

Chapter 3: Water Availability and Governance

This chapter reviews several programmatic and regulatory issues potentially associated with the project. These include the following:

- Water rights needed to conduct a pilot rehydration project. This discussion also presents future options to develop a water right portfolio needed to run a longer-term, permanent project; these will be addressed in more detail if a pilot project is conducted and its results indicate that a longer-term project has merit.
- A discussion of how this project could comply with the requirements of RCW 90.90.
- An evaluation of possible governance structures that could be used if a pilot or subsequent longer-term permanent project was put in place.

These topics are reviewed in an effort to identify issues that may need to be addressed for both a pilot project and a subsequent potential full-sized project. This was done with the expectation that paths forward may be defined here, or with subsequent work, to address these issues.

3.1 Water Rights

State of Washington water codes RCW 90.03 and RCW 90.44 require any water put to a beneficial use to be subject to a water right under the Prior Appropriation Doctrine (first in time, first in right). Under these statutes, the proposed project would be required to maintain a water right for (1) conducting a pilot test program in which there will be a short-term (1 to 3 years) use of water, and (2) permanent or long-term operation of the project. The pathways for the water rights for the pilot test program and the long-term operation differ, and as such will be discussed separately.

In the near-term, for the potential pilot project, the priority is to seek 10 to 20 cubic feet per second (cfs) from the Columbia River (Lake Roosevelt). In the long-term, the goal of the Lincoln County Passive Rehydration Project is to recharge a minimum of 50,000 acre-feet. This would require diversion of approximately 100 cfs of water from the Columbia River on an annual basis.

Defined water rights for the long-term project are not addressed in detail and a pathway selected at this time based on the following: (1) long-term operational requirements for instantaneous and annual quantities are not known at this time; (2) water quantities for final operation of the project would be defined in the subsequent pilot test; (3) exact points of diversion for the final project would be defined in the Feasibility Project; (4) more detailed

negotiations with existing water right holders and water operators were requested after a defined project quantity was known; and (5) further discussions with Ecology and Reclamation would be required to determine if the “new” water delivered via the project could be credited under other water rights, and would be further defined in the Feasibility Study.

The conveyance of Columbia River water would be to several drainages for the final project operation, to maximize the recharge to the basalt aquifers and the surface waters of Lincoln, Adams, and Grant counties. Although the goal is 50,000 to 200,000 acre-feet per year, the Feasibility Study and pilot project would attempt to develop a proposed solution for the maximum amount of conveyed and recharged water that had the maximum beneficial use to the water users in the basin. Potential projections of recharge water would be to the aquifers in the Odessa area by using multiple infiltration sites and water courses such as the Lake Creek drainage, Sinking Creek, and the headwaters of Crab Creek.

After replenishing the streams and lakes in the Crab Creek watershed, water left in stream from the Lincoln County Passive Rehydration Project would flow to Moses Lake and could become part of the Columbia Basin Project. Therefore, the goal of the Lincoln County Passive Rehydration Project is twofold: to directly recharge the basalt aquifers that are a water source for multiple water users throughout the basin, and to indirectly replenish the surface water that eventually supplies water to the Columbia Basin Project. This would result in a net gain to the Columbia Basin Project and potentially reduce quantities that the Columbia Basin Project would need to divert from Banks Lake for the basin irrigation conveyance system. To determine a final buildout water quantity, the pilot project must be completed.

3.1.1 Columbia River Water

Since adoption of the Surface Water Code in 1917 (RCW 90.03), in order to receive a new water right in the State of Washington, a person must first file an application with Ecology to appropriate waters of the State. Ecology will issue a permit for a water right if the applicant can meet a four-part test consisting of (1) the proposed use of water is for a beneficial purpose; (2) there is water available for appropriation; (3) the proposed water would not impair existing water rights; and (4) the proposed use would be in the public interest.

The Lincoln County Passive Rehydration Project is attempting to acquire water for use in meeting the project purposes within the eastern part of the Odessa Ground Water Management Subarea. The project will attempt to deliver water through the passive rehydration delivery system, which will assist with fish and wildlife maintenance, and eventually infiltrate water into the basalt aquifers where irrigators, municipalities, and domestic users will put the water to beneficial use, meeting the requirements of RCW 90.03. Enhancing stream flows in the Crab Creek drainage, in addition to meeting the goals and objectives of RCW 90.90 to deliver water to the Odessa subbasin, would be in the public’s

interest, in the project team's opinion. There is a large regional support of this project throughout local landowners and water users. To achieve the project goals, water availability and impairment of existing water right criteria would need to be evaluated prior to issuance of a water permit. Issues associated with availability and impairment are addressed below in summaries of (1) Columbia River instream flow requirements, (2) the biological opinion, and (3) Reclamation appropriations of Columbia River water. These issues would be further addressed in the Feasibility Study phase of the project.

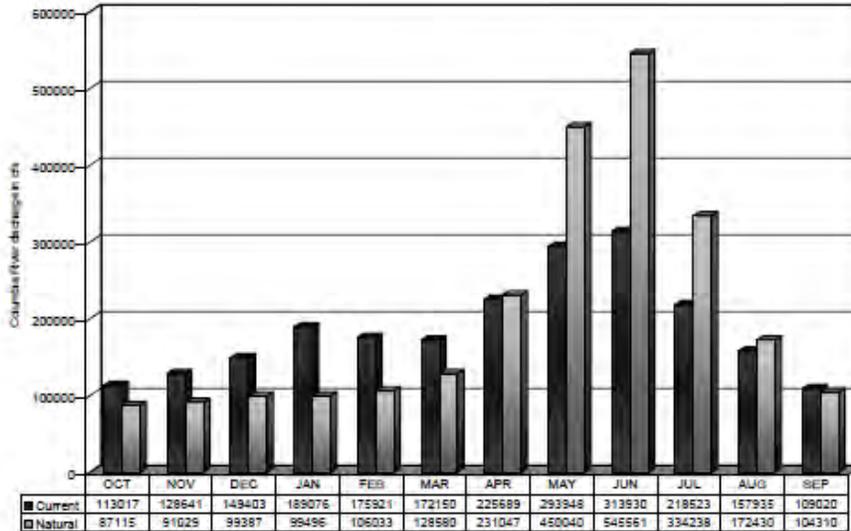
Columbia River Instream Flow

The proposed project intends to acquire available waters from the Columbia River system, and convey it to areas of southern Lincoln County. Flow regulation and water withdrawal have reduced the Columbia River's average flow, altered its seasonality, and reduced sediment discharge and turbidity as shown in the graph below (NOAA Fisheries 2008). In total, Reclamation's 23 irrigation projects in the Columbia Basin reduce the annual runoff volume at Bonneville Dam by about 5.5 million acre-feet (see Table 5.1-3 in NOAA Fisheries 2008). These depletions occur primarily during the spring and summer as the reservoirs are refilled and as water is diverted for irrigation (NOAA Fisheries 2008). Flows are monitored at most dam operations on the river. Annual discharge rate at The Dalles Dam fluctuates with precipitation, ranging from 120,000 cfs in a low water year to 260,000 cfs in a high water year (Ecology 2007). These flow rates are equivalent to between approximately 86,000,000 and 188,000,000 acre-feet/year.

