

Sponsor's Request: Time Extension

Proposed Budget Increase: \$0

WWDO Recommendation: Extend the reversion date from July 1, 2022 to July 1, 2024.

Previously Approved Budget: \$ 8,503,000

WWDC Grant (67%) ¹	\$ 8,107,000
WWDC Loan (33%) ²	\$ 396,000
Sponsor's Share	<u>\$ 3,597,000</u>
Total	\$12,100,000

¹ Not to exceed 67% of WWDC project eligible costs

² 33% loan at 4% interest and a term of 30 years (\$396,000 loan on \$1,200,000 design only project budget)

Project Manager: Wade Verplancke

Project Description:

The project received Level III funding from the 2015 Wyoming Legislature. The project consists of a pump station, transmission pipelines, pressure reducing stations and 1.0MG water storage tank. The project is located on the north side of Laramie and will provide water storage for Pressure Zone 3 and supply water to Pressure Zones 1, 2 and 3. The project design is complete and the project is anticipated to bid this year. The City of Laramie is requesting a two-year time extension due to delays resulting from easement negotiations.

2022 RECOMMENDATION-CONSTRUCTION PROJECTS

Small Water Project Program

Project Name: Small Water Project Program

Program: New Development

Project Type: Multipurpose

County: Statewide

Sponsor: WWDC

WWDO Recommendation: Level III (continuing)

Proposed Budget Increase: \$1,000,000*

	New Development (WDA I)
Presently available (as of 11/01/2021)	\$ 498,611
Proposed budget increase	<u>\$ 1,000,000</u>
Revised available	\$ 1,498,611

*This is the program's first year with the newly adjusted November 15th application deadline. With the new application deadline, we will be able to provide a more detailed breakdown of actual funding requests at the January WWDC and SWC meetings.

Project Description: This program provides funding for small water projects including small reservoirs, wells, pipelines and conveyance facilities, springs, solar platforms, irrigation works, windmills, environmental projects, rural community fire suppression, recreational, and wetland developments.

1. Description of the existing status in the program and previous appropriations.

EXISTING LEGISLATION-New Development

<u>Purpose</u>	<u>Chapter</u>	<u>Session</u>	<u>Account</u>	<u>Appropriation</u>	<u>Due Date</u>
Small Projects	88	2002	I	\$500,000	2014
Small Projects	118	2004	I	\$750,000	2014
Small Projects	114	2005	I	\$500,000	2014
Small Projects	32	2010	I	\$200,000	2014
Small Projects	14	2012	I	\$300,000	2014
Small Projects	14	2014	I	\$600,000	2025
Small Projects	100	2015	I	\$500,000	2025
Small Projects	100	2016	I	\$750,000	2025
Small Projects	121	2018	I	\$750,000	2025
Small Projects	55	2019	I	\$2,000,000	2025
Small Projects	113	2020	I	\$1,063,000	2025
Small Projects	12	2021	I	\$1,000,000	2025

2. Summary of the request.

The WWDO is recommending that the authorization of the program be ongoing and an additional \$1,000,000 be appropriated to meet the anticipated project application demands.

3. Program Statistics:

Current Active Account I Projects: 124

Application History:

Year	# of Account I Applications	Total # of Project Sponsors (between both accounts)	Estimated WWDC Account I Project Cost
2012	9	5	\$225,000
2013	9	6	\$225,000
2014	35	7	\$816,080
2015	33	8	\$806,830
2016	14	6	\$313,525
2017	25	9	\$612,760

2018	50	10	\$1,295,654
2019	61	14	\$1,693,617
2020	77	17	\$2,034,290
2021	55	12	\$1,546,675

2022 RECOMMENDATION-PLANNING PROJECTS

Project Name: Cloud Seeding: Operations Hydrological Assessment **Program:** New Development
Medicine Bow & Sierra Madre Mountain Ranges

Project Type: Cost/Benefit Analyses **County:** Albany and Carbon

Sponsor: WWDO

WWDO Recommendation: Level II **Proposed Budget:** \$300,000

Project Manager: Julie Gondzar

Project Description

The WWDO requests financial support from the Wyoming State Legislature for an assessment to evaluate the impacts and benefits of operational cloud seeding activities targeting Wyoming's Medicine Bow & Sierra Madre Mountain Ranges. The goal is to use improved modeling and actual seeding event data from the past four seasons' operations to better quantify the impacts the operations have on precipitation, snowpack and resulting streamflow in the North Platte and Little Snake River Basins.

Cloud seeding and streamflow modeling has advanced over the past few years. Past WWDO weather modification studies completed for Wyoming's mountain ranges were based strictly on research parameters for purposes of determining the viability of cloud seeding, and not reflective of actual operational parameters. A new assessment of cloud seeding impacts is needed in order to validate the assumption that ongoing operations are indeed producing higher yield than previously thought, providing additional acre feet of water in operational target areas.

The assessment Scope of Work will include conducting a retrospective evaluation based on four years of WWDO's existing aerial cloud seeding activities during the operational seasons of 2018/19 through 2021/22. The type of aircraft, amount and frequency of seeding materials used, meteorological conditions, and all physical observations collected will be examined. Modeling analyses will be conducted (cloud seeding and streamflow) to better estimate hydrological impacts and cost benefits of past operations given current constraints and available physical observations. Additional work could be undertaken to conduct an assessment that focuses on impacts in a future cloud seeding season through a modeling effort that is evaluated with a more robust observational network that would be deployed to monitor and study cloud seeding operations in selected future years.

Based on results from the Wyoming Weather Modification Pilot Program (completed in 2014) and the Medicine Bow/Sierra Madre Final Design and Permitting Study (completed in 2018), a cost benefit and average increase in streamflow was shown to be approximately 12,500 additional acre feet due to winter seeding activities in the Medicine Bow and Sierra Madre Mountains. However, it is assumed that Wyoming's ongoing aerial cloud seeding activities in that target area is producing more yield for the following reasons: 1) the operating season is longer allowing for more seeding events and increased streamflow, 2) more flares are being used during each event allowing for increased snow production, 3) the atmospheric criteria for cloud seeding in an operational setting is less stringent leading to more increased snow production, and 4) a more powerful aircraft increases the length of many of the seeding missions.

With Wyoming's Medicine Bow & Sierra Madre Ranges operational project likely producing a higher yield of actual spring time streamflow (as compared to the research study's suggested yield), confidence increases in using a different set of modeled values (as projected in the Medicine Bow/Sierra Madre Final Design and Permitting Study) suggesting additional streamflow anywhere between 12,000 and 49,000 acre feet between April to July (annually). It is evident that a robust assessment is needed to evaluate the operational impacts and benefits of cloud seeding operations within the North Platte and Little Snake River Basins and to justify the level of future expenditures.

2022 WATER DEVELOPMENT PROGRAM RECOMMENDATION

MUNICIPAL/JOINT POWERS WATER BOARD WATER SYSTEMS

Project Name: LaGrange Groundwater Supply & Improvements

Program: New Development

Project Type: Municipal Water System

County: Goshen

Sponsor: Town of LaGrange

WWDO Recommendation: Level II

Proposed Budget: \$725,000

Basis for the Funding Recommendation:

A Level II feasibility study to investigate developing an additional groundwater supply well for the Town of LaGrange and other needed water system improvements.

Project Manager: Keith Clarey, P.G.

I. PROJECT DESCRIPTION

The Town of LaGrange is requesting a Level II feasibility study to evaluate the siting, construction, and testing of a new test/production well for use as a redundant groundwater supply and to use as a future supply for the Town's water system. In addition, the Town desires improved water quality from the new well than the existing Town wells provide and improvement of the Town's existing water system. The LaGrange Water Master Plan, Level I Study which is currently in progress and is scheduled for completion in the summer of 2021, has already identified the need for a Level II feasibility study as being the next step in the process.

1. Existing and Prior Legislation:

<u>Project</u>	<u>Level</u>	<u>Chapter</u>	<u>Session</u>	<u>Account</u>	<u>Appropriation</u>	<u>Reversion Year</u>
LaGrange Water Master Plan	I	150	2020	I	\$ 114,000	2023

2. Describe the location of the project:

The proposed Level II study area includes the Town of LaGrange and the adjacent portions of Goshen County surrounding the Town. The area is located within the North Platte River Basin.

3. Summarize the request:

The Town of Lagrange is requesting a Level II test well construction feasibility study to provide future additional supply and to provide redundancy for the Town's water system. The Town also desires a water source with better water quality than the existing system (deeper well in the Fox Hills Sandstone) and improvement of the Town's existing water system.

In addition, an evaluation of the need for an additional elevated 300,000-gallon storage tank, possibly located in the area southwest of the railroad tracks, needs to be performed under the Level II study for existing fire-flow requirement deficiencies and future needs. Also, the proposed tank location at the park needs to be further evaluated as an alternate location as part of the Level II study.

4. Summarize the reasons for the request:

The Town of LaGrange desires water system redundancy, improvement of the existing water system, and additional water supply, preferably of better quality.

II. WWDC ELIGIBILITY CONSIDERATIONS

1. Is the Sponsor a public entity? Yes
2. Project Priority According to WWDO Criteria: Acct I - Priority 6: LII Feasibility Studies
3. Will the project serve at least 15 water taps? Yes
 - A. Number of Taps: 151 (149 inside + 2 outside)
4. Is the sponsor eligible for funding from other state or federal programs? Yes
 - A. If so, what are they (RUS, SRF, other)? RUS, SRF, etc.
5. Is the Sponsor under any federal (EPA) mandates to improve its system? (e.g., Administrative Orders, violations, actions taken, etc.)? No
6. Is the Sponsor currently served by a regionalized water supply system (specify)? Or will the Sponsor consider regional solutions to the purpose and needs of its water supply system? No.
7. What is monthly water bill for 5,000 gallons? \$20.00 per month
 - A. 20,000 Gallons? \$20.00 per month
8. Can the project be delayed or staged? Yes.
 - A. Should it be? No.

III. PERTINENT INFORMATION

1. Existing Water Supply System

A. EPA Public Water System (PWS) Identification Number: WY5600788

B. Groundwater

(1) Number of Wells: 2 wells

(2) Primary Supply Aquifer(s) or Formation(s): White River Formation ("Brule Aquifer")

(3) Total Average Production Yield of All Wells (GPM): 1,000 gpm

C. Surface Water

(1) Source Name(s): N/A

(2) Type of Diversion(s) (Headgate, Infiltration Gallery, Pumps, Etc.): N/A

(3) Total Average Diversion Yield (CFS of GPM): N/A

D. Springs

(1) Name of Spring(s): N/A

(2) Total Average Production Yield of All Springs (CFS or GPM): N/A

E. Water Rights

(1) For the water source supply (or supplies) described above, does the Sponsor possess valid and/or adjudicated water rights?

Yes, an identification of existing water rights will be part of the 2020 LaGrange Water Master Plan, Level I Study (scheduled to be completed in the summer of 2021).

F. Transmission Pipeline

(1) Maximum Capacity of the Transmission Pipeline(s) (Gallons per Day): Unknown

(2) Increased Capacity Needed (If Known) (Gallons per Day): Yes

- (3) Approximate Distance from Source(s) to Distribution System: Less than 100 feet
- (4) Transmission Pipe Diameter(s): 12-inch
- (5) Type of Transmission Pipe Material(s): C 900, PVC
- (6) Age of Transmission Pipeline(s): 39 years old
- (7) Condition of Transmission Pipeline(s): Fair
- (8) Does the applicant possess clear title to transmission corridor easements? Yes, except for a short stretch that has a 99-year lease.

