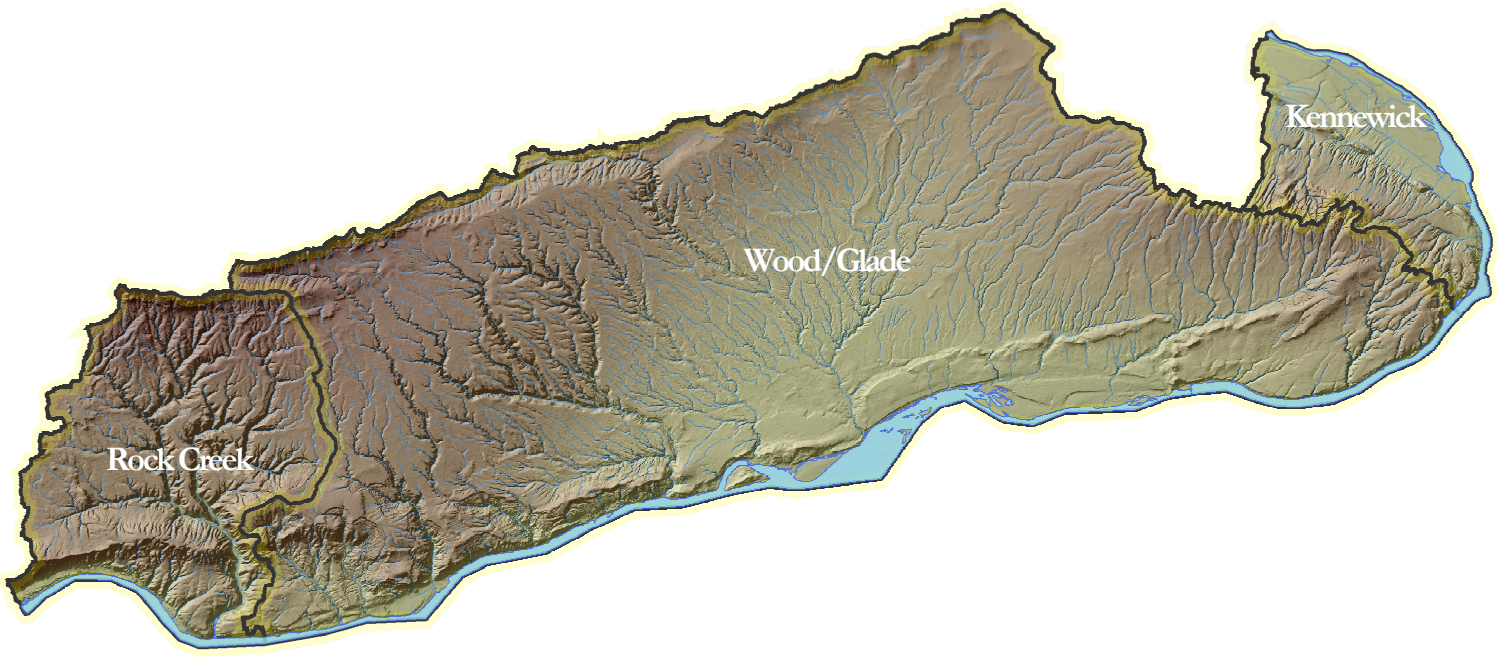
June 2010

DETAILED IMPLEMENTATION PLAN

Rock-Glade Watershed (WRIA 31)

Prepared by WRIA 31 Planning and Advisory Committee



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Prepared with the assistance of Aspect Consulting LLC
and ENVIRON International Corp.

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Contents

List of Tables

List of Figures

List of Appendices

1 Introduction

The Detailed Implementation Plan (DIP) represents the beginning of the Phase 4 Watershed Management Plan implementation process for Water Resource Inventory Area (WRIA) 31, the Rock-Glade Watershed, under chapter 90.82 of the Revised Code of Washington (RCW). The DIP provides a framework for scheduling and executing specific actions to achieve the prioritized objectives described in the WRIA 31 Watershed Management Plan (WRIA 31 Planning Unit, 2008). The content of the WRIA 31 Watershed Management Plan (WMP) was unanimously approved by the WRIA 31 Planning Unit in their January 2008 meeting. Following a public notice and hearing in accordance with RCW 90.82.130, the Watershed Management Plan was unanimously approved by the Boards of County Commissioners of Benton, Klickitat, and Yakima counties on April 27, 2009. While supportive of watershed planning in WRIA 31 and maintaining authority with respect to participating in the approval of the watershed management plan and detailed implementation plan, and any amendments thereto, Yakima County chose not to actively participate in WRIA 31 watershed planning process.

The WMP addressed the mandatory water quantity component of watershed planning and optional components including water quality and habitat. The key water resources issues and associated strategies to address each issue, as identified in the WMP, are the basis for development of the DIP.

The DIP was developed by the WRIA 31 Policy and Advisory Committee (PAC) with assistance from Aspect Consulting, LLC (Aspect) and their subconsultant ENVIRON International Corporation. The work is funded by the Washington State Department of Ecology (Ecology) Watershed Planning Grant No. G1000063.

At the time of DIP preparation, additional information on the WRIA 31 watershed planning process is available on the Klickitat County web site at http://www.klickitatcounty.org/NaturalR/default.asp?fD=3.

1.1 Purpose

The DIP provides the framework for how to implement the recommended strategies to achieve the water quantity, water quality, and habitat objectives identified in the WMP. It further prioritizes actions presented in the WMP based on readiness to proceed, identifies the responsible parties that have agreed in principle to implement the actions contingent upon availability of funding and other resources. It also defines data gaps, other considerations, and sequential actions specific to implementation of each action. Submittal of a DIP to Ecology is a condition of receiving grants for the second and all subsequent years of Phase 4 implementation.

It is important to note that if there is any discrepancy in information presented in this DIP versus that in the WMP, the WMP is correct and provides the basis for implementation.

1.2 Watershed Setting

WRIA 31 covers approximately 1,594 square miles (1,020,230 acres) located in south-central Washington. The WRIA includes portions of Benton, Klickitat, and Yakima counties, and extends from Kennewick on the east to approximately the John Day Dam on the west, and is bounded by the crest of the Horse Heaven Hills on the north and the Washington/Oregon border on the south. Approximately 50 percent of the watershed occurs within Benton County, 44 percent within Klickitat County, and 6 percent within Yakima County. Based on topography and other considerations, WRIA 31 was divided into four hydrologic subbasins for the purposes of the watershed assessment. Those subbasins are, from west to east, Rock Creek, Wood/Alder Creeks, Glade/Fourmile Creeks, and Kennewick. For the purposes of the WMP, the two central subbasins were combined into one unit termed the Wood-Glade planning area (Figure 1).

The geologic setting in WRIA 31 is characterized by bedrock of the Columbia River Basalt Group (CRB) and interbedded terrestrial sediments that form the watershed's principal source for groundwater. Much of the eastern portion of WRIA 31 is covered with thin (generally less than 50 feet thick) deposits of sands, gravels, and silts. Topographic relief across the watershed primarily results from folding and faulting of bedrock forming the east-west trending Horse Heaven Hills on the north and Columbia Hills on the south; in general, stream drainages are more deeply incised in the western part of WRIA 31 and become less incised to the east.

The climate of WRIA 31 is primarily influenced by marine air masses traveling eastward over the Cascades and along the Columbia River, resulting in more precipitation in the higher elevations that decreases from west to east across the WRIA. Mean annual precipitation ranges from approximately 24 inches in the northwest to 8 inches in the east. The majority of precipitation occurs between October and April, with some precipitation occurring as snow, particularly at higher elevations.

Land cover within WRIA 31 includes limited forestland, abundant shrubland, grassland, and cultivated land, and urban cover limited to the Kennewick area. The vast majority of the agricultural lands occur within the central Wood-Glade planning area.

As of the year 2000 census, the total population of WRIA 31 was approximately 67,600 persons, with approximately 97% (65,300) of those residing within the Kennewick planning area. Dryland and irrigated agriculture is the predominant economy in WRIA 31 outside of the more urbanized Kennewick subbasin. However, renewable energy production is emerging as an important economic factor in the western half of the WRIA.

Approximately 806,000 acre-feet/year is appropriated through water right permits and certificates in WRIA 31 excluding the McNary Dam hydroelectric water right and the John Day/McNary Pools reserve (chapter 173-531A WAC). Estimated total annual water use in WRIA 31 is approximately 640,000 acre-feet/year with 71 percent supplied from the Columbia River, 18 percent imported from the Yakima River via the Kennewick Irrigation District and Columbia Irrigation District diversions, and 11 percent from groundwater sources. Irrigation represents an estimated 97 percent of all water use in WRIA 31, with residential and non-residential uses accounting for roughly 1 and 2 percent, respectively. Nearly all estimated water use occurs within the Wood-Glade and Kennewick planning areas (79 and 20 percent by volume, respectively).

1.2.1 Surface Water

Except for the Columbia River, historical streamflow data are very limited in WRIA 31, with continuous flow data available for only two flow gauges (near mouths of Rock and Alder Creeks) during a 6-year period in the 1960s. However, Ecology re-established a continuous-reading gauge near the mouth of Rock Creek in 2007 and is operating it. The available streamflow data indicate that all WRIA 31 streams, aside from the Columbia River, are naturally intermittent (lacking dry season flow) except in localized spring-fed and gaining reaches. Irrigation return flows supply dry season flows in some streams, particularly Glade Creek.

The Columbia River is the largest source of water supply for WRIA 31, and is of critical importance for the existing economy and population and to support future growth within the watershed. John Day Dam is located at river mile 216, just downstream of WRIA 31's western boundary. McNary Dam is located at river mile 292, near Plymouth (Glade/Fourmile subbasin) and downstream of the confluences of the Yakima and Snake Rivers with the Columbia.

Based on statistical evaluation of mean daily discharge values calculated from 34 years of data (water years 1969-2003) at both McNary and John Day Dams, Columbia River flows during average years (50 percent exceedance) ranged from about 110 thousand cubic feet per second (kcfs) in September-October to about 300 kcfs in early June. The average-year flows met minimum average weekly instream flows (WAC 173-563-040[3]) for all time periods at both dams. The mainstem Columbia River minimum instream flow targets are met at both dams during statistically average water years, but not during the late season during statistically drier water years.

