

THE PROJECT 7 RESILIENCY PROGRAM

PROGRAM WORKSHOP #2

- Funding & Outreach Plan
- Schedule & Delivery
- Conceptual Engineering Update

April 22, 2021

Project 7 Water Authority

Meeting Overview

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Over the next two hours we will cover the following topics:



Introduction and Meeting Overview



Funding Program Brief



Outreach Plan Discussion



Project Schedule Update



Project Implementation Discussion



Engineering Update

- Site Evaluation
- Raw Water Delivery
- Water Quality Targets and Treatment

The P7 Resiliency Program ensures:

- Full access to Water Supply Portfolio
- Resiliency in Supply and Delivery

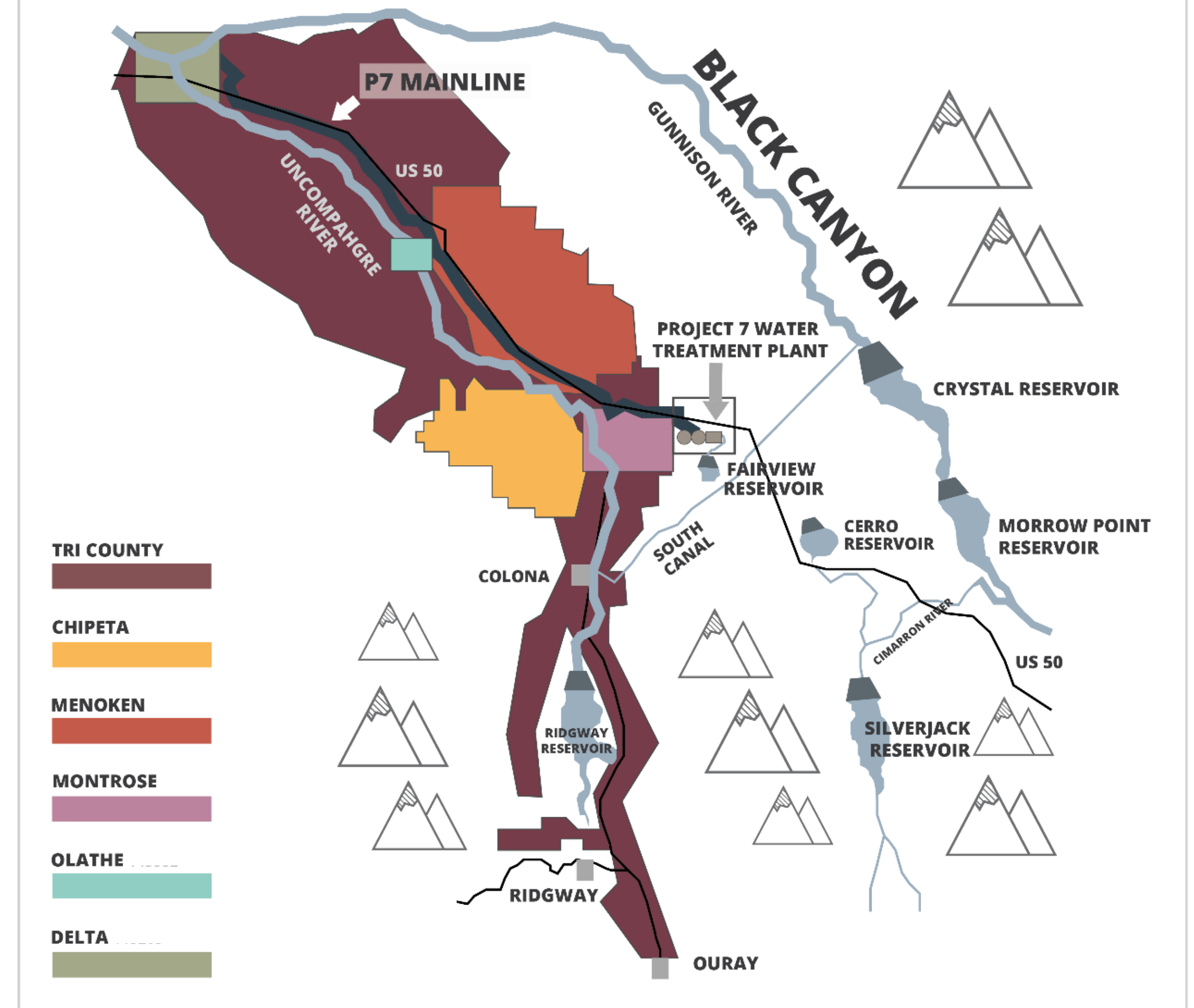
MAJOR PROGRAM COMPONENTS

01 New water treatment facility
(Location: South of Colona)

02 New raw water source
(Ridgway Reservoir storage water,
accessed via Uncompahgre flows)

03 New transmission pipeline
connections

PROJECT 7 WATER AUTHORITY SOURCE & TRANSMISSION LINES



Benefits of the Resiliency Program, in your words

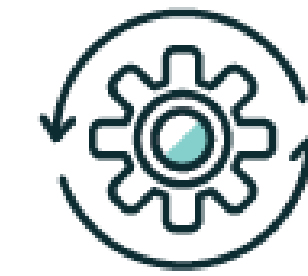


Shared Values



Invest in the Future

Realize P7's founding vision of a resilient and reliable water supply for the Uncompahgre and Gunnison Valleys.