G. Water Storage

- (1) Raw (Volume and Tank Description): 300,000-gallon steel tank on the ground
- (2) Treated (Volume and Tank Description): N/A

H. Treatment

- (1) Specify Water Treatment (None, Chlorination, Filtration, Etc.): N/A

2. Existing Water Distribution System

- A. Is the water use metered? Yes
- B. Are billings based on meter readings? No
- C. Identify unmetered usage (e.g., irrigation of parks, cemeteries, fire protection, etc.): Parks and fire protection.
- D. Average Day Demand Water Usage (Gallons per Capita per Day): 430 gpcpd
- E. Maximum Day Demand Water Usage (Gallons per Capita per Day): Unknown
- F. Peak Hourly Demand Water Usage (Gallons per Capita per Day): 772 gpcpd
- G. Distribution Pipe Diameter(s): 12-inch, 8-inch, 6-inch, & 3-inch lines
- H. Type of Distribution Pipe Material(s): PVC "Certainteed" Pipe
- I. Age of Distribution Pipeline(s): 39 years old
- J. Condition of Distribution Pipeline(s): Fair
- K. Estimated System Water Losses (Percentage): Unknown ~10%
- L. Describe any fire flow protection that the system provides:
Fire flow is provided to the LaGrange Heritage Square, the Chapel, and girls dorm with sprinklers. The rest is provided with fire hydrants.
- M. What water conservation measures are employed?
None
- N. Is there an independent raw water irrigation system? No
 - (1) Raw Water System Capacity (Gallons per Day): N/A
 - (2) Average Annual Raw Water Usage (Gallons per Year): N/A

3. Demographic Information and Existing Water Service Area

- A. Population (2010 Census): 448
- B. Current Population Estimate: 435
- C. Does the applicant have a comprehensive planning boundary? No
- D. How many taps are served within the corporate limits/JPB service area? 149
- E. How many taps are served outside of the corporate limits/JPB service area? 2
- F. Identify names of other water system served: None
- G. Identify any existing planning reports (municipal or county) that address growth management in the project area. Provide titles and how copies of the reports could be obtained: None

4. Financial Information

A. Rates

- (1) Tap Fee(s) – Residential: \$1,550 per residential tap
- (2) Tap Fee(s) – Commercial: \$1,550 per commercial tap
- (3) Average Residential Monthly Water Bill and Corresponding Gallons Used:
\$20.00/month unlimited usage
- (4) Water Rates (Provide rates for all tiers and categories of use. Attach additional pages as needed.):
\$20.00 per month for residential users and \$20.00 per month for commercial users.
\$205.44 per month for the elementary school; \$20.00 per month for seven students in the dorms for Frontier School of the Bible
- (5) Identify any local conditions that affect water rates (e.g., flow-through for frost prevention, etc.):

N/A

B. Financial Statement (of Water Utility)

(1) Revenues

a. Annual Revenues Generated from Water Sales:	\$	44,465
b. Annual Revenues from Tap Fees:	\$	1,550
c. Annual Revenues from Other Sources:	\$	1,500
d. Total Annual Revenues:	\$	47,515

(2) Expenditures

a. Annual Budget for Operation and Maintenance Expenses:	\$	34,000
b. Annual Payments for Debt Retirement:	\$	0
c. Annual Payments to a Repair and Replacement Fund:	\$	0
d. Annual Payments to an Emergency Fund:	\$	0
e. Annual Payments for Other Purposes:	\$	0
f. Total Annual Payments:	\$	34,000

(3) Other

a. Balance in Repair and Replacement Fund (Water):	\$	170,000
b. Balance in Emergency Fund (General):	\$	168,000
c. Annual Cost of Water Quality Testing:	\$	2,500

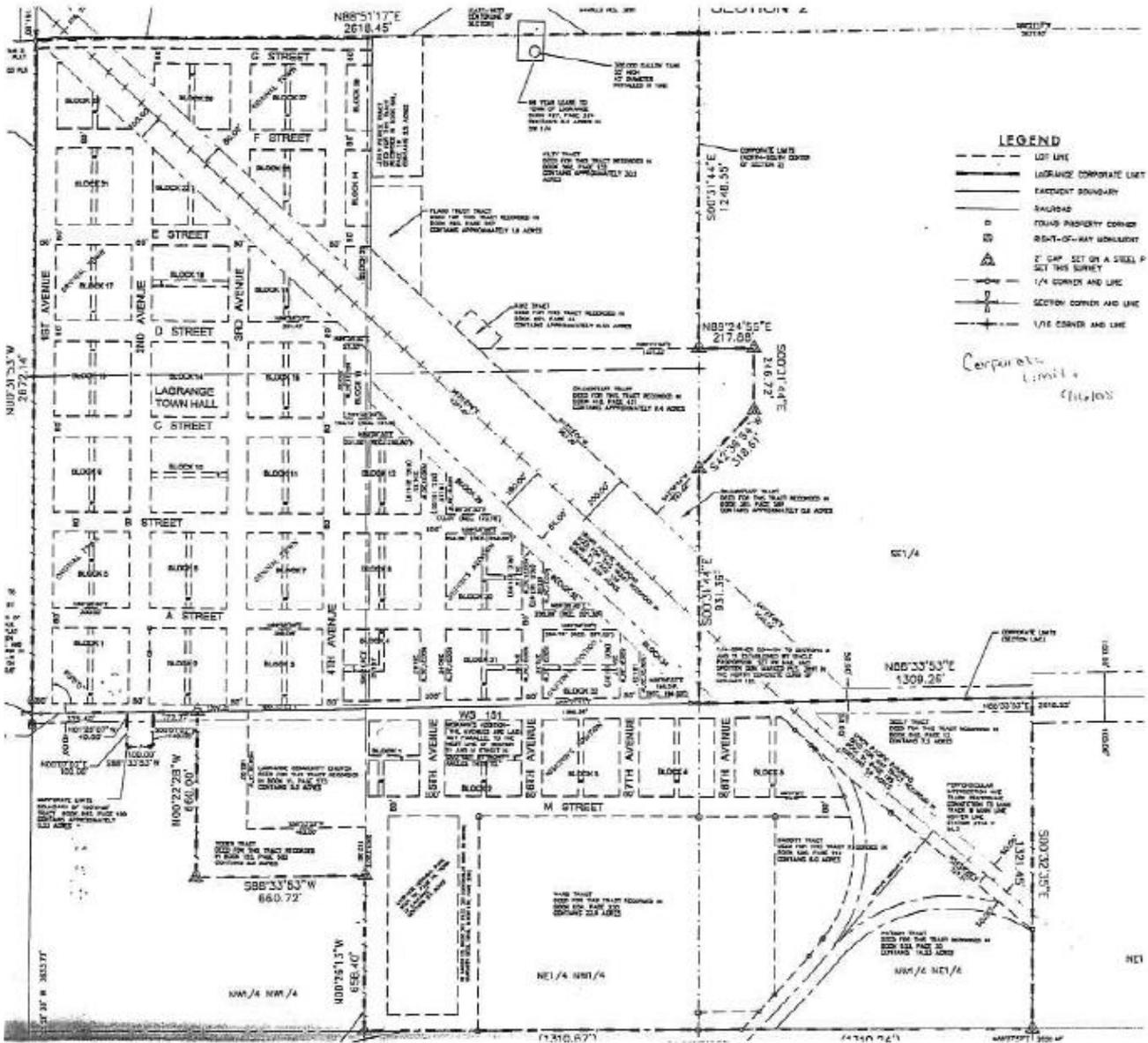
(4) Is the operation of the water system self-supporting in terms of revenues offsetting costs for operation, maintenance, debt retirement, replacement funds, emergency funds, etc.?

No

a. If not, how is the difference subsidized?

General funds

PROJECT AREA MAP



Town of LaGrange, Goshen County, Wyoming
 Population 448. Elevation 4590 ft-msl

PHOTOS





Panoramic view of the Town of LaGrange from water tower location



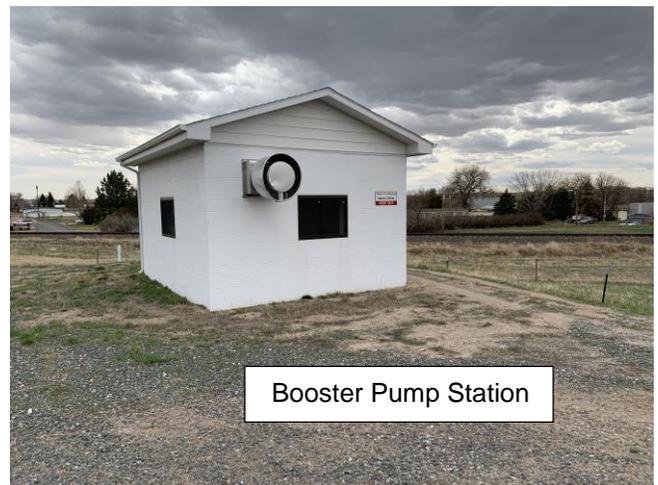
Well #1



Well #2



300,000 Gallon Tank



Booster Pump Station

RESOLUTION

Town of LaGrange

P. O. BOX 185 — LAGRANGE, WYO. 82221

PHONE: 1-307-834-2466

Resolution #1-21

Entitled. A RESOLUTION AUTHORIZING SUBMISSION OF A WATER DEVELOPMENT PROGRAM APPLICATION TO THE WATER DEVELOPMENT COMMISSION ON BEHALF OF THE GOVERNING BODY FOR THE TOWN OF LAGRANGE

FOR THE PURPOSE OF a Water Master Plan Level II Study

WITNESSETH

WHEREAS, the Governing Body for the TOWN OF LAGRANGE desires to participate in the Water Development program:

and WHEREAS, the Governing Body for the TOWN OF LAGRANGE recognizes the need for the project: and

WHEREAS, the Water Development Commission requires that certain criteria be met, as described in the Water Development Program Application, and to the best of our knowledge this request meets those criteria; and

WHEREAS, the Governing Body of the TOWN OF LAGRANGE plans to provide a \$1,000, for the application fee, from the town general contingency water fund with the submission of the project application; and

WHEREAS, the Governing Body of the TOWN OF LAGRANGE understands that if denied, 75% of this application fee will be refunded.

; and

NOW, THEREFORE, BE IT RESOLVED BY THE GOVERNING BODY OF THE TOWN OF LAGRANGE

that a Water Development Program Application with an application fee of \$1,000 be submitted to the Water Development Commission for consideration.

BE IT FURTHER RESOLVED, that Mayor Marshall & Councilman - Haas, Humphrey, Meysenburg and Huseby are hereby designated as the authorized representatives of the TOWN OF LAGRANGE to act on behalf of the Governing Body on all matters relating to this request.

PASSED, APPROVED AND ADOPTED this 11th day of February, 2021

Marshall
Mayor

Attest
Attest

State of Wyoming
County of Carbon
On this 11 day of February, 2021,
Mark A. Menckst personally appeared before me,
 who is personally known to me,
 whose identity I verified on the basis of _____
whose identity I verified on the completion of _____, a credible witness,
to be the signer of the foregoing document, and he/she acknowledged that he/she signed it.
Neil Bell
My Commission Expires 2/22/24 Notary Public



2022 WATER DEVELOPMENT PROGRAM RECOMMENDATION

MUNICIPAL/JOINT POWERS WATER BOARD WATER SYSTEMS

Project Name: Pavillion Groundwater Supply

Program: New Development

Project Type: Municipal Water System

County: Fremont

Sponsor: Town of Pavillion

WWDO Recommendation: Level II

Proposed Budget: \$687,000

Basis for the Funding Recommendation:

A Level II feasibility study to investigate developing an additional groundwater supply well for the Town of Pavillion.

Project Manager: Keith Clarey, P.G.

I. PROJECT DESCRIPTION

The Town of Pavillion is requesting a Level II feasibility study to evaluate the siting, construction, and testing of a new test/production well for use as a redundant groundwater supply and to use as a future supply for the Town's water system. In addition, the Town desires a water source with better water quality than the existing system. The Pavillion Water Master Plan, Level I Study which is currently in progress and is scheduled for completion in the summer of 2021, has already identified the need for a Level II groundwater supply study as being the next step in the process.

1. Existing and Prior Legislation:

<u>Project</u>	<u>Level</u>	<u>Chapter</u>	<u>Session</u>	<u>Account</u>	<u>Appropriation</u>	<u>Reversion Year</u>
Pavillion Water Supply	III	28	1994	I	\$ 400,000	1999
Pavillion Area Water Supply/Extension	I	48/39	2008/10	I	\$ 173,500	2010/12
Pavillion Water Supply	II	1	2011	I	\$ 100,000	2014
Pavillion Water System Improvements	III	141	2013	I	\$ 214,500	2018
Pavillion Water Master Plan	I	150	2020	I	\$ 135,000	2023

2. Describe the location of the project:

The proposed Level II study area includes the Town of Pavillion and the adjacent portions of Fremont County surrounding the Town. The area is located within the Wind River Basin.

3. Summarize the request:

The Town of Pavillion is requesting a Level II test well construction feasibility study to provide future additional supply and to provide redundancy for the Town's water system. In addition, the Town desires a water source with better water quality than the existing system.

4. Summarize the reasons for the request:

The Town of Pavillion desires water system redundancy and additional water supply, preferably of better quality.

II. WWDC ELIGIBILITY CONSIDERATIONS

1. Is the Sponsor a public entity? Yes
2. Project Priority According to WWDO Criteria: Acct I - Priority 6: LII Feasibility Studies
3. Will the project serve at least 15 water taps? Yes
 - A. Number of Taps: 115 (111 inside + 4 outside)
4. Is the sponsor eligible for funding from other state or federal programs? Yes
 - A. If so, what are they (RUS, SRF, other)? RUS, SRF, etc.
5. Is the Sponsor under any federal (EPA) mandates to improve its system? (e.g., Administrative Orders, violations, actions taken, etc.)? No
6. Is the Sponsor currently served by a regionalized water supply system (specify)? Or will the Sponsor consider regional solutions to the purpose and needs of its water supply system?

No, past WWDC studies have not found a feasible regionalized option for the Town. Yes, the Sponsor will consider regional opportunities during the course of this Level II study, if any.
7. What is monthly water bill for 5,000 gallons? \$69.50
 - A. 20,000 Gallons? \$174.50
8. Can the project be delayed or staged? Yes
 - A. Should it be? No

III. PERTINENT INFORMATION

1. Existing Water Supply System

- A. EPA Public Water System (PWS) Identification Number: WY5600039C
- B. Groundwater
 - (1) Number of Wells: 5 wells, although 1 well will likely be abandoned.
 - (2) Primary Supply Aquifer(s) or Formation(s): The upper part of the Wind River Formation.
 - (3) Total Average Production Yield of All Wells (GPM): The 4 producing wells can deliver 150 gpm combined, but this is not a reliable yield because the wells can only be pumped a few hours each day.
- C. Surface Water
 - (1) Source Name(s): None
 - (2) Type of Diversion(s) (Headgate, Infiltration Gallery, Pumps, Etc.): N/A
 - (3) Total Average Diversion Yield (CFS or GPM): N/A
- D. Springs
 - (1) Name of Spring(s): None
 - (2) Total Average Production Yield of All Springs (CFS or GPM): N/A
- E. Water Rights
 - (1) For the water source supply (or supplies) described above, does the Sponsor possess valid and/or adjudicated water rights?