There is considerable controversy regarding the relationship between mainstem Columbia River flows and salmonid survival in the river. A policy for augmenting flows in the mainstem Columbia River is based on the hypothesis that lower flows equate to extended travel times which increase fish mortality. On the basis of the flow-survival hypothesis, National Marine Fisheries Service (NMFS; now NOAA Fisheries) prepared Biological Opinions for the Columbia River hydropower system setting minimum flow targets that greatly exceed the state's minimum instream flows for the mainstem promulgated in chapter 173-563 WAC. It is the WRIA 31 Policy and Advisory Committee's (PAC) position that the state's current management of the mainstem Columbia River is constrained by a federal flow augmentation policy that is not supported by the best available science, as outlined in the WMP[1].

1.2.2 Groundwater

The major aquifer systems in WRIA 31 are those of the Columbia River Basalt system, which includes from shallowest to deepest the Saddle Mountains, Wanapum, and Grande Ronde Basalts. Unconsolidated overburden forms a relatively thin mantle over the basalts in much of the watershed, and gravel deposits along the Columbia River are also used as a groundwater source for water supplies. The Saddle Mountains Basalt and Wanapum Basalts, and in certain locations the Columbia River gravels, are the primary groundwater

[1] The State Agencies' representative abstained from participating in formation of this position in the WMP.

sources for larger irrigation withdrawals in WRIA 31. The shallow Alluvial Aquifer may supply domestic uses, while the deeper Grande Ronde is largely unexplored in WRIA 31. For WRIA 31 as a whole, Columbia River surface water is a larger supply source than all groundwater sources combined.

Current groundwater recharge across WRIA 31 is roughly double that under assumed predevelopment conditions as a result of return flows from irrigation water supplied from the Columbia River. This recharge increase occurs primarily in the main areas of irrigated agriculture – the Wood-Glade and Kennewick planning areas. Substantial water level declines are observed in the Wanapum Basalt Aquifer in areas of intensive irrigation (Wood-Glade planning area). In these same areas, water levels in the overlying Saddle Mountains Basalt Aquifer have risen as a result of irrigation return flows.

The abundant presence of springs (groundwater discharge) documents hydraulic continuity between shallow groundwater and streams in WRIA 31 – particularly in the Rock and Alder Creeks. However, spring discharge is typically inadequate to sustain late-season instream flows except in localized reaches.

1.2.3 Water Quality

Based on available water quality data, the primary water quality concerns identified in the watershed assessment for WRIA 31 were:

- Water temperature in Rock Creek, which is on the state's list of impaired water bodies as Category 5, requiring a water quality improvement plan;
- Nitrate in shallow groundwater of the Glade/Fourmile subbasin presenting a potential public health concern for persons with shallow domestic wells; and
- Water temperature in the Columbia River, which is on the state's list of impaired water bodies as Category 5 (a multi-state and federal agency effort to develop a temperature TMDL for the Columbia River is ongoing).

A WRIA 31 supplemental water quality project for Rock Creek (Aspect Consulting, 2005b) evaluated existing Rock Creek water temperature data and compared results to state standards, documented historical changes to the creek channel and surrounding vegetation and analyzed nitrate and fecal coliform in creek water. Conclusions from the Rock Creek water quality study indicate water temperatures exceeding water quality standards in places are likely consistent with natural conditions, overall vegetation cover has increased over the past 60 years, and coliform and nitrate concentrations in surface waters met state standards.

A WRIA 31 supplemental water quality project for the Glade/Fourmile subbasin (Aspect Consulting, 2005a) evaluated whether changes to irrigation practices have resulted in measurable water quality improvement (reduced nitrate concentrations) relative to the 1980s and 1990s. Conclusions from the Glade-Fourmile subbasin water quality study indicate groundwater nitrate concentrations exceed drinking water standards within the shallow basalt aquifer (Saddle Mountains Basalt) in areas where irrigation is practiced and that nitrate concentrations remain largely unchanged since the mid-1990s.

1.2.4 Fish Distribution and Aquatic Habitat Quality

The dominant fish species present in WRIA 31 include steelhead/rainbow trout, dace, and shiners. Coho salmon are occasionally observed in the WRIA. The presence of other species, such as lamprey and suckers, has been reported anecdotally but not documented.

The middle Columbia steelhead (*Oncorhynchus mykiss*), which is the subpopulation present in WRIA 31, were listed under the Endangered Species Act (ESA) as threatened by the National Marine Fisheries Service (NMFS) in 1999 (NMFS, 1999) and the listing was reaffirmed in 2006 (NMFS, 2006). NMFS designated critical habitat for the Middle Columbia steelhead population in 2005 (NMFS, 2005). Designated critical habitat includes portions of Rock Creek, Wood Gulch, Pine Creek, Alder Creek, and Chapman Creek downstream of natural fish passage barriers.

1.3 Watershed Planning Background

Pursuant to RCW 90.82.060(2), Klickitat County, Benton County, Yakima County and the City of Kennewick agreed as Initiating Governments to begin watershed planning in WRIA 31, designating Klickitat County as Lead Agency. While invited, no affected Tribe elected to participate in the planning process. Yakima County elected not to actively participate in watershed planning, but retained its authority to participate in county legislative authority approval of the watershed management plan under RCW 90.82.130. A final Intergovernmental Agreement for WRIA 31 was signed in May 2003 by the participating Initiating Governments. Through this agreement, participating Initiating Governments defined the mission for WRIA 31 watershed planning and established that watershed planning will be conducted consistent with the WRIA 31 Operating Procedures developed in accordance with RCW 90.82.060; that watershed planning will address the mandatory water quantity and optional water quality and habitat elements; and determined the composition of the WRIA 31 Watershed Planning Unit under RCW 90.82.060(6). Over the next 5 years, the Planning Unit initiated studies to fulfill the technical requirements of RCW 90.82. The primary technical studies supporting the WMP included:

- Level 1 Watershed Assessment (Aspect Consulting and WPN, 2004) addressing water quantity, water quality and aquatic habitat in WRIA 31;
- The supplemental Glade-Fourmile Subbasin Water Quality Report (Aspect Consulting, 2005a);
- The supplemental Rock Creek Subbasin Water Quality Report (Aspect Consulting, 2005b);
- Preliminary Water Storage Assessment for the Glade-Fourmile Subbasin (Aspect Consulting, 2005c);
- Aquifer Storage and Recovery Assessment for City of Kennewick (Aspect Consulting, 2005d); and
- Evaluation of Winterizing Existing River/Pump Conveyance Systems for Use in Developing New Water Storage within the Glade-Fourmile Subbasin (Aspect Consulting, 2006).

These studies provided the technical basis for the issues and recommended actions contained in the WRIA 31 WMP, which was unanimously approved by the Boards of County Commissioners of Benton, Klickitat, and Yakima counties following a public notice and public hearing in accordance with RCW 90.82.130 in April, 2009. Several early implementation actions were initiated following Management Plan approval (see Section 2.6). Following plan approval by the counties, Ecology awarded the Phase 4 WMP implementation first year grant to the WRIA 31 Planning Unit.

1.3.1 Watershed Planning Mission and Vision

General guidance for watershed planning in WRIA 31 was developed by the Initiating Governments and the WRIA 31 Planning Unit.

In the Operating Procedures Manual, the Initiating Governments charged the Planning Unit with the mission of developing a plan for the management of water resources in WRIA 31. The Initiating Governments imparted to the Planning Unit the following goals for the watershed planning effort:

- Produce a water resource management plan that documents the means to restore and/or maintain water resources of sufficient quantity and quality to support community (geographically dispersed rural communities, as well as urban communities) and economic growth;
- Produce a water resource management plan that documents the means to restore and/or maintain habitat and water resources of sufficient quantity and quality to support healthy plant, fish and wildlife, and human populations; and
- Accomplish the above in a balanced, credible manner that respects and accommodates the customs and cultures, aspirations, and rights of the people in the management area.

During development of the WMP, the WRIA 31 Planning Unit developed the following vision for watershed planning:

> *Our ongoing water resource planning respects the customs and cultures in the Rock-Glade Watershed. Implementation of this plan will provide dependable and high quality water supplies for our communities, economies, and natural environment.*
>
> *Our sustainable approach to water resource management meets the needs of the present generation without compromising the needs of future generations. It results in stable communities where diverse cultures and economies thrive, while allowing us to preserve and enhance the natural environment that makes this place special and a recreational attraction to residents and visitors alike.*

2 Updates Since Watershed Management Plan Approval

This chapter provides a brief overview of pertinent changes that have occurred since completion of the WRIA 31 WMP in January 2008. These include completion of SEPA review of the WMP; new information potentially relevant to watershed water quantity, water quality, and habitat - including early implementation actions to fill data gaps; and changes in regulatory programs or policies.

2.1 SEPA Review of Watershed Management Plan

Klickitat County and Ecology, as co-lead agencies, completed SEPA review of the WRIA 31 Watershed Management Plan in February 2009. The SEPA lead agencies adopted the state-wide final environmental impact statement (EIS) for Watershed Planning (Ecology, 2003) and an addendum to the EIS (Aspect Consulting, 2008), which documents whether specific WMP strategies and actions were adequately covered by the EIS. All strategies and actions specified in the WMP that are not categorically exempt from SEPA review are adequately addressed in the statewide EIS. However, some actions within the WMP may require additional SEPA review prior to implementation.

2.2 New Studies and Data

The following summarizes pertinent new works or information available since WMP completion.

2.2.1 Land Use and Population Growth

With the possible exception of increased wind energy development in the western half of WRIA 31, no substantial land use changes are known to have occurred in the WRIA since WMP approval in 2009. No new population data are known to exist since 2009 and no information was encountered during development of the DIP to indicate substantial changes to population in WRIA 31. New population data will be available following the 2010 Census. In the interim, data from the US Census Bureau Population Estimates Program (at the time of DIP preparation, available online at http://quickfacts.census.gov/qfd/states/53/53005.html) indicate annual population increases of 0.8% for Klickitat County, 1.8% for Benton County, and 1.8% for the City of Kennewick, for the period 2000 to 2008. The WMP indicates approximately 97% of the population of WRIA 31 lives in the Kennewick subbasin.

2.2.2 Water Quantity

Other than installing a new stream gauge on Rock Creek (see Section 2.5.5), no substantive new studies regarding water quantity have been completed since adoption of the WMP. Two water storage assessment projects have been initiated as early implementation actions: a water storage pre-feasibility study for the Wood-Glade

planning area (Horse Heaven area) as described in Section 2.5.2, and the City of Kennewick aquifer storage and recovery (ASR) pilot testing program as described in Section 2.5.3.