System Strength

Develop a new water supply that reduces the risk of supply interruptions due to wildfire or drought in the Gunnison watershed, or transmission failures in the Gunnison Tunnel.



Direct Access

Directly use existing water rights in Ridgway Reservoir rather than relying on water trades to access this resource.



Reliable

Reduce the need to pump water around the valley which lowers maintenance costs and benefits the environment

MEETING PURPOSE & GOALS



Outreach: Raise awareness and demonstrate benefits

Highlight upcoming education and engagement opportunities to demonstrate regional program benefits for the over 50,000 people served by Project 7 and our member entities



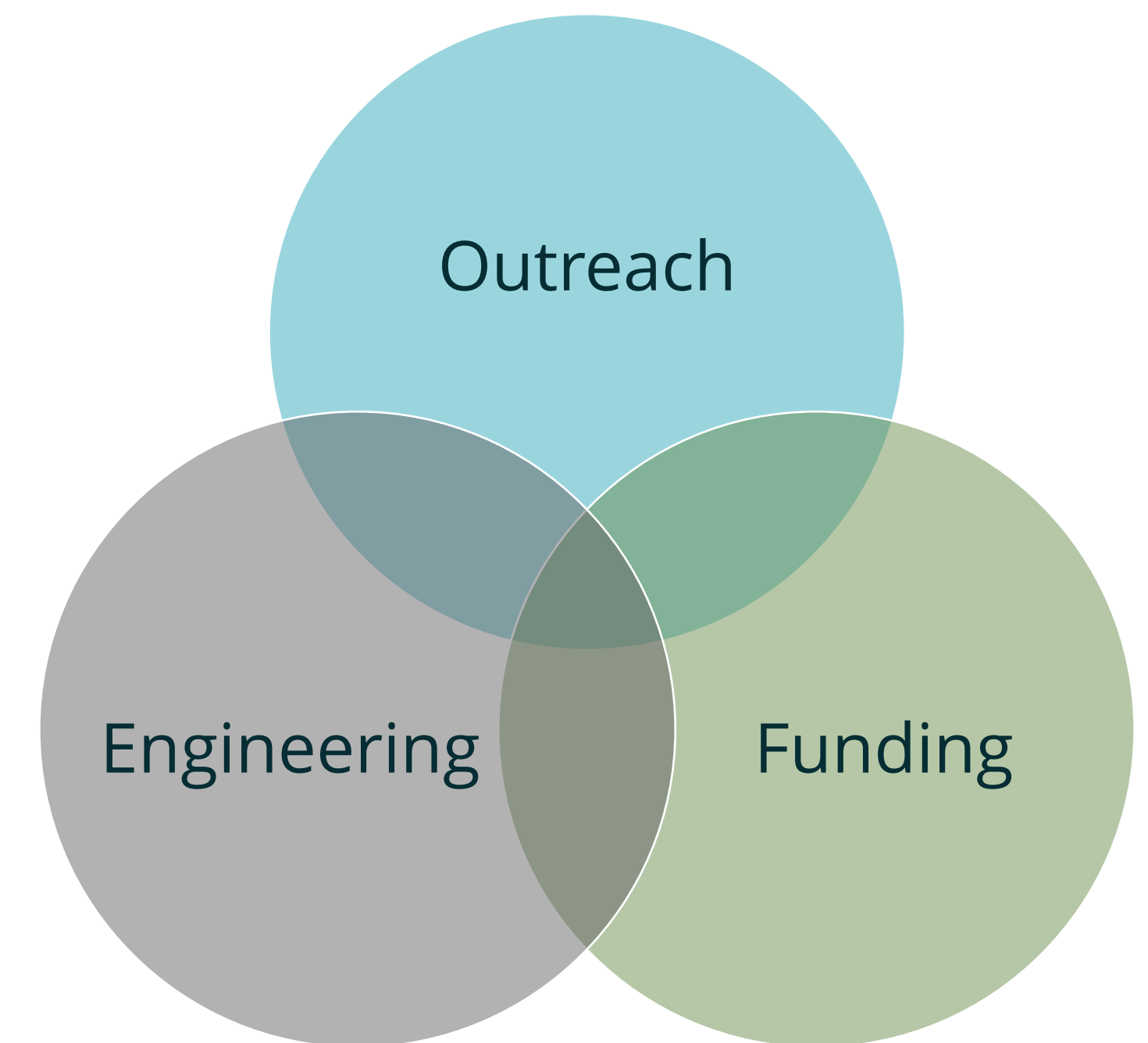
Funding: Maximize return on investment

Leverage state and federal funding to multiply every dollar contributed locally and utilize the western Colorado workforce to strengthen the regional economy and water system



Engineering: Begin mapping the path forward

Clarify expectations on basis of design and impacts on funding program, project delivery, and project schedule



Project 7 Water Authority

Funding Brief

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The project management team is currently in the process of applying for these funds:

American Rescue Plan

- Colorado State Government to receive \$3.95 billion
- P7 Members to receive a total of \$6,570,000
- Montrose and Delta Counties to receive \$14.2 million combined

Federal Opportunities

- Submitted Official Resolution for BoR Water Conservation Field Services Program
- BoR WaterSmart Water & Energy Efficiency Grant
- USDA Water & Waste Disposal Loan & Grant Program

