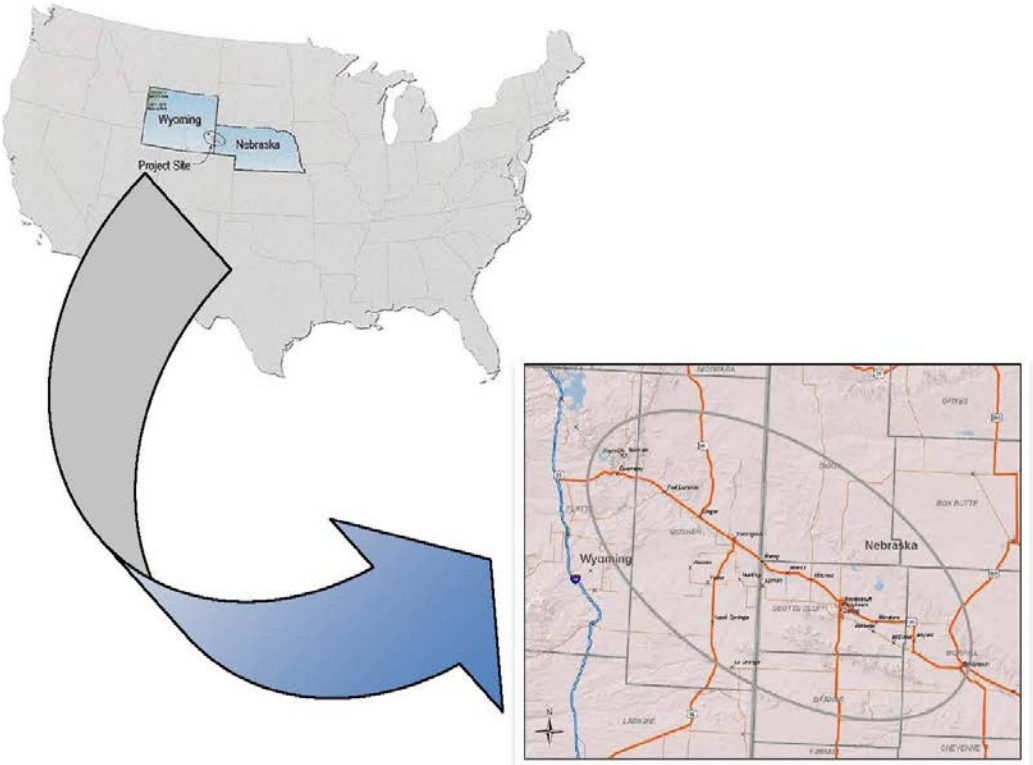
RECLAMATION

Managing Water in the West

Platte Alliance Water Supply Appraisal Report

Rural Water Supply Program
Wyoming Area Office, Great Plains Region



U.S. Department of the Interior
Bureau of Reclamation

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Mission Statement

The U.S. Department of the Interior protects America's natural resources and heritage, honors our cultures and tribal communities, and supplies the energy to power our future.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

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Acronyms and Abbreviations

CFR	Code of Federal Regulations
D&S	Directives and Standards
EPA	U.S. Environmental Protection Agency
GPCPD	Gallons Per Capita Per Day
IWRM	Integrated Water Resources Management
NED	National Economic Development
NPDWR	National Primary Drinking Water Regulations
OM&R	Operation, Maintenance, and Replacement
PAWS	Platte Alliance Water Supply
P&G	Principles and Guidelines for Water and Related Land Resources. Implementation Studies (Water Resources Council, 1983)
P.L.	Public Law
PRRIP	Platte River Recovery Implementation Program
Reclamation	Bureau of Reclamation
Rule	Rural Water Supply Program Interim Final Rule, 43 CFR 404
RWSP	Rural Water Supply Program

Introduction

This Appraisal Report (Report) documents Reclamation's findings pertaining to a completed Appraisal Investigation on the Platte Alliance Water Supply (PAWS) conducted by the sponsor, Goshen County, Wyoming (Appraisal Investigation). The Appraisal Investigation (Volumes 1 and 2) is referenced throughout the following analysis. Details about obtaining a copy of the Appraisal Investigation are provided in the References section of this Report.

The purpose of the analysis of the Appraisal Investigation is to determine whether at least one of the alternatives identified is appropriate for further analysis through a feasibility study, or whether the Appraisal Investigation should be terminated without conducting a feasibility study.

The evaluation criteria for the analysis are found in the Code of Federal Regulations, 43 CFR Part 404, Subpart 44, dated November 17, 2008.