The purposes for which the Columbia Basin Project and Lake Roosevelt were constructed are flood control, irrigation, and hydropower. For flood control, sufficient volume is maintained in Lake Roosevelt to control flow in the Columbia River at The Dalles Dam to a maximum of 450,000 cfs.

In 1980, Ecology passed an administrative instream flow rule (WAC 173-563) for the Columbia River main stem, which was amended in 1998 (Ecology 2007). Flows for the instream rule are measured at Chief Joseph, Wells, Ricky Reach, Rock Island, Wanapum, Priest Rapids, McNary, and John Day Dams. The table below presents the state administrative flows set at these control points under the Washington Administrative Code (WAC) and flow objectives specified in the 2004, 2008, and 2010 NOAA Fisheries Biological Opinion issued for the Federal Columbia River Power System (FCRPS) at the same location (Ecology 2007). This rule requires that any future appropriations of water not impair these flow allocations. If new water rights are acquired under the pilot testing program, and for subsequent buildout of the rehydration project, water rights will be conditioned to the instream flows set forth in WAC 173-563.

Figure 5.1-2. Simulated mean monthly Columbia River flows at Bonneville Dam under current conditions and flows that would have occurred without water development (water years 1929 – 1978. Source: Current Condition Flows – Bonneville Power Administration, HYDSIM model run FR111_07rerun2004biop.xls; Pre-Development Flows – USBR (1999) Cumulative Hydrologic Effects of Water Use: An Estimate of the Hydrologic Impacts of Water Resource Development in the Columbia River Basin.



Flow Modifications of Columbia River from Storage Operations (NOAA Fisheries 2008)

Instream Flows Set by WAC 173-563 and the 2004 Biological Opinion

Date	Chief Joseph		Wells & Rocky Reach		Rock Island & Wanapum		Priest Rapids			McNary		John Day		Bonneville	The Dalles		
	WAC 173-563		WAC 173-563		WAC 173-563		WAC 173-563		2004 BiOp	WAC 173-563		2004 BiOp	WAC 173-563		2004 BiOp	WAC 173-563	
	Min. Q _i (kcfs)	Min. Avg. Weekly Flows (kcfs)	Min. Q _i (kcfs)	Min. Avg. Weekly Flows (kcfs)	Min. Q _i (kcfs)	Min. Avg. Weekly Flows (kcfs)	Min. Q _i (kcfs)	Min. Avg. Weekly Flows (kcfs)	Flow Objective (kcfs)	Min. Q _i (kcfs)	Min. Avg. Weekly Flows (kcfs)	Flow Objective (kcfs)	Min. Q _i (kcfs)	Min. Avg. Weekly Flows (kcfs)	Flow Objective (kcfs)	Min. Q _i (kcfs)	Min. Avg. Weekly Flows (kcfs)
Jan	10	30	10	30	10	30	50	70	--	20	60	--	20	60	?	20	60
Feb	10	30	10	30	10	30	50	70	--	20	60	--	20	60	?	20	60
Mar	10	30	10	30	10	30	50	70	--	50	60	--	50	60	?	50	60
Apr 1-2	20	50	20	50	20	60	50	70	--	50	100	--	50	100	?	70	120
3-9	20	50	20	50	20	60	50	70	--	50	100	--	50	100	?	70	120
10-15	20	50	20	50	20	60	50	70	135	50	100	220-260 ^a	50	100	?	70	120
16-25	20	60	30	60	30	60	50	70	135	70	150	220-260 ^a	70	150	?	70	160
26-30	20	90	50	100	50	110	50	110	135	70	200	220-260 ^a	70	200	?	70	200
May	20	100	50	115	50	130	50	130	135	70	220	220-260 ^a	70	220	?	70	220
Jun 1-15	20	80	50	110	50	110	50	110	135	70	200	220-260 ^a	70	200	?	70	200
16-20	10	60	20	80	20	80	50	80	135	50	120	220-260 ^a	50	120	?	50	120
21-30	10	60	20	80	20	80	50	80	135	50	120	220-260 ^a	50	120	?	50	120
Jul 1-15	10	60	20	80	20	80	50	80	--	50	120	200	50	120	--	50	120
16-31	10	90	50	100	50	110	50	110	--	50	140	200	50	140	--	50	140
Aug	10	85	50	90	50	95	50	95	--	50	120	200	50	120	--	50	120
Sep	10	40	20	40	20	40	36	40	--	50	60	--	50	85	--	50	90
Oct 1-15	10	30	20	35	20	40	36	40	--	50	60	--	50	85	--	50	90
16-31	10	30	20	35	20	40	50	70	--	50	60	--	50	85	--	50	90
Nov	10	30	10	30	10	30	50	70	--	50	60	--	50	60	125-160 ^b	50	60
Dec	10	30	10	30	10	30	50	70	--	20	60	--	20	60	?	20	60

NOTES:

Abbreviations: Min = Minimum; Q_i = instantaneous flow; Avg = Average; WAC = Washington State Administrative Code; kcfs = thousand cubic feet per second

- Objective varies according to water volume forecasts.
- Objective varies based on actual and forecasted water conditions. The dates to which this flow objective applies include 11/1 to emergence (spring season) which may vary each year.
- The 2004 Biological Opinion was issued by NMFS regarding the Federal Columbia River Power System (FCRPS). The data in the table is from Bureau of Reclamation, Bonneville Power Administration, and U.S. Army Corps of Engineers (Action Agencies). 2004. Final Updated Proposed Action for the FCRPS Biological Opinion Remand. November 24, 2004.