State and Local Opportunities

- State Revolving Fund
- State Revolving Fund Interim Program
- Department of Local Affairs EIAF Program
- Colorado Water Conservation Board

Outreach Update

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Outreach Update

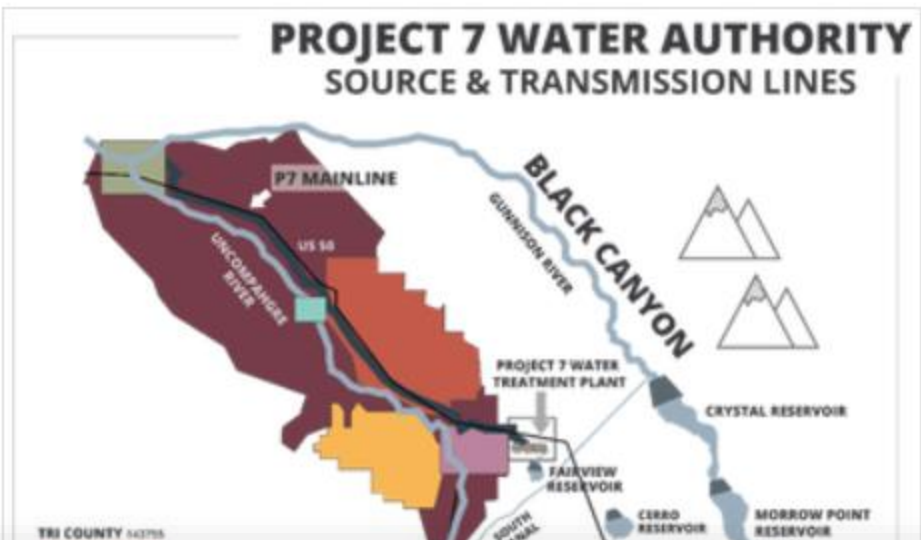
- www.Project7water.org/WaterSupply
- Program Benefits
- Frequently Asked Questions
- Funding & Rates
- Latest News

Water Supply

Today, all the drinking water supplied by Project 7 to the municipalities and rural areas of the Uncompahgre River Valley comes from one treatment plant and one source: the Gunnison River, conveyed through the Gunnison Tunnel.

Although this single source has efficiently served us well for the past 40 years, it does make the regional drinking water system susceptible to a growing list of threats. Wildfire or infrastructure failures could make life extremely difficult to navigate. Hard choices would have to be made.

We believe the most cost-effective and long-term solution is to develop a new drinking water source that reduces the risk of water supply interruptions for over 50,000 people served by Project 7 and our member entities across the region.



The Regional Water Supply Program and water source, treatment, and distribution to the communities of the Uncompahgre Valley Reservoir that are currently accessed through build a more secure and reliable water system transmission interruptions in the Gunnison

Learn more and stay informed:

- Program Benefits
- Frequently Asked Questions
- Funding & Rates
- Latest News

Frequently Asked Questions

We understand that with a project of this complexity there are some questions you may be considering, particularly the impact of rate increases and how this project will benefit you and your community. The following Q&A details responses to some common questions.

What Is Project 7 & How Does It Impact Me?

What Is The Regional Water Supply Program?

Why Is The Regional Water Supply Program Needed?

Should I Be Worried About My Drinking Water Supply?

How Much Will This Project Cost & Who Will Pay for It?

Will Rates Increase Due To This Effort? If So, Why?

What Is The Difference Between My Water Rates And Project 7's Wholesale Rates?

Upcoming Activities

Potential Stakeholders: Engage a range of regional interests, including:

- Business Groups: Economic development, tourism, real estate, etc.
- Natural Resource Organizations: Water management, environmental, etc.
- Governmental Agencies: County services, utility, fire protection, etc.
- Civic Groups: Community advocates, youth groups, faith-based organizations, etc.

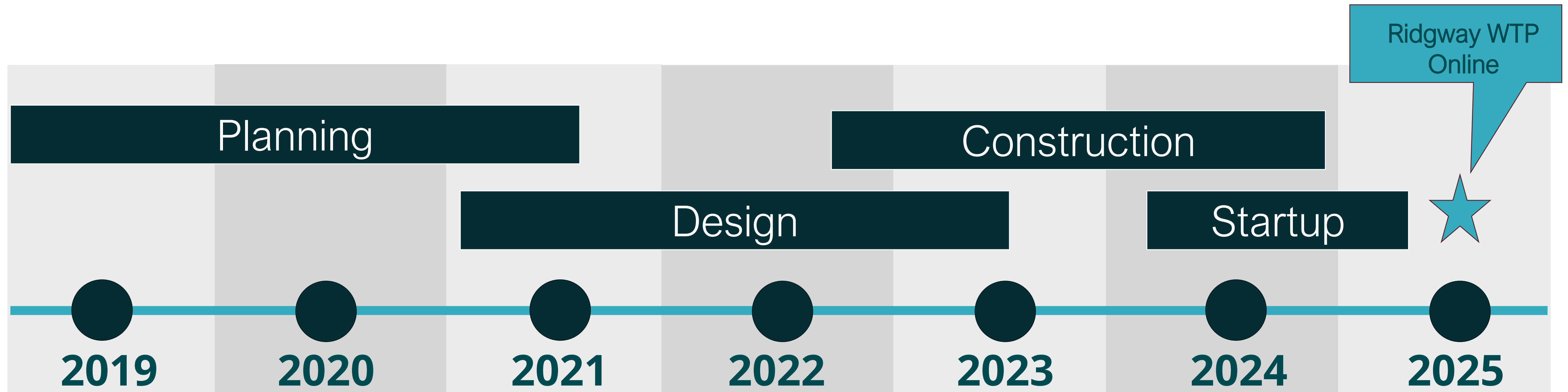


Schedule Update

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The project schedule may still change, but a new Ridgway Water Treatment Plant is expected by 2024 or 2025