In reviewing the Appraisal Investigation, Reclamation finds that the viable alternatives presented meet the requirements of the Rural Water Supply Program (RWSP) Interim Final Rule and qualify for further detailed analysis through a feasibility study; however, given existing constraints on program resources, Reclamation is unable to recommend congressional authorization or Federal funding of new feasibility studies at this time. Reclamation encourages the study sponsors to continue to further address solutions to the area's water quality problems and develop an optimal strategy. There is a list of provisions that should be considered in subsequent studies at the end of this Report. Of primary importance is the need for the States to establish appropriate regulatory and water rights regimes for any proposed project prior to going forward and to analyze the environmental aspects of any proposed project in greater detail.

Background

The Appraisal Investigation was completed in response to Reclamation's Rural Water Supply Program (RWSP) Funding Opportunity Announcement No. R10SF80458. Goshen County, Wyoming, was awarded $180,000 under Cooperative Agreement R11AC60007, dated December 1, 2010. Reclamation's Great Plains Regional Office prepared this Report for the Wyoming Area Office.

Goshen County Multi-Entity Project Team

As discussed in Appendix C of the Appraisal Investigation, Goshen County established a multi-entity Project Team that met frequently to address study requirements, issues, and direction as the study progressed. The Project Team established an Advisory Group that represented:

- Goshen County, Wyoming
- Scotts Bluff County, Nebraska
- Nebraska Department of Natural Resources
- Wyoming Water Development Commission
- Reclamation (Wyoming Area Office)

The Project Team met with the Advisory Group twice, April 14, 2011 and June 13, 2011, and conducted one public meeting in Torrington, Wyoming on April 25, 2011. The Project Team also met individually with the following agencies and stakeholders:

- Wyoming Department of Environmental Quality
- Wyoming State Engineer's Office
- Central Nebraska Public Power & Irrigation District
- Basin Electric Power Cooperative
- Nebraska Department of Health and Human Services
- Farmers Irrigation District

Planning Area and Population

The planning area is generally along the North Platte River in Wyoming (Platte and Goshen Counties) and Nebraska (Scotts Bluff and Morrill Counties). See Figure 1. The North Platte River, which is the common, significant surface water supply for the entire region, flows southeast through the center of the area. Major facilities in the area include:

- Glendo Dam, Power Plant and Reservoir (in Reclamation's Glendo Unit) and Guernsey Dam and Reservoir (in Reclamation's North Platte Project)
- Dave Johnston Power Plant (PacifiCorp)
- Grayrocks Dam and Reservoir (Basin Electric)
- Laramie River Station Power Plant (Basin Electric)

Numerous small reservoirs are also in the project area. The reservoirs support a variety of industrial, agricultural, recreation and fishery activities.

The area includes four counties in two states, which encompass small incorporated communities and rural areas, (Platte and Goshen County in southeast Wyoming and Scotts Bluff County and Morrill County in western Nebraska). The planning area population from the 2010 census was 60,302, with a projected population of 109,950 in 2070 (assuming a 1 percent per year growth factor). The Appraisal Investigation has further information on the study location and population. There are no Indian tribes in the study area.

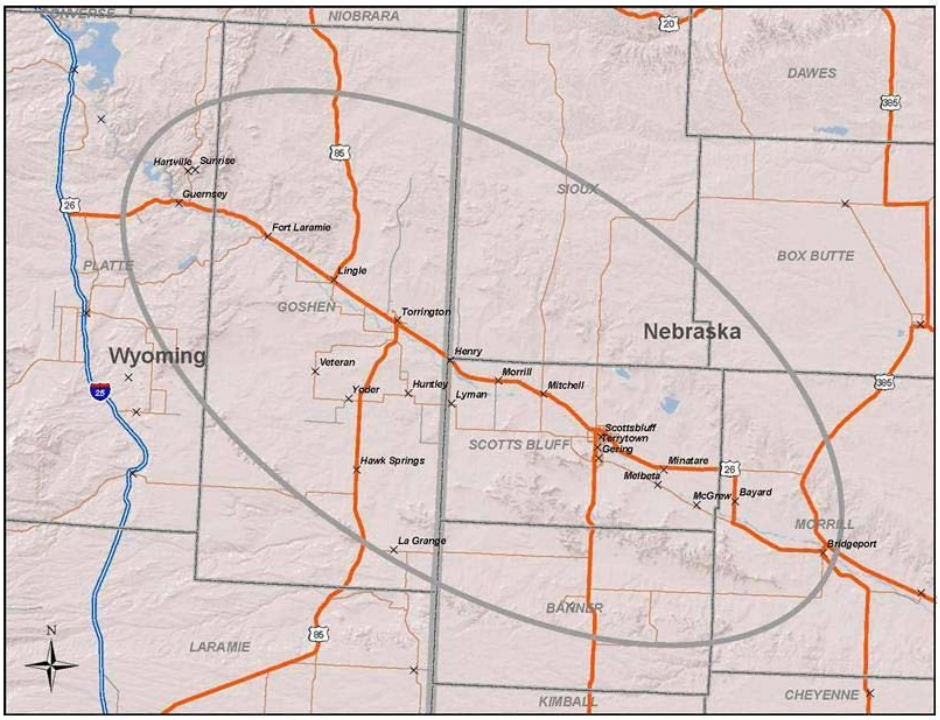

Figure 1. PAWS Vicinity Map.