The Town of Pavillion has water rights for their source and water rights were discussed with the Board of Control office in Riverton with no concerns identified.
- F. Transmission Pipeline
 - (1) Maximum Capacity of the Transmission Pipeline(s) (Gallons per Day): It can supply the estimated needed peak user demand of about 75 gpm, plus provide fire flows of about 750 gpm.
 - (2) Increased Capacity Needed (If Known) (Gallons per Day): An increase is not needed at this time.

(3) Approximate Distance from Source(s) to Distribution System: About 2,200 feet from the wells to the smaller tank and then about 1,800 feet from the gravity tank back to the distribution system.

(4) Transmission Pipe Diameter(s): From the gravity tank to the system is a 10-inch line.

(5) Type of Transmission Pipe Material(s): Believed to be PVC.

(6) Age of Transmission Pipeline(s): The 10-inch line from the supply (gravity) tank back to the distribution system was installed in 1995.

(7) Condition of Transmission Pipeline(s): Believed to be in good condition.

(8) Does the applicant possess clear title to transmission corridor easements? Yes

G. Water Storage

(1) Raw (Volume and Tank Description): 16-foot tall, 43,000-gallon bolted steel tank

(2) Treated (Volume and Tank Description): 56-foot tall, 224,000-gallon bolted steel standpipe. Appears to be in good condition (erected in 1995), however, being a standpipe, not all the volume is of value.

H. Treatment

(1) Specify Water Treatment (None, Chlorination, Filtration, Etc.): Chlorination only

2. Existing Water Distribution System

A. Is the water use metered? Yes, although meters are old and need to be replaced. There already is a plan for meter replacement.

B. Are billings based on meter readings? Yes

C. Identify unmetered usage (e.g., irrigation of parks, cemeteries, fire protection, etc.):

Very limited unmetered water usage, as there is a separate raw water irrigation system for watering parks, green areas, and private lawns. Unmetered water usage is used for the periodic flushing of fire hydrants.

D. Average Day Demand Water Usage (Gallons per Capita per Day): About 80 gpcpd

E. Maximum Day Demand Water Usage (Gallons per Capita per Day): About 125 gpcpd

F. Peak Hourly Demand Water Usage (Gallons per Capita per Day): About 240 gpcpd during peak hour

G. Distribution Pipe Diameter(s): Mostly 6-inch, some 8-inch

H. Type of Distribution Pipe Material(s): Believed to be PVC, but not certain of distribution system pipe.

I. Age of Distribution Pipeline(s): Most of the distribution system is believed to be about 75 years old.

J. Condition of Distribution Pipeline(s): Pipe is believed to be in acceptable condition.

K. Estimated System Water Losses (Percentage): Believed to be low, cannot estimate very well due to needed upgrades in both source water meters and water user meters.

L. Describe any fire flow protection that the system provides:

The system provides fire flows. Based on flowing of hydrants, the system should be able to provide at least 750 gpm and in places up to 1,000 gpm.

M. What water conservation measures are employed?

There is a separate raw water system and metered water usage is charged at \$7.00/1,000 gallons which is a rate that encourages conservation. Typical household usage of about 4,000 gallons/month reflects this point.

N. Is there an independent raw water irrigation system? Yes

(1) Raw Water System Capacity (Gallons per Day): Not known, has been adequate.

(2) Average Annual Raw Water Usage (Gallons per Year): Only operational in summer; about 68-ac-ft.

3. Demographic Information and Existing Water Service Area

A. Population (2010 Census): 231

B. Current Population Estimate: 232 (Dept. of A&I)

C. Does the applicant have a comprehensive planning boundary? No

D. How many taps are served within the corporate limits/JPB service area? 111

E. How many taps are served outside of the corporate limits/JPB service area? 4

F. Identify names of other water system served:

None, although the loadout station is used by Fremont County rural residents that haul water to their cisterns.

G. Identify any existing planning reports (municipal or county) that address growth management in the project area. Provide titles and how copies of the reports could be obtained:

No planning reports, however, the Fremont County Planner was contacted and their office does not expect growth of any significance in the future for the Town of Pavillion.

4. Financial Information

A. Rates

(1) Tap Fee(s) – Residential: \$1,100 per ¾-inch tap; \$1,200 for a 1-inch tap

(2) Tap Fee(s) – Commercial: Same as above.

(3) Average Residential Monthly Water Bill and Corresponding Gallons Used:

4,000 gallons used on average = \$62.50

(4) Water Rates (Provide rates for all tiers and categories of use. Attach additional pages as needed.):

Base rate of \$62.50 per month for residential users, which includes 4,000 gallons. Usage above this amount is at \$7.00/1,000 gallons. Commercial users at \$69.50, also includes 4,000 gallons.

(5) Identify any local conditions that affect water rates (e.g., flow-through for frost prevention, etc.):

None

B. Financial Statement (of Water Utility)

(1) Revenues

a. Annual Revenues Generated from Water Sales:	\$ 83,000
b. Annual Revenues from Tap Fees:	\$ Not counted on.
c. Annual Revenues from Other Sources: (loadout facility)	\$ 12,000
d. Total Annual Revenues:	\$ 95,000

(2) Expenditures

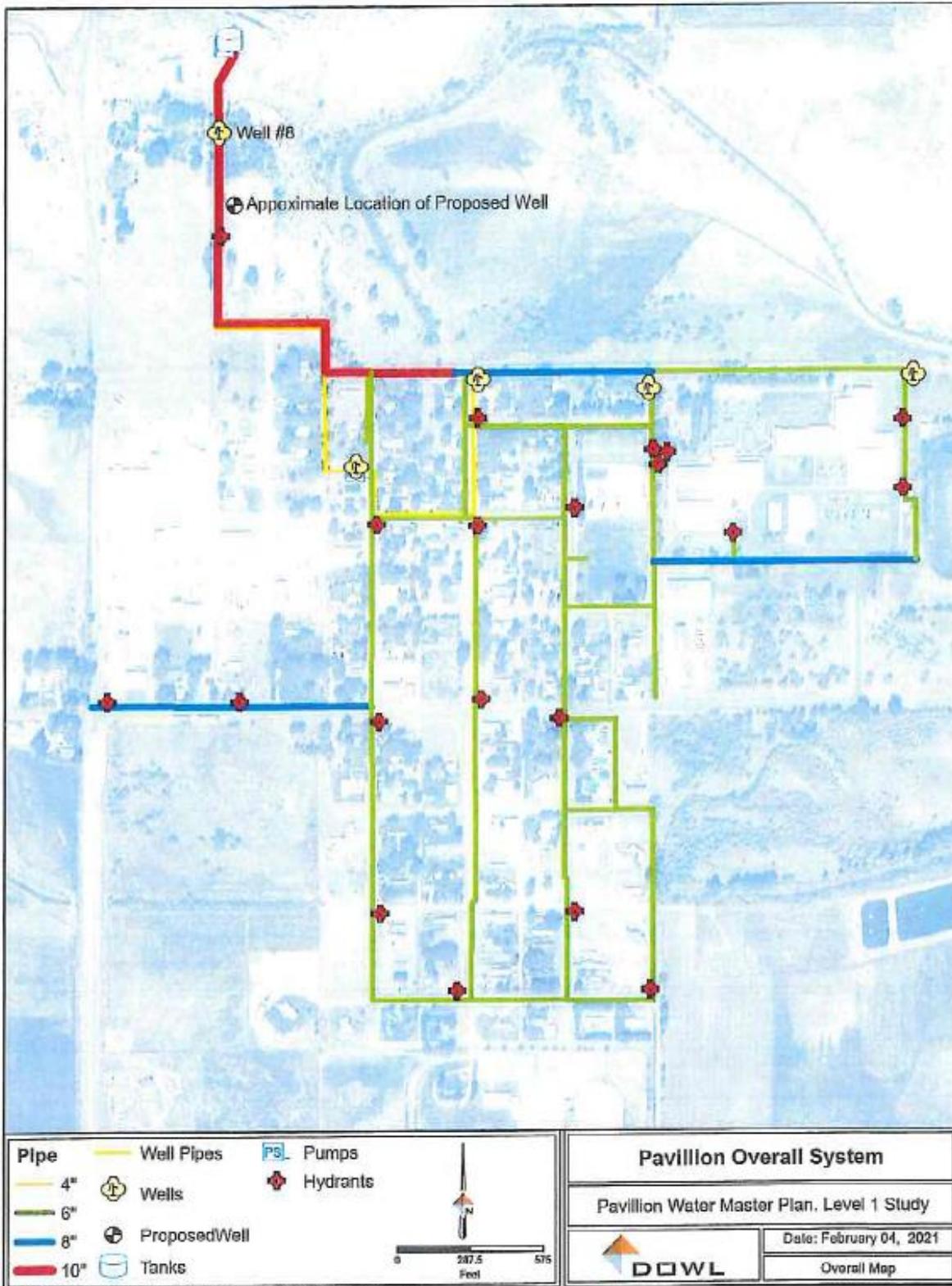
a. Annual Budget for Operation and Maintenance Expenses:	\$ 89,300
b. Annual Payments for Debt Retirement:	\$ none
c. Annual Payments to a Repair and Replacement Fund:	\$ 5,700
d. Annual Payments to an Emergency Fund: (incl. above in (c))	\$ none
e. Annual Payments for Other Purposes:	\$ 0
f. Total Annual Payments:	\$ 95,000

(3) Other

a. Balance in Repair and Replacement Fund:	\$ 34,000
b. Balance in Emergency Fund:	\$ Included above
c. Annual Cost of Water Quality Testing:	\$ 2,000

(4) Is the operation of the water system self-supporting in terms of revenues offsetting costs for operation, maintenance, debt retirement, replacement funds, emergency funds, etc.? Yes

PROJECT AREA MAP



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PHOTOS



Town of Pavillion, Fremont County, Wyoming
Population 231, Elevation 5690 ft-msl

RESOLUTION

Resolution No. 20-8

A RESOLUTION AUTHORIZING THE SUBMITTAL OF AN APPLICATION TO THE WYOMING WATER DEVELOPMENT COMMISSION FOR THE FUNDING OF A LEVEL II WELL PROJECT.

WITNESSETH

WHEREAS, the Wyoming Water Development Commission (WWDC) is conducting a Level I Master Plan of the Pavillion water system (Contract No. 05SC0298334), which is evaluating this water system and making recommendations for improvements to be considered to provide for Pavillion's water needs into the future; and

WHEREAS, Pavillion's water source is wells, several of which have condition, water quality, age or other issues regarding their dependably into the future, such that a recommendation by this Level I study will be to drill a new well for Pavillion; and

WHEREAS, the Town of Pavillion supports this master plan and wishes to have the new well recommended by this Level I study drilled and developed; and

WHEREAS, WWDC's Level II program provides a means for the design and construction of this well, and there are currently funds in this program, and Pavillion wishes to take advantage of this funding; and

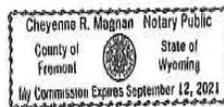
WHEREAS, the WWDC has a process for applying for these funds and this resolution and accompanying application are part of that process; and

WHEREAS, the governing body of the Town of Pavillion recognizes and supports the need for this project and the submittal of this funding application,

NOW, THEREFORE, BE IT RESOLVED BY THE TOWN COUNCIL OF PAVILLION, WYOMING, that a Level II funding application be submitted to the WWDC for the above described project.

BE IT FURTHER RESOLVED, that Mayor Chuck Snyder is hereby designated as the authorized representative of the Town of Pavillion, to act on behalf of the Governing Body on all matters relating to this application.

PASSED, APPROVED AND ADOPTED THIS 1st day of February, 2021.



Attest:

Notary Public Cheyenne R. Magnan
My Commission Expires September 12, 2021

Chuck Snyder
Chuck Snyder, Mayor

Chuck Snyder appeared before me in the State of Wyoming the County of Fremont on this 18th of February 2021

2022 WATER DEVELOPMENT PROGRAM RECOMMENDATION

WATERSHED STUDIES

Project Name: Clarks Fork Upper Shoshone Watershed Study **Program:** New Development

Project Type: Multipurpose **County:** Park

Sponsor: Cody Conservation District and Powell Clarks Fork Conservation District

WWDO Recommendation: Level I **Proposed Budget:** \$396,000

Basis for the Funding Recommendation:

This project meets program criteria requirements and has the potential to greatly benefit the citizens of Park County with a management and rehabilitation plan that outlines projects to improve watershed condition and function via the small water project program. This project provides benefits to people, wildlife, livestock, industry, and the environment.

Project Manager: Mike Robertson

Project Description:

The Cody and Powell-Clarks Fork Conservation Districts request a watershed study to evaluate current watershed function and irrigation diversion/conveyance systems in order to identify opportunities to assist landowners (and irrigation districts in the process) in water developments that convey water more efficiently and reduce excess bacteria, nutrients, and sediment loading into nearby waters. TMDLs and a sediment watershed plan have been developed to address bacteria and sediment loading in the project area. Identifying specific projects to remediate those water quality issues while improving water quantity is a high priority for both districts. There is a need to evaluate the management of water developments from the perspective of improving system efficiency while ensuring the timing and duration of waters received by downstream users is not considerably disrupted. There is also a need to evaluate the benefits of pursuing funding to conduct return flow studies in the project area.

The study will provide an inventory of physical, biological, and built systems within the watershed. Watershed studies evaluate water infrastructure and water storage systems for enlargement and rehabilitation, assess current condition of wetlands and riparian areas within the drainage, and provide geomorphic classification. This information will provide baseline information from which the Districts can pursue implementation of management practices that address the natural resource issues within the drainage.