The Ridgway Water Treatment Plant is expected to produce water for the Uncompahgre Valley by 2024/2025. The WTP will be designed so additional capacity can be added in the future, which would result in a maximum design capacity of 10 MGD.

Program Implementation

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In 2019/20 the Program Management Team Focused on Aligning Expectations

- Conducted communications, planning and Board facilitation activities
- Evaluated conceptual design alternatives for decision support
- Assisted with financial planning



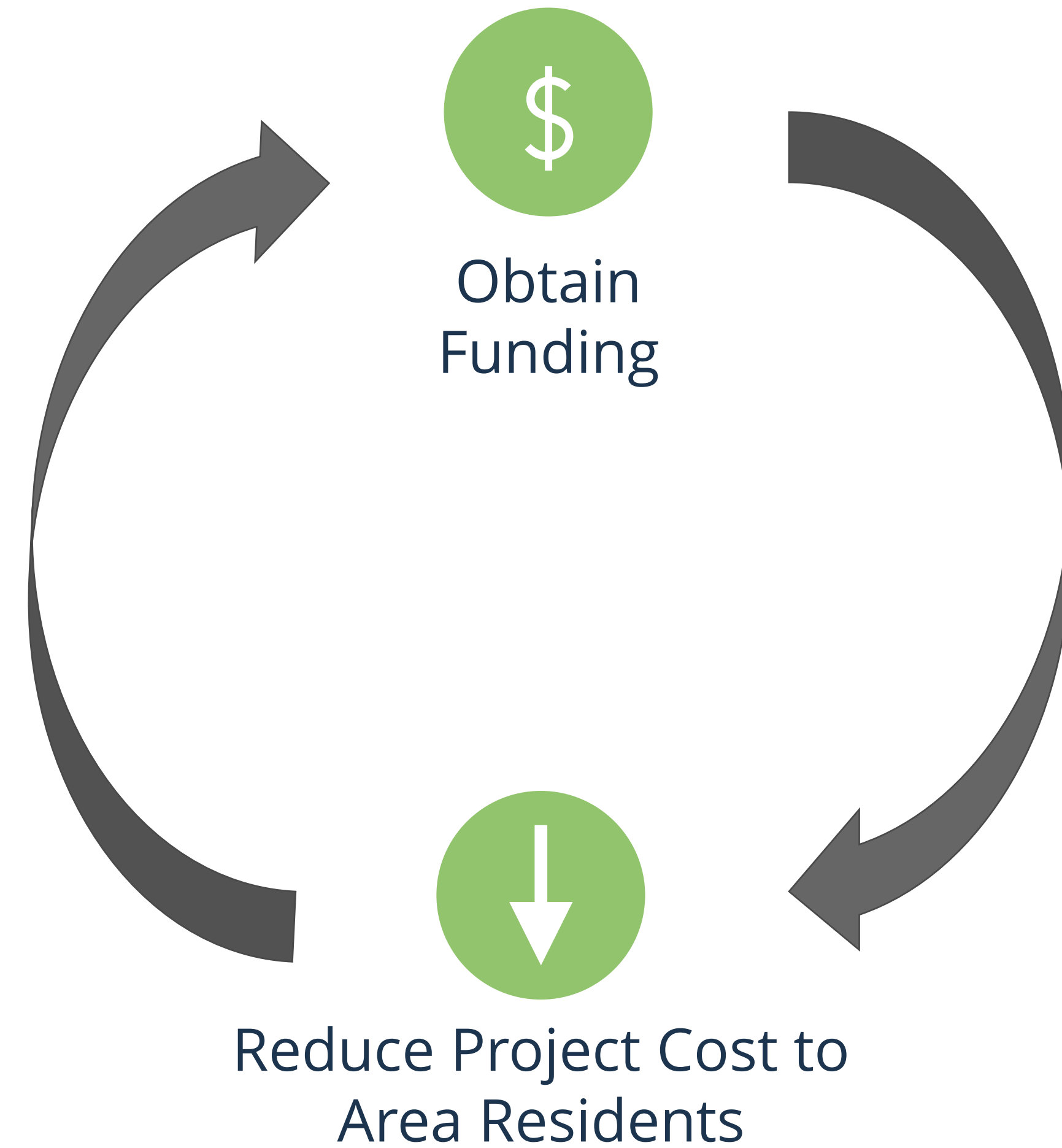
In 2021 the Team will Develop Actionable Goals and Plans and Begin Implementing Them

- Implement Outreach Plan
- Complete Affordability Analysis and Program Alternatives Analysis
 - Receive support and buy-in from Board and Community on the path forward
- Manage the transition into active design phase of the project