Study Area Problems and Needs

Historically and currently, most potable water supplies in the study area come from shallow alluvial wells. The groundwater supply in the PAWS area is experiencing a progressively increasing presence of some constituent elements, particularly nitrate, uranium, and arsenic. Water from these wells that was once pumped into storage and distribution facilities and delivered directly to the residents now requires treatment.

These municipalities are experiencing significantly increased costs to construct or modify potable water supply treatment facilities to comply with the Safe Drinking Water Act requirements. The specific problems addressed in the PAWS study are threats to public health and safety for potable uses as related to the Environmental Protection Agency (EPA) primary and secondary standards. Primary standards, National Primary Drinking Water Regulations (NPDWR), are legally enforceable standards that apply to public water systems. Primary standards protect public health by limiting the levels of contaminants in drinking water.

Groundwater quality is degrading while treatment standards are becoming more stringent, thus requiring ever-increasing costs for treatment. Meeting changing and updated standards for drinking water, while beneficial and necessary, creates a significant hardship for many smaller and rural public water systems.

This lack of dependable water quality limits the ability of the region to remain vibrant and sustain current and future growth and economic vitality.

Plan Formulation, Evaluation and Comparison

Planning Scope

The scope of the Appraisal Investigation was limited to that necessary to support and identify at least one viable alternative to address the water quality problems in the study area that would warrant further refinement in a more detailed feasibility study. The Appraisal Investigation used existing data from secondary sources and appropriately relied on professional judgment. The planning horizon was to the year 2070.

Planning Objectives

The following planning objectives were developed:

- Meet the municipal water quality needs for the 2070 projected population; providing potable water to the regional PAWS rural communities that meets EPA standards, including addressing operational and reporting requirements.

- Provide a long-term alternative in which the initial capital costs and long term operational costs are affordable to the regional rural communities.

Planning constraints include:

- Transferring water rights for point of use or the acquisition of new water rights within Wyoming or to Nebraska must be addressed in compliance with each States' water laws and U.S. Supreme Court Decree requirements.

- Providing water supplies must conform to each States' legal parameters for water supplies, given the two-state jurisdiction.

- Moving points of diversion from existing municipal water supplies must not detrimentally impact senior irrigation water rights.

- Changing the point of diversion requires mitigating impacts to senior surface water users.

- Any new depletions to the Platte River would need to be addressed under Wyoming's and Nebraska's Depletions Plans as developed for the Platte River Recovery Implementation Program.

Evaluation and Findings

In reviewing this Appraisal Investigation, Reclamation applied the following criteria from 43 Code of Federal Regulations (CFR) Part 404.44 in making a determination regarding a future feasibility study:

a) Whether a reasonable range of alternatives (structural and non-structural) have been formulated and evaluated.

The alternatives investigated were:

No Action Alternative (Page 40 of the Appraisal Investigation, Volume I)

The No Action Alternative describes the actions that the project sponsors would most likely take in response to no Federal (Reclamation) action. The No Action Alternative is discussed in Chapter IV of the Appraisal Investigation.

The No-Action alternative is relatively straightforward and directly addresses the goal of providing water that meets EPA standards to the end users.

The No-Action alternative considers that each community in the service area will independently develop, construct, and operate a reverse-osmosis water treatment plant.

The sizing of the treatment plants is dependent on the projected population of the community. Exhibit 4B on page 59 of the Appraisal Investigation presents the list of communities, the projected 2070 populations, uses a 155 gallons per capita per day (gpcpd) average water use, and generates a cost of construction using from information on Exhibit 4A on page 58. The 155 gpcpd usage rate is approximately one-half of the current water usage rate shown in the Existing Water Use table on page 25 of the Appraisal Investigation.

Exhibit 4B also projects the operation, maintenance, and replacement (OM&R) costs of each of the water treatment plants using the estimated cost per 1,000 gallons provided by the City of Torrington WY, the estimated operator costs, and the estimated plant replacement costs.

Action Alternatives (Page 44 of the Appraisal Investigation, Volume 1)

The Appraisal Investigation identified two regional water system alternatives, each of which would divert water from the North Platte River in the vicinity of the Town of Guernsey, Wyoming

- **Grayrocks Dam Alternative** includes a diversion point at the existing Grayrocks Reservoir, Wyoming (a main-stem facility on the North Platte River owned by Basin Electric Power Cooperative), uses storage in the reservoir, and begins with

a water treatment plant and pump station at the outlet works before connecting to the service area transmission line.

- **Whalen Dam Alternative** would construct a new river intake and pumping plant a few miles downstream of Guernsey Dam on the North Platte River, a new off-stream storage dam and reservoir and a water treatment plant near the toe of the dam before connecting to the transmission line. The dam structural height would be less than 50 feet and would impound less than 5,000 acre-feet as required by the RWSP.