The proposed study area is located in Park County, includes the towns of Cody and Powell and Buffalo Bill Reservoir, and covers approximately 2,300,000 acres. The watershed drains a large portion of the Big Horn Basin in NW Wyoming and includes portions of the Shoshone and Clarks Fork River systems. The Shoshone River system has numerous tributaries such as North Fork Shoshone River, South Fork Shoshone River, Bitter Creek, Trail Creek, Sulphur Creek, Sage Creek, and Deer Creek. In the Clarks Fork River system, the tributaries include Bennett Creek, Bear Creek, and Sunlight Creek. The watershed study area will include only those portions of the watershed located within the State of Wyoming.

PROJECT INFORMATION:

A. EXISTING WATER SUPPLY SYSTEM

What is the extent of the stream system? 6,972 miles in priority areas; 5,286 miles in remaining portions of watershed.

Has DEQ classified this stream or segment as impaired? Previously, Dry Gulch and Bitter Creek, but both have completed TMDLs and both were moved from the 303(d) list to Category 4A once TMDLs were approved.

Are there any DEQ Watershed based plans being conducted or in place? In 2019 the WDEQ and other watershed

stakeholders, including both conservation districts and the Willwood Irrigation District, completed a sediment-based watershed plan to address excessive sediment loading into the Shoshone River. The stakeholder group is collecting additional sediment data for the primary tributaries to the Shoshone River between Buffalo Bill Reservoir and Willwood Dam. The stakeholder group is in the initial phases of identifying project opportunities.

Is there a TMDL being prepared or in place? E. coli TMDLs for the Shoshone River Watershed approved by USEPA in 2013. TMDLs for waters in the proposed project area include Dry Gulch (from the confluence with the Shoshone River to a point 7 miles upstream) HUC12-100800140107 and Bitter Creek (from the confluence with the Shoshone River to a point 13.9 miles upstream) HUC12-100800140206.

Is there a NRCS watershed assessment being prepared or in place? Yes, the Shoshone River Watershed Water Quality Management Plan was prepared by PCFCD, CCD, Shoshone River Watershed Steering Committee with assistance provided by the NRCS in 2008 and updated in 2012.

Are there any instream flow segments in this watershed? 2 permitted (not yet adjudicated) Marquette Creek, 104IF, (0.5 miles) and Trout Creek (Tributary to N. Fork Shoshone), 105IF, (2.0 miles).

Any instream flow segments petitioned? Shoshone River (15.1 miles).

Is there a soil survey completed for this area? Soils within the agricultural areas have generally been mapped by the NRCS (Natural Resource Conservation Service).

B. FINANCIAL INFORMATION

If the entity is a conservation district, what is the status of their local revenue funding? Primarily grant funded; neither district has a levy.

C. COMPARISON WITH OPERATING CRITERIA

What is the entity status of the sponsor? Both sponsor and co-sponsor are Conservation Districts.

Project Priority according to the Criteria? Priority Seven (7) - Watershed Studies.

If the entity is a conservation district, what is the status of a legal entity developing within the district? There are existing water districts within the watershed, and the sponsor is aware of entity requirements for WWDC conventional construction projects.

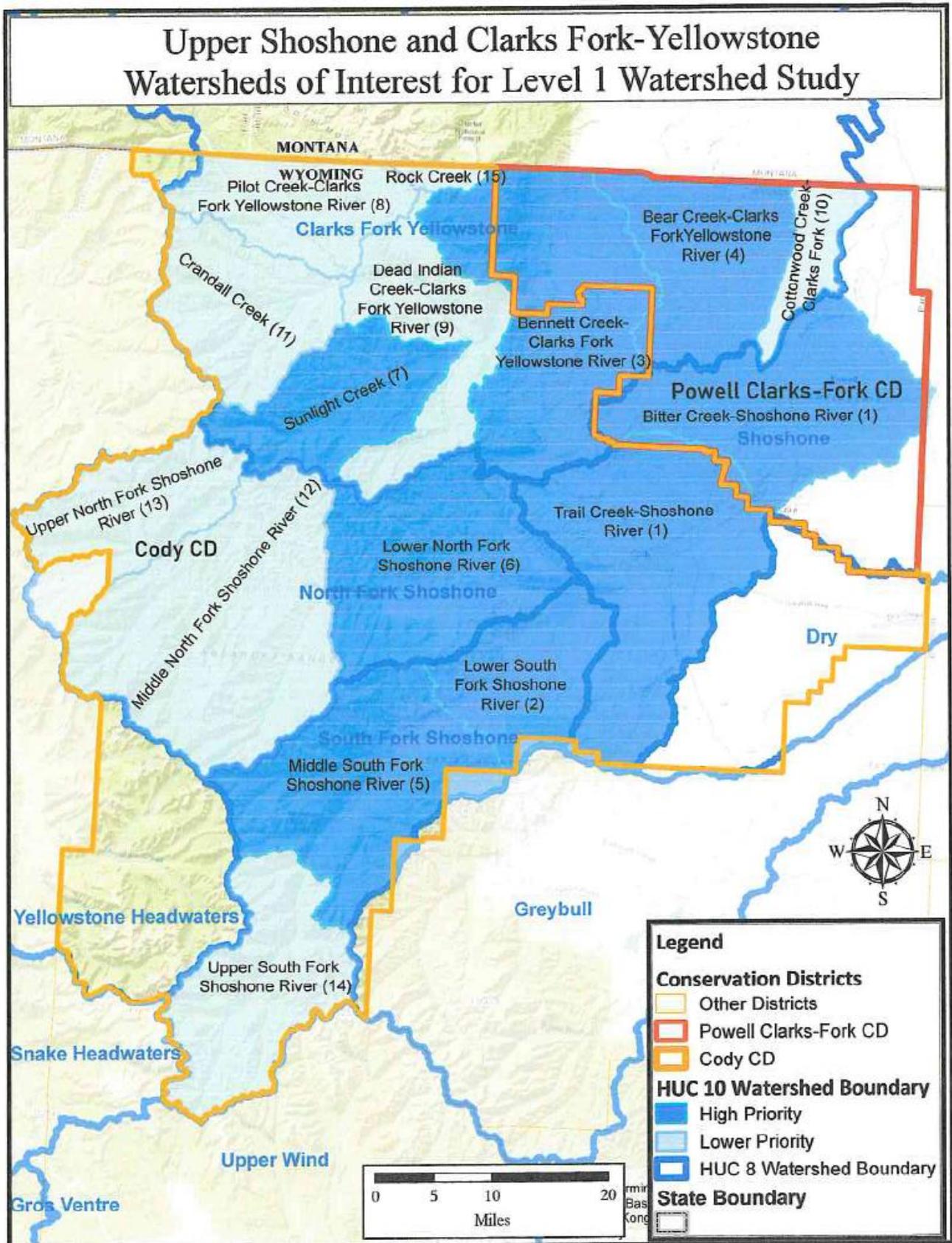
How many acres are irrigated? 272,295 acres

How many individual landowners in the watershed? 26,865 including 9,788 in Cody, and 6,180 in Powell.

Will the project consider regional solutions? Yes

Can the project be postponed or staged? Yes, but the two Conservation Districts have been working to reduce bacteria and sediment loading into the project area; this study would build upon the momentum of a recently completed watershed plan completed with input from WDEQ and other stakeholders.

PROJECT AREA MAP



PHOTOS



The watershed that includes the Clarks Fork and Upper Shoshone Rivers includes a large area with substantial agricultural use in the watershed as well as recreation, wildlife, industry and scenic value uses. One high profile issue is sediment contributions of some creeks, as shown in the picture below.





Extensive efforts, such as the monitoring station pictured above, have been put forth by several stakeholder groups to identify the sources and potential opportunities to reduce sediment in the Shoshone tributary streams. Willwood dam (below) on the Shoshone River has received a great deal of attention for impounding a significant sediment bar behind it.





The image above and to the left shows a portion of the sediment accumulated behind Willwood Dam. To the right is a photo of a controlled release in April 2021 to help pass some of this sediment downstream while attempting to minimize impacts on the fishery. Below is a photo of McCollough peaks, which is a natural source of sediment.



RESOLUTIONS



P.O. Box 631
Cody, WY 82414
Email: conservecody@gmail.com
www.facebook.com/codyconservation

A RESOLUTION AUTHORIZING THE CODY CONSERVATION DISTRICT TO CO-SPONSOR A WYOMING WATER DEVELOPMENT PROGRAM LEVEL I WATERSHED STUDY.

WITNESSETH

Whereas, the Cody Conservation District Board of Supervisors is the Governing Body of the Cody Conservation District and desires to participate in the Wyoming Water Development Program by submitting a Level I Watershed Study application as a co-sponsor with the Powell Clarks Fork Conservation District; and

Whereas, the Cody Conservation District Board of Supervisors recognizes the need for the project; and

Whereas, the application and project were discussed at the January 6th, 2021 Cody Conservation District regular Board Meeting at the Park County Complex in Cody, Wyoming; and

Whereas, the Cody Conservation District Board of Supervisor Richard Jones moved to approve co-sponsorship with the Powell Clarks Fork Conservation District for the Wyoming Water Development Program Level I Watershed Study application and Cody Conservation District Board of Supervisor Vincent Vanata seconded this motion; no discussion followed and all ayes carried the motion; and

Whereas, the Cody Conservation District Board of Supervisors states that Brittany Swope is hereby designated as an authorized representative of the Cody Conservation District to act on behalf of the Governing Body on matters relating to this grant application that do not need Board approval; and

Whereas, the Wyoming Water Development Program requires certain criteria be met, as described in the Wyoming Water Development Commission rules and regulations governing the program, and to the best of the Cody Conservation District's knowledge the proposed application meets those criteria; and

Now, therefore be it resolved, that the Cody Conservation District Board of Supervisors joins the Powell Clarks Fork Conservation District in co-sponsoring the submittal of the Wyoming Water Development Program Level I Watershed Study application and will serve as the primary sponsor.

Passed, approved this 6th day of January 2021.

[Signature]
Cody Conservation District Chairman

18 Feb 2021
Date

Board of Supervisors

Chairman: Russ Dwyer Vice Chairman: Bobbie Holder Secretary/Treasurer: Vince Vanata Member: Joe Kondelis Member: Richard Jones



A RESOLUTION AUTHORIZING THE POWELL CLARKS FORK CONSERVATION DISTRICT TO CO-SPONSOR A WYOMING WATER DEVELOPMENT PROGRAM LEVEL I WATERSHED STUDY.

WITNESSETH

Whereas, the Powell Clarks Fork Conservation District Board of Supervisors is the Governing Body of the Powell Clarks Fork Conservation District and desires to participate in the Wyoming Water Development Program by submitting a Level I Watershed Study application as a co-sponsor with the Cody Conservation District; and

Whereas, the Powell Clarks Fork Conservation District Board of Supervisors recognizes the need for the project; and

Whereas, the application and project were discussed at the February 2nd, 2021 Powell Clarks Fork Conservation District regular Board Meeting at the Willwood Irrigation District Office in Park County, Wyoming; and

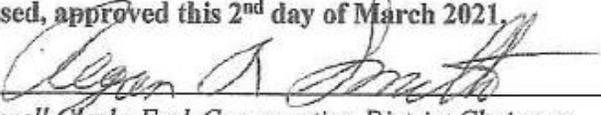
Whereas, the Board of Supervisor Jim Vanek moved to approve co-sponsorship with the Cody Conservation District for the Wyoming Water Development Program Level I Watershed Study application and Powell Clarks Fork Conservation District Board of Supervisor Neil Kristofferson seconded this motion; no discussion followed and all ayes carried the motion; and

Whereas, the Powell Clarks Fork Conservation District Board of Supervisors states that Carmen Horne-McIntyre is hereby designated as an authorized representative of the Powell Clarks Fork Conservation District to act on behalf of the Governing Body on matters relating to this grant application that do not need Board approval; and

Whereas, the Wyoming Water Development Program requires certain criteria be met, as described in the Wyoming Water Development Commission rules and regulations governing the program, and to the best of the Powell Clarks Fork Conservation District's knowledge the proposed application meets those criteria; and

Now, therefore be it resolved, that the Powell Clarks Fork Conservation District Board of Supervisors joins the Cody Conservation District in co-sponsoring the submittal of the Wyoming Water Development Program Level I Watershed Study application.

Passed, approved this 2nd day of March 2021.



Powell Clarks Fork Conservation District Chairwoman

3-2-2021
Date

Board of Supervisors

Chairman: Robert Smith Vice Chairman: Anthony Sporing Secretary/Treasurer: Abby Shiles Member: Neil Kristofferson Member: Jim Vanek

State of Wyoming
County of Park

This instrument entitled Level 1 Water Study Resolution was acknowledged before me on
Title of document being acknowledged

3-2-2021 by Regan R Smith as
Date Name of Person

Chairman of Powell Clarks Fork Conservation Dist
Type of Authority, eg. officer, trustee, etc. Name of Party on Behalf of Whom the Instrument was Executed



Marcia K. Shuler
Signature of Notarial Officer
Public Notary
Title (e.g. Notary Public) OR Rank (Rank if officer in active military)

My commission expires: 2-24-2024

2022 WATER DEVELOPMENT PROGRAM RECOMMENDATION

MUNICIPAL/JOINT POWERS WATER BOARD WATER SYSTEMS

Project Name: Dayton Water Master Plan

Program: New Development

Project Type: Municipal Water System

County: Sheridan

Sponsor: Town of Dayton

WWDO Recommendation: Level I

Proposed Budget: \$167,000

Basis for the Funding Recommendation:

The Town of Dayton is requesting a Level I water master plan study to fully evaluate the infrastructure of the Town's water supply system. The study will evaluate the current condition of their water system and provide tools and guidance needed to assist in the planning, rehabilitating, upgrading, managing of the system, water storage and planning for future growth. This study will also be an update to the previous Level I master plan, completed in 2000.