The 2021 Funding Effort will Focus on Obtainable Goals

- Pursue priority funding opportunities with renewed focus
 - SRF Loan and Interim Loan
 - DOLA Grants
 - Stimulus Funds
 - Bureau of Reclamation Drought Contingency Project Grant
- Reassess and reprioritize funding efforts at end of 2021



Engineering: Due Diligence

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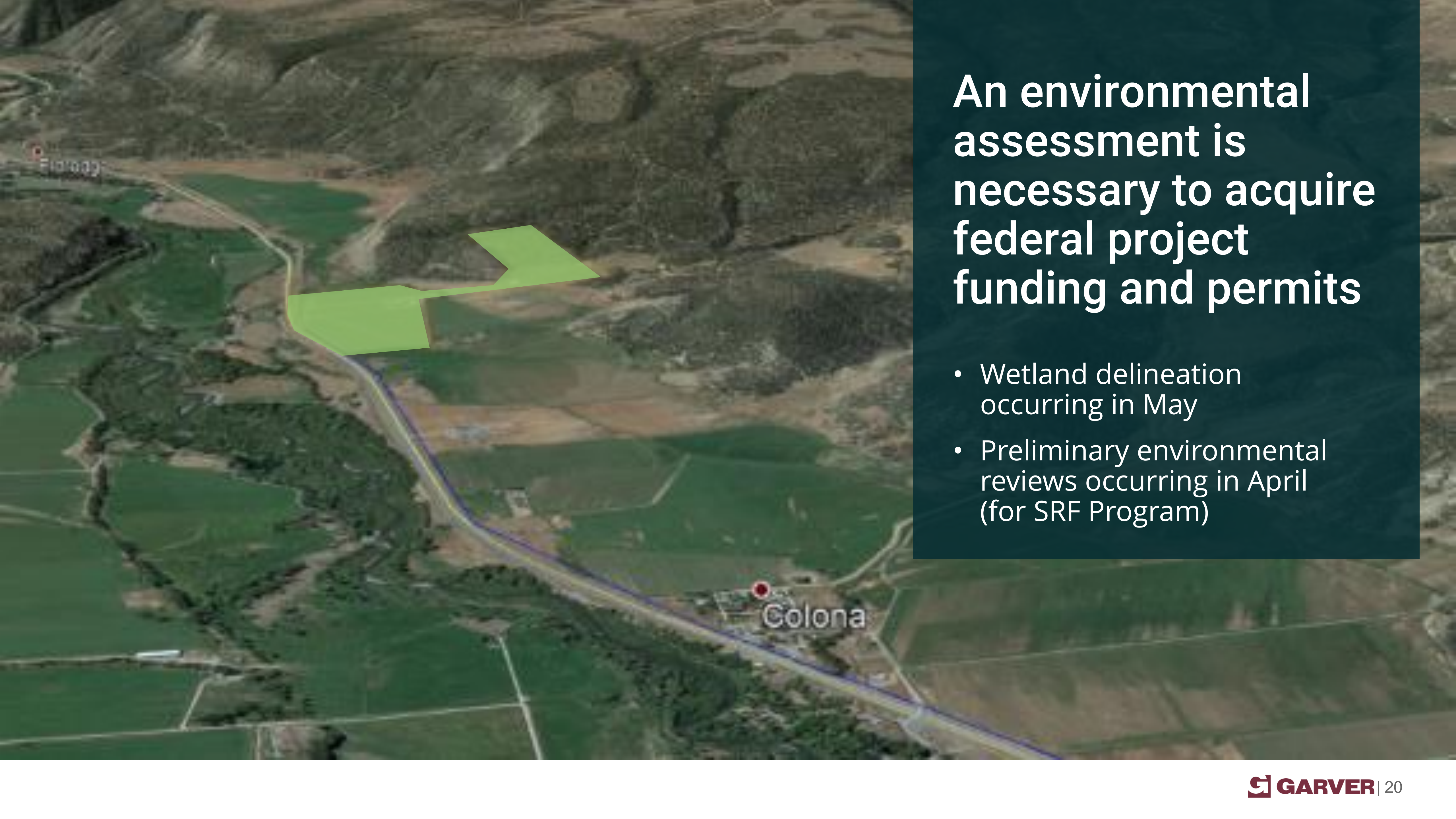
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- Survey completed in late 2020
 - Survey of finished water line alignment
 - Survey of building site on Ford Parcel
- Survey delivered and reviewed by Garver in February
- Additional survey will be required
 - River diversion OR raw water pipeline

Survey Completed to Identify Important Site constraints and Property Bounds





An environmental assessment is necessary to acquire federal project funding and permits

- Wetland delineation occurring in May
- Preliminary environmental reviews occurring in April (for SRF Program)

Technical Discussion: Raw Water Delivery

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We evaluated three options for the raw water delivery system.