Both alternatives would include a 17 million gallons per day (mgd) water treatment plant and a nearly identical gravity potable water transmission line to supply communities and fill station taps near county lines. Taps would be provided in the transmission line at each community and 'fill stations' would be incorporated at convenient locations to serve rural water residents without access to a public water system. Communities, on an individual basis, would address modifications and upgrades to their current water storage and distribution infrastructure, including water quality comingling considerations. The alternatives differ in two important respects: raw water diversion point and project water storage facility.

The regional alternatives would meet the area's 2070 needs and would also be sized at 155 gpcpd (with 2x peaking factor), approximately one-half of the current water usage rate. The reduction would be achieved through incentives for communities to reduce potable water use through conservation measures; including metering of all services; upgrades to distribution infrastructure; and use of non-potable supplies for watering lawns and parks, pricing, and public education. Water would not be used for commercial irrigation (greater than one acre).

Figure 2 is a map taken from the Appraisal Investigation showing the segments of the proposed transmission line (segments 4-T1 to 4-T8). The Appraisal Investigation shows more details of each of the segments relative to pipe size, alignment and elevations.

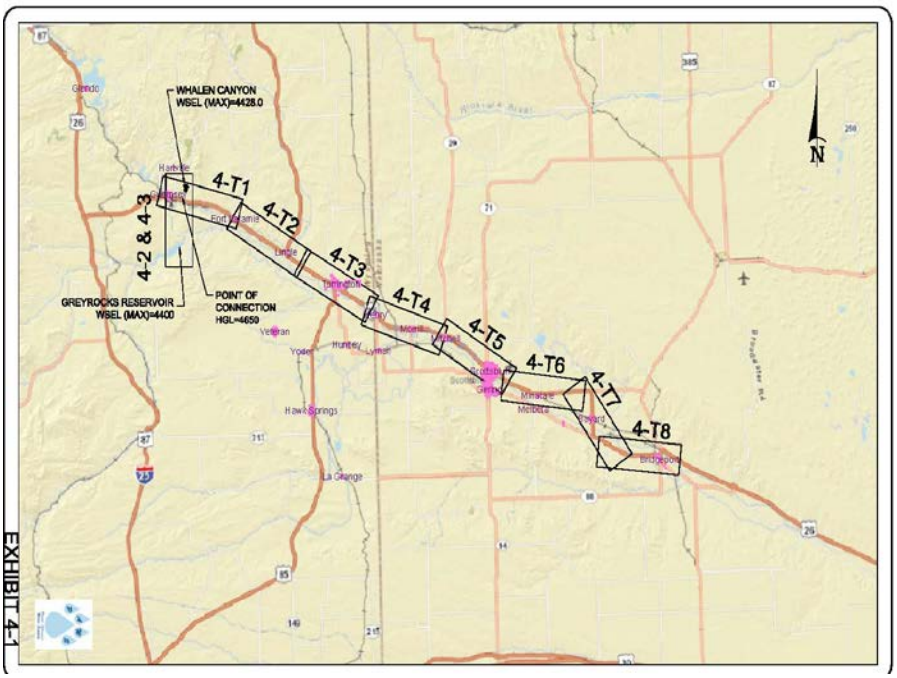

Figure 2. Water sources and transmission routes.

The action alternatives include non-structural elements:

- **Significantly reduced water consumption** to 155 gpcpd from the current 300 gpcpd via coordinated water conservation and other efforts.

- **Creation of a PAWS entity** as a wholesale provider of potable water to municipalities and water districts. The entity would coordinate regional water conservation efforts to reach the 155 gpcpd requirement.

- **Enhanced health and safety benefits** by using an upstream diversion that eliminates the need to remove nitrate, uranium and arsenic and dispose of contaminated water treatment plant waste. A single water treatment plant would provide more effective monitoring and treatment than many small treatment plants.

- **Reduced costs** where construction costs would break even with the current OM&R costs within 12 years.

Alternatives Considered and Eliminated

Several other alternatives were considered and eliminated including:

- Creating a dual system for non-potable and potable uses

- Supply from Reclamation's Guernsey Reservoir

- Supply from deeper groundwater supplies in the vicinity of the Laramie River and North Platte River and in the Wheatland Flats area

- Other sites for off-river storage

Finding: The sponsor considered a reasonable range of alternatives to meet the planning objectives and to avoid the constraints as described in the Appraisal Investigation.

b) Whether the recommendations for further study of one or more alternatives is clearly supported by the analysis in the appraisal investigation.

The Appraisal Investigation should demonstrate a sufficient need for a rural water project for the service area. And, that the No-Action Alternative either does not meet the service area needs or meets that needs but is more expensive than other alternatives.

