

ODESSA SUBAREA SPECIAL STUDY Columbia Basin Project

STUDY UPDATE February 2008

BACKGROUND

The Odessa Subarea Special Study involves investigation of continued phased development of the Columbia Basin Project (Project) for the purpose of replacing groundwater currently used for irrigation in the Odessa Ground Water Management Subarea with Project surface water. Up to 140,000 groundwater irrigated acres in the Study area are eligible to receive Project surface water. Additional information about the Study is available at our website: www.usbr.gov/pn/.

Reclamation completed an appraisal-level engineering investigation of four water delivery alternatives and six water supply options and presented this information, including preliminary cost estimates, at public meetings in October 2007. The public was asked to comment on the information and provide feedback about alternatives and options to continue to investigate in future Study phases. The following summarizes the public comment received and Reclamation's findings and recommendations.

ALTERNATIVES AND OPTIONS EXAMINED

Water Delivery Alternatives

The four water delivery alternatives propose possible infrastructure (canals, pumping plants and laterals) and configurations to deliver replacement surface water to existing groundwater irrigated lands in the Study area.

Alternative A - Construct a new East High Canal system north and south of Interstate 90.

Alternative B – Construct a new East High Canal system north of Interstate 90; enlarge the capacity of the existing East Low Canal south of Interstate 90 and construct a 2.3 mile extension.

Alternative C - Enlarge the capacity of the existing East Low Canal south of Interstate 90.

Alternative D – Use current East Low Canal configuration north of Interstate 90.

Table 1. Water Delivery Alternatives Summary

Water Delivery Alternative	Groundwater Acres Served		Additional Columbia River Diversion (acre-feet)	Estimated Construction Cost Range*
	acres	percent		
<i>Alternative A</i>	140,000	100	515,300	\$ 2,160,000,000 - 4,680,000,000
<i>Alternative B</i>	127,300	91	453,200	\$ 1,944,000,000 - 3,848,000,000
<i>Alternative C</i>	70,100	50	216,800	\$ 1,000,000,000 - 1,714,500,000
<i>Alternative D</i>	40,700	29	125,900	\$ 377,000,000 - 700,000,000
* Construction costs for water delivery infrastructure do not include costs for new water supply. See Table 2 - Water Supply Options Summary for this component.				

Water Supply Options

Increased diversions will be required from the Columbia River above current Columbia Basin Project diversions to provide the replacement water supply. Reclamation examined water supply options that would not affect Columbia River flow objectives identified for fish listed under the Endangered Species Act (ESA). These water supply options include:

- Modify operations at existing Columbia Basin Project storage facilities
 - ***Banks Lake Drawdown*** – Draw down Banks Lake to elevations ranging from 4 to 16 feet lower than current operations
 - ***Banks Lake Operational Raise*** – Raise reservoir water surface elevation 2 feet
 - ***Potholes Reservoir Reoperation*** – Adjust water storage timing in the reservoir
- Construct new storage facilities that would be filled in September and October to provide water to Odessa Subarea lands in March through August. Three sites were examined -- Dry Coulee, Rocky Coulee and Lower Crab Creek.

Table 2. Water Supply Options Summary

Water Supply Option	Active Storage (acre-feet)	Groundwater Acres Served		Estimated Construction Cost Range
		acres	percent	
<i>Banks Lake Drawdown</i>	715,000*	Up to 140,000	100	n/a
<i>Banks Lake Raise</i>	50,000	16,700	12	\$ 18,600,000 - 130,000,000
<i>Potholes Reservoir Re-op</i>	50,000	16,700	12	\$ 1,920,000 - 62,400,000
<i>Dry Coulee</i>	481,000	140,000	100	\$ 1,020,000,000 - 1,950,000,000
<i>Rocky Coulee</i>	126,000	46,900	34	\$ 234,000,000 - 416,000,000
<i>Lower Crab Creek</i>	200,000	60,000	43	\$ 252,000,000 - 494,000,000
	472,000	140,000	100	\$ 348,000,000 - 676,000,000
* Currently 125,000 acre-feet of this is used to assist with Columbia River fish flow objectives.				