- Raw water transmission line from Ridgway Reservoir to Ridgway WTP site
- Riverbank filtration at Ridgway WTP site with in-river raw water transport
- Traditional river water diversion structure located adjacent to Ridgway WTP site with in-river raw water transport



Figure 3-1: Project Corridor and Alignment Segments (Note: Segment B is shown in green)

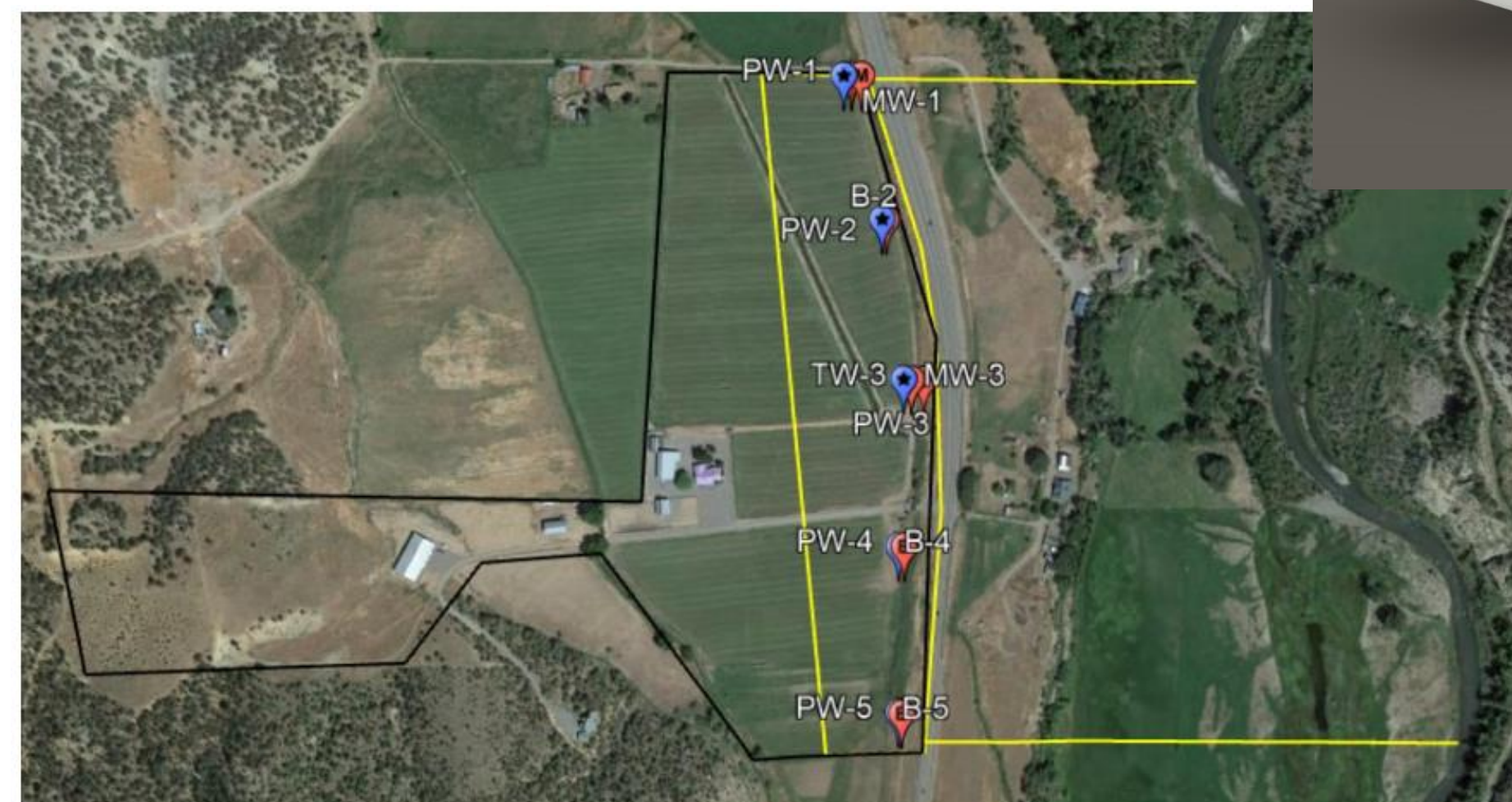


Figure 1 – RBF project site property boundary map (black polygon) with primary geophysics surveying areas of interest indicated with the yellow polygon and two river profiles extending east towards the Uncompahgre River. The conceptual well layout is also included in the figure, with tentative well placements indicated with red and blue pins.

Project Costs were Developed to Aid in Identifying Preferred Raw Water Delivery Method

- Key assumptions and unit prices reviewed by a local builder
- River pump station is lowest cost option
- Raw water line costs more, but could be a good choice due to low O&M and lack of pumping
- Well field now estimated to be highest cost alternative

OPINION OF PROBABLE COST (OPC)
Project 7 Water Authority - TO4
Option 1a: Raw Water Transmission Line (10 MGD)

PROJECT: SGM NO.:
 DATE: 18278075 - TO4
 OPC LEVEL: 7-Apr-21
 PREPARED BY: Planning
 REVIEWED BY: Rick Huggins, PE
 Evan Tromble, PE, Cole Phillips, PE (Moltz Construction, Salida CO)

PROJECT DESCRIPTION/ASSUMPTIONS:
 A planning level cost opinion for a raw water line between Ridgway Reservoir and the Ridgway WTP, 24" HDPE Pipe, generally along the USHWY550 alignment

Colorado Water Team
 Denver, CO
 Palisade, CO
 TEL 303.721.6932
 www.GarverUSA.com