The Appraisal Investigation should present an analysis that shows, at the appraisal level of detail, that there is at least one viable alternative that meets the needs of the service area and does not have a definite, systemic, or overall, showstopper that would prevent that alternative from being eventually constructed and paid for. If there are systemic showstoppers such as inability to pay for all alternatives or other issues that cannot be overcome by all alternatives, then a recommendation that a feasibility study not be undertaken would be appropriate.

Also, the level of technical analysis should be sufficient to demonstrate that the alternatives have been examined thoroughly and address the major cost and constructability issues.

At the appraisal level, issues can be identified for further study if there is not a clear argument that the issue is a showstopper at this point.

Need: Chapter 3, Page 35, demonstrates that there is need for a rural water system to alleviate the water quality issues that the service area is and will be facing. Chapter 2, page 14, contains the discussion on the water quality issues facing the various members in the service area. The discussion is sufficient to demonstrate a need.

No-Action: Page 45 of the Appraisal Investigation shows that the cost of the No-Action alternative is greater than the costs of other alternatives.

Showstoppers: The Appraisal Investigation sufficiently covers the potential showstopper of the affordability of any constructed project.

The Appraisal Investigation provides on page 39, and in several other places throughout Volume I, that "*It is demonstrated the capital costs for the construction of a regional PAWS facility (at a 50% grant, 50% loan at 4% interest) will break even with current operation and maintenance costs within 12 years….*" This represents that the annual savings in OM&R

costs between the Regional Systems and the No-Action Alternative (where the individual water treatment plants are constructed), added up over 12 years, would equal the difference in the capital construction costs between the two alternatives. Thus making the case that even though the Regional systems cost more than the No-Action alternative to construct, the difference would be offset by the savings in OM&R costs to the sponsor within 12 years.

The Appraisal Investigation also provides on page 39, and in several other places throughout Volume I, that "*…the required increase in water rates to individual users within the PAWS system are within the EPA [Reclamation] "affordability" parameters."* Exhibit 2H on page 34 identifies each community's existing water rate, the anticipated increase to the existing water rate, adds the existing and the anticipated water rates, and shows the calculated EPA "affordability" water rate. All of the final rates are below the EPA parameters with the exception of the City of Gering.

Technical Analysis: The level of technical analysis for the two primary alternatives, Grey Rocks and Whalen, as shown in Chapter 4 and in Appendix G of Volume II is sufficient to demonstrate that the proposed alternatives have been technically analyzed for both initial design layout and construction as well as costs.

Other Issues: Page 46 describes other issues that will need to be addressed in any feasibility study. These issues have not been addressed at the appraisal level due to time and level of effort needed. One primary area of analysis that will need to be addressed is the environmental aspects of any proposed alternative. The Appraisal Investigation discusses the social aspects of obtaining higher quality water, but does not address the wildlife and archeological aspects.

Finding: At this level of study, there does not appear to be an issue that would prevent a determination to go forward with a feasibility study on this element.

c) <u>For each alternative considered in the Appraisal Investigation, whether the alternative:</u>

(1) <u>Identifies viable water supplies and water rights sufficient to supply the proposed service area, including all practicable water sources such as lower quality waters, non-potable waters, and water-reuse-based water supplies;</u>

Viable Water Supplies: The North Platte River (River) is identified as the primary water source for the two primary alternatives. Pages 44 and 45 identify the water sources as either from Grey Rocks Reservoir on the North Platte River or from the River itself under the Whalen Dam alternative. Both of these methods of obtaining water from the North Platte River and the River itself appear to be viable from a technical, and a full supply, standpoint.

Water Rights: Specific water rights are currently in place for each municipality and community. Generally, most of the municipal and community water rights are tied to groundwater and there are few, if any, volume restrictions from a water rights perspective. However, all proposed changes to these municipal and industrial water

rights or applications for new municipal and industrial water rights in the Wyoming North Platte River Basin must be reported to the North Platte Decree Committee under the U.S. Supreme Court Decree, and any new depletions to the Platte River must be addressed under Depletions Plans maintained by Wyoming and Nebraska for the Platte River Recovery Implementation Program (PRRIP). To address these considerations, actions must be taken to find new or additional sources of water, use water more efficiently, increase the non-potable supply, or modify wastewater treatment processes that benefit the States' respective Depletions Plans.

From a water rights perspective, the Appraisal Investigation indicates that Wyoming municipalities and communities would seek a change in point of use for their water supply. The Appraisal Investigation also indicates that "there shall be no North Platte River depletions into Nebraska." The sponsor's interpretation is that existing wells are under the influence of surface water and by abandoning existing shallow wells, changing the point of use and reducing demands, additional water enters the North Platte River alluvium and existing flows would not be depleted.