PUBLIC COMMENT

Reclamation held public information meetings in October 2007 and distributed Study Updates in October and November 2007 to individuals on its mailing list to present information about the appraisal-level investigation and request comment. Reclamation received 81 written comments from State agencies, environmental, conservation and non-governmental organizations, State residents, and representatives for agriculture and recreation interests. The majority of comments were from Washington State residents.

Those expressing support for the Study predominately advocated Alternatives A and B, with some support for Alternative C. Many noted that Alternative D, which would rely on the existing canal system, could not deliver a replacement water supply to sufficient acres to address the issues associated with the declining aquifer and would not be able to deliver water to lands south of Interstate 90, an area where significant aquifer decline is occurring. Many suggested that Reclamation examine less expensive alternatives such as water conservation, water measurement, water markets, conversion to dryland farming, and reconstruction of wells, given the significant economic costs associated with constructing the water delivery alternatives. Others noted that construction costs were not significant when considered in the context of the current economic benefits of sustaining current agricultural production in the Odessa Subarea.

The majority of comments received opposed construction of a Lower Crab Creek Reservoir because of concerns about possible impacts to fish, wildlife, recreation, infrastructure, and private property. Many advocated modifying operations at existing Project reservoirs as the best options to provide a replacement water supply because it would be more cost effective and would result in fewer environmental issues than constructing new dams and reservoirs. However, there are concerns about impacts to recreation and the surrounding local communities from additional drawdown of Banks Lake. A summary of public feedback begins on page 7.

STUDY OBJECTIVES

Seven study objectives, or guidance measures, were developed by stakeholders in the previous Study phase to evaluate and rank potential alternative concepts (see Initial Alternatives Development and Evaluation, Reclamation 2006). Data collected or developed during the appraisal-level investigation were used to compare the ability of each alternative or option to accomplish each study objective. Because the appraisal-level investigation relied on readily available information, quantitative data was not always available to compare performance of alternatives and options; a combination of quantitative and qualitative information was used.

Study objectives include:

- 1) *Replace all or a portion of current groundwater withdrawals within the Project area of the Odessa Subarea with Project water.* There are 140,000 eligible groundwater irrigated acres in the Study area. Reclamation determined the number of current groundwater irrigated acres that could receive Columbia Basin Project water as a replacement supply for each water delivery alternative and

water supply option. Alternatives and options that provided water to the greatest number of acres are preferred.

- 2) *Maximize use of existing Project infrastructure.* Alternatives and options that use existing Project infrastructure by proposing operational modifications or expansion to existing facilities, as opposed to construction of new facilities, would be ranked higher. Using existing Project facilities should result in smaller expenditures of funding and study time and expedite implementation of a preferred alternative.
- 3) *Retain the possibility of full Project development in the future.* Implementation of an alternative or option should not prevent Reclamation from completing full development of the Columbia Basin Project in the future. (The Odessa Subarea Special Study is not investigating completion of the Project.) Full development would entail irrigation of 1,029,000 acres.
- 4) *Address ESA issues, including the National Marine Fisheries Service's (NMFS) Columbia River seasonal flow objectives for salmon and steelhead and potential impacts to shrub-steppe habitat.* Reclamation examined alternatives and options that would not affect Columbia River flow objectives identified by NMFS for ESA listed salmon and steelhead. Reclamation also determined the acres of shrub-steppe habitat potentially affected. Shrub-steppe habitat is important for a number of Federal and State species of concern. Alternatives and options that would affect the smallest shrub-steppe habitat acreage would be ranked higher.
- 5) *Provide environmental and recreational enhancements.* Alternatives and options providing additional recreation opportunities or benefiting wildlife and fish habitat would be ranked higher.
- 6) *Minimize potential delay in the Study schedule.* Many consider the potential regional economic effects from continued aquifer decline to be at a critical point. Alternatives and options that can be studied and implemented as quickly as possible to minimize these effects are preferred.
- 7) *Be developed in phases based on funding expectations, physical and operational constraints, and rate of groundwater decline.* Alternatives that could provide replacement water in a timely manner, minimizing disruption to existing Columbia Basin Project operations and working within budget constraints, would be preferred. This is best achieved by selecting alternatives and options that can be studied and constructed in phases, to facilitate and expedite implementation.