WAC 173-563 Flows and 2004 Bi-Op Flows on the Columbia River (NOAA Fisheries 2008)

The Columbia River instream flow rule allows the director of Ecology to reduce the minimum flows for the Columbia River established in the rule by 25% if the director “deems it to be an overriding public interest requirement” (WAC 173-563-050(1), but the outflow at Priest Rapids Dam cannot fall below 36,000 cfs. The rule also authorizes the director to approve future uses of water that would conflict with the provisions of Chapter 173-563 “only in those situations when it is clear that overriding considerations of public interest (OCPI) will be served” (WAC 173-563-080), and to be conducted in consultation with the directors of the Washington State Department of Fish and Wildlife (WDFW), State Department of Agriculture, and the State Commissioner of Public Lands (Ecology 2006). Ecology has informed the project team that OCPI will not be an option for this project.

Within WAC 173-563-020 (4), a required consultation process is outlined for applications received by Ecology on or after July 27, 1997. The code states: “The department will consult with appropriate local, state, and federal agencies and Indian tribes in making this evaluation. Any permit which is then approved for the use of such waters will be, if deemed necessary, subjected to instream flow protection or mitigation conditions determined on a case-by-case basis through the evaluation conducted with the agencies and tribes.” Applications for water rights under this project would be required to undergo this consultation process in which Ecology and the applicants would be required to hold “meaningful, consultation” with listed agencies and appropriate Indian tribes prior to rendering a decision on applications (PCHB case, *Yakama Nation v. Ecology* – PCHB 03-030-036). This consultation process was upheld in the Pollution Control Hearings Board (PCHB) ruling of *Yakama Nation v. Ecology* (PCHB 03-030-036) and court case *Kennewick Public Hospital District v. PCHB, et al.* (Nos. 22741-3-III, 22742-1-II, and 22758-8-III, 2005).

Biological Opinion

Potential future water allocations also must meet the flow criteria set forth in the 2004 and 2008 Biological Opinions (Bi-Op) and the 2010 NMFS Supplemental Bi-Op issued by NOAA Fisheries on the Columbia River. Section 9 of the Endangered Species Act (ESA) prohibits the “taking” of an endangered species and defines “take” to include “harm” (16 U.S.C. 1532(19)). Individual water rights may cause harm when the appropriation results in or contributes to the “lack of sufficient stream flow to sustain healthy fish populations” (Ecology 2006). The flows identified in the 2004 Bi-Op are identified in the table above. Any available waters requested under this proposed project would be conditioned for the need to meet these flows.

Reclamation Appropriation of Columbia River Water – Pending Application

RCW 90.40.10 states “The United States is hereby granted the right to exercise the power of eminent domain to acquire the right to the use of any water, to acquire or extinguish any rights, and to acquire any lands or other property, for the construction, operation, repairs to, maintenance or control of any plant or system of works for the storage, conveyance, or use

of water for irrigation purposes, and whether such water, rights, lands or other property so to be acquired belong to any private party, association, corporation or to the state of Washington, or any municipality thereof; and such power of eminent domain shall be exercised under and by the same procedure as now is or may be hereafter provided by the law of this state for the exercise of the right of eminent domain by ordinary railroad corporations, except that the United States may exercise such right in the proper court of the United States as well as the proper state court.” RCW 90.40.20 further states “The United States shall have the right to turn into any natural or artificial water course, any water that it may have acquired the right to store, divert, or store and divert, and may again divert and reclaim said waters from said water course for irrigation purposes subject to existing rights.”

In December 2004, Reclamation submitted a letter to Ecology that “pursuant to the Act of Congress of June 17, 1902 (32 Stat.388), and acts amendatory thereof and supplementary thereto, the United States intends to make examinations and surveys for the utilization of the unappropriated waters of the Columbia River and its tributaries as may be required for operation of storage and distribution facilities under the Act of February 20, 2003 (PL 108-7)”.

Ecology acknowledged this notice of withdrawal of water by Reclamation under the provisions of RCW 90.40.030 through December 28, 2005 in its letter dated March 30, 2005, to Reclamation. In this letter, Ecology states that the area of the affected proposed withdrawal is “the area of the Columbia River basin affected by the withdrawal includes the Columbia River above Priest Rapids Dam and all tributaries entering the Columbia River above Priest Rapids Dam but does not include the Columbia River or its tributaries below Priest Rapids Dam.”

Reclamation's request for unappropriated waters affects requests for water allocation after December 28, 2004, including those of this project. Thus, the rehydration project application, if approved, would be junior to the Reclamation 2004 water allocation request. After acceptance of this water allocation request by Reclamation, Ecology was required to refer subsequent applications for new water rights filed after December 29, 2004, to Reclamation for consideration of a specific release. Ecology withholds any actions on these applications that are not granted a release by Reclamation, and will withhold any actions until Reclamation withdrawal expires or matures into water rights (Ecology 2005).

Reclamation has been conducting studies under this request for withdrawal, and Ecology in a letter dated December 23, 2009, extended this right of withdrawal of waters of the Columbia River and tributaries until December 22, 2011. For the proposed project, request for a permit of water to conduct the pilot project would need to be referred to Reclamation, and a release granted. Future long-term buildout of the project would be dependent on whether the Reclamation-approved use of Columbia River waters is extended beyond the current

December 22, 2011, approval, and if not extended, be approved through the consultation process described above.

3.1.2 Pilot Test Water Rights Options

For the prefeasibility assessment, several options were evaluated for acquiring water rights to operate the proposed pilot testing program. The pilot testing program would seek a proposed diversion of 10 to 20 cfs. Potential options to acquire this quantity of water were evaluated. Water rights evaluated in a potential rehydration pilot test project included the following:

1. **A temporary use authorization** issued by the Ecology. Temporary water rights are issued under the authority of RCW 90.03.250. As described in Ecology Policy 1035, a temporary permit authorizes water use during the pendency of an application review. The project proposal would be required to submit an application for a project, and then request a temporary permit. This authorization typically would be conditioned to such things as minimum flow requirements and habitat needs, and it would be junior to all other water rights in the source water body. In addition, this is a 1-year authorization, and it would need to be renewed annually. Ecology guidelines state that a temporary permit should only be issued when it is confident that a permit will be approved in a reasonable time.