Project Manager: Julie Gondzar

I. PROJECT DESCRIPTION

The Town of Dayton's last water master plan was completed in 2000, and an update is being requested. With the Town's current and expected growth and development, water storage capacity and fire flow in the upper pressure zones is a growing concern. The current storage tank is not able to provide sufficient pressure and fire flow to new development in higher elevation areas. As a result, the booster is constantly running to maintain pressure continuously. The Town's water treatment plant was built in the 1960's and has significant aging infrastructure. Much of the equipment and machinery in the water treatment plant has exceeded its lifespan, is beyond sufficient repair, and needs a plan of action to be replaced or upgraded. An update to their outdated water master plan will help address storage and fire flow issues in new development areas, while also providing GIS mapping, a hydraulic model analysis of their entire system, improvement projects and their priorities, water supply in upper pressure zones, an evaluation of their current SCADA system, and an evaluation of their current rate system.

1. Existing and Prior Legislation:

<u>Project</u>	<u>Level</u>	<u>Chapter</u>	<u>Session</u>	<u>Account</u>	<u>Appropriation</u>	<u>Reversion Year</u>
Dayton Master Plan	I	36	2000	I	\$ 60,000	2002
Dayton Water Supply Rehabilitation	II	86	2001	II	\$ 50,000	2002
Dayton Water Supply Rehabilitation	III	2/88	2001/02	II	\$ 619,200	2005
Dayton Groundwater	II	7	2002	I	\$ 460,000	2004
Dayton Well Purchase and Mitigation Project	III	118	2004	I	\$ 3,000	2008
Dayton Raw Water Irrigation	II	85	2007	I	\$ 100,000	2008

2. Describe the location of the project:

The Town of Dayton, Wyoming, is located in Sheridan County, with a population of approximately 850 residents.

3. Summarize the request:

The Town of Dayton has requested an updated Level I water master plan to address water storage and fire flow concerns, and the significantly aging infrastructure of their water treatment plant. This study will also provide a much-needed inventory and evaluation of the entire water system and will provide the tools and guidance necessary to assist in the planning, rehabilitation, upgrading, and managing of their system. The updated plan would serve as a framework to establish project priorities and to perform financial planning necessary to meet those priorities. It would also provide reconnaissance-level information regarding costs and scheduling.

4. Summarize the reasons for the request:

To provide an updated water master plan, that can help the Town solve current water storage, fire flow and water treatment plant problems, while also providing the Town with tools for planning for future growth, providing GIS mapping, a hydraulic model of their system, population and water use projections, and a review of their entire water system and financial status. The study will identify the components of the existing system that are deficient and provide a schedule for improvements. The Town has not had a water master plan performed on its water system since 2000.

II. WWDC ELIGIBILITY CONSIDERATIONS

1. Is the Sponsor a public entity? Yes

A. If not, is the recommendation for a Level I study or Level I or II study for a dam and reservoir project?

N/A

2. Project Priority According to WWDO Criteria: Acct I - Priority 8: LI Reconnaissance Studies

(Use Attachment III of the operating criteria.)

3. Will the project serve at least 15 water taps? Yes

A. Number of Taps: ~ 425

4. Is the sponsor eligible for funding from other state or federal programs? Yes

A. If so, what are they (RUS, SRF, other)? RUS, SRF

5. Is the Sponsor under any federal (EPA) mandates to improve its system? (e.g., Administrative Orders, violations, actions taken, etc.)?

No

6. Is the Sponsor currently served by a regionalized water supply system (specify)? Or will the Sponsor consider regional solutions to the purpose and needs of its water supply system?

Sponsor is willing to consider regionalization.

7. What is monthly water bill for 5,000 gallons? \$27.26

A. 20,000 Gallons? \$42.76

8. Can the project be delayed or staged? Yes

A. Should it be? No

III. PERTINENT INFORMATION

1. Existing Water Supply System

A. EPA Public Water System (PWS) Identification Number: 5600202

B. Groundwater

(1) Number of Wells: 1

(2) Primary Supply Aquifer(s) or Formation(s): Madison/Big Horn Dolomite

(3) Total Average Production Yield of All Wells (GPM): 60 GPM (total 32 MG pumped in 2020)

C. Surface Water

(1) Source Name(s): Tongue River

(2) Type of Diversion(s) (Headgate, Infiltration Gallery, Pumps, Etc.): Infiltration gallery followed by pumps which deliver water into the water treatment plant.

(3) Total Average Diversion Yield (CFS or GPM): 72 GPM (total 38 MG in 2020)

D. Springs

(1) Name of Spring(s): None

(2) Total Average Production Yield of All Springs (CFS or GPM): N/A

E. Water Rights

(1) For the water source supply (or supplies) described above, does the Sponsor possess valid and/or adjudicated water rights?

Yes. The Town has both a direct flow surface water right from the Tongue River (Permit #1702E, 4.0 cfs, April 1, 1907) and a groundwater right for its well (Dayton No. 1, Permit UW19/236, 435 gpm, July 29, 2002)

F. Transmission Pipeline

(1) Maximum Capacity of the Transmission Pipeline(s) (Gallons per Day): 2.5 MGD

(2) Increased Capacity Needed (If Known) (Gallons per Day): None at this time

(3) Approximate Distance from Source(s) to Distribution System: 2 miles

(4) Transmission Pipe Diameter(s): 12"

(5) Type of Transmission Pipe Material(s): PVC

(6) Age of Transmission Pipeline(s): 15 years

(7) Condition of Transmission Pipeline(s): Excellent

(8) Does the applicant possess clear title to transmission corridor easements? Yes

G. Water Storage

(1) Raw (Volume and Tank Description): None

(2) Treated (Volume and Tank Description): 128,000 gallon clear well, and 250,000-gallon storage tank

H. Treatment

(1) Specify Water Treatment (None, Chlorination, Filtration, Etc.): Filtration w/UV disinfection

2. Existing Water Distribution System

A. Is the water use metered? Yes

B. Are billings based on meter readings? Yes

C. Identify unmetered usage (e.g., irrigation of parks, cemeteries, fire protection, etc.):

Town Hall, fire station, maintenance shops, park restrooms

D. Average Day Demand Water Usage (Gallons per Capita per Day): 150,000

E. Maximum Day Demand Water Usage (Gallons per Capita per Day): 200,000

F. Peak Hourly Demand Water Usage (Gallons per Capita per Day): 360,000

G. Distribution Pipe Diameter(s): 4" – 12"

H. Type of Distribution Pipe Material(s): PVC

I. Age of Distribution Pipeline(s): Approximately 50 years old.

J. Condition of Distribution Pipeline(s): Good

K. Estimated System Water Losses (Percentage): +/- 5%

L. Describe any fire flow protection that the system provides:

Via the pump station at the water treatment plant, the 12" transmission pipeline, the 250,000-gallon storage tank, and most mains in the distribution system being at least 6" in diameter, the Town generally provides adequate fire protection. Some higher elevated areas have low static pressure due to a lack of elevation.

M. What water conservation measures are employed?

The Town has a separate raw water irrigation system which serves most of its customers.

N. Is there an independent raw water irrigation system? Yes

(1) Raw Water System Capacity (Gallons per Day): 750,000

(2) Average Annual Raw Water Usage (Gallons per Year): 36 MG/year

3. Demographic Information and Existing Water Service Area

A. Population (2010 Census): 757

B. Current Population Estimate: 850

C. Does the applicant have a comprehensive planning boundary? No

(1) If so, what is the estimated additional population that may be served in the future? N/A

D. How many taps are served within the corporate limits/JPB service area? 367

E. How many taps are served outside of the corporate limits/JPB service area? 27

F. Identify names of other water system served:

The Town provides wholesale water (and operation and maintenance) to the Eagle Ridge Subdivision, which is outside and to the southwest of the Town limits.

G. Identify any existing planning reports (municipal or county) that address growth management in the project area. Provide titles and how copies of the reports could be obtained:

2020 Sheridan County Comprehensive Plan

4. Financial Information

A. Rates

(1) Tap Fee(s) – Residential: \$2,975.27 (in Town)

(2) Tap Fee(s) – Commercial: \$3,191.27 (out of Town)

(3) Average Residential Monthly Water Bill and Corresponding Gallons Used:
\$27.76 (assumes 5,000 gallons/month)

(4) Water Rates (Provide rates for all tiers and categories of use. Attach additional pages as needed.):

Residential: \$25.76/month base charge, \$1/1,000 gallons over 3,000 gallons

Residential outside: \$30.37/month base charge, \$1/1,000 gallons over 3,000 gallons

Apartments: \$127.62/month base charge, \$1/1,000 gallons over 3,000 gallons

(5) Identify any local conditions that affect water rates (e.g., flow-through for frost prevention, etc.):

In very cold weather, customers can receive up to 1,000 gallons/month at no charge to prevent pipes from freezing.

B. Financial Statement (of Water Utility)

(1) Revenues

a. Annual Revenues Generated from Water Sales:	\$ 160,000
b. Annual Revenues from Tap Fees:	\$ 6,000
c. Annual Revenues from Other Sources:	\$ 2,500
d. Total Annual Revenues:	\$ 168,500

(2) Expenditures

a. Annual Budget for Operation and Maintenance Expenses:	\$	111,883
b. Annual Payments for Debt Retirement:	\$	100
c. Annual Payments to a Repair and Replacement Fund:	\$	4,000
d. Annual Payments to an Emergency Fund:	\$	0
e. Annual Payments for Other Purposes:	\$	1,000
f. Total Annual Payments:	\$	116,983

(3) Other

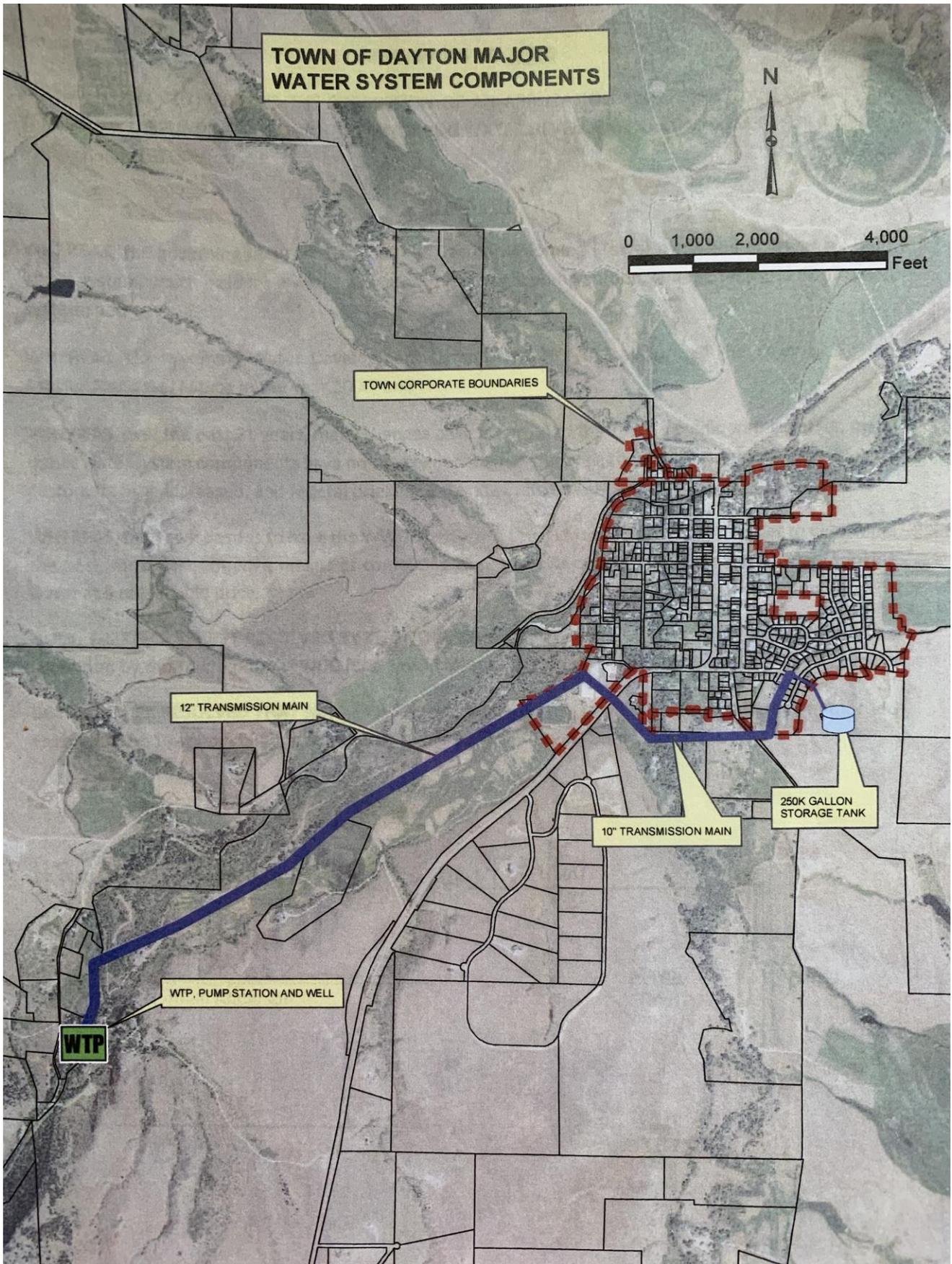
a. Balance in Repair and Replacement Fund:	\$	0 ¹
b. Balance in Emergency Fund:	\$	0 ¹
c. Annual Cost of Water Quality Testing:	\$	4,000

¹ *The Town of Dayton maintains general repair/replacement and emergency funds which are not designated strictly for "water system only" use.*

(4) Is the operation of the water system self-supporting in terms of revenues offsetting costs for operation, maintenance, debt retirement, replacement funds, emergency funds, etc.?