INSTALLATION ITEMS	UNIT	QUANTITY	UNIT COST	TOTAL COST	% OF (a)
10'x10'x8' Vault (Concrete)	LS	17	\$	800.00	0.2%
Pavement (gravel) road and turnarounds	SY	1,000	\$	15.00	0.2%
Excavation, Fill, Recompaction for Vault	LS	25	\$	180.00	0.0%
Misc Trim, Doors, Stairs, Ventilation	LS	1	\$	20,000.00	3.803.13
24" Manual Shutoff Valve	LS	1	\$	15,000.00	2,000.00
24" Flowmeter	LS	1	\$	18,360.56	25,000.00
Telemetry and I&C for Inlet Vault	LS	1	\$	15,000.00	18,360.56
Site Development Costs	LS	25%	\$	25,000.00	34,000.00
24" HDPE Open Cut	LS	1	\$	15,000.00	20,000.00
Contractor Layout Survey	LS	1	\$	100,000.00	135,805.56
Refined Pipeline Survey	LS	1	\$	100,000.00	135,805.56
Erosion Control on Pipeline ROW	LS	1	\$	100,000.00	135,805.56
Isolation Valves	LS	1	\$	100,000.00	135,805.56
10'x10'x8' Vault (Concrete)	LS	26,700	\$	18,360.56	25,000.00
Pavement (gravel) road and turnarounds	LS	700	\$	100,000.00	135,805.56
Excavation, Fill, Recompaction for Vault	LS	1	\$	40,000.00	53,400.00
Misc Trim, Doors, Stairs, Ventilation	LS	1	\$	200.00	267,000.00
24" Manual Shutoff Valve	LS	1	\$	100,000.00	135,805.56
24" Flowmeter	LS	1	\$	100,000.00	135,805.56
Dedicated 24" Bypass Line	LS	17	\$	162,328.00	217,000.00
Telemetry and I&C for Inlet Vault	LS	0	\$	305,500.00	408,000.00
Survey Contingency and Easement Acquisition	LS	25	\$	800.00	1,062,328.00
Bond/Insurance	LS	1	\$	15.00	200,000.00
Management/Supervisors	LS	1	\$	20,000.00	267,000.00
Labor - Misc. General	LS	1	\$	25,000.00	333,328.00
Mobilization	LS	1	\$	15,000.00	200,000.00
Electrical and Controls Integration	LS	25%	\$	200,000.00	267,000.00
Testing and Startup	LS	1	\$	25,000.00	333,328.00
Contractor Per Diem for Lodging, Meals, Travel	LS	10%	\$	80,880.56	106,232.80
Overhead and Profit	LS	1	\$	100,000.00	135,805.56
SUBTOTAL OF INSTALLATION ITEMS:				\$ 8,607,958 (a)	8.2%
ENGINEER'S OPINION OF TOTAL CONSTRUCTION COSTS (a+b)				\$ 129,100	1.5%
Other Project Costs				\$ 860,800	5.0%
Design Engineering (Detailed Design, Permitting, Environmental, Bid)				\$ 172,200	2.0%
Interim Loan Interest				\$ 75,000	0.7%
Government Administrative Fees				\$ 172,200	2.0%
Construction Surveying				\$ 430,400	5.0%
Extra Space for Alternative Specific Line				\$ 1,721,600	20.0%
Contingencies				\$ 3,991,700 (b)	36.5%
Escalation to midpoint of project				\$ 12,599,658	117.0%
ENGINEER'S OPINION OF PROJECT COSTS (a+b+c)				\$ 15,225,000	142.0%
ESTIMATED COST				\$ 2,519,800	23.4%
OPC - 15%				\$ 630,000	5.8%
OPC				\$ 63,000	0.6%
OPC + 30%				\$ 378,000	3.5%
SUBTOTAL OF OTHER PROJECT COSTS:				\$ 1,721,600	20.0%
ESTIMATED COST				\$ 5,312,500 (c)	49.3%
OPC - 15%				\$ 1,271,600	11.9%
OPC				\$ 127,160	1.2%
OPC + 30%				\$ 762,960	7.1%

Technical Discussion: Water Quality Analysis

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From a water quality perspective, project must meet the following goals – in order of priority:

All Primary Drinking Water Standards

- Primary Standards are related to Public Health and are enforceable

Stable finished water chemistry

- Water quality variability is challenging to manage

Secondary Drinking Water Standards

- User Experience and Taste!

- Lime and Soda Ash softening removes hardness
- Recarbonation brings pH back down to a suitable range
- Media filtration removes residual solids carryover from the softening process
- UV disinfection followed by chloramination produce a disinfected finished water
- Dewatering produces a solid that can be landfilled