Due to the requirements of the pilot test program, and the quantities sought, Ecology informed the project team that issuance of a temporary permit for the pilot project is the most feasible alternative (Gregory e-mail February 15, 2011). A temporary permit is described in RCW 90.03.250, which states that “Any person, municipal corporation, firm, irrigation district, association, corporation or water users' association hereafter desiring to appropriate water for a beneficial use shall make an application to the department for a permit to make such appropriation, and shall not use or divert such waters until he has received a permit from the department as in this chapter provided. The construction of any ditch, canal or works, or performing any work in connection with said construction or appropriation, or the use of any waters, shall not be an appropriation of such water nor an act for the purpose of appropriating water unless a permit to make said appropriation has first been granted by the department: PROVIDED, That a temporary permit may be granted upon a proper showing made to the department to be valid only during the pendency of such application for a permit unless sooner revoked by the department: PROVIDED, FURTHER, That nothing in this chapter contained shall be deemed to affect RCW 90.40.010 through 90.40.080 except that the notice and certificate therein provided for in RCW 90.40.030 shall be addressed to the department, and the department shall exercise the powers and perform the duties prescribed by RCW 90.40.030.”

The temporary application permit will require a specific release from Reclamation in accordance with its pending Columbia River allocation.

2. **A preliminary permit use authorization** issued by Ecology. A preliminary permit can be issued under RCW 90.03.290 and in accordance with Ecology Policy 1030. These preliminary permits are issued to retain a priority date and establish a formal timeline and data collection plan when additional information is needed to make permit decisions. The preliminary permit requires the applicant to make surveys, investigations, or conduct studies to satisfy the information needs of Ecology (Policy 1030). However, a preliminary permit does not authorize the beneficial use of water.

Consultation with Ecology determined that a preliminary permit would not be the appropriate permit due to the limitations of putting the water to beneficial use. The pilot testing program primarily would be to conduct testing on the feasibility of the project, but water diverted would eventually be used downstream by others for potential beneficial use. Therefore, Ecology recommended the issuance of a temporary permit (Gregory e-mail dated February 15, 2011).

3. **Reclamation Municipal and Industrial (M&I) water** can be acquired from Reclamation under certain conditions. The project team met with Reclamation to discuss the potential option of using this program to develop water for the pilot project. The project is set up to provide water to municipal and industrial users under existing Reclamation water rights. This type of authorization is capped at 13 cfs, and based on the project team's discussions with Reclamation staff, this type of water for the proposed project would be of very limited availability based on the recent Bi-Op. In addition, the proposed project would require Reclamation to add or change the type of use and add the place of use within Lincoln County on the existing water right certificates in order to be utilized for the pilot testing program. Reclamation personnel determined that adding a purpose and place of use to its M&I water rights outside of what is already approved for municipal and industrial use would not be possible. Therefore, this option was determined to not be feasible.
4. The project team also approached Reclamation to determine if there were opportunities to utilize another **existing Reclamation water right** for the pilot project under a lease or cooperative agreement. Reclamation currently maintains numerous "irrigation" rights and "hydropower" rights, as presented in Table 4. Discussions with Reclamation determined that due to the multi-beneficial use of the proposed pilot project, existing rights may not be available for use under the proposed pilot project. Therefore, this option was determined to not be a feasible approach to obtaining water for the proposed pilot project, but may be an option for the long-term rehydration project.

Table 4. Reclamation Water Rights

Cert./Permit/ Application	Priority Date	Quantity	Purpose
Irrigation			
S3-01622C	5/16/1938	13,450 cfs 2,910,00 AF/yr	Irrigation of 590,000 acres, hydroelectric, recreation, municipal, industrial
C-9252	12/24/1941	40 cfs	Irrigation of 1,319 acres, Block 2
S3-00019C	4/22/1943	212 cfs 70,000 AF/yr (1)	Partial irrigation of 160,000 acres
C-10703	10/27/1958	80 cfs 23,121 AF/yr	Irrigation of 3,303 acres, Block 3
R3-00013P	4/22/1943	200,000 AF (2) Plus storage of project waste, seepage & return flow	Supplemental supply; irrigation of 234,000 acres
S3-25062C	10/27/1958	8.5 cfs 23,121 AF/yr	Irrigation of 350 acres, Block 3
S3-28586P	5/16/1938	1,140 cfs 214,000 AF/yr	Irrigation, hydroelectric, recreation, municipal, industrial
CBP Withdrawal	5/16/1938	10,410 cfs	Reserved for remainder of CBP
Withdrawal	6/16/1975	120 cfs	Block 1
Hydropower			
C-11543	5/16/1938	75,000 cfs continuously	Hydropower left and right bank of Grand Coulee Dam
C-11793	5/16/1938	6,400,000 AF	Live storage, FDR irrigation – hydropower
C-11794	8/12/1970	3,162,000 AF	Dead storage FDR
S3-26257C	5/9/1975	22,000 cfs continuously	Hydropower – 3rd power plant – increased capacity
S3-26258C	10/16/1969	184,000 cfs continuously	Hydropower – 3rd power plant – 6 units
S3-27615C	10/16/1969	7,400 cfs continuously	Hydropower – 4 pump turbine units
S3-01606C	10/16/1969	21,700 cfs continuously	Hydropower – increased capacity left and right bank – Grand Coulee (18,000 cfs), two pump turbines (3,700 cfs)

Cert./Permit/ Application	Priority Date	Quantity	Purpose
S3-01622C (old permit #15994)	5/16/1938	13,450 cfs continuously March - October	Low head power generation
R3-00013P	4/22/1943	200,000 AF	Low head power generation

From: *Reclamation – Managing Water in the West, Odessa Subarea Special Study Columbia Basin Project – Plan of Study, Reclamation, February 2006*

(1) From Lind Coulee

(2) Natural flows from Rocky Ford, Upper Crab Creek, tributaries to Moses Lake, and Potholes Reservoir.

5. **Private water rights** were also evaluated as a potential source to conduct the pilot project. These water rights are held by private property owners and could be utilized for a pilot project if they could be successfully transferred either to the project directly or under a temporary change authorization. Under the quantities sought for the pilot project, it is assumed that numerous (estimated at 10 to 15) individual water rights would need to be identified, agreements reached, and extent and validity analyses completed to verify transferable quantities. For the purpose of a short-term pilot project, such an approach would be cumbersome, expensive, and likely not an effective way to secure water for a short duration (few years long) pilot project.
6. The project team also evaluated whether the proposed project would require a **reservoir permit** in addition to the issuance of a **preliminary and/or temporary permit** that authorizes withdrawal of water from Lake Roosevelt for the pilot project. RCW 90.03.370(3) states: "underground artificial storage and recovery project" means any project in which it is intended to artificially store water in the ground through injection, surface spreading and infiltration, or other department-approved method, and to make subsequent use of the stored water."