But relocating the point of diversion for the municipalities within Nebraska to Wyoming would create a depletion to the North Platte River that would impact several surface water rights along the river, with the most significant impact at the Wyoming/Nebraska state line. Approximately 70 percent of the water needed for this project would be delivered in Nebraska, and the biggest hurdle will be storing water for Nebraska in Wyoming. Sponsors have identified several possible methods of mitigation, such as constructing a new off-river reservoir, purchasing available storage water in Reclamation's Glendo Reservoir (requires an agreement with Central Nebraska Public Power & Irrigation District and Reclamation), reducing or eliminating minimum flow requirements in the Laramie River downstream of Grayrocks Reservoir to the confluence with the North Platte River, or purchasing agricultural water rights.

The PRRIP is another significant consideration for existing and new water-related projects in the Platte River Basin of Nebraska and Wyoming. All changes to existing federal or state Depletions Plans must be reported to and approved by the PRRIP Governance Committee. The PRRIP is intended to address four target species listed as threatened or endangered under the Endangered Species Act by securing defined benefits for the target species, and their associated habitats in the Central and Lower Platte Rivers, fed in part by the North Platte River, in order to assist in their conservation and recovery through a basin-wide cooperative approach.

The Appraisal Investigation (pages 7 and 67) recommended creating a PAWS entity (Joint Powers Board) comprised of Wyoming and Nebraska State and local officials to mitigate impacts to surface users due to change in points of diversion and assure both States' allocations and requirements are maintained in accordance with current agreements. Or, each state could create a PAWS Joint Powers Board with both PAWS Joint Powers Boards entering into a contract for operation of the system. The Appraisal Investigation also indicated that such a Joint Powers Board would require constitutional amendments in both States to provide the legal authority.

Finding: The water source alternatives appear to be technically viable and will supply the quantity of water needed to meet the present and future needs of the service area. The acknowledgement that there are potential water rights and use issues that have not been investigated in depth in this Appraisal Investigation does not disqualify the project from going forward to a feasibility study. However, should any feasibility study be undertaken, it is recommended that the water source and water rights issues be the first items that are addressed before any work begins on the technical portions of the study.

(2) Has a positive effect on public health and safety;

Findings: Chapter II of the Appraisal Investigation provides the necessary data to show that the existing water quality from most of the participating entities is deteriorating due to contamination of groundwater in the area. Pages 20 – 23 give specifics on the water quality of the communities. In general, the service area would be better served with a source of water other than what they have now in providing for public health and safety. The information contained in the Appraisal Investigation is sufficient for this item.

(3) Will meet water demand, including projected future needs;

Findings: The alternatives provided will meet the water demands projected for the future. Appendix F shows the projections of population and the resulting water demand in the year 2070. The size of the water treatment plant for both the Grayrocks and Whalen alternatives will initially be one-half of the final size of 34 million gallons per day. The sponsors anticipate being able to increase the size of the plant in stages as the demand increases. The populations and water quantity projections are sufficient for this item.

(4) Provides environmental benefits, including source water protection;

The recommended alternative provides a water supply to the PAWS communities that would not contain the nitrates, uranium and arsenic that are found in the current water supplies. For one alternative, the Appraisal Investigation also identifies a reservoir site to function as the water storage reservoir for a water treatment plant. This reservoir provides a method of meeting PAWS average or summer peaking potable rural water needs

Findings: The Appraisal Investigation primarily presents the environmental benefits associated with the alternatives as being the improvement of the water quality that will be provided to the populace, thereby, improving their health. This is sufficient at this level of study to not prevent a recommendation for further study. However, during a feasibility study, a full analysis of the environmental effects and benefits will be undertaken.

(5) Applies a regional or watershed perspective and promotes benefits in the region in which the project is carried out;

Findings: The size of the proposed service area and the number of communities that have been involved in the study and are projected to participate in any proposed project meets the definition of "regional" and "watershed".

(6) Implements an integrated water resources management (IWRM) approach;

One definition of IWRM is: A comprehensive, participatory planning and implementation tool for managing and developing water resources in a way that balances social and economic needs, and that ensures the protection of ecosystems for future generations.

Findings: Chapter VI provides an overview of the coordination efforts undertaken with various entities during the course of the Appraisal Investigation. Appendix C also details the interaction between the study partners. The makeup of the project team and the advisory group, and the subsequent coordination efforts were sufficient to meet the intent of IWRM at this stage of the planning process.

(7) Enhances water management flexibility, including providing for local control of water supplies and, where applicable, encouraging participation in water banking and markets;

Applying a regional or watershed approach to integrated water resources management and then having a criterion of providing for local control is an approach that needs to be balanced. A regional water system that supplies water in bulk to communities in the service area tends to even out the water resource issues that possibly were occurring from the separate efforts of each of the communities before the project. This is at the expense of a reduced amount of control the entities have over their potable water supply.

Findings: The regional versus local control is an issue that each of the participating entities need to address. Water banking and water markets were not addressed in this Appraisal Investigation. Given the lack of opportunities for these types of activities in the service area at this time, this should not be a deciding factor in whether or not to recommend going forward with further study. These activities and opportunities should be evaluated in any further study.