Yes

PROJECT AREA MAP



PHOTOS



Figure 1: Town of Dayton Water Storage Tank



Figure 2: UV filtration system inside the water treatment plant.



Figure 3: An example of significant aging infrastructure within the water treatment plant.



Figure 4: The Tongue River behind the water treatment plant.

RESOLUTION

RESOLUTION NO. # 386

A RESOLUTION AUTHORIZING THE SUBMISSION OF AN APPLICATION FROM THE TOWN OF DAYTON, WYOMING FOR FUNDING THROUGH THE WYOMING WATER DEVELOPMENT COMMISSION FOR A LEVEL I MASTER PLAN STUDY

WITNESSETH:

WHEREAS, the governing body for the Town of Dayton, Wyoming (Town) owns and operates a public water system, which includes a water treatment plant, well, pump station, storage tank and distribution system; and

WHEREAS, the Wyoming Water Development Commission (WWDC) performed the *Town of Dayton Master Plan Level I Study* in the year 2000; and

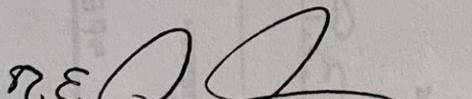
WHEREAS, over the past 21 years, many changes have occurred to the Town's public water system, many public water system components have now exceeded their useful lives, the number of public water system customers have increased, and federal drinking water standards have become more stringent; and

WHEREAS, the Town desires to have the WWDC perform a Level I Master Plan Study in order to determine the best, most cost-effective means of continuing to provide its customers with safe, reliable drinking water at a reasonable price.

NOW, THEREFORE, BE IT RESOLVED BY THE GOVERNING BODY FOR THE TOWN that an application be submitted by the Town to the WWDC for a Level I Master Plan Study of the Town's public water system.

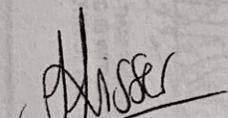
BE IT FURTHER RESOLVED THAT Norman Anderson, Mayor of the Town of Dayton, is hereby authorized to commit the Town to a binding contract as it relates to this Level I Study.

PASSED, APPROVED AND ADOPTED THIS 8th DAY OF February, 2021.



Norman Anderson

Mayor
Title

ATTEST: 

Signature

Clerk
Title

2022 WATER DEVELOPMENT PROGRAM RECOMMENDATION

MUNICIPAL/JOINT POWERS WATER BOARD WATER SYSTEMS

Project Name: Riverton Regional Water Master Plan

Program: New Development

Project Type: Municipal Water System

County: Fremont

Sponsor: City of Riverton

WWDO Recommendation: Level I

Proposed Budget: \$256,000

Basis for the Funding Recommendation:

The City of Riverton is requesting an update to their 1998 Level I reconnaissance-level water master plan to fully evaluate the infrastructure of the City’s public water supply system. The study would evaluate the current condition of their water system and provide the tools and guidance needed to assist in the planning, rehabilitating, upgrading, and managing of their system.

Project Manager: Chace A. Tavelli

I. PROJECT DESCRIPTION

The City of Riverton’s last municipal master plan was completed in 1998. There have been many changes to their system since that time and an updated master plan is being requested. The City seems to be experiencing high rates of water loss, has significant aging infrastructure, corrosion issues, fire hydrants that are not fed by proper diameter pipe, potential water supply issues in their upper pressure zones, and a raw water irrigation system that has never been studied. An update to their existing master plan, GIS mapping, and a hydraulic model analysis of their system will help define a leak detection study, capital improvement projects, fire protection, potential well siting to improve water supply in upper pressure zones, an evaluation of their existing SCADA system, and an evaluation of their current rate system.

1. Existing and Prior Legislation:

<u>Project</u>	<u>Level</u>	<u>Chapter</u>	<u>Session</u>	<u>Account</u>	<u>Appropriation</u>	<u>Reversion Year</u>
Riverton Water Supply	III	59	1996	I	\$ 220,000	1999
Riverton Regional Water Master Plan	I	46	1997	I	\$ 150,000	1998
Riverton Water Supply Project LII, Phase I & II	II	81	1999	II	\$ 65,000	2000
Riverton Water Supply	III	16	1999	I	\$ 92,000	2001
Riverton Raw Water Supply Rehabilitation Project	III	2	2001	II	\$ 85,000	2005
Riverton Raw Water Supply Rehabilitation Project	III	118	2004	II	\$ 1,001,500	2010
Riverton Mountain View Acres Water Supply	II	75	2005	II	\$ 300,000	2006
Riverton Mountain View Acres Water Supply	II	99	2006	II	\$ 125,000	2008
Riverton Water Supply	III	38	2009	I	\$ 4,958,800	2014
Riverton Water Supply	III	66	2010	I	\$ 7,084,000	2014

Riverton Water Supply	III	100	2014	I	\$ 0	2015
Riverton Water Supply	III	23	2015	I	\$ 9,856,000	2017
Riverton Water Supply	III	75	2017	I	\$ 0	2020
Riverton Water Supply	III	112	2020	I	\$ 0	2021

2. Describe the location of the project:

The City of Riverton is located in Fremont County, Wyoming and lies at the confluence of the Big and Little Wind Rivers in the Wind River Basin.

3. Summarize the request:

A Level I water master plan study is requested by the City of Riverton to evaluate the current condition of their water system and to provide the tools and guidance necessary to assist in the planning, rehabilitation, upgrading, and managing of their system. The plan would serve as a framework to establish project priorities and to perform financial planning necessary to meet those priorities. The plan would also provide reconnaissance-level information regarding costs and scheduling.

4. Summarize the reasons for the request:

To update the 1998 water master plan with a new water master plan that can help the City identify the components of the existing system that are deficient and to provide a schedule for future capital improvements, provide GIS mapping, a hydraulic model of their system, population and water use projections, and a review of their financial status.

II. WWDC ELIGIBILITY CONSIDERATIONS

1. Is the Sponsor a public entity? Yes

A. If not, is the recommendation for a Level I study or Level I or II study for a dam and reservoir project?

N/A

2. Project Priority According to WWDO Criteria: Acct I - Priority 8: LI Reconnaissance Studies
(Use Attachment III of the operating criteria.)

3. Will the project serve at least 15 water taps? Yes

A. Number of Taps: 4,244

4. Is the sponsor eligible for funding from other state or federal programs? Yes

A. If so, what are they (RUS, SRF, other)? RUS, SRF

5. Is the Sponsor under any federal (EPA) mandates to improve its system? (e.g., Administrative Orders, violations, actions taken, etc.)?

No

6. Is the Sponsor currently served by a regionalized water supply system (specify)? Or will the Sponsor consider regional solutions to the purpose and needs of its water supply system?

The sponsor is willing to consider regionalization.

7. What is monthly water bill for 5,000 gallons? \$34.76 – 3/4" tap

A. 20,000 Gallons? \$80.71 – 3/4" tap

8. Can the project be delayed or staged? Yes

A. Should it be? No

III. PERTINENT INFORMATION

1. Existing Water Supply System

A. EPA Public Water System (PWS) Identification Number: WY-5600047

B. Groundwater

(1) Number of Wells: 14

(2) Primary Supply Aquifer(s) or Formation(s): Wind River Aquifer

(3) Total Average Production Yield of All Wells (GPM): 297 GPM

C. Surface Water

(1) Source Name(s): Big Wind River

(2) Type of Diversion(s): Headgate – LeClair Irrigation Canal

(3) Total Average Diversion Yield (CFS or GPM): 4.87 CFS

D. Springs

(1) Name of Spring(s): None

(2) Total Average Production Yield of All Springs (CFS or GPM): N/A

E. Water Rights

(1) For the water source supply (or supplies) described above, does the Sponsor possess valid and/or adjudicated water rights?

Yes

F. Transmission Pipeline

(1) Maximum Capacity of the Transmission Pipeline(s) (Gallons per Day): 75 million

(2) Increased Capacity Needed (If Known) (Gallons per Day): Unknown

(3) Approximate Distance from Source(s) to Distribution System: 2,600 feet

(4) Transmission Pipe Diameter(s): 8", 12", 14", 16", 24"

(5) Type of Transmission Pipe Material(s): Cast Iron, Steel, PVC, HDPE

(6) Age of Transmission Pipeline(s): 69 years

(7) Condition of Transmission Pipeline(s): Poor to Nearly New

(8) Does the applicant possess clear title to transmission corridor easements? Yes

G. Water Storage

(1) Raw (Volume and Tank Description): 0

(2) Treated (Volume and Tank Description): 7.1 million gallons; Five separate storage tanks made up of concrete or steel.

H. Treatment

(1) Specify Water Treatment (None, Chlorination, Filtration, Etc.): Chlorination at wells & conventional water plant for surface water.

2. Existing Water Distribution System

A. Is the water use metered? Yes

B. Are billings based on meter readings? Yes

C. Identify unmetered usage (e.g., irrigation of parks, cemeteries, fire protection, etc.): Parks and fire department.

D. Average Day Demand Water Usage (Gallons per Capita per Day): 182

E. Maximum Day Demand Water Usage (Gallons per Capita per Day): 434

F. Peak Hourly Demand Water Usage (Gallons per Capita per Day): Unknown

- G. Distribution Pipe Diameter(s): 3" to 24"
- H. Type of Distribution Pipe Material(s): Transite, cast iron, ductile, PVC, Steel
- I. Age of Distribution Pipeline(s): Transite > 50, cast iron 40-50+, ductile 15-50, PVC 0-30, Steel 70 (years)
- J. Condition of Distribution Pipeline(s): Poor to new
- K. Estimated System Water Losses (Percentage): 25%
- L. Describe any fire flow protection that the system provides: Fire hydrants
- M. What water conservation measures are employed? None
- N. Is there an independent raw water irrigation system? Yes
 - (1) Raw Water System Capacity (Gallons per Day): 6,460,000
 - (2) Average Annual Raw Water Usage (Gallons per Year): 969,472,800

3. Demographic Information and Existing Water Service Area

- A. Population (2010 Census): 10,615 B. Current Population Estimate: 10,772
- C. Does the applicant have a comprehensive planning boundary? Yes
 - (1) If so, what is the estimated additional population that may be served in the future? Unknown
- D. How many taps are served within the corporate limits/JPB service area? 4,197
- E. How many taps are served outside of the corporate limits/JPB service area? 47
- F. Identify names of other water system served: N/A
- G. Identify any existing planning reports (municipal or county) that address growth management in the project area. Provide titles and how copies of the reports could be obtained: City of Riverton Comprehensive Master Plan (2019); City of Riverton Rate Study.

4. Financial Information

A. Rates

- (1) Tap Fee(s) – Residential: \$623
- (2) Tap Fee(s) – Commercial: Varies by size, a 1" tap = \$1,372 (see attached)
- (3) Average Residential Monthly Water Bill and Corresponding Gallons Used: \$47.12 – 9,000 gallons
- (4) Water Rates: See attached
- (5) Identify any local conditions that affect water rates (e.g., flow-through for frost prevention, etc.): None

B. Financial Statement (of Water Utility)

(1) Revenues

a. Annual Revenues Generated from Water Sales:	\$ 2,630,764
b. Annual Revenues from Tap Fees:	\$ 17,923
c. Annual Revenues from Other Sources:	\$ 0
d. Total Annual Revenues:	\$ 2,648,687

(2) Expenditures

a. Annual Budget for Operation and Maintenance Expenses:	\$ 2,081,707
b. Annual Payments for Debt Retirement:	\$ 136,477
c. Annual Payments to a Repair and Replacement Fund:	\$ 0 ¹
d. Annual Payments to an Emergency Fund:	\$ 0 ¹
e. Annual Payments for Other Purposes:	\$ 465,839
f. Total Annual Payments:	\$ 2,684,023

(3) Other

a. Balance in Repair and Replacement Fund:	\$ 797,353
b. Balance in Emergency Fund:	\$ 555,851
c. Annual Cost of Water Quality Testing:	\$ 32,762

¹ *The City of Riverton maintains an operating reserve equal to four months of operating expenses. This operating reserve has \$557,343 as a current balance. In addition to this account, the city maintains an operating cash account and a capital project account. The operating cash account averages a monthly balance of \$1,066,950. The capital project account currently has a balance of \$799,494.*

(4) Is the operation of the water system self-supporting in terms of revenues offsetting costs for operation, maintenance, debt retirement, replacement funds, emergency funds, etc.?

Yes

CURRENT WATER RATES

RESOLUTION NO. 1400

A RESOLUTION ADJUSTING THE AMOUNT OF USER FEES FOR THE CITY OF RIVERTON WATER SYSTEM.