2.2.3 Water Quality

No major new studies regarding water quality have been completed since adoption of the WMP. In coordination with the WRIA 31 PAC, Ecology initiated monthly surface water monitoring in three WRIA 31 tributaries (Alder, Pine, and Rock Creeks) for parameters including temperature and nitrate. Ecology may not have funding /resources available to continue this monitoring due to state budgetary constraints. Eastern Klickitat Conservation District (EKCD) has continued to collect water quality data including temperature in Rock Creek. While this DIP was being drafted in the spring of 2010, the PAC initiated development of a Water Quality Improvement and Protection Plan (WQIPP) for WRIA 31 streams, which focuses on Rock Creek, as described in Section 2.5.4.

2.2.4 Aquatic Habitat

Information regarding fish abundance and aquatic habitat quality has been sparse for WRIA 31. The WRIA 31 WMP recognized that, and filling that data gap was identified as a high priority in the plan. As an early implementation action in the fall of 2008 and spring of 2009, an instream habitat study was completed in Rock Creek, Chapman Creek, Wood Gulch, Pine Creek, and Glade Creek. The data collected in the study substantially improved the understanding of current instream habitat conditions and fish distribution within those drainages, as described in Section 2.5.1.

Inventories conducted in support of the City of Kennewick Master Shoreline Program Update documented environmental conditions near shoreline areas of the Columbia River and other water bodies within the City, including the Shoreline Inventory and Assessment Report (completed in 2005), City of Kennewick Shoreline Restoration Plan (2009), and City of Kennewick Shoreline Impact Assessment (2009).

2.3 Changes/Changes in Programs, Policies, Regulations

The following section provides an overview and status of recent water resource related program, policies, and regulations that may be relevant to the implementation strategies and funding of actions outlined in Chapter 5 of this document. Emphasis is on changes since WMP completion in January 2008.

2.3.1 Statewide Trust Water Right/Water Banking Legislation

The Water Resources Management Act (chapter 90.42 RCW) authorizes use of the State's Trust Water Rights Program (Trust Program) for water banking purposes as a means to facilitate the voluntary transfer of water rights through "conservation, purchase, lease, or donation, to preserve water rights and provide water for presently unmet and future needs; and to achieve a variety of water resource management objectives throughout the state, including drought response, improving streamflows on a voluntary basis, providing water mitigation, or reserving water supply for future uses."

Trust water rights are water rights that have been placed into the Trust Program. In 2003, the Legislature enacted provisions allowing Ecology to use the Trust Program for water banking purposes in the Yakima River Basin (chapter 90.38, RCW). In April 2009, the Washington State Legislature enacted Engrossed Second Substitute House Bill 2860 (modifying chapter 90.42 RCW) to improve the effectiveness of water bank and exchange provisions statewide. Elements of the 2009 changes included:

- Clarifying the applicability of the Trust Water Rights Program for water banking purposes statewide.
- Clarifying that groundwater can be placed in trust.
- Setting provisions for calculating annual consumptive quantity for trust water rights.
- Allowing Ecology to recover costs associated with water service contracts with federal agencies.

Specific language included in the 2009 legislation pertinent to integration of water banking and the trust water right program with the WMP is as follows (notes within RCW 90.42.100):

> **Findings -- Intent -- 2009 c 283:** "The legislature finds that many watershed groups and programs, including but not limited to watershed planning units operating under chapter 90.82 RCW, have proposed or considered using the state trust water rights program for water banking purposes to meet vital instream and out-of-stream needs within a watershed or region. The legislature also finds that water banking can: Provide critical tools to make water supplies available when and where needed during times of drought; improve stream flows and preserve instream values during fish critical periods; reduce water transaction costs, time, and risk to purchasers; facilitate fair and efficient reallocation of water from one beneficial use to another; provide water supplies to offset impacts related to future development and the issuance of new water rights; and facilitate water agreements that protect upstream community values while retaining flexibility to meet critical downstream water needs in times of scarcity. The legislature therefore declares that the intent of this act is to provide clear authority for water banking throughout the state and to improve the effectiveness of the state trust water rights program." [2009 c 283 § 1.]

RCW 90.42.40(1) states, in part: "To the extent practicable and subject to legislative appropriation, trust water rights acquired in an area with an approved watershed plan developed under chapter 90.82 RCW shall be consistent with that plan if the plan calls for such acquisition." Trust water rights are addressed in the WMP, including in Sections 5.1.1.1 and 5.1.1.4.

2.3.2 Reclaimed Water Legislation

In 2006, the Legislature directed Ecology to work with the Department of Health to adopt a rule addressing all aspects of reclaimed water (Engrossed Substitute House Bill [ESHB] 2884). As a part of this effort, Ecology submitted a Report to the Legislature in December 2009 addressing water quantity issues related to reclaimed water use including

water rights and impairment issues (Ecology, 2009). Water quality issues related to reclaimed water use is being addressed separately by Ecology.

Although reclaimed water projects are not required to obtain a water right under state law, they are not allowed to impair existing water rights. In their 2009 report, Ecology sought to define impairment related to reclaimed water projects, summarized various Tribe and other stakeholders opinions, and made recommendations to the Legislature on requirements and standards related to impairment and reclaimed water projects. Tribal treaty rights, instream flows, and diversionary water rights were addressed. One recommended statutory change in Ecology's report includes a requirement for those seeking to implement reclaimed water projects to evaluate impairment to upstream water rights in addition to those downstream of a wastewater discharge location. Ecology states it is on track for both finalizing the reclaimed water rule and updating existing guidance in 2010.

2.3.3 Water Rights Adjudication Legislation

Engrossed Substitute House Bill (ESHB) 1571, effective July 26, 2009, puts forth a more streamlined process for conducting water right adjudications in a basin or region. Changes enacted include encouraging dispute resolution methods other than litigation, allowing electronic filing and other technological efficiencies, specifying the process and time for submission of evidence, and rules for disqualification of a judge. Note that, since 1997, the state water code (chapter 90.03 RCW) has allowed watershed planning units to petition Ecology to initiate an adjudication within a basin.

2.3.4 Litigation Regarding the Municipal Water Law

In 2003 changes to chapter 90.03 RCW, known as the Municipal Water Law, were passed by the legislature and signed into law. Changes to chapter 90.03 RCW included expanding the definition of municipal water supply purpose of use to include public or private Group A water systems (specifically systems that provide supply for fifteen or more residential service connections, or for residential use of water for a nonresidential population that is, on average, at least twenty-five people for at least sixty days a year). This expanded definition of municipal use provided Group A systems protection from relinquishment of inchoate water rights.

In June 2008, King County Superior Court struck portions of the Municipal Water Law on constitutional grounds, including the expanded definition of municipal water supply purpose. The State has appealed this decision, and a hearing in the State Supreme Court is pending.

In May 2009, Ecology issued Interim Guidance (GUID, 2030) which clarifies Ecology's approach for carrying out the Municipal Water Law during the interim between the June 2008 King County Superior Court decision and final resolution of legal appeals to that decision, whenever that is. Under the interim guidance Ecology will:

- Treat as invalid three sections of the Municipal Water Law codified in chapter 90.03 RCW: definition of "municipal water supplier", definition of "municipal water supply purposes", and the "good standing" provision;

- Make no changes to decisions made between September 2003 and June 2008 that were based on the sections of the Municipal Water Law that the Superior Court declared invalid unless directed to do so by a court;
- Not reexamine previous assessments or decisions regarding municipal water rights;
- Review water rights self-assessments in Department of Health's water system planning process based on the law after the Superior Court decision; and
- Define the purpose of use for new water rights issued to private water systems as being for "community domestic", multiple domestic", or "group domestic" purposes. For changes to water rights held by private systems issued as municipal or previously conformed as municipal, the purpose of use will remain as "municipal".

Uncertainty surrounding which water systems are legally considered municipal, therefore potentially holding inchoate water rights not subject to relinquishment creates significant uncertainty regarding water supply planning for many public water systems. It has also led to reluctance on the part of some water systems to readily make available water use and water projection estimates – information that is required to be included in a DIP, as outlined in Section 4.2.

2.3.5 Changes in Programs Managed Through Conservation Districts and/or NRCS

Food, Conservation and Energy Act of 2008

In June 2008, the United States Congress enacted the Food, Conservation and Energy Act (FCEA) of 2008 to replace the Farm Bill of May 2007, continuing agricultural programs through fiscal year 2012 and resulting in the following changes in the Farm Bill conservation programs:

- Extends funding for the Conservation Reserve Program (CRP);
- Renews and expands the Wetlands Reserve Program (WRP);
- Extends and increases funding for the Environmental Quality Incentives Program (EQIP), including promotion of forest management and energy conservation;
- Continues and funds Conservation Innovation Grants (CIG), which helps identify, test, and implement innovative environmental solutions;
- Extends and increases funding for Farm and Ranchland Protection Program (FRPP);
- Renews and funds the Small Watershed Rehabilitation Program (SWRP), which provides technical and financial assistance for the watershed rehabilitation, including upgrading or removing dams;

- Improves the structure of the Conservation Security Program (CSP), which provides financial incentives to encourage the continuation of farming practices that benefit soil, water, and air resources;
- Extends the Wildlife Habitat Incentives Program (WHIP), which helps landowners develop and improve fish and wildlife habitat;
- Continues and expands the Grassland Reserve Program (GRP), which helps landowners restore and protect grassland, rangeland, pastureland, shrubland, and certain other lands; and
- Establishes a Cooperative Conservation Program initiative, which provides opportunities for governments and local owners to develop cooperative conservation programs.

Although the 2008 FCEA extends funding for the Conservation Reserve Program, roughly 32,000 acres of land in Klickitat County are being put back into production as contracts expire.

The 2008 FCEA also provides for the Agricultural Water Enhancement Program (AWEP), a voluntary conservation initiative that provides financial and technical assistance to agricultural producers. Under AWEP, the Natural Resources Conservation Service (NRCS) enters into partnership agreements with eligible entities that want to promote groundwater and surface water conservation or improve water quality on agricultural lands.

Benton Conservation District

The Benton Conservation District is a member of a technical work group helping to implement two grants under the Columbia River Basin Water Supply Development Act (chapter 90.90 RCW). One is the Columbia-Snake River Irrigators Association (CSRIA) Voluntary Regional Agreement (VRA), intended to make new water supplies available through irrigation conservation (as documented in the WMP). The second is the Irrigation Water Management Feasibility Project. Similar to the CSRIA VRA, this project is being undertaken with Ecology to find ways irrigators can apply water saved through conservation toward irrigating additional acreage.

Eastern Klickitat Conservation District

The Eastern Klickitat County Conservation District's 5-Year Plan beginning 2010 includes water quality and salmonid recovery (stream bank restoration) actions. These include (1) completion of Ecology Grant No. 0800398 compiling watershed data by 2011 and using compiled data to identify possible BMP project implementation sites by 2012; (2) completion of a Rock Creek management plan, and implementation of plan actions in 10% of the watershed; and (3) evaluation and prioritization of other watershed areas for implementation activities by 2012.