(8) Promotes long-term protection of water supplies;

Findings: A regional water system would promote long-term protection of the participating communities' potable water supplies rather than depending on groundwater, in both quantity and quality, at each of the communities. This protection from the single source needs to have the water rights and applicable state laws and regulations in place in order to be effective.

(9) Includes preliminary cost estimates that are reasonable and supported;

Findings: The cost estimates contained in Appendix G have been reviewed and appear to be reasonable and supported.

(10) Is cost-effective and generates national net economic benefits as required under the Principles and Guidelines (incorporated by reference at § 404.4);

In the Principles and Guidelines the cost of the most likely alternative (No-Action) may be used to estimate National Economic Development (NED) benefits for a particular output if non-Federal entities are likely to provide a similar output in the absence of any of the alternative plans under consideration and if NED benefits cannot be estimated from market price or change in net income. This assumes, of course, that society would in fact undertake the alternative means. Estimates of benefit should be based on the cost of the most likely alternative only if there is evidence that the alternative would be implemented.

Findings: Each of the two proposed alternatives have a life-cycle cost that is lower than the No-Action cost. This is an indication that the net economic benefits are greater than 1 for the alternatives. There was no formal NED analysis performed in this Appraisal Investigation since the data is at a preliminary level. This item is sufficiently addressed in the Investigation to warrant proceeding with a feasibility study.

(11) For each alternative proposed for further evaluation in a feasibility study, whether the project sponsor has the capability to pay 100 percent of the costs associated with the operation, maintenance, and replacement of the facilities constructed or developed;

Findings: Exhibit 2H on page 34 of the Appraisal Investigation summarizes the anticipated water rate increase to the various entities that might be involved in the development of a regional water system project. The results show that the projected final monthly water bills for the entities are lower than the EPA Affordability limit of 2.5% of income. Thus, it appears that the sponsors would be able to pay 100% of the OM&R of the system. The exception is for the Town of Gering which will need to be evaluated in the next level of study.

Based on Exhibit 2H, there is sufficient justification to support that the sponsors could pay 100% of the OM&R costs.

(12) Other factors that Reclamation deems appropriate.

The above factors are sufficient to determine whether or not a feasibility study is warranted for this project.

Recommendations

The two action alternatives appear to be viable at this level of analysis. Viability consisting of the elements of: 1) Completeness, 2) Effectiveness, 3) Efficiency, and 4) Acceptability.

> (1) Completeness is the extent to which a given alternative plan provides and accounts for all necessary investments or other actions to ensure the realization of the planned effects. The presentation of the two action alternatives provided enough detail at the appraisal level on system configuration and costs to determine that the analysis was reasonably complete.
>
> (2) Effectiveness is the extent to which an alternative plan alleviates the specified problems and achieves the specified opportunities. The two proposed action alternatives that provide a regional water supply system would alleviate the specified problems and meets the planning goals and objectives.
>
> (3) Efficiency is the extent to which an alternative plan is the most cost effective means of alleviating the specified problems and realizing the specified opportunities, consistent with protecting the Nation's environment. Both the action alternatives are less costly than the No-Action alternative. Further study would be needed at the feasibility level to determine which of the action alternatives is the most cost efficient.
>
> (4) Acceptability is the workability and viability of the alternative plan with respect to acceptance by State and local entities and the public and compatibility with existing laws, regulations, and public policies. On the local level, one aspect of acceptability is the cost to the consumer. The analysis in the Appraisal Investigation show that the OM&R costs to the consumer would be within the EPA guidelines of 2.5% of income. Thus, costs do not appear to be a factor at this stage of analysis.
>
> Compatibility with existing laws, regulations, and public policies is addressed as issues and areas of controversy in the Appraisal Investigation (page 46) and will require an effort to get the water rights and institutional groundwork established before any regional water supply project can proceed. This issue is addressed in the recommendations below.

The viable alternatives presented in the PAWS appraisal study meet the requirements of the RWSP and qualify for further detailed analysis through a feasibility study. However, given existing constraints on program resources, Reclamation is unable to recommend congressional authorization or Federal funding of a feasibility study at this time. Reclamation encourages the study sponsors to continue to further address solutions to the area's water quality problems and develop an optimal strategy. Recognizing the interstate nature of the water resource problems addressed in the PAWS appraisal study, Reclamation will reconsider the report's recommendations if future Federal funding becomes available. But embarking on a feasibility study should not be pursued until Wyoming and Nebraska provide constitutional authority to move project water across state lines and to create PAWS entity/Joint Powers Board.