WHEREAS, section 13.08.400 of the Riverton Municipal Code states that water rates shall be reviewed by the city council following public notice and may be adjusted by resolution of the city council; and

WHEREAS, the City Council of the City of Riverton, Wyoming held a public hearing on November 5, 2019, to consider and determine the same;

NOW, THEREFORE, BE IT RESOLVED that the City Council of the City of Riverton, Wyoming, hereby declare that the plant investment fees and water user fees shall be as follows:

In City Water Fees & Charges

Water Meter Size in Inches	Plant Investment Fee	Monthly Minimum Charge	Unit Charge per 1,000 Gallons for 0-5,999 Gallons	Unit Charge per 1,000 for 6,000 or more Gallons
0.75 inch	\$ 623	\$ 20.69	\$2.61	\$3.00
1.00 inch	\$ 1,332	\$ 27.10	\$2.61	\$3.00
1.50 inch	\$ 2,513	\$ 37.79	\$2.61	\$3.00
2.00 inch	\$ 3,931	\$ 50.61	\$2.61	\$3.00
3.00 inch	\$ 7,712	\$ 84.81	\$2.61	\$3.00
4.00 inch	\$11,966	\$123.29	\$2.61	\$3.00
6.00 inch	\$23,782	\$230.16	\$2.61	\$3.00
8.00 inch	\$37,961	\$358.41	\$2.61	\$3.00

Out of City Water Fees & Charges

Water Meter Size in Inches	Plant Investment Fee	Monthly Minimum Charge	Unit Charge per 1,000 Gallons for 0-5,999 Gallons	Unit Charge per 1,000 for 6,000 or More Gallons
0.75 inch	\$ 778	\$ 25.86	\$3.26	\$3.75
1.00 inch	\$ 1,664	\$ 33.88	\$3.26	\$3.75
1.50 inch	\$ 3,141	\$ 47.24	\$3.26	\$3.75
2.00 inch	\$ 4,914	\$ 63.27	\$3.26	\$3.75
3.00 inch	\$ 9,640	\$106.02	\$3.26	\$3.75
4.00 inch	\$14,957	\$154.11	\$3.26	\$3.75
6.00 inch	\$29,727	\$287.71	\$3.26	\$3.75
8.00 inch	\$47,451	\$448.02	\$3.26	\$3.75

BE IT FURTHER RESOLVED that this Resolution becomes effective with the January to February 2020 billing period.

PASSED, APPROVED AND ADOPTED this 5th day of November 2019, by the governing body of the City of Riverton, Wyoming.

CITY OF RIVERTON, WYOMING

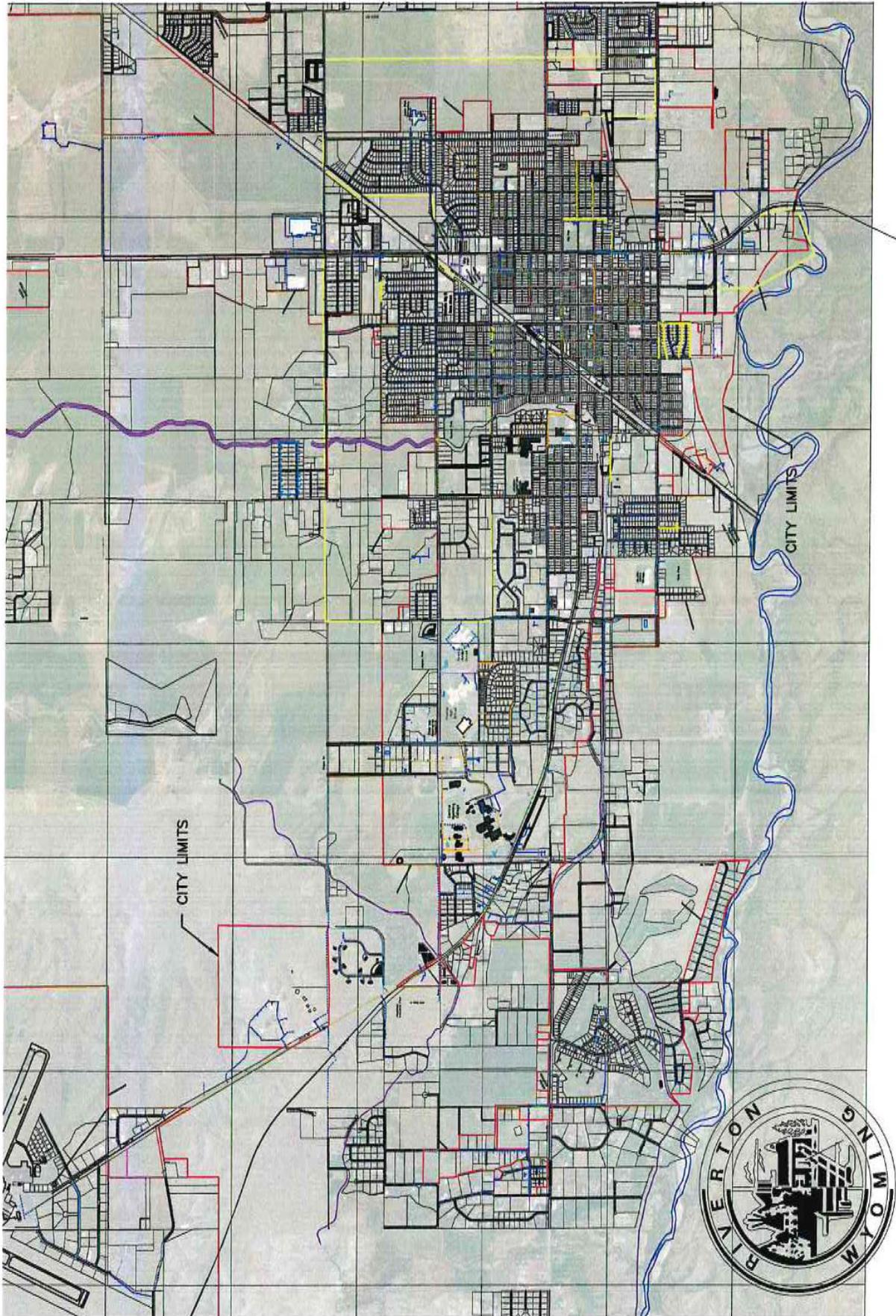
Richard P. Gard

 Richard P. Gard
 Mayor

ATTEST: *Kristin S. Watson*

 Kristin S. Watson
 City Clerk/Human Resource Director

PROJECT AREA MAP



PHOTOS



AP Tank



Tank & Treatment Plan



Main Street Tank (Below Grade)



JCC Tank



West Reservoir

RESOLUTION

RESOLUTION NO. 1430

A RESOLUTION OF THE GOVERNING BODY OF THE CITY OF RIVERTON SUPPORTING A LEVEL I APPLICATION THROUGH THE WYOMING WATER DEVELOPMENT COMMISSION

WHEREAS, the Governing Body of the City of Riverton is responsible for the administration and operation of a water treatment and delivery system; and

WHEREAS, the City's Water Master Plan was completed in 1998 and requires update; and

WHEREAS, the Wyoming Water Development Commission supports master plan studies through Level I planning projects; and

WHEREAS, the City desires to participate in the Level I program and is able to provide the \$1,000 filing fee; and

WHEREAS, the City understands the Wyoming Water Development Commission would serve as the lead agency in developing the Level I report and the commission solely funds studies to ensure reports are unbiased and performed in a manner as to determine whether the state should invest in associated improvements.

NOW, THEREFORE, BE IT RESOLVED BY THE GOVERNING BODY OF THE CITY OF RIVERTON, WYOMING that a Level I application be submitted to the Wyoming Water Development Commission.

BE IT FURTHER RESOLVED, the Public Works Director and Finance Director are hereby designated as authorized representatives and signatories of the City of Riverton on all matters relating to these grant applications.

PASSED, APPROVED, AND ADOPTED by the governing body of the City of Riverton, Wyoming, this 16th day of February, 2021.



CITY OF RIVERTON, WYOMING

A handwritten signature in cursive script that reads 'Richard P. Gard'. The signature is written in black ink and is positioned above a horizontal line.

Richard P. Gard
Mayor

ATTEST:

A handwritten signature in cursive script that reads 'Kristin S. Watson'. The signature is written in black ink and is positioned above a horizontal line.

Kristin S. Watson
City Clerk/Human Resource Director

2022 RECOMMENDATION-PLANNING PROJECTS

Project Name: UW Office of Water Programs

Program: New Development

Project Type: Multipurpose Project

County: Statewide

Sponsor: WWDC/University of Wyoming (UW)

WWDO Recommendation: Level I

Proposed Budget: \$175,000*

*The proposed budget will serve to fund the Office for the upcoming biennium (July 1, 2022 to June 30, 2024)

Project Manager: Mabel Jones

Project Description: The University of Wyoming Office of Water Programs (Office) was established under Wyoming Statute 41-2-125 by the 2002 Wyoming State Legislature. The Office is managed under the direction of Greg Kerr (located within the UW Office of Research and Economic Development) who also administers the State of Wyoming/USGS Cooperative Water Research Program (WRP). (See separate water research program recommendation for further details).

The Office works directly with the Wyoming Water Development Commission, Legislative Select Water Committee, and the Wyoming Water Development Office to: identify research needs of state and federal agencies regarding Wyoming's water resources; administer funding under the National Institutes of Water Resources (NIWR); serve as a point of coordination for these efforts; and encourage research activities by University of Wyoming faculty to address important state water-related research needs. The Office of Water Program's Director reports annually prior to each legislative session to the Legislative Select Water Committee and the Wyoming Water Development Commission on the activities of the Office.

2022 WATER DEVELOPMENT PROGRAM RECOMMENDATION

WATER RESEARCH PROGRAM PROJECTS

Project Name: UW Water Research Program

Program: New Development

Project Type: Multipurpose

County: Statewide

Sponsor: WWDC / USGS / UW

WWDO Recommendation: Level I

Proposed WWDC Budget: TBD

Project Manager: Mabel Jones

Project Description: Statewide Water Research

The UW Water Research Program (WRP) is a cooperative State-Federal-University water-related research and training program. The primary goals of the WRP are to support and coordinate research relative to important water resource problems of the State and region, support the training of scientists in relevant water resource fields, and promote the dissemination and application of the results of this water-related research. The University of Wyoming's Office of Water Programs (OWP) annually solicits Wyoming stakeholders to identify areas of needed water research to be conducted by the University. The WRP supports faculty and students through competitive peer reviewed proposals addressing these water related issues upon a favorable recommendation by a WRP Advisory Committee and subsequent approval by both the Wyoming Water Development Commission and Legislative Select Water Committee (SWC). Projects are selected annually for funding, with Wyoming Water Development Commission funds being matched by the University of Wyoming.

Project proposals are evaluated first by the WRP Advisory Committee for scientific merit and applicability to the needs of the State to include a priority ranking of viable projects. This ranking is then presented to both the Water Development Commission and Legislative Select Water Committee for their consideration and formal action at their respective January meetings. Final approval as to which projects are included in the WRP block funding request as part of the Omnibus Water Planning Bill, rests with the WWDC and SWC. The current WRP project selection process ties the pending WRP funding request in the Omnibus Planning Bill to a specific set of projects that have been thoroughly reviewed by not only the WRP Advisory Committee (scientific review) but also by the WWDC and SWC. Specific completed and pending tasks and timelines under the FY22 project proposal selection and approval procedure follow:

WRP Proposal Solicitation and Receipt

- April 30, 2021 – Solicitation of research topics and drafting of RFP (OWP & WRP Advisory)
- May 13, 2021 – RFP approved (WWDC & SWC)
- Sept 2021 – Distribution of RFP (OWP)
- Oct 1, 2021 – WRP research proposal deadline (OWP)

WRP Proposal Review and Project Selection

- Oct-Nov 2021 – Research proposals peer reviewed (OWP facilitates)
- Nov 17, 2021 – Research proposals reviewed and ranked (WRP Advisory Committee)
- Jan 26-27, 2022 – Rankings reviewed and projects approved (WWDC & SWC)
(Selected projects to be listed in the Blue Book for the legislative session)

WWDC/SWC WRP Funding Approval

- Jan 2022 – Omnibus Water Planning Bill legislation drafted (WWDC & SWC)
- Feb-Mar 2022 – Planning Bill acted on by Wyoming State Legislature
- Mar 2022 – WRP MOU approved (WWDC & SWC)
- Mar 2022 – New WRP projects begin (OWP coordinates activities)

Research proposals were accepted by the Office of Water Programs from the campus community during the month of September up until the deadline of October 1, 2021. Six FY22 proposals were received, will be peer reviewed (includes external review), discussed, and ranked by the WRP Advisory Committee at their November 17, 2021 meeting. A listing of these proposals, requested budget amounts, and corresponding statements of relevance follow. Copies of the full proposals are available from the WWDO Project Manager upon request.

UW Water Research Program ~ FY22 Proposals

WRP FY22 - Proposal A

Title: Life cycle cost analysis of alternative water delivery methods, dam improvements and sediment mobilization alternatives at Willwood Dam.

PI: Chengyi (Charlie) Zhang, Department of Civil and Architectural Engineering and Construction Management, UW

Proposed Start Date: 07/01/2022

Proposed End Date: 06/30/2025

Project Funds Requested: \$198,565

University Matching: \$130,336

Non-Technical Statement of Relevance:

The proposed 3-yr project aims to conduct a life cycle cost analysis of alternative water delivery methods, dam improvements and sediment mobilization alternatives at Willwood Dam. It includes four tasks. (1) Cost analysis of improved sediment mobilization at Willwood Dam. (2) 50-yr lifecycle cost analysis of Willwood Dam. (3) Feasibility analysis for an alternative water delivery methods new point of diversion/pump station. (4) Investigating funding alternatives for infrastructure improvements. The deliverables and benefits of this study include (1) Best practices for Willwood Irrigation District to mobilize sediment safely and economically during the spring sediment mobilization period of late March to mid-April, (2) Best practices for Willwood Irrigation District to mobilize sediment safely and economically before and during Shoshone River peak flows during the irrigation season when the pool elevation at Willwood Dam is high, (3) As-built condition of Willwood Dam (4) A Dam Information Modeling (DIM) for improving daily operation and maintenance, (5) 50-yr Lifecycle Cost/Benefit Analysis of Willwood Dam, (6) Feasibility Analysis for the Water New Point of Diversion/Pump Station, (7) Potential funding resources and best practices for dam replacement and maintenance projects. Two graduate students will be trained and work on this project.