The project would deliver diverted water into tributary basins and water would be percolated into the basalt aquifers, with some component being evaporated, consumed, and/or lost. Discussions with Ecology have resulted in Ecology's opinion that recharge of the aquifers by the means outlined in the proposed passive rehydration project may not meet the required definition of a "storage project" because there is no recovery mechanism, and thus the project would not require a reservoir permit. A more detailed analysis of requirements of a reservoir permit would be held with Ecology during the feasibility phase of the project.

As noted above, based on consultation with Ecology, the project team recommends that a temporary permit be sought for the pilot project. The purpose of the temporary permit would be to provide authorization for the use of Lake Roosevelt water for a potential pilot

project. An application for Lake Roosevelt water would be made in accordance with RCW 90.03.250 prior to requesting a temporary permit. Issuance of the temporary permit would need to meet the four-part test of beneficial use, water availability, no impairment, and public interest. The initial screening under this task has determined that the temporary permit should be able to meet these standards. As stated previously, the beneficial use criterion is being met under several of the defined uses such as habitat enhancement, municipal, irrigation, and domestic uses. Any temporary water right application would need to receive a specific release from Reclamation. With this water approved under the temporary permit, a pilot project would test the operational feasibility of a project that moved water from Lake Roosevelt into one or more drainages in Lincoln County. The pilot project would also examine management and operations in the targeted drainages. Finally, the pilot project, using water supplied under the temporary permit, would provide a field-scale test of the aquifer recharge potential in the project area, the ability of these aquifers to transmit water, and the baseline data needed to assess the feasibility of a much larger project to have a major positive benefit to aquifer recharge and habitat needs.

If the project is authorized for moving forward into the feasibility phase, a reservoir permit application may be completed and submitted to Ecology at the completion of the feasibility phase (assuming that the feasibility work suggests a project is potentially viable, and Ecology and the applicants determine the project meets the requirements of RCW 90.03.370(3)). The water right permit application, which would request issuance of a temporary permit for up to 20 cfs, would be accompanied by a project plan that likely included monitoring requirements (which would include Quality Assurance Project Plan(s) – QAPP), operations plans, and related documents describing how the project would operate, how achieving project goals would be evaluated to measure project success, and describing what the project would physically look like. These documents would also name the authorities/entities responsible for management and operations.

3.1.3 Potential Long-Term Water Right Options

The project team also investigated several full-scale water right options to determine if any fatal flaws were identified for long-range operation of the Lincoln County Passive Rehydration Project. As stated previously, at this time, an estimated total quantity of water needed to successfully complete the rehydration project has not been determined. After completion of the pilot testing program, a proposed quantity would be recommended. Preliminary estimates of stream capacity for conveyance of Lake Roosevelt water are at least 50,000 acre-feet annually. Several potential water right options appeared feasible for the long-range operation of the project. These are described below.

1. **Reclamation Existing Water Rights:** As stated previously, Reclamation maintains numerous water rights in the project area. Upon implementation of the Lincoln County Passive Rehydration Project, water from the project would have some influence on the Reclamation project operations. This would primarily be by water introduced to the

Upper Crab Creek tributaries that did not infiltrate into the basalt aquifers, which would eventually return to Reclamation operations as the water flowed to Moses Lake and the Potholes Reservoir, thus reducing potential quantities Reclamation would need to divert from the Columbia River for its project area. In addition, water that infiltrated into the aquifers in the eastern portions of the Odessa Groundwater Management Area might reduce potential needs within the defined irrigable acreage area of the Reclamation project. During discussions with Reclamation representatives, they informed the project team that upon development of a known water quantity for the full-scale passive rehydration project, discussions could be initiated for potential agreements with Reclamation existing water rights. It should be noted that at this time, no definitive arrangements or agreements have been developed, only that discussions should be held in the future for evaluating whether potential arrangements are available.

2. **New Water Rights:** If the project moves into the implementation phase, new water right applications will be submitted for any available waters from the Columbia River. Available waters may only be appropriated when available under the Bi-Op. This would result in available waters only in certain months. A further evaluation of potentially available surface water will be conducted in the Feasibility phase of the project. A summary of available water above Priest Rapids is presented in Section 3.1.4 of this report.
3. **Private Water Rights:** Private water rights may be an alternative for long-term operation of the project. The project team attempted to compile an estimate of papered surface water rights within the main stem Columbia River above Grand Coulee Dam and within the Spokane, Kettle, and Pend Oreille rivers within the State of Washington. However, Ecology's water rights GIS database was not operating while this report was being prepared. A further evaluation of private water rights would be conducted during the feasibility phase of the project. It should be noted that available private water rights may be costly, and may only constitute a small portion of future project water. In addition, these waters would primarily be sought for water rights outside the potential time limitations of new appropriated water rights.
4. **Legislative Options:** A preliminary evaluation was conducted into potential legislative options for finding water for the long-term operation of the passive rehydration project. One option may be the development and operation of a potential water trust or bank. This scenario would allow private water holders who currently withdraw water upstream of Grand Coulee Dam to place their water rights into the Passive Rehydration Trust Banking Account. The water would then be used to operate the project. Water rights entered into the trust bank would be protected from relinquishment. A contractual agreement would need to be developed for landowners placing water into the bank. The bank could also be developed to accept donated water rights for operation of the project. A more detailed evaluation as to the legislative development

of a “Passive Rehydration Trust Bank” would be conducted in the feasibility phase of the project.

5. **Water Portfolio:** It is the general conclusion of the project team that in order to operate the passive rehydration project on a long-term basis, a water right portfolio would most likely be the feasible option. The water right portfolio would consist of a mixture of several or even all the options listed above, and potentially other feasible alternatives when identified. Holding and maintaining new water rights, purchased water rights, leased water rights, and a water trust bank would be required. Instituting a water portfolio would require a more detailed management program of the water rights. It is inferred that the operational entity developed for the project would manage the water rights. A more detailed analysis of the potential structure of a water right portfolio would be developed in the feasibility phase of the project.