FINDINGS AND RECOMMENDATIONS

Reclamation reviewed the information developed during the appraisal-level investigation and considered public feedback to compare and evaluate the water delivery alternatives and water supply options. Engineering technical feasibility and estimated costs, performance in meeting study objectives, and potential environmental and other issues informed the selection of alternatives and options for future investigation.

Reclamation has selected water delivery Alternative B and water supply options that include modifying operations at Banks Lake and Potholes Reservoirs and construction of a Rocky Coulee Reservoir for further investigation. The following summarizes the findings and basis for this decision.

Water Delivery Alternative Selected

Reclamation has decided to initiate additional study of water delivery Alternative B, which would construct a new East High Canal system north of Interstate 90 and expand the capacity of the existing East Low Canal south of Interstate 90 and extend it for 2.3 miles. Alternative B was one of only two alternatives that could deliver a replacement water supply to all or a majority of the groundwater irrigated acres in the Study area; public feedback cited this as a study priority. While Alternative B involves construction of major new infrastructure (East High Canal system), it also relies on existing project infrastructure (an expanded East Low Canal system) to deliver water to about half of the acres. The alternative accommodates study and implementation in a phased manner, with several infrastructure configurations possible. This flexibility could expedite delivery of water to some Odessa Subarea lands. Public comment advocated alternatives that could be phased and implemented quickly. Initial cost estimates indicate the cost per acre served is within a comparable range to Alternative C, but Alternative B would deliver water to 40 percent more acres.

Water Supply Options Selected

A combination of water supply options will be required to provide sufficient water to replace groundwater irrigation in the Study area. Reclamation has determined that operational modifications at existing facilities (Banks Lake and Potholes Reservoir) and construction of a Rocky Coulee Reservoir best meet the study objectives. The majority of public comment supported operational modifications as preferred water supply options because it is less costly and is anticipated to result in fewer environmental impacts compared to construction of new storage facilities.

Reclamation will also continue investigation of a proposed Rocky Coulee Reservoir because additional storage may be required to minimize the effects associated with some of the operational modifications proposed (e.g. additional drawdown at Banks Lake). Of the three potential storage sites examined, the Rocky Coulee location could improve operational flexibility and reliability within the Project and is estimated to have lower construction costs than other proposed reservoir sites. The Lower Crab Creek site, while having comparable estimated construction costs per acre-foot provided, does not offer the operational flexibility and efficiency of the proposed Rocky Coulee site. Initial identification of potential environmental issues indicates that the Rocky Coulee site would have less complex issues to address compared to the Dry Coulee and Lower Crab Creek sites.

NEXT STEPS

Reclamation will publish a report documenting the appraisal-level investigation findings and recommendations; the report is anticipated to be available within the next month. Reclamation will initiate additional investigation of the water delivery alternative B and water supply options involving Banks Lake drawdown, Banks Lake operational raise, Potholes Reservoir reoperation, and a proposed Rocky Coulee Reservoir. Additional data collection and analyses will occur to further develop engineering designs and improve the accuracy of cost estimates. Economic analyses will occur to determine if the alternative and options are economically justified and financially feasible.

Reclamation will conduct scoping meetings, later this year, to initiate compliance with the National Environmental Policy Act (NEPA). The Study is scheduled for completion in 2011. A planning

report and appropriate NEPA document will be prepared documenting the investigation and the decision. This document will provide supporting information for any requests to Congress for construction funding for a selected alternative.

FOR MORE INFORMATION

Reclamation will continue to provide updates about Study progress and notify you of the availability of reports and upcoming public meetings. For additional information, please contact

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Summary of Public Feedback on the Appraisal-level Investigation

Water Delivery Alternatives

Address the restricted capacity of the East Low Canal south of Interstate 90; make it a study priority.

The selected alternative needs to deliver water south of Interstate 90 as there are significant aquifer declines there.

Building major infrastructure to meet needs of Odessa Subarea irrigators on a scale that would facilitate expanding the Columbia Basin Project in the future is unnecessary and not justified.