WRP FY22 - Proposal B

Title: High resolution UAV-borne lidar and multispectral erosion monitoring to inform best management practices that seek to reduce sediment accumulation at the Willwood Dam

PI: Austin Madson and Di Yang, Wyoming Geographic Information Science Center (WyGISC), UW

Proposed Start Date: 07/01/2022

Proposed End Date: 06/30/2025

Project Funds Requested: \$197,542

University Matching: \$155,846

Non-Technical Statement of Relevance:

Increased sediment content within the Shoshone River can have a negative effect on both human and natural uses. This is especially true for the stretch of the Shoshone downstream of the Buffalo Bill Reservoir and beyond the Willwood Dam (WD) where a multitude of human and natural users are reliant on the health of these hydrologic systems. Increases in sediment loading and turbidity can have a harmful impact on a wide variety of ecologically important aquatic invertebrate and fish species as well as downstream human use. Sediment deposition behind impoundments can drastically reduce storage volumes and cost time and money to remediate. In response to recent sediment release events at the WD, the Wyoming Department of Environmental Quality (WDEQ) put into place a series of working groups in order to 1) restore and reestablish the habitats and aquatic species affected by the recent sediment releases, and 2) to reduce or eliminate the need for future sediment releases. Willwood Working Group #3 (WWG3) was formed and tasked to increase the understanding of sediment loading from sources upstream of the WD. The long-term goal of WWG3 is to determine and implement best management practices (BMPs) which will reduce the sediment accumulation at the dam. WWG3 consists of various federal, state, and local agencies (e.g., Bureau of Land Management,

Natural Resources Conservation Service, WDEQ, Powell Clarks Fork Conservation District, Wyoming Association of Conservation Districts, Wyoming Game and Fish Department, Willwood Irrigation District, etc.) along with local landowners. This proposal seeks to quantify and examine upland and bank erosion rates for different land cover and land use categories within selected high priority contributing areas (Sulphur Creek, McCullough Peaks, and portions of the Shoshone) in order to increase the understanding of sediment load sources above the WD. Example breakdowns of these land cover and land use types include by vegetation type (e.g., species, herbaceous, woody, etc.) and density, slope angle, human recreational, irrigation ditch, riparian livestock use, surface mining, and binary anthropogenic/natural sources. The results from this proposed research will directly help the abovementioned governmental agencies better manage the sediment in this part of the Shoshone River and allow for continued human and natural usage of these important water resources. Further, this work will provide significant research benefits to WWG3 and their associated local, state, and federal agencies to aid them in their long-term goal of implementing BMPs to reduce the sediment accumulation at the Willwood Dam. Lastly, a portion of this proposed work seeks to support water related training and education in Wyoming by funding two master's level graduate students as well as multiple lab/field technicians.

WRP FY22 - Proposal C

Title: Snowpack and streamflow in Wyoming in a warmer climate: a study of changes in variability in water availability using climate and hydrological modelling

PI: Dr. Bart Geerts, Department of Atmospheric Science, UW

Proposed Start Date: 07/01/2022

Proposed End Date: 06/30/2025

Project Funds Requested: \$176,298

University Matching: \$113,560

Non-Technical Statement of Relevance:

In his 2015 Wyoming Water Strategy document, Governor Mead followed earlier Wyoming leaders in emphasizing the importance of water development to Wyoming's economy. Climate projections indicate that Wyoming (and the rest of the world) will become significantly warmer in coming decades. Recent studies by the Wyoming Game and Fish Department (<https://wgfd.wyo.gov/habitat/habitat-resources>) and the US Geological Survey (the Greater Yellowstone Climate Assessment, Hostetler et al. 2021) highlight that while a steady warming trend is almost certain, changes in precipitation, soil moisture, and streamflow are more uncertain. The most profound and most predictable change is that cold-season precipitation will gradually transition from a snow to rain-dominated regime. This will result in a reduced early-spring snowpack on Wyoming's mountains, and earlier & less runoff from the mountains in the warm season. A dry year will feel extra dry if the peaks in streamflow and soil moisture occur earlier in spring.

This proposal will yield a better understanding of changes in variability of water resources in Wyoming in coming decades. We will examine watershed-specific changes in probabilities of flooding due to extreme precipitation combined with rapid melt-off. We will also examine drought intensity changes, including probabilities of multi-year droughts. Further, we will assist in the assessment of the impact of specific co-produced water management actions, for instance, upon request of the WWDC, we can quantify the impact of a specific new reservoir development on evaporation and streamflow potential downstream. This will help the State of Wyoming with its long-term climate adaptation and mitigation planning.

This work involves the use of complex coupled atmospheric and streamflow models, to be run on Derecho at the NCAR Wyoming Supercomputer Center. One graduate student will be trained in hydrological modelling, high-performance computing, and the analysis of complex datasets.

WRP FY22 - Proposal D

Title: Economic Impacts of Curtailment and Demand Management in the Wyoming Colorado River Basin

PI: Dr. Kristiana Hansen and Dr. Roger Coupal, Department. of Agriculture and Applied Economics; Ginger Paige, Department. of Ecosystem Science and Management, UW

Proposed Start Date: 07/01/2022

Proposed End Date: 06/30/2025

Project Funds Requested: \$140,277

University Matching: \$102,839

Non-Technical Statement of Relevance:

The Upper Basin States of Colorado, New Mexico, Utah, and Wyoming are exploring options for how to meet their obligations under the Colorado River Compact of 1922, in light of the dry hydrology that the basin has experienced and may continue to experience moving forward. One possibility is to implement a Demand Management (DM) program. Under a DM program, water users would reduce their consumptive water use, and the saved water would be stored in certain Upper Basin reservoirs (including Flaming Gorge), to provide a “savings account” that could help the Upper Basin assure continued compliance with the 1922 Compact. Participation in a DM program by any water user would be voluntary, temporary, and compensated. A DM program could reduce the risk of “curtailment,” under which Upper Basin states would be required to regulate post-compact rights to reduce consumptive water use in proportion to their historical consumptive use. Wyoming would meet this obligation by regulating off water rights in the Wyoming portion of the Colorado River Basin in reverse priority (starting with the most junior and working backwards by priority date) until its obligation was met. As stakeholders in Wyoming evaluate the feasibility of a DM program, economic considerations are of paramount interest. Which sectors of the economy—agricultural, municipal, industrial—are most impacted from curtailment versus DM? Building on an existing economic impacts study focused on DM (completed March 2020) and on stakeholder input from the DM feasibility outreach work recently conducted by the Wyoming State Engineer’s Office, the proposed study will assess the potential economic impacts of both DM and curtailment in Wyoming.

WRP FY22 - Proposal E

Title: Evaluation of Critical Minerals (CMs) Deposits, Mainly Lithium (Li) and Rare Earth Elements (REEs), in Wyoming as well as the Economic Viability of Mining These Resources

PI: Dr. Maohong Fan, Chemistry and Petroleum Engineering, UW.

Proposed Start Date: 07/01/2022

Proposed End Date: 06/30/2024

Project Funds Requested: \$170,000

University Matching: \$116,089

Non-Technical Statement of Relevance:

Governor Gordon has paid high attention to not only the issues of water quantity and quality in Wyoming (<https://www.wyomingpublicmedia.org/natural-resources-energy/2021-09-03/governor-gordon-addresses-need-for-water-storage-testifies-before-senate-on-clean-water-act-reform>, <https://www.epw.senate.gov/public/index.cfm/2019/11/wyoming-governor-mark-gordon-testifies-before-senate-on-clean-water-act-reform>) but also development of Critical Minerals (CMs), mainly lithium (Li) and rare earth elements (REEs), in Wyoming (https://www.kulr8.com/news/gov-gordon-unveils-initiative-to-strengthen-and-expand-wys-economic-pillars/article_a7db0250-6735-11eb-a586-e36315935b65.html). Water is one of the most critical resources in the development of Wyoming’s economy. On the other hand, various precious resources exist in the water resources, among them are CMs, mainly Li and REEs, as reflected in Water Research Program - FY 2022. Accordingly, the proposed project targets at the evaluation of the extent of CMs deposits (Li and REEs) in Wyoming as well as the economic viability of mining these resources. Wyoming is very promising in CMs not only because Li and REEs resources abundantly exist in Wyoming’s mineral resources such as coal and its combustion byproducts such as coal ash but also could richly be present in brines. Thus, the proposed project aims at 1) collecting the information on any current and ongoing research surrounding Li and REEs extraction technologies, 2) evaluating the concentration of Li and REEs in brines in Wyoming and the possibility in separating the CMs from them, 3) examining the needed policy needed for the production of dissolved Li and REEs, 4) outlining any specific research needs surrounding Li and REEs production, 5) conducting literature review of the current industrial Li and REEs extraction technologies, 6) listing and explaining ongoing research in Li and REE extraction fields, and 7) conducting techno-economic assessment of Li and REEs production in Wyoming. The success of the proposed have a far-reaching impact on CMs based economy in Wyoming and the U.S.

The success of the proposed project will encourage the development of Li and REEs extraction industry in Wyoming. Also, the success of the proposed project will facilitate the planning, selection, financing, construction, acquisition and operation of projects for Li and REEs recovery, recycling of water, and improvement of water quality. Furthermore, the results of this study that will train both undergraduate and graduate students at UW will be publicly available, disseminated through executive summary bulletins to any interested government agencies, as well as through seminars and presentations by the UW Water Research Program, academic and industry conferences, and news releases in Wyoming media, which can help the

team transfer any technology to be developed via the proposed project to industry and society for acceleration of economic development. Thus, the study can be used by government agencies in the management of Wyoming's water resources.

Federal agencies (DOE NETL, DOE Critical Material Institutes) strongly support the proposed project, as shown in their support letters (attached with the proposal package)

WRP FY22 - Proposal F

Title: Evaluating the effectiveness of beaver dam analogues for reducing E. coli loading

PI: Dr. Melanie Murphy, Ecosystem Science and Management, UW, and Dr. Courtney Larson, The Nature Conservancy in Wyoming

Proposed Start Date: 07/01/2022

Proposed End Date: 06/30/2025

Project Funds Requested: \$199,811

University Matching: \$192,776

Non-Technical Statement of Relevance:

We will assess the effectiveness of beaver dam analogues (BDAs) as a conservation practice to reduce pathogen (E. coli) loading to surface waters. Constructed BDAs present an opportunity to emulate beaver activity in streams which can provide water filtration and increase water quality. The goal of BDAs (low-head, permeable dams, constructed to mimic natural beaver dams) is to slow water flow, increase sediment deposition, improve habitat, and increase water quality as a by-product. Across the Mountain West, local municipalities, state agencies, and private landowners are installing beaver dam analogues in stream reaches without natural beaver dams. In Wyoming, this includes private landowners, non-governmental organizations (e.g., The Nature Conservancy), state agencies (e.g., Wyoming Game and Fish Department), and federal agencies. BDAs are appealing as they are low-cost, using at-site materials (e.g., willow branches, small boulders), minimal additional inexpensive materials (e.g., wooden posts), and a few hours of labor per BDA. To assess the effectiveness of BDAs to reduce pathogen loading in surface waters, we will use environmental DNA (eDNA, assay of DNA from collected water samples) to quantify E. coli presence and abundance in free-flowing reaches, reaches with natural beaver activity and reaches with BDAs for three streams in central Wyoming. Our project will benefit Wyoming Water Development by determining if BDAs are an effective mechanism for reducing pathogen loading.

2022 RECOMMENDATION - WATER DEVELOPMENT ACCOUNT II

Project Name: Transfer of funds from Water Development Account I (WDA I) to Water Development Account II (WDA II) **Program:** Rehabilitation

Project Type: Fund Transfer

County: Statewide

Sponsor: WWDC

Transfer Funds from WDA I to WDA II:: \$ 7,000,000

Project Manager: Jason Mead

Description:

The Wyoming Water Development Account II (WDA II) 2022 recommendations exceed the WDA II projected fund balance. With a current WDA II fund balance of \$13,260,730 and WDA II 2022 recommendations totaling \$18,627,100, if approved, there would be a deficit of \$5,366,370 to WDA II.

This recommendation is seeking formal Commission approval to transfer \$7,000,000 from WDA I to WDA II to mitigate the WDA II fund deficit.

The table below summarizes WDA I and WDA II projected balances, WDA I and WDA II 2022 funding recommendations and WDA I and WDA II balances after the transfer of funds from WDA I to WDA II.

WWDC WDA I SUMMARY

WDA I Projected Balance	WDA I Requested Transfer	WDA I Recommended Funding	WDA I Balance ¹
\$33,852,642	-\$7,000,000	\$10,261,490	\$16,591,152

¹ Following WDA I transfer

WWDC WDA II SUMMARY

WDA II Projected Balance	WDA I Requested Transfer	WDA II Recommended Funding	WDA II Balance ¹
\$13,260,730	+\$7,000,000	\$18,627,100	\$1,633,630

¹ Following WDA I transfer