3.1.4 Longer-Term Water Availability in the Columbia River System

As part of the water rights analysis, the potential for long-term water availability within the entire Columbia River system was also reviewed. After consultation with representatives from Ecology, it was determined that water availability projections could be used from previous regional documents completed by Ecology and Reclamation. The *Appraisal Evaluation of the Columbia River Mainstem Off-Channel Storage Options* report completed in May 2007 by Ecology and Reclamation was determined to be the best reference for determining water availability in the Columbia River. Although the data presented in Section 3 of the Off-Channel Storage Appraisal report are representative of determining the availability to divert water just downstream of the Priest Rapids Reservoir, the project team feels it is still representative of potential water availability upstream of the Grand Coulee Dam. Major tributary contributions to the water budget between the Grand Coulee Dam and below Priest Rapids Reservoir consist of the Okanogan, Methow, Entiat, and Wenatchee rivers and Lower Crab Creek, as well as numerous other creeks and streams along the approximately 200-mile-long river course. The combined contribution of these streams is small compared to the total flow of the Columbia River through the reach between Grand Coulee Dam and Priest Rapids Dam.

The water availability estimates are based on a computer model developed by the Bonneville Power Administration (BPA) in 1992 that models the operations on the Columbia River for a 50-year period of simulation from 1929 through 1978. From this model, an average monthly Columbia River water volume was developed that is available for diversion in excess of existing diversions and downstream flow objectives under current operations. Estimates of water volumes available for diversion from the Columbia River are often more than 20 million acre-feet annually (Ecology, May 2007). The available volumes for diversion are presented in Table 3-2.1 of the report and are summarized below in Table 5.

The current estimate for total annual demands is approximately 3,368,000 acre-feet and include agricultural, domestic-commercial-municipal, and industrial (DCM&I), and flow augmentation. The largest demand for water is agriculture, which accounts for approximately 75% of the total diversions. The largest of these is the Columbia Basin Project, which has a demand of 1,364, 800 acre-feet, followed by the Yakima Project (662,046-810,410 acre-feet), and additional agricultural users (330,000 acre-feet). DCM&I water accounts for 109,100 acre-feet of the demand, and 754,000 acre-feet for flow augmentation.

At this time the project team does not know what the potential authorization needs of a final, full-scale project would require. Based on this prefeasibility assessment, however, the project team suspects that a long-term, full-scale project would likely involve the delivery of 100 cfs or more into multiple drainages. Total water quantities delivered in such a project could exceed 50,000 acre-feet. If such a project was undertaken, it would not operate under a preliminary or temporary permit. A new water right application for the long-term project would be submitted at the same time as the request for a temporary permit for the conductance of the pilot test. This application would be submitted for the maximum estimated water under this evaluation of 200,000 acre-feet and 100 cfs. The application then could be modified/reduced depending on the results of the pilot testing program. It is the project team's understanding that this application would be on hold until the final decision was made on the Reclamation unappropriated Columbia River water allocation currently scheduled to expire on December 22, 2011.

Table 5. Columbia River Water Available for Diversion (KAF) – 1929 to 1978 (Ecology, May 2007)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr(1)	Apr(2)	May	June	July	Aug(1)	Aug(2)	Sept	Total
Average	1,773	413	1,791	4,078	2,254	1,719	1,319	241	2,149	2,602	1,478	61	21	1,040	20,936
Maximum	4,693	3,082	7,443	10,999	7,484	5,846	4,269	2,216	8,134	15,620	7,671	1,453	1,062	5,103	54,485
Minimum	938	0	0	0	0	0	0	0	0	0	0	0	0	0	2,276
Driest 10-year Avg. (37–46)	1,582	0	758	2,557	559	1,033	689	63	1,217	483	340	0	0	597	---
Wettest 10-year Avg. (67–76)	1,510	401	2,217	5,950	4,251	2,294	1,787	335	3,407	3,885	3,144	211	106	1,375	---

- (1) Data were provided by Reclamation (Appendix B of the Columbia River Water Availability Analysis – Preliminary Work Product dated September 5, 2006).
- (2) Data represent volume of water available for diversion in excess of downstream flow objectives under current operations. Available to divert just downstream of Priest Rapids Reservoir.

3.2 RCW 90.90 Compliance

The Columbia River Basin Water Management Law (RCW 90.90) establishes a Columbia River Basin water supply development account in the state treasury for funding water resources development projects in the basin. Section RCW 90.90.020 of the law (shown below) requires that two-thirds of the new water supply developed under the program be available for out of stream uses, and that one-third of the developed supply be available for instream uses. RCW 90.90 may be the source of the funding of a Lincoln County rehydration pilot project. Also, Section 90.90.020 applies directly to “water supplies secured through the development of new storage facilities”, which may, or may not be the source of the water used in a Lincoln County Re-hydration pilot study.

The one-third instream, two-thirds out of stream division of water that is specified in RCW 90.90 may, or may not apply to the pilot study. A final interpretation by the Department of Ecology of how the RCW 90.90 provision for division of water may actually work on various types of projects is pending. In particular, it is not clear that every project must exactly comply with the division of water, and it is not completely clear that instream flow benefits only apply to the main stem of the Columbia River. It is likely that only the total of all the projects funded under the law (or of a given combination of projects) needs to comply. Nevertheless, a brief description of how a Lincoln County Re-hydration pilot study might meet this requirement is provided in this section.

Water pumped out of Lake Roosevelt and released into the Crab Creek system would flow downstream, contributing to instream flows and producing gains to riparian habitat and water-based recreation. A portion of the extra water flowing down the creek could be diverted for use (as new supply) by authorized irrigation water users along the creek, or it could all be protected to continue flowing downstream to rehydrate all of the channel and lakes at the bottom of the basin. As water flowed downstream a portion of the supplemental water would seep into the ground and, presumably, contribute new water to the overall groundwater supply in the area, which is currently over-allocated. Any water that reached Crab Creek would continue down the water course and enter Moses Lake, enhancing the existing Reclamation project. In addition, a portion of the water would presumably return, unconsumed, to the Columbia River via the lower Crab Creek drainage.

Using the simple water balance model described in Section 4.7, a 10 cfs rehydration pilot project might produce an average outflow from Lake Creek of 8.3 cfs. This is contrasted with the existing estimated outflow volume of less than 2.3 cfs in wet years (in dry years the outflow commonly is observed to be zero), to show a net gain to instream flow at the outlet of Lake Creek of 6.0 cfs, or more. This estimate indicates that 4.0 cfs, or 40% of the water released into the stream seeps into the groundwater or is evaporated. While it is flowing down Lake Creek, the entire 10 cfs is contributing to instream flow. After it leaves Lake Creek, the remaining supplemented flow would continue to contribute to stream flow and

aquatic resources in Crab Creek. Further losses to groundwater seepage and/or supply water users are likely, although they have not been estimated in this analysis. The simple water balance model will be re-evaluated in the feasibility phase if the project proceeds.