Invest in the East High Canal system infrastructure now to more cost effectively facilitate future Project development.

Alternative must supply water to every acre currently irrigated.

Alternative A offers the best opportunity for potentially reducing aquifer depletion. However, Alternative A may be the most difficult to implement, involve more environmental issues, and take longer to study and construct.

Alternative B can be phased to deliver water to Odessa Subarea lands expeditiously by implementing the East Low Canal component first; full implementation will deliver water to sufficient acreage to help declining aquifer.

Combine elements of Alternatives B and C in a phased manner; will address the current East Low Canal capacity restrictions south of Interstate 90 and has the most operational and implementation flexibility.

Alternatives C and D may have less potential fish and wildlife impacts than Alternatives A and B.

Combine elements of Alternatives C and D, looking at a phased implementation approach.

Alternative C would not provide a replacement water supply to sufficient acreage but would have a slight advantage over Alternative D because it would provide water to lands south of Interstate 90.

Alternative D would not provide a replacement water supply to sufficient acreage to address the declining aquifer problem; it does not deliver water to lands located south of Interstate 90.

Sustain agriculture in the Odessa Subarea in a cost effective, environmentally sensitive manner by examining alternatives that rely on the East Low Canal and reoperations at existing water storage facilities in combination with water conservation and efficiency, water markets, conservation reserves, well reconstruction, and conversion to dryland farming, as opposed to building significant new infrastructure.

Do not support providing surface water to groundwater farmers.

Water Supply Options

Examine options that use existing storage facilities in combination with water conservation, efficiency and water markets as opposed to building new dams

Water supply options involving minor operational modifications to Banks Lake and Potholes Reservoirs in combination with a smaller sized storage reservoir may result in less impact to wildlife.

Using existing Columbia Basin Project storage facilities (e.g. Banks Lake drawdown or operational raise) would cost less and have less environmental effects compared to building new storage facilities.

Banks Lake drawdown would have recreation-related impacts to Coulee City and the surrounding area.

Dry Creek Coulee is an ideal location from an operational standpoint; it could potentially provide a water supply for future full Columbia Basin Project development if used in combination with Banks Lake and Potholes Reservoir reoperation.

Reconsider Lind Coulee and Black Rock Coulee as potential new water storage sites; sites have lower potential wildlife impacts than other proposed storage facilities.

Proposed Rocky Coulee Reservoir provides increased operational flexibility and reliability, costs less to construct, and has less potential impact to wildlife than other new storage facilities examined.

Opposition to a proposed Lower Crab Creek Reservoir

- Because of impacts to fish, wildlife, recreation, Columbia National Wildlife Refuge, and private property
- Releases from the proposed reservoir would impact the Columbia River fishery as opposed to benefiting it because of anticipated high water temperatures
- Not ideally located from a Columbia Basin Project operational standpoint. Energy requirements to operate would be high as water would be pumped twice - first in the fall season to fill the proposed reservoir and a second time during irrigation season to deliver water to Odessa Subarea lands.
- Operating the reservoir would result in Columbia River flow reductions from Grand Coulee Dam to Lower Crab Creek confluence during the summer and may affect ESA species
- Significant economic and environmental costs compared to other water supply options

Other

Ability to implement quickly should be a factor in selecting alternatives and options.

Support alternatives that sustain existing agricultural acreage in the Odessa Subarea.

Partner to implement immediate actions consistent with Study objectives to expedite and facilitate Study solutions.

Seek least cost approaches and innovative financing such as local improvement districts.

Convene stakeholders group to review future information to facilitate public confidence and support of Study results.

Avoid water delivery and storage alternatives that eliminate large acreages of shrub-steppe habitat.

Cost estimates may be deficient because they do not include operating costs or environmental costs.

Two recent economic studies identified significant regional economic impacts associated with continued decline of the aquifer. Others have questioned the studies' validity and the economic impacts identified.

Insufficient opportunities provided for public comment.

Recreation benefits associated with the Columbia Basin Project have often come at the loss of river recreation opportunities. The Study should quantify and consider impacts to river-based recreation.

Design the selected alternative in sequential, incremental steps to facilitate understanding of implementation actions required.