Concept 1: Conventional Softening



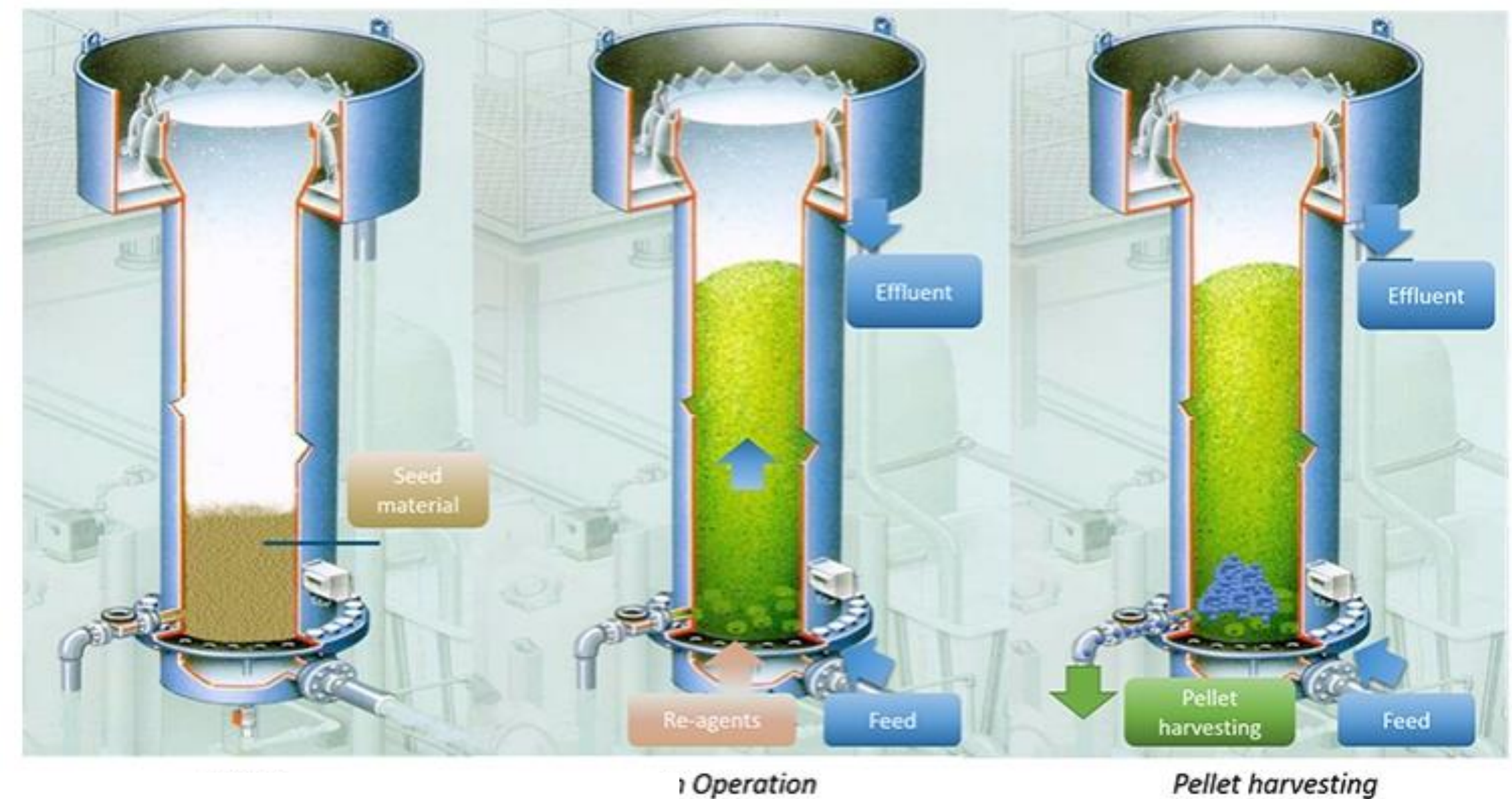
- Benefits
 - Very high water recovery
 - Acceptable water quality
 - Conventional/Low Tech
- Challenges
 - Very high solids generation and disposal (15-30 tons per day)
 - Operability of solids feed systems (lime and soda) and solids contact clarifiers can be poor

Conventional Softening – The Good and the Bad



- Pellet Lime Reactors (PLR) can be used for hardness removal
- Recarbonation to adjust pH
- Filtration will be performed after PLR
- Ultraviolet disinfection and chloramines will be performed
- Similar chemistry to Conventional Softening, but very different operations
- Potential beneficial use of CaCO_3 pellets as soil or cattle feed amendment

Concept 2: Pellet Lime Reactor



- Benefits
 - Change from lime feed to caustic – improved cold weather operations
 - Lime pellets can be beneficially reused as a soil amendment
- Challenges
 - Magnesium fines can be difficult to filter
 - Pellet reactor process is higher tech than conventional softening



Pellet Lime Reactors – The Good and the Bad

- Process will use membrane filtration and coagulation to remove metals and NOM
- Nanofiltration or Reverse Osmosis will provide TDS and hardness removal
- Raw Water Bypass will be used to control cost and provide hardness for stabilization
- pH adjustment will be required for stabilization
- UV and chloramines will be used for disinfection

Concept 3: Membrane Treatment



- Benefits
 - Greater control of water quality
 - Fully automated
 - Very compact site
 - Simplified chemical feed
 - Minimal solids residual (solids from coagulation)
- Challenges
 - Brine disposal can be problematic
 - Higher energy use
 - Membrane replacement every 10 years

Membranes – The Good and the Bad



- Other treatment approaches and other combinations of technologies exist.
- Final process selection should be done by 30% design, with input from Owner
- For now, a basis of design is needed for:
 - Financial Planning
 - Preparation of Procurement Documents

Treatment process selection is iterative and a bit like a jigsaw puzzle



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