To achieve an exact division of water equal to one-third instream, two-thirds out of stream would require either that another 2.7 cfs of the 10 cfs be allowed to seep into groundwater from Crab Creek, or that the same volume be directly diverted from Crab Creek or Lake Creek for out of stream use. Given the extremely high water needs in this area, use of a portion of the supplemental water for water supply would not be a problem. It should be noted that both the water that seeps into the ground and any part of the supplemental water that is directly diverted would directly contribute to RCW 90.90 part (2) (b) below, “alternatives to groundwater for agricultural users in the Odessa subarea aquifer”.

The Lincoln County Passive Rehydration Project is different from most of the water supply development projects being proposed under the Columbia Basin Program. The additional water supply developed under this project would be stored in the groundwater aquifer, and not be fully controllable, as is the case with surface water storage projects. The water would contribute new supply to water users in need, and unconsumed water would return to the Columbia River or would offset diversions from it, and thereby contribute to instream flow. However, because of the lack of control over timing, the project is not able to make releases to the Columbia River that are targeted to meet specific windows of instream flow need. However, the project could be very beneficial to the water supply in the Odessa sub area, since it could provide necessary supplies to offset over-pumping that other proposed projects do not. To the extent that instream flow benefits called for under RCW 90.90 must occur in the main stem of the Columbia River, this project might need to be combined with another project that is specifically formulated to do that.

3.3 Potential Governance Structures

This section provides information and options for organizational structures that could be used to manage the Lincoln County passive rehydration project. Regardless of which governance structure is selected, owning and managing this project will involve tasks that are similar to running a utility. Governance of the rehydration project will require technical, financial, and managerial skills and attributes. For example, the organization will need the capacity to hire and/or manage contracts for technical staff; plan, design, construct, operate, and maintain facilities; maintain insurance; and manage funding for the project. Key aspects of governance will include the following:

- Ownership
- Operation and maintenance
- Technical support

Given the need for cost effective and efficient services over a large geographical area, the project might be best managed by an entity that has the organization in place to carry out the necessary functions throughout the rehydration area. These activities will likely be most efficiently provided by only one jurisdiction serving a broader coalition. It is also possible that the management of the rehydration project could be shared by several organizations. Any combination of shared responsibility which falls under the legal authority of a partner can be assigned through an intergovernmental agreement.

A brief summary of several governance options and their legal authorization is provided below.

- **Interlocal Cooperation Act (RCW 39.34).** This statute serves as the basis for many Intergovernmental Agreements in the state and provides broad authority to share infrastructure, government services or activity. In 39.34.080, RCW, it states: “Any one or more public agencies may contract with any one or more other public agencies to perform any governmental service, activity or undertaking which each public agency entering into the contract is authorized by law to perform...”
- **Public Utility Districts (RCW 54).** Public utility districts (PUDs) have county-wide authority to provide utility services. RCW 54.16.090, RCW 54.16.180, and RCW 54.16.230 allow the PUD to contract with other entities, engage in services. The later statute specifies that the PUD’s actions be consistent with the County Comprehensive Plan and formation or expansion of service will require a majority vote of its customers. In this case, the PUD would not be serving “customers” and thus would rely on other funding sources such as grants, taxes, etc. Because the Lincoln County PUD is already in existence, governance of the project by the PUD presents the simplest option for implementation.
- **Counties (RCW 36).** RCW 36.94.140 establishes the authority and mechanism for county management of water systems, including financing and setting of rates and charges. RCW 36.94.220 authorizes counties to establish local improvement districts and associated special assessments to improve utilities that benefit an area within the county. RCW 36.94.490 authorizes counties to participate in cooperative watershed management activities as part of maintaining a water or sewer system.
- **Cities and Towns (RCW 35 and 35A).** This legislation covers all authorized responsibilities and actions of city and towns. RCW 35.67.300 and RCW 35.67.331 allow cities to contract with other cities or water-sewer districts, but must have a vote of the people if indebtedness is incurred. Of particular note is RCW 35.67.380, which authorizes participation on cooperative watershed management actions for water supply, water quality, and water resource and habitat protection and management.

- **Water-Sewer Districts (RCW 57).** Formation of a water-sewer district could occur for the purpose of regional water/wastewater treatment, disposal, collection, or any combination thereof, if formed in accordance with RCW 57.02.040. The formation process requires compliance with comprehensive plans as well as approval by the County Boundary Review Board, unless the BRB takes no action in which case the finding of the County Commissioners is final. A District would have similar powers as cities, counties, and PUDs for funding its activities.
- **Corporations and Associations (RCW 24).** Under RCW 24.03, Washington Nonprofit Corporation Act, and RCW 39.34, Interlocal Cooperation Act, local governments may form a 501(c)3, non-profit corporation to function as a water/wastewater treatment and resource management organization for the planning, financing, operation, maintenance, and governance of a water/wastewater utility and its facilities. The functions of the organization are governed by its Articles of Incorporation and a set of By-laws. Membership may be composed of local governments.
- **Conservation Districts (Chapter 98.08 RCW).** Conservations districts are authorized to engage in practices and programs for furthering agricultural and nonagricultural phases of conservation, development, utilization, and disposal of water, for the purposes of preserving natural resources. The individual districts function as an extension of the State Conservation Commission. Districts may employ technical experts, administer programs, and enter into agreements with other local or state entities to manage joint programs. Districts are typically funded by the State Conservation Commission and do not have the authority to levy taxes or issue bonds; however, RCW 89.08.400 authorizes special assessments for the purposes of natural resource conservation, to be imposed by the county legislative authority. Conservation districts have the option of utilizing a streamlined permitting process for watershed restoration projects (RCW 89.08.450-510).

The Lincoln County Public Utility District (PUD) is an in-active public utility district authorized in Lincoln County. If re-activated, it could provide the governance structure needed for the rehydration project. Because the PUD already exists, it presents the simplest option for implementation of the project, although re-activation would require a vote of Lincoln County residents. In addition, PUDs have broad powers that would accommodate governance of this type of project. The key provisions from the Revised Code of Washington (RCW) Chapter 54.16 relating to the powers of public utility districts are provided below.

- **RCW 54.16.030 Water and irrigation works.** A district may construct, purchase, condemn and purchase, acquire, add to, maintain, conduct, and operate water works and irrigation plants and systems, within or without its limits, for the purpose of furnishing the district, and the inhabitants thereof, and of the county in which the district is located, and any other persons including public and private corporations within or without the limits of the district or the county, with an ample supply of water for all purposes, public and private, including water power, domestic use, and irrigation, with

full and exclusive authority to sell and regulate and control the use, distribution, and price thereof.