A feasibility study conducted under the RWSP will need to follow Reclamation's feasibility study requirements in order to justify the project to the Office of Management and Budget and the Congress for authorization and funding. Potential projects will be considered from various points of view, e.g., engineering, design, economics, financial, social, operational, legal and institutional and environmental. Example requirements (not inclusive) are described in:

- CMP 09-02 <http://www.usbr.gov/recman/cmp/cmp09-02.pdf>
- CMP 09-03 <http://www.usbr.gov/recman/cmp/cmp09-03.pdf>
- FAC 03-03 <http://www.usbr.gov/recman/fac/fac03-03.pdf>
- FAC 09-02 <http://www.usbr.gov/recman/fac/fac09-02.pdf>
- NEPA Handbook <NEPA Handbook at www.usbr.gov/nepa/>

A feasibility study would address the following issues:

Program and Planning

- Planning should initially focus on institutional issues (e.g., ensuring legislative and water rights avenues are clear) before proceeding with an engineering solution.
- The Joint Powers Board(s) should be established prior to entering into any agreement with Reclamation to perform a feasibility study.
- Feasibility actions should be examined to determine any further opportunities.
- Work with other Federal agencies with rural water authority (e.g., U.S. Department of Agriculture Rural Development, EPA revolving fund) in accordance with the RWSP policies, directives, regulations, and laws.

Alternatives and Options

- Further examine other opportunities for renewable energy, such as in-pipe hydropower at pressure control points in lieu of a pressure-relief valve.
- Further address opportunities to include innovative technologies such as analytics, smart water networks, customer awareness, and capacity building for sustainable water consumption.
- Consider power generation opportunities for small in-conduct hydroelectric generators at pressure reducing valves since the transmission line would be gravity to the service area.

- Investigate opportunities for wastewater recycling and other lower quality supplies for non-potable use.

Design and Water Treatment

- Present how the capacity of the water treatment plant(s) would meet projected demands, at all phases of planned construction.

- Refine the OM&R costs by including detailed cost estimates matching the water treatment process.

- Include water quality data from the location of the intake to the water treatment plant.

Construction and OM&R Cost Estimates

- Provide OM&R costs and assumptions for each alternative configuration at the feasibility level of detail.

- Refine costs for acquiring an adequate water supply.

- Address risks and uncertainties for both OM&R and construction for all alternatives considered.

Economic and Financial

- Fully demonstrate the economic and financial viability for the recommended alternative.

- Confirm population growth estimates, water use, economic benefits, and financial affordability.

- Compare regional population statistics for socio-economic conditions to state and national statistics to inform environmental justice and other analyses.

- Investigate the affordability of the project with the city of Gering and whether they can be included in the project. Identify other potential avenues that could help ensure that this project falls within the EPA affordability guidelines.

Water Supply and Water Rights

- Settle agreements on operations. Because Missouri Basin Electric Power Cooperative/Basin Electric could be a water supplier from Grayrocks Dam/Reservoir, agreements would need to be negotiated to agree on the salient points of any modification to the facility or its operations before or early into the feasibility study, including the amount of water, timing of availability, and cost.

- Coordinate with Reclamation, the Nebraska Department of Natural Resources, and the Wyoming State Engineer's Office.

- Examine the feasibility of reducing or eliminating the minimum flow requirement in the Laramie River downstream of Grayrocks Reservoir to the confluence with the North Platte River for project storage and use or to mitigate depletions.

- Examine water supply and acquisition at a feasibility level of detail, including a review of other potential sources (e.g., recycling wastewater for potable and nonpotable uses or using deeper groundwater wells).

- Examine the feasibility of purchasing agricultural water rights.

- Ensure that the alternatives meet safe drinking water standards.

- Evaluate the transfer of water rights points of use or the acquisition of new water rights within Wyoming, water depletions to the Platte River, and within Nebraska, the transfer of water rights points of use water supply issues. These must be addressed in compliance within the U.S. Supreme Court Decree and the Depletions Plans maintained by Wyoming and Nebraska under the PRRIP.

Environmental

In a feasibility study, full environmental compliance will be required. Viable alternatives will need National Environmental Policy Act analysis and documentation, as required.

Consultation will be needed with:

- The Platte River Recovery Implementation Program and its stakeholders. <https://www.platteriverprogram.org/Pages/Default.aspx>.

- Agencies and stakeholders for source water, water rights, transmission, treatment, and conveyance.

- Regional entities and initiatives.

- U.S. Army Corp of Engineers for Clean Water Act permits.

- U.S. Fish and Wildlife Service for Endangered Species Act and Fish and Wildlife Coordination Act.

- Wyoming and Nebraska State Historic Preservation Offices for National Historic Preservation Act.

- Local non-governmental organizations, water districts, tribes, states, local governments.

- State environmental, historic, and water regulatory agencies.

Environmental issues to address regarding the extent of transfer of water from agriculture include:

- Uses to meet the water needs associated with urban population growth.
- Economic impact of water transfers.
- Social impacts of this conversion.

Risks and uncertainties to address should include:

- Climate change.
- Acquisition of possible future water rights.
- Future water supply sources or needs.

References

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