In addition, the Eastern Klickitat Conservation District is adding five stream temperature monitoring sites to its annual monitoring starting in summer of 2010. There will be two new sites in Rock Creek (one in Quartz Creek and one in the mainstem), one new site in Wood Gulch, one in Pine Creek, and likely one in Alder Creek.

2.3.6 Fish Recovery Plans

In September 2009, NMFS adopted the ESA recovery plan for the Middle-Columbia Steelhead population. As part of this plan, a Rock Creek steelhead recovery plan was developed and incorporated into the main plan as an appendix (NMFS 2009; at the time of DIP preparation found on NOAA Fisheries web site at http://www.nwr.noaa.gov/Salmon-Recovery-Planning/Recovery-Domains/Interior-Columbia/Mid-Columbia/upload/Mid-C-Rock-Crk.pdf). The recovery plan specifies actions to be implemented to attain ESA recovery of the Rock Creek population. Actions identified in the plan cover the following general categories:

- Gather information on viable salmon population (VSP) parameters (population size and productivity) and further refine the understanding of the factors limiting the population;
- Protect and conserve good quality habitat;
- Restore and enhance habitat;
- Review and reduce harvest effects;
- Research hatchery effects; and
- Address out-of-basin limiting factors (e.g. Columbia River and ocean factors).

The Rock Creek plan identifies a need to gather additional information in order to prioritize actions. No actions were identified for any of the subbasins to the east of Rock Creek.

NMFS is currently moving into a plan implementation phase. The WRIA 31 Lead Agency is coordinating with NMFS regarding the implementation activities.

2.3.7 County/City Programs

Benton County

No new programs or policies affecting water resources or aquatic habitat have been implemented since adoption of the WMP.

Klickitat County

No new programs or policies affecting water resources or aquatic habitat have been implemented since adoption of the WMP.

City of Kennewick

Water System Plan Update. The City of Kennewick received approval in February 2010 to its Water System Plan Update from Departments of Health and Ecology.

Shoreline Management Plan. State law requires that jurisdictions periodically review and revise their shorelines policies. An update to the existing City of Kennewick Shoreline Master Program adopted in 1974 was initiated in 2007. In December 2009, Ecology approved the updated Shoreline Master Program that includes an inventory of existing land-use patterns and environmental conditions along Columbia River and other

shorelines in the City, combines local plans for future shoreline preservation and development, and incorporates, for the first time, provisions of the Washington State Growth Management Act including critical areas protections and floodplain management. The update also added a Fish and Wildlife Habitat Conservation Areas designation and revised the Critical Aquifer Recharge Area designation to the Critical Areas Ordinance.

Subdivision Code Revision. As the DIP was being drafted in spring 2010, the City of Kennewick was revising Chapter 17 of the Kennewick Municipal Code, including addition of a new section, Techniques for Natural Resource Protection. This section provides techniques, compensation and incentives for property owners who are required to preserve natural resources located within the City.

2.4 Synergy with Other Watershed Planning Efforts

Implementation of the WRIA 31 WMP can involve actions that are common with those undertaken in adjacent WRIAs, for example WRIA 30 (Klickitat River Basin) immediately to the west, WRIA 37 (Yakima River Basin) upstream on the Columbia River, and WRIA 32 (Walla Walla River Basin) due east across the Columbia River. Areas of common interest between these and other WRIAs along the Columbia River could include but not be limited to:

- Supporting implementation of the state's Columbia River Basin Water Supply Act;
- Water quality and aquatic habitat in the mainstem Columbia River;
- Strategies for water management, including water banking, that may be shared;
- Development of Voluntary Regional Agreements;
- ESA-listed aquatic species; and
- Water storage projects.

The WRIA 31 Implementing Governments and PAC will seek opportunities to coordinate with other WRIA planning units and implementing governments as appropriate to share knowledge and resources for WMP implementation. In some cases, pursuing common projects through coordination with other WRIA planning entities could produce greater success when securing funding. Consistent with the intent of this strategy, county commissioners from Benton, Klickitat, and Yakima counties have been participating on the Columbia River Policy Advisory Group and the Columbia Basin County Commissioners Policy Advisory group which deal with implementation of Ecology's Columbia River Basin Water Supply Development Program. Additionally, the WRIA 31 Watershed Planning Coordinator participates on the Columbia River Basin Watershed Planners Forum and a subcommittee of the Columbia River Policy Advisory Group that is working on the Water Supply/Demand inventory for the Columbia River Basin.

2.4.1 Coordinating with Other Planning Units and Local Governments in the Columbia River Basin

A recommended action of the WMP is to coordinate and work with other watershed planning groups in the Columbia River basin to provide a basin-wide perspective for water supply and water resource management issues related to the Columbia River. Such efforts are underway, with members of the WRIA 31 PAC, including representatives of Klickitat County, Benton County, City of Kennewick, and Benton Conservation District, participating in, or providing input to, the Technical Advisory Group (TAG) and/or Policy Advisory Group for the Columbia River Basin Water Management Program convened by Ecology. As noted above, county commissioners from Benton, Klickitat, and Yakima counties have been participating on the Columbia River Policy Advisory Group and the Columbia Basin County Commissioners Policy Advisory group which deal with implementation of Ecology's Columbia River Basin Water Supply Program. The WRIA 31 Watershed Planning Coordinator participates on the Columbia River Basin Watershed Planners Forum and a subcommittee of the Columbia River Policy Advisory Group that is working on the Water Supply/Demand inventory for the Columbia River Basin.

2.5 Early Implementation Efforts

2.5.1 Instream Habitat Study

One of the priority actions identified in the WRIA 31 WMP was to collect quality-assured data to fill data gaps regarding aquatic habitat throughout WRIA 31 so that appropriate actions to address factors affecting fish production can be developed. This was given a high priority in the WMP. As an early implementation action in the fall of 2008 and spring of 2009, an instream habitat study was completed in Rock Creek, Chapman Creek, Wood Gulch, Pine Creek, and Glade Creek.

The habitat study did not include Alder Creek due to landowner access restrictions, so information regarding fish distribution and habitat quality in Alder Creek remains a data gap. There have been unpublished reports of salmonids observed in the lower reach of Alder Creek. Unpublished data collected by the EKCD indicates that stream temperature in lower Alder Creek tends to be quite warm in summer, approaching and often exceeding lethal temperatures for salmonids.

The fish habitat study identified the species present in the streams and their distribution. It also quantified the amount of salmonid rearing and spawning habitat in them, documented riparian habitat condition, and identified barriers, failing banks, areas of road encroachment, and other features of interest. At the time of DIP preparation, the document (Glass, 2009) is available on Klickitat County's web site at http://www.klickitatcounty.org/NaturalR/default.asp?fd=3. The rest of this subsection provides an overview of that study.

The study covered the length of streams that were known or suspected to contain anadromous fish. Reaches were identified in each stream based on changes in stream gradient and tributary locations. Within each reach, sample sites were selected randomly, which helped to ensure that sample sites were representative of the entire reach. In situations where access was denied for a randomly selected sample site, another site was selected randomly.

Sampling was completed during 2008 low flows in the Rock Creek, Chapman Creek, Wood Gulch, and Pine Creek. Sampling in Glade Creek was completed in spring 2009 at higher flows. In all, 15.7 percent of the stream length within the identified reaches was sampled.

Fish Distribution

Five species were identified in the streams, including coho salmon (*Oncorhynchus kisutch*), steelhead and rainbow trout (*Oncorhynchus mykiss*), longnose dace (*Rhinichthys cataractae*), speckled dace (*Rhinichthys osculus*), and redside shiners (*Richardsonius balteatus*) (Table 1). Juvenile steelhead and rainbow trout can only be distinguished through genetic sampling, so the surveys were not able to distinguish between the resident and anadromous populations except in cases where fish were found upstream of migration barriers or adult trout were encountered. Steelhead and rainbow trout are therefore referred to simply as *O. mykiss* in the following discussion.

Dace were common throughout the streams included in the study and dace were the only species found in Chapman and Glade Creeks. Redside shiners were only found in Rock Creek, downstream of the confluence with Squaw Creek.

Two coho were identified in Rock Creek and 35 were found in one reach of Wood Gulch. The Bickleton School reportedly released coho into Wood Gulch, so the natural presence of coho in that drainage is questionable.

Steelhead/rainbow trout (*O. mykiss*) were found in Rock Creek, Wood Gulch, and Pine Creek. The majority (71 percent) of the *O. mykiss* observed in Rock Creek were located downstream of the Bickleton Bridge and 47 percent were stranded in isolated pools at the time of sampling. Pine Creek has an impassable barrier at Highway 14, so the *O. mykiss* observed in that drainage can be assumed to be resident trout. *O. mykiss* were not observed in the lower 2 miles of Wood Gulch and were not present upstream of Schrantz Road. Adult trout were found in Wood Gulch indicated that a portion of the fish observed were resident rainbow trout. The percentage of the observed *O. mykiss* that were steelhead remains unknown.

Table 1. Number of Fish Observed in Each Basin by Species (Glass, 2009)

Basin	Coho	Steelhead/ Rainbow Trout	Longnose Dace	Speckled Dace	Unknown Dace	Redside Shiners	Unknown	Grand Total
Chapman Creek				1194			1	1195
Pine Creek		69		2510	4609			7188
Rock Creek	2	4016	30	3607	455	583	1	8694
Wood Gulch	35	434	111		2540		2	3122
Glade Creek					51			51
Grand Total	37	4519	141	7311	7655	583	4	20,250

Habitat Quality and Quantity

The Rock Creek subbasin contains most of the available salmonid spawning and rearing habitat in the WRIA. The majority of the available spawning habitat is located

downstream of the Bickleton Bridge. The quality of the spawning habitat was good in all areas except a couple of backwater locations. Pool habitat in Rock Creek, which typically supports salmonid rearing, accounted for 78 percent of the total rearing habitat in the WRIA. It is estimated that Rock Creek contains sufficient habitat to support up to 13,500 spawning pairs of steelhead and between 38,300 and 95,700 age-0 steelhead, ignoring the potential effects of summer water temperature. Many of the reaches in Rock Creek exceed lethal temperatures in summer (Glass, 2009; Aspect, 2005b), so the actual carrying capacity for rearing steelhead is much lower than estimated above. High summer water temperatures, coupled with low summer stream flow, are likely the factor limiting steelhead production in the Rock Creek basin, although other factors potentially affecting survival such as harvest, food availability, and predation have not been assessed. Low stream flows are believed to be a natural condition (Aspect and WPN, 2004; Aspect, 2005b). The extent of vegetation within riparian corridor has been increasing in the subbasin for several decades (Aspect, 2005b), which has likely reduced water temperature; however, high summer water temperature is likely largely a natural condition.

Wood Gulch contains enough spawning habitat to support an estimated 2,600 spawning pairs of steelhead, assuming that the steelhead can access habitat present in the upper basin. The lower portion of the creek is typically dry and access to upper basin habitats would only be possible at times that the lower creek is flowing. The quality of spawning habitat in Wood Gulch was good in most of the potential spawning areas, although there were several areas that had elevated fine materials in the spawning gravels, which reduce survival during egg incubation. The quantity of available rearing habitat was much lower than the quantity of spawning habitat in Wood Gulch; therefore, the quantity of rearing habitat is limiting salmonid production in the drainage. The lower portion of the Wood Gulch drainage goes largely dry in summer and habitat is limited to isolated pools that tend to become very warm. The best habitat in Wood Gulch is in the upper basin between Schrantz Road and the confluence with Big Horn Canyon. There are several waterfalls in this reach that, though passable, may be difficult to pass under certain flow conditions. This may limit steelhead access to these habitats.

Pine Creek is not currently accessible to steelhead due to the migration barrier (there is no flow through the culvert under Highway 14 due to a beaver dam located just upstream of the culvert) at the mouth. Much of the spawning habitat available in Pine Creek is in good condition but high concentrations of fines were found in many of the spawning areas. At low flow, pools dominate the available habitat in the drainage. Over 40 percent of the sampled stream length was dry and many of the pools are isolated between dry channel sections. Currently, the factor limiting steelhead production in Pine Creek is lack of access. If this were remedied, the limiting factors would likely be flow and possibly temperature.

The geology in Chapman Creek and Glade Creek drainages is quite different from the other drainages evaluated. The geology is dominated by fine-grained Quaternary deposits, including loess and large valley-scale landslide deposits. There is relatively little basalt bedrock exposed in the drainages. As a result, the majority of sediment provided to the channel is fine-grained. Accumulations of spawning size material do not form in these creeks. Because no spawning habitat was observed in reaches sampled, these creeks may not sustain anadromous fish populations.

Additional data collection to assess inter-annual variability, to enumerate population size and productivity, and to further evaluate land use interactions with the limiting factors would be warranted. Some additional funds are available for further study in 2010-2011 which may address some of the outstanding data gaps. A study design has yet to be developed for that work.

2.5.2 Horse Heaven Water Storage Pre-Feasibility Assessment

A priority recommendation of the WMP is to develop water storage within WRIA 31 to address multipurpose water demands identified in the planning process. Identified strategies in the WMP consider both surface (e.g. surface reservoir) and groundwater (e.g. aquifer storage and recovery) storage to meet this need. In 2009, Ecology provided funding from the Columbia River Basin Water Supply Development Account to the WRIA 31 PAC for a pre-feasibility water storage assessment.

The pre-feasibility assessment is intended to define and assess the range of applicable water storage alternatives to meet defined out-of-stream and instream demands, and to select a preferred alternative(s) that can move forward for feasibility study and conceptual design. The pre-feasibility study focuses on the Wood Glade subbasin (aka the Horse Heaven), the area in WRIA 31 with the greatest water demand, and which has the greatest potential for economic growth if new water supplies were made available. Key elements of the pre-feasibility assessment include working closely with local stakeholders to identify water demands and the range of water storage alternatives to meet the demands, screening preliminary alternatives based on technical feasibility, permitting "fatal flaws" and planning-level cost, and advancing a preferred alternative for more detailed analysis in a feasibility study. At the time this DIP was being drafted in the spring of 2010, a preferred storage alternative has been developed and presented to Ecology's Office of the Columbia River for consideration of additional funding.

2.5.3 Kennewick ASR Project

The City of Kennewick has received funding from the Columbia River Water Supply Development Account to conduct a feasibility study for applying aquifer storage and recovery (ASR) to help meet its long-term municipal water supply needs while providing instream benefits to the Columbia River by reduced diversion from the Columbia River during July and August.

The feasibility study includes a phased approach with key decision points for future actions as more detailed and specific information becomes available. The study includes initiation of the permitting process including an assessment of all known, available, and reasonable methods of treatment (AKART) for disinfection byproducts in the water to be stored, construction of a test well, geologic characterization, aquifer testing, evaluation of water quality issues, and construction and pilot testing of an ASR production well.

Following key decision points, initiation of and funding for subsequent phases of the project will depend upon concurrence of the City and Ecology that the results of previous phases are acceptable. Construction of the ASR facility is not currently funded.

2.5.4 WRIA 31 Water Quality Improvement and Protection Plan

A segment of Rock Creek was listed in Ecology's 2002/2004 report and is listed on the current report, 2008, to the EPA as Category 5 (impaired waterbody on the 303(d) list) for elevated temperature, requiring a water quality improvement plan. A high priority objective of the WMP is to bring Rock Creek into compliance with state surface water standards and to coordinate with Ecology for the removal of Rock Creek from Category 5 status. Water quality studies including those completed during the watershed planning process concluded elevated water temperatures are likely caused by natural conditions and are not substantively influenced by human activity (Aspect and WPN, 2004; Aspect, 2005b).

An early effort to keep Rock Creek off the 303(d) list took place prior to the initiation of watershed planning in WRIA 31. This effort resulted in a 1996 Memorandum of Agreement (MOA) between Ecology and Eastern Klickitat Conservation District (EKCD) that would serve as a pollution control plan. Obligated actions under the MOA included regular water quality monitoring, coordination with land owners to implement forestry, grazing and riparian best management practices (BMPs), and regular submission of joint progress reports to document these actions. Although the actions were successfully completed, the MOA expired in 2001 because it was determined the reporting requirement was not adequately met, resulting in Rock Creek being listed as Category 5 in Ecology's 2002/2004 report to the EPA. Despite expiration of the MOA, EKCD has continued to fulfill monitoring and BMP implementation requirements of the MOA through cooperation with landowners, NRCS, and the WRIA 31 PAC.

The WRIA 31 WMP provides recommended actions addressing elevated water temperatures in Rock Creek aimed at removing it from the Category 5 list. This could be accomplished through additional data collection and analysis to demonstrate that elevated water temperatures are caused by natural conditions or by coordinating with Ecology to develop a locally-managed pollution control plan (Water Quality Improvement and Protection Plan, or WQIPP). The PAC's intent is that implementation of an Ecology-approved WQIPP, and rigorous documentation of the local efforts, could be used to re-categorize Rock Creek from Category 5 to Category 4B.

The WRIA 31 PAC has received funding from Ecology to initiate development of the WQIPP. At the time of DIP preparation, that project is underway.

2.5.5 Flow Gauge on Rock Creek

Ecology's Environmental Assessment Program installed a stream flow gauge near the mouth of Rock Creek in 2007 (gauge no. 31B070; "Rock Creek @ Old Hwy 8 Bridge"). The gauge is located near where the USGS operated a flow gauge for six years in the 1960s. The current gauge records stream discharge, water temperature, and air temperature, and has been continuously recording data since November 2007. The data are available on Ecology's web page (https://fortress.wa.gov/ecy/wrx/wrx/flows/station.asp?sta=31B070).

The PAC has been pursuing funding to install two additional gauges in Rock Creek, with tentative locations potentially just downstream of the confluence with Squaw Creek and

at the Bickleton Highway crossing where EKCD has been conducting water temperature monitoring, and one gauge in Alder Creek. To date, funding has not been received.

3 Framework for Implementation

This section outlines an overarching framework for implementation of the WRIA 31 WMP, including roles and responsibilities of the Implementing Governments and PAC, requirements of the DIP, incorporation of adaptive management and quality assurance during implementation, procedures to update the DIP, and public outreach.

The WMP recognizes that implementation of specific actions is subject to budgetary and staffing constraints of the Implementing Governments and other entities involved in implementation. Additionally, the WMP recognizes that additional assessment and planning, policy-related work, legislation, authorizations, permitting and SEPA and/or NEPA review may be necessary before implementation of some actions can occur.

3.1 Legislative Authority and Requirements for DIP

Phase 4 of the state's watershed planning process under chapter 90.82 RCW is implementation of an approved WMP. Pursuant to 90.82.043 RCW and 90.82.048 RCW, a Detailed Implementation Plan (DIP) is to be developed in the first year of funding under RCW 90.82.040(2)(e) for implementing the recommendations of the WMP. A DIP is required as a condition to receive state grant funding over the four subsequent years of Phase 4 implementation.

As per RCW 90.82.043, the DIP includes the following elements at a minimum:

- Strategies to provide for sufficient water for production agriculture; commercial, industrial, and residential uses; and instream flows;
- Timelines to achieve these strategies (subject to funding constraints);
- Interim milestones to measure progress;
- Coordination and oversight responsibilities;
- Needed interlocal agreements and administrative approvals; and
- Specific funding mechanisms.

RCW 90.82.048 also requires that the DIP address the planned future use of municipal inchoate water rights. Coordination with municipal water right holders or Group A public water systems is discussed in Section 4.2. Furthermore, the PAC must consult with other entities conducting related planning in the watershed and identify and seek to eliminate any activities or policies that are duplicate or inconsistent. Measures taken to eliminate duplication of efforts are discussed in Section 4.3.

3.2 Participants

The lead participants in implementing the WRIA 31 WMP include the Initiating Governments, Implementing Governments, and the Water Resource Planning and

Advisory Committee (PAC). The make-up and purpose of each of these groups are described below.

3.2.1 Initiating Governments

The Initiating Governments for watershed planning in WRIA 31 are Klickitat County, Benton County, Yakima County, and the City of Kennewick. Yakima County supported planning but elected not to participate actively in the WMP development. Yakima County can become an active participant whenever its legislative authority so determines. The Initiating Governments are responsible for initiating or terminating planning, determining the scope of planning, identifying a planning unit representative of a broad range of water resources interests, and determining the planning process. These responsibilities continue through WMP implementation.

3.2.2 Implementing Governments

The WMP provided for the establishment of the Implementing Governments that are state and local agencies responsible for implementing the actions provided in the WMP (see Section 8 of the WMP). The Implementing Governments are comprised of actively participating Initiating Governments (Klickitat County, Benton County and City of Kennewick), state agencies caucus (represented by Ecology), interested health districts within the management area (Benton-Franklin Health Department and Klickitat County Health Department), and interested conservation districts within the management area (Benton Conservation District and Eastern Klickitat Conservation District).

The Implementing Governments are established under the WRIA 31WMP as a forum to facilitate implementation of the WMP recommended actions. The organizational structure generally lays out the operational relationships between the Implementing Government members, and between the Initiating Governments and the PAC. The Implementing Governments will provide a forum for coordination of state and local efforts to implement the WMP. The Implementing Governments will meet as needed to provide oversight and coordination of the implementation process.

3.2.3 Water Resource Planning and Advisory Committee (PAC)

The composition of the WRIA 31 Planning Unit represented a wide range of water resource interests throughout the watershed. Following approval of the WMP, the Planning Unit was renamed the Water Resource Planning and Advisory Committee (PAC) to reflect the planning and advisory responsibility of the committee (see Section 8 of the WMP). The PAC is an advisory body to both the Initiating Governments and Implementing Governments. The PAC serves as a dedicated resource for providing input regarding water resource and habitat issues, but has no authority that is not specifically granted by the Initiating Governments. Responsibilities of the PAC include:

- Development of the DIP, including assisting with prioritizing projects for the WRIA;
- Clarifying the intent of the WMP and DIP as needed during implementation;

- Updating/amending the WMP and/or DIP if requested by the Implementing Governments;
- Reviewing work accomplished and advising on upcoming work during implementation of the WMP; and
- Assisting with assessment of and advisement on water resource and habitat management issues as requested by the Implementing Governments.

It is anticipated that the PAC will meet regularly on a quarterly or biannual basis during implementation of the WMP, but the frequency of meetings may be dependent on the scope and schedule of the implementation actions.

3.3 Adaptive Management

The WRIA 31 WMP indicates there may be a need for adaptive management during implementation to account for learning occurring during completion of projects, changing priorities, and/or new data. This and other types of information obtained during implementation may indicate a need to modify a recommended action or other element of the WMP or the DIP.

A key element of adaptive management is to review progress and recommend changes as necessary. The WMP specifies that the PAC regularly review the implementation results to determine if the WMP objectives are being met. During the course of regular reviews, the Implementing Governments or PAC can recommend that either the WMP or the DIP be amended if new information indicates that changes are necessary. Such recommendations would be submitted to the Initiating Governments for consideration. Amendment of the WMP can only be made following the same processes under which the WMP was originally approved (see Section 1.1.4 in the WMP). Changes to the DIP can only be made following the same process under which the DIP was originally approved, as described in Section 4.5.

3.4 Quality Assurance, Data Management, and Reporting

The PAC is committed to the application of quality assurance (QA) principles in the implementation of the WRIA 31 WMP. The PAC is also committed to ensuring that information developed during studies and monitoring programs is available for public use.

A consistent application of data quality assurance/quality control (QA/QC) is needed for implementing the WMP's recommended actions and evaluating their outcomes. To that end, all future WMP implementation activities involving environmental data collection will prepare a Quality Assurance Project Plans (QAPP). The QAPPs will be prepared in general accordance with appropriate guidance (e.g., Ecology, 2004). Water quality data collected for submittal to the state Water Quality Assessment will meet criteria for credible data in accordance with Ecology guidance (Ecology, 2006).

Monitoring data collected during WMP implementation will be submitted to Ecology's environmental information management (EIM) system as appropriate.

Data and documentation prepared during plan implementation will be publicly available, upon request to the WRIA 31 Lead Agency (Klickitat County). At the time of DIP preparation, the WMP and watershed assessment reports are posted on Klickitat County's web site at: http://klickitatcounty.org/NaturalR/default.asp?fD=3.

3.5 Public Education and Outreach

The state watershed planning process is a public process, and involvement of the local community is an important component of the WMP and its implementation. Examples of public outreach during implementation of the WRIA 31 WMP, including DIP development, include:

- Regular meetings of the PAC, which are open to the public in accordance with Open Public Meetings Act;
- Sending an invitation to participate in the DIP development process and an information request letter to Group A water system purveyors, as described in Section 4.2;
- Completion of a public hearing prior to county adoption of the WMP and DIP;
- Additional public informational meetings or other outreach activities (news articles, fliers, etc.), as warranted throughout implementation; and
- Coordination with water resource stakeholders and local land owners requesting property access and/or other assistance in carrying out recommended actions of the WMP. Examples of this in early implementation efforts include:
    - The 2009 Instream Habitat Study, which required interfacing with land owners for property access and other information;
    - The ongoing Horse Heaven Water Storage Pre-Feasibility Assessment, which involves considerable coordination with local stakeholders regarding water needs, water use, and existing water conveyance infrastructure that might be incorporated into a storage project; and
    - Development of the WRIA 31 Water Quality Improvement and Protection Plan (WQIPP), which requires involvement and buy-in from local land owners and stakeholders in the Rock Creek subbasin and elsewhere in the WRIA.

Public education and outreach are core elements of Benton and Eastern Klickitat Conservation Districts operations that are built into their respective 5-Year Plans. The conservation districts conducted public education and outreach through all phases of WRIA 31 watershed planning including DIP development. During WMP implementation, conservation districts will take a leading role in public education and outreach involving habitat restoration projects, water quality improvement plans, and land use practices affecting water quality, irrigation practices, and hydrologic/aquatic habitat data collection and monitoring. Benton and Klickitat Water Conservancy Boards conduct public education and outreach efforts associated with water right matters.

Public education and outreach is a component of most, if not all of the WMP strategies to be implemented. Public education and outreach can include periodic updates on studies conducted, key findings, actions taken, and other pertinent information. The form of these updates may take the form of news releases, flyers, public meetings, or other means. The scope of the outreach will be dependent upon the types and amount of new information that has become available.

In addition to the general public education, care will be taken to ensure that data collection efforts are coordinated with affected landowners. Information regarding the purpose of the data collection effort, the types of data to be collected, the study schedule, and dissemination of information will be provided. Areas for data collection will be limited to locations where landowners are willing to cooperate with the study and provide permission for property access. Owners of parcels of land where land uses have been identified as potentially having an effect on fish habitat will be contacted to inform them of the studies conducted and the findings, and to solicit their voluntary cooperation with projects that address the identified situation.

3.6 Documenting Implementation Commitments

One of the primary functions of this DIP is to identify which entity/agency will be responsible for what actions and define the form with which the agencies shall document their commitment to fulfill the responsibilities they have accepted. With respect to obligations to perform actions, RCW 90.82.130 provides that Planning Unit consent is needed for state agencies and county governments to use any form of commitment other than rulemaking. Nothing in this DIP or the WMP shall be considered an "obligation" within the meaning of RCW 90.82.130(3) unless it is specifically identified in Section 8.7 of the WMP.

In preparing the WMP, the WRIA 31 Planning Unit determined that rulemaking is not currently needed. The WMP provides a process for changing the requirements pertaining to rulemaking and obligations should the PAC determine in the future that rulemaking is needed (see Section 3.6.1).

For entities (including state agencies and counties) that voluntarily accept responsibility for implementing actions, a range of options are available, including adoption of policies, procedures, or agreements. Memoranda of agreement, letters of intent, resolutions, policy statements, or other interlocal agreements will be prepared to formalize the relationships between entities involved in implementation of the WRIA 31 WMP. The agreements will also document obligations accepted by organizations in accordance with RCW 90.82.130(3) and identified in Section 8.7 of the WMP. For entities that do not have obligations identified in Section 8.7 of the WMP, no level of commitment exists until such time as it is defined and formalized in a memorandum of agreement, letter of intent, resolution, policy statement, or other interlocal agreement.

Following adoption by the county legislative authorities, the WMP is recognized by Ecology. A memorandum of agreement or official written statement will be prepared as a part of implementation. The binding agreement or official statement will acknowledge that Ecology participated in the planning process and that the WMP is deemed to satisfy

the Ecology's watershed planning authority for WRIA 31 with respect to the components included under the provisions of chapter 90.82 RCW.

3.6.1 Rule Making

Rule making is not required for any obligation associated with the WRIA 31 WMP. However, the PAC may make a recommendation for rulemaking and, should the Initiating Governments come to determine that rulemaking is appropriate, such determination shall be made only through the same process as was used to approve the WMP under RCW 90.82.130(1)(a). This does not preclude state agencies, county governments, or other entities from pursuing rule making or promulgation of ordinances under its own authority.

4 Development of the Detailed Implementation Plan

Development of the DIP was the first task undertaken by the PAC following receipt of Phase 4 base grant funding, as described in the following sections.

4.1 Readiness to Proceed

The WMP assigned priorities for each issue that are relative to all issues presented in the WMP. Issues in the WMP are designated as High, Medium, or Low priority, and all recommended actions associated with an issue carry that priority. The 82 individual implementation actions in the WMP were not further prioritized. Table 2 summarizes the issues and associated recommended actions as defined in the WMP, and groups them by priority level defined in the WMP.

The WRIA 31 Planning Unit recognized all recommended actions in the WMP as important to local water resource stakeholders. Although the WMP prioritizes actions relative to each other, the prioritization does not undermine the importance of any individual action. Additionally, it is recognized that higher priority implementation actions may not be pursued first in all cases. There may be circumstances when it is prudent in light of available funding opportunities or other factors to commit resources to lower priority projects that are smaller in scope, more easily implemented, or otherwise possess a higher degree of readiness to proceed. Additionally, some implementation actions may be sequential, requiring components of lower priority actions be completed first to support completion of higher priority actions.

A tiered approach was established based on each action's readiness to proceed, once funding is in place, as follows:

- Tier 1: "Ready now";
- Tier 2: "Requires moderate upfront effort"; and
- Tier 3: "Requires significant upfront effort".

It is generally expected that Tier 1 actions would be initiated within 0-4 years, Tier 2 actions within 4-8 years, and Tier 3 actions more than 8 years, after DIP approval.

This tiered approach maintains the priorities for planning issues established in the WMP while providing additional information to the implementing governments regarding which actions are most ready to proceed based on information available at the time of DIP preparation. For many actions, the difference between Tier 1 and Tier 2 projects is the level of required permitting, although the nature of the upfront effort can be highly variable and subject to change. Table 2 lists the tier for each action as determined by the Implementing Governments during DIP preparation.

4.2 Coordination with Group A Water System Purveyors

As of January 2010, there were 54 active and inactive Group A water systems on file for WRIA 31 in Washington Department of Health (DOH) records. A required component of the DIP, as per 90.82.048 RCW, is addressing the planned future use of inchoate municipal water rights, including how these rights will be used to meet the projected future needs and instream flow strategies identified in the WMP. Under current law, municipal water rights are not subject to relinquishment (per RCW 90.14.140(2)(d)). An inchoate water right is that portion of a water right that has not been put to beneficial use. Ongoing litigation regarding the Municipal Water Law, which casts uncertainty to the future status of municipal water rights, is outlined in Section 2.3.4.

In order to fulfill the statutory requirement for the DIP, a letter was prepared and sent out to Group A water system operators in January 2010. The letter requests their assistance in providing specific information about their water system, including:

- Current water rights, including identification number and authorized amounts (instantaneous flow rate and annual volumes);
- Current annual water usage; and
- Projected demand to meet future needs.

Letters were sent to 37 active Group A water systems. Attempts were made to contact by telephone 17 Group A water system managers not having a mailing address on file with Department of Health. Additionally, telephone contact was attempted for Group A community water systems that did not respond to the letter. A copy of the letter is included as Appendix A.

Below is a summary of the current status of water rights and future demand planning for the WRIA 31 municipal and other Group A community water systems that responded to the inquiry.

City of Kennewick

The City of Kennewick's current water system plan includes water use information through 2008, which for that year was 11,729 acre-feet/year (afy). The current water system plan projects water demand (20-year planning horizon) is approximately 21,500 af. The City currently holds water rights authorizing a maximum year-round withdrawal of 18,010 afy from groundwater/surface water sources. However, Kennewick also holds a share of the Quad Cities water right, which authorizes diversion of 96,619 afy to meet projected municipal water demands of the four cities to the year 2050. Diversion under the permit can only occur when permit-specific instream flow targets are met, unless the consumptive portion of the diversion is mitigated for in accordance with the permit provisions. To access water from the permit beyond the first 10 cfs (7227 afy), the Quad Cities submit to Ecology and Department of Health every 6 years a Regional Water Forecast and Conservation Plan which, among other things, estimates demands for the next 6-year period and proposes mitigation measures for use of the water as necessary.

Within the 20-year planning horizon, the City's projected demand will consume its current water rights, excluding the Quad Cities water right. Future use of the City's

inchoate rights under the Quad Cities water right will meet out-of-stream and instream water demands identified in the WMP.

Other Group A Water Systems

Information was provided by Kennewick Irrigation District for their Elliot Lake Water System (Local Improvement District 502) indicating they serve 48 customers and that they have sufficient water rights to meet projected demand over the next 20 years.

Information was provided by the North Roosevelt Water Association indicating they hold a water right authorizing a maximum annual withdrawal of 50 af. The Association indicated it has sufficient water rights to meet projected demand over the next 20 years and that water system expansion is limited by water storage infrastructure.

Information was provided by the Port of Benton Crow Butte Park Water System that indicates the water system operates using a water right held by the United States Army Corps of Engineers. The annual amount of groundwater authorized under the water right was not provided. Source metering is currently not conducted but the water system anticipates a source meter will soon be installed with water use data available by the end of 2010. The water system served 4,900 park users in 2008 and expects park use to increase by over 60% in 2010.

Information was provided by Roosevelt Regional Landfill Water System indicating they hold water rights authorizing a maximum annual withdrawal of 90 af. Additionally, they have a pending water right application for a maximum annual withdrawal of 158 af. The water system is working toward permitting the pending water right application to meet projected water demand over the next 20 years.

4.3 Coordination with Other Planning Efforts in the WRIA

The Implementing Governments will continue to pursue coordination with other entities conducting related planning in WRIA 31, in accordance with RCW 90.82.043(4). Related planning efforts in the WRIA include but are not limited to:

- Subbasin planning being conducted by Northwest Power and Conservation Council (NPCC);
- Middle Columbia River steelhead recovery planning conducted by NOAA Fisheries (NMFS);
- Eastern Klickitat Conservation District's Coordinated Resource Management Plan (CRMP) for Rock Creek;

Measures taken to date to eliminate activities that duplicative or inconsistent with the WMP include:

- Formation and regular meetings of the Planning Unit, and now the PAC, that represent various water resource stakeholders in WRIA 31;
- Ongoing coordination with natural resource agencies planning in the area (e.g., NMFS);

- Inviting Group A water systems to participate in DIP development and requesting information regarding their water use and projected water needs;
- Participation in the Columbia River Basin Water Supply Development Program and its subcommittees/workgroups; and
- Participation on the County Commissioners Policy Advisory Group and the Columbia Basin Watershed Planners Forum.

4.4 Approval of Detailed Implementation Plan

Chapter 90.82 RCW does not define a process for approval of the DIP. Section 8.3 of the WMP obligates Ecology to not accept the DIP, or amendment thereof, until the DIP or its amendment has been approved by the PAC, using the same procedures by which the PAC approved the WMP, and it has been approved by the legislative authorities of Benton Klickitat, and Yakima counties following a public hearing. However, the county legislative authorities may approve a DIP or DIP amendment by resolution as an option to joint session, if approved by all counties.

DIP approval by the PAC requires a consensus of the members representing a unit of government and a majority vote of the actively participating non-governmental voting members. After approval by the PAC, the proposed DIP recommended to the three counties' legislative authorities. The counties' legislative authorities may either approve the DIP by a majority vote of the members of each county, or return the DIP to the PAC with recommendations for changes. The county legislative authorities are not empowered to change the DIP by themselves. If the DIP is returned to the PAC, it may amend the DIP and resubmit it to the counties for approval using the same process.

4.5 Procedures to Update DIP

Modifications to the DIP, including adding or deleting implementation actions and changing implementation priorities contained in the DIP, can only be made following the same process under which the WMP was approved.

5 Implementation Actions and Strategies

This chapter outlines steps anticipated during implementation of the WMP's recommended actions. Recommended actions are summarized in Table 2. These actions were prioritized in the WMP, and the actions are grouped by priority level in Table 2. Section 4.1 describes that, regardless of priority, the PAC views all actions in the WMP as important, and that circumstances might arise that cause lower priority actions to be pursued first (for example, readiness to proceed). Furthermore, Section 2.1 notes that project-specific NEPA/SEPA review may be required.

For each issue, the following were considered and are outlined in this section:

- Brief summary of **issue** identified in the WMP and, for reference, the section the issue is presented in the WMP;
- Implementation **objective;**
- **Priority** in the WMP; and
- **Actions** to address the issue, as identified in the WMP (listed individually).

And for each individual action:

- Readiness to proceed (**Tier**);
- **Responsible** party[2];
- **Considerations for implementation** approach to meet objective, including data gaps and anticipated constraints to implementation if any, and scheduling; and
- **Sequential actions** i.e. steps to accomplish.

Chapter 6 provides general information regarding potential funding opportunities that may be applicable to implementation of the actions.

In this chapter, the actions are presented in the same order they appear in the WMP: Section 5.1 presents recommended actions that are applicable to the entire watershed ("WRIA-wide"), whereas Sections 5.2, 5.3, and 5.4 present actions specific to the Rock Creek, Wood-Glade, and Kennewick planning areas, respectively. Within each section, the actions are organized by water quantity, water quality, and then aquatic habitat.

The tiered prioritization of WMP actions establishes the implementation scheduling scheme. With a few exceptions including ongoing efforts, implementation actions are

[2] Note that the "Responsible parties" are expected to initiate and manage implementation of each action, recognizing that numerous entities may partner in the implementation. See Section 3.6, Documenting Implementation Commitments.

scheduled to proceed on the basis of their priority and tier (readiness to proceed), as summarized in Table 2.

5.1 WRIA-Wide Actions

5.1.1 WRIA-Wide Water Quantity

5.1.1.1 Columbia River Water Supply (WMP Section 3.1.1)

Issue: Water supply limitations pose a concern for the long-term sustainability of irrigated agriculture and constrain economic and population growth in the region.

- **a.** New water rights for mainstem Columbia River water have largely been unavailable, despite the John Day-McNary Pool reservations established in chapter 173-531A WAC.
- **b.** Interruptible Columbia River water rights are not reliable for current water-dependent uses or supporting population and economic growth.
- **c.** There is a lack of specificity regarding the process for consultation with appropriate local, state, and federal agencies and tribes on applications for Columbia River water rights under chapters 173-531A and -563 WAC.
- **d.** There is considerable uncertainty regarding the relationship between Columbia River flows and salmonid survival, yet this issue largely drives the current policy on management of the river.

Objective: Ensure that adequate water supplies are available to meet current needs, provide for long-term sustainability of irrigated agriculture, and support economic and population growth within WRIA 31. Achieve this objective through active participation in the implementation of the Columbia River Basin Water Supply Act (Engrossed Second Substitute House Bill [ESSHB] 2860) and through Ecology's processing/granting new water right permits to exercise the John Day-McNary Pools reserves appropriated in chapter 173-531A WAC.

Priority: High.

Actions:

A) Develop a process with Ecology for expediting the issuance of permits from the John Day-McNary Pools reservations to meet beneficial uses as specified under chapter 173-531A WAC.

The WMP outlines the Planning Unit's position that the John Day-McNary Pools Reserve (Reserve) is a water right appropriation, and that permits should be issued from it in accordance with the provisions of chapter 173-531A WAC. Since promulgation of that WAC, the state enacted the Columbia River Basin Water Supply Act (chapter 90.90 RCW), which directs Ecology to "aggressively pursue the development of water supplies to benefit both instream and out-of-stream use." Benton County, Klickitat County, and Ecology will pursue development of a process for expediting permits from the Reserve.

Tier (readiness to proceed): 1.

Responsible: Klickitat County, Benton County, Ecology.

Considerations for Implementation:

It is expected that permitting of new water rights under chapter 173-531A WAC will be facilitated as water supply development strategies are implemented under chapter 90.90 RCW. For example, some of the water made available from the Lake Roosevelt Drawdown project is intended to be available to "firm-up" interruptible water rights, including interruptible water rights in WRIA 31. This action is therefore designated as Tier 1.

Sequential Actions:

- The responsible parties will work on developing the process to permit additional diversions from the John Day-McNary reserve under chapter 173-531A WAC.
- The responsible parties will continue to work with Ecology to develop sufficient new water supplies to meet current and future demands in WRIA 31, under the evolving implementation of chapter 90.90 RCW. This includes advancing conservation and/or storage projects in accordance with the WMP, some of which are in the early stages at the time of this DIP.

B) Pursue legislation to define the consultation process for processing water right applications consistent with the consultation process established for VRAs in RCW 90.90.030(4)(a).

There is a lack of specificity regarding the process and allowable timeframe for consultation with appropriate local, state, and federal agencies and tribes on applications for new Columbia River water rights under chapters 173-531A and -563 WAC. The lack of a defined timeframe and process can lead to application processing never getting finished, which is not the statutory intent for the consultation. The intent of this action is therefore to seek, through statute change to define a 60-day period for consultation with county legislative authorities, local watershed planning units, WDFW, affected tribal governments, and federal agencies, for applications that are not covered by an approved VRA (per chapter 90.90 RCW) or otherwise covered by statute.

Tier (readiness to proceed): 1.

Responsible: Klickitat County, Benton County, Benton Conservation District.

Considerations for Implementation:

- The legislative process can be challenging, particularly with respect to water issues.

Sequential Actions:

- The responsible parties will initially coordinate with other WRIA implementing governments/planning units within the Columbia River Basin, state-wide stakeholder organizations, and Ecology, to gain input and further define the legislative proposal.

- The responsible parties, ideally in cooperation with multiple WRIA planning units, will present the proposal to legislators for further discussion and drafting as a bill.

C) (1) Support implementation of the VRAs that are consistent with this watershed management plan (e.g., CSRIA VRA). (2) The WRIA 31 Lead Agency and/or Implementing Governments should seek an agreement with Ecology regarding utilization of the WRIA 31 watershed planning process to support identification and prioritization of mitigation actions.

Expeditious approval of the CSRIA VRA and issuing new water rights under it are consistent with the WMP objectives. The WMP outlines the WRIA 31 Planning Unit's early involvement with, and ongoing support of, the CSRIA VRA, which enabled a measure of harmonization of the CSRIA VRA with the WMP consistent with the intent of RCW 90.90.030(2)(c). If other VRAs are developed in the future that would be applicable within WRIA 31, the WRIA 31 PAC should be engaged at the conceptual stage of VRA development to ensure effective harmonization with the WMP. The Implementing Governments request a written agreement with Ecology that such consultation will occur, including identification/prioritization of mitigation actions that may be required under the VRA.

Tier (readiness to proceed): 1 for C1 (ongoing); 1 for C2.

Responsible: Benton Conservation District for C1; Klickitat County for C2.

Considerations for Implementation:

Action C1 is ongoing, with Benton Conservation District (BCD) being an active participant in the CSRIA VRA. The VRA section in chapter 90.90 RCW expires on June 30, 2012; therefore, Action C2 should be accomplished as soon as possible.

Sequential Actions:

- The BCD, supported by other Implementing Governments, will continue to support resolution of outstanding issues regarding the CSRIA VRA such that the WMP objectives are met to the degree possible.
- Klickitat County, in consultation with the other Implementing Governments, will approach Ecology to draft an intergovernmental Memorandum of Agreement regarding consultation with the Implementing Governments once Ecology is approached regarding development of a new VRA that would be applicable within WRIA 31 per the harmonization requirement in chapter 90.90 RCW.

D) Explore developing a VRA as a mechanism for expanding water supply availability within WRIA 31.

A VRA is one mechanism under chapter 90.90 RCW to make use of new water supplies developed through water storage or conservation.

Tier (readiness to proceed): 1.

Responsible: Klickitat County, Ecology.

Considerations for Implementation:

Under the current statute, the opportunity to develop a new VRA expires in June 2012, which, based on the progress to date of the CSRIA VRA, is a short time period to define the components of the VRA, conduct required consultation, and achieve an approved VRA. Appropriation of new water rights under the VRA must not create negative impact on Columbia River mainstem instream flows in the months of July and August.

Sequential Actions:

- Continue to develop the ongoing WRIA 31 water storage projects (Kennewick ASR and Horse Heaven storage), as described in Sections 2.5.2, 2.5.3, and 5.1.1.2.
- The responsible parties managing those storage projects will work with Ecology to assess whether a VRA is an appropriate administrative means to appropriate new water supplies made available by each project.

E) Pursue developing an intergovernmental agreement between the WRIA 31 Lead Agency or Implementing Governments with Ecology to ensure effective implementation of VRAs that would be applicable within the WRIA, and ensure harmonization of VRAs with the WRIA 31 WMP as required under chapter 90.90 RCW.

In practice, this action is functionally equivalent to Action C2 for this issue. Refer to Action C2 above.

F) Pursue funding for water supply projects within WRIA 31.

This action can apply to larger-scale storage projects, like the ongoing early actions, or projects to meet smaller-scale water demands throughout the watershed, not limited by distance from the mainstem Columbia River.

Tier (readiness to proceed): 1 (ongoing).

Responsible: Klickitat County in cooperation with Benton County, City of Kennewick.

Considerations for Implementation: Ongoing. Funding has been received from the Columbia River Water Supply Development Account for the ongoing Kennewick ASR pilot study and the Horse Heaven water storage pre-feasibility assessment. This is a critical action that cannot be funded solely through the private sector.

Sequential Actions:

- Aggressively seek funding to continue advancing the two ongoing WRIA 31 storage projects through construction and implementation.
- As other water demands are identified that may be supplied through other storage projects, the responsible parties, with the PAC and other Implementing Governments as appropriate, will collectively assist with identifying and securing funding. This is particularly pertinent to smaller-scale storage projects for specific localities within the watershed.

G) Develop a strategy in the context of chapter 90.90 RCW to address existing interruptible Columbia River rights in WRIA 31 that are not included in the CSRIA VRA.

The Columbia River Basin Water Supply Development Act (chapter 90.90 RCW) relies on water storage and conservation to make available new water supplies, including those to address interruptible water rights. This action involves using storage and conservation projects to address interruptible water rights in WRIA 31.

Tier (readiness to proceed): 1 (ongoing).

Responsible: Klickitat County, City of Kennewick

Considerations for Implementation: Ongoing. As currently developed, the ongoing Horse Heaven water storage pre-feasibility assessment would lead to a water storage project which can address existing interruptible water rights that are not addressed though the CSRIA VRA or other means. In addition, Kennewick's ASR project may be developed to mitigate for seasonal consumptive water use under the Quad Cities water right. Other storage and conservation projects will also be developed in the future to supply remaining water demands at that time. If existing interruptibles are not fully addressed through the CSRIA VRA and ongoing storage projects, they presumably could be addressed through such future projects. Water supply developed under chapter 90.90 RCW may provide water supply to address interruptible water rights which are consistent with watershed management plans.

Sequential Actions:

- Beyond supporting CSRIA's VRA efforts, continue management of the two current storage projects with the intent to shore up interruptible water rights not included in the CSRIA VRA, in addition to meeting other water demands in accordance with the WMP.
- Provide support to entities in the Columbia River Basin developing future water storage and conservation projects intended to address interruptible water rights which are consistent with the WMP objectives.

H) Provide information and help revise future Columbia River water supply inventories and long-term water supply and demand forecasts.

This will include stronger recognition of smaller-scale water demands throughout the watershed, not limited by distance from the mainstem Columbia River. It is of importance to WRIA 31 that smaller-scale water supply projects, including those at distance away from the mainstem Columbia River, be recognized and planned for within implementation of the Columbia River Basin Water Supply Act. The PAC may seek funding for this participation.

Tier (readiness to proceed): 1.

Responsible: Klickitat County, Ecology.

Considerations for Implementation:

The Water Supply Inventory and Long Term Water Supply and Water Demand Forecast will be important sources of information for decision makers considering water resource issues and priorities at the Columbia-basin and State-wide scales. It is critical that the PAC contribute local knowledge to its development and that it include information and direction provided in the WMP.

Sequential Actions:

- Klickitat County, as lead agency for WRIA 31 watershed planning, will continue work closely with Ecology to ensure that the state's water supply inventories and long-term supply/demand forecasts accurately reflect conditions throughout WRIA 31, not limited by distance from the mainstem.
- As provided in RCW 90.90.040, the Implementing Governments and PAC will work with Ecology on the annual updates of the Water Supply Inventory and Long Term Water Supply and Water Demand Forecast.

l) Pursue developing an intergovernmental agreement between the WRIA 31 Lead Agency and Ecology regarding implementation of the state trust water program within the WRIA.

RCW 90.42.40(1) states that, to the extent practicable and subject to legislative appropriation, acquisition of trust water rights within WRIA 31 shall be consistent with the WRIA 31 WMP. The intent of this action is to ensure that placement of water rights into the state water trust program is consistent with the WMP and includes early consultation with the Implementing Governments and PAC.

Tier (readiness to proceed): 2.

Responsible: Klickitat County, Ecology.

Considerations for Implementation:

Existing statute requires that state acquisition of water rights for the trust water right program be consistent with the approved WRIA 31 WMP. The intergovernmental agreement would formalize a specific process and timeline for Ecology consultation with the WRIA 31 Implementing Governments when consideration for acquiring/placing WRIA 31 water rights into trust is initiated.

Sequential Actions:

- Klickitat County and Ecology will work together to draft an intergovernmental agreement consistent with this WMP action.
- The PAC and Implementing Governments will investigate and formulate legislative actions that may be necessary to provide clarification about the timing and consultation criteria to ensure consistency with the approved WMP.

J) The PAC will serve as an advisory body for implementing the Columbia River Basin Water Supply Development Program within WRIA 31.

The WRIA 31 WMP recommends active participation in implementation of the Columbia River Basin Water Supply Act to ensure that it is carried out consistent with, not contrary to, the objectives of the WMP.

Tier (readiness to proceed): 1 (ongoing).

Responsible: Klickitat County, Benton County, Benton Conservation District.

Considerations for Implementation:

This action is ongoing. As outlined in Section 2.4.1, members of the WRIA 31 Implementing Governments are participating in, or providing input to, the Technical Advisory Group (TAG) and/or Columbia River Policy Advisory Group (PAG), County Commissioner Policy Advisory Group, and Watershed Planners Forum, to influence implementation of the chapter 90.90 RCW, consistent with the WMP objectives.

Sequential Actions:

- The Implementing Governments, and other members of the PAC as appropriate, will continue active participation in the advisory groups, and otherwise stay in close communications with Ecology's Office of the Columbia River to help shape implementation of chapter 90.90 RCW to be consistent with the WMP.

K) The PAC will communicate with other planning units and local governments in the Columbia River basin in order to better develop a Columbia River basin-wide perspective of water resource issues and to identify opportunities for cooperative efforts. It is further recommended that the PAC be represented on relevant water resource policy advisory groups and forums on the state and federal level.

Klickitat County, as WRIA 31 lead agency, coordinates with planning units for other WRIAs within the Columbia River Basin to exchange information and generate a stronger collective voice for shaping implementation of the Columbia River Basin Water Supply Act (chapter 90.90 RCW). As outlined in Section 2.4.1, members of the WRIA 31 PAC are participating in, or providing input to, the Technical Advisory Group (TAG) and/