- **RCW 54.16.035 Provision of water service beyond district subject to review by boundary review board.** The provision of water service beyond the boundaries of a public utility district may be subject to potential review by a boundary review board under chapter 36.93 RCW.
- **RCW 54.16.050 Water rights.** A district may take, condemn and purchase, purchase and acquire any public and private property, franchises and property rights, including state, county, and school lands, and property and littoral and water rights, for any of the purposes aforesaid, and for railroads, tunnels, pipe lines, aqueducts, transmission lines, and all other facilities necessary or convenient, and, in connection with the construction, maintenance, or operation of any such utilities, may acquire by purchase or condemnation and purchase the right to divert, take, retain, and impound and use water from or in any lake or watercourse, public or private, navigable or nonnavigable, or held, owned, or used by the state, or any subdivision thereof, or by any person for any public or private use, or any under flowing water within the state; and the district may erect, within or without its limits, dams or other works across any river or watercourse, or across or at the outlet of any lake, up to and above high water mark; and, for the purpose of constructing or laying aqueducts or pipelines, dams, or waterworks or other necessary structures in storing, retaining, and distributing water, or for any other purpose authorized hereunder, the district may occupy and use the beds and shores up to the high water mark of any such lake, river, or watercourse, and acquire by purchase or by condemnation and purchase, or otherwise, any water, water rights, easements, or privileges named herein or necessary for any of such purposes, and a district may acquire by purchase, or condemnation and purchase, or otherwise, any lands, property, or privileges necessary to protect the water supply of the district from pollution: PROVIDED, That should private property be necessary for any of its purposes, or for storing water above high water mark, the district may condemn and purchase, or purchase and acquire such private property.
- **RCW 54.16.070 District may borrow money, contract indebtedness, issue bonds or obligations -- Guaranty fund.** (1) A district may contract indebtedness or borrow money for any corporate purpose on its credit or on the revenues of its public utilities, and to evidence such indebtedness may issue general obligation bonds or revenue obligations; may issue and sell local utility district bonds of districts created by the commission, and may purchase with surplus funds such local utility district bonds, and may create a guaranty fund to insure prompt payment of all local utility district bonds. The general obligation bonds shall be issued and sold in accordance with chapter 39.46 RCW. A district is authorized to establish lines of credit or make other prearranged agreements, or both, to borrow money with any financial institution. (2) Notwithstanding subsection (1) of this section, such revenue obligations and local utility district bonds may be issued and sold in accordance with chapter 39.46 RCW.

- RCW 54.16.080 Levy and collection of taxes.** Tax anticipation warrants. A district may raise revenue by the levy of an annual tax on all taxable property within the district, not exceeding forty-five cents per thousand dollars of assessed value in any one year, exclusive of interest and redemption for general obligation bonds. The commission shall prepare a proposed budget of the contemplated financial transactions for the ensuing year and file it in its records, on or before the first Monday in September. Notice of the filing of the proposed budget and the date and place of hearing thereon shall be published for at least two consecutive weeks in a newspaper printed and of general circulation in the county. On the first Monday in October, the commission shall hold a public hearing on the proposed budget at which any taxpayer may appear and be heard against the whole or any part thereof. Upon the conclusion of the hearing, the commission shall, by resolution, adopt the budget as finally determined, and fix the final amount of expenditures for the ensuing year. Taxes levied by the commission shall be certified to and collected by the proper officer of the county in which the district is located in the same manner as provided for the certification and collection of port district taxes. The commission may, prior to the receipt of taxes raised by levy, borrow money or issue warrants of the district in anticipation of the revenue to be derived from the levy or taxes for district purposes, and the warrants shall be redeemed from the first money available from such taxes. The warrants shall not exceed the anticipated revenue of one year, and shall bear interest at a rate determined by the commission.
- RCW 54.16.360 Cooperative watershed management.** In addition to the authority provided in RCW 54.16.030 relating to water supply, a public utility district may participate in and expend revenue on cooperative watershed management actions, including watershed management partnerships under RCW 39.34.210 and other intergovernmental agreements, for purposes of water supply, water quality, and water resource and habitat protection and management.

Some measures that could be used to incorporate stakeholder involvement into the governance structure for the project are briefly described below:

- Initial Memorandum of Understanding (MOU).** Crafting a MOU early in development of a regional partnership which outlines the key principles of the partnership that are universally agreed to and will serve as the foundation for developing a detailed intergovernmental agreement.
- Voting Arrangements.** Establishing a voting protocol that reflects some percentage or share allocation based on a combination of capacity purchased, committed customers served, infrastructure value contributed to the regional system, or other factors. Frequently, there are varying categories of decisions that may be decided by simple majority voting. However, for more significant decisions, particularly those authorizing significant financing or changes in governance or organizational structure, a super

majority or weighted vote is required such as a two thirds or three quarters majority decision.

- **Integrated Committees.** Having representation of all regional partners on committees regarding operations, maintenance, budget, etc, will provide a voice in decision making that may balance any perception of lost ownership or control. These activities may focus on routine or seasonal determinations and decisions are made by consensus or simple majority unless the issue is subject to one of the special voting arrangements.
- **Clear Cost Allocation Procedures.** Establishing cost allocation procedures on the principle of cost follows benefit. Capital costs may be assigned based on initial or expanded capacity commitments. Monthly rates should be based on cost of service procedures generally accepted in the industry that include a prorates share of O&M, taxes, debt and other costs, assigned based on measured flow or strength characteristics. Decisions must also be made regarding whether single or multiple jurisdictions would be involved in wholesale versus retail rate setting.
- **Intergovernmental Agreement.** Under RCW 39.34, Interlocal Cooperation Act, local governments can contract with each other for services that each are legally authorized to provide. Joint development and legal review of an Intergovernmental Agreement in a clear and fair manner is essential to a sustained and effective working relationship.

As the initial steps for preparation of governance for the pilot program are being implemented, it is recommended that a workshop be conducted with representatives of applicable jurisdictions and stakeholders to explore the opportunities and obstacles associated with implementation and operation of the rehydration project. Each of these entities would be asked to provide input on key policies and issues that might prove critical to the interests of their local government. Regardless of the above evaluation, there are definite advantages to shared operational staff and management strategies. The regional partners should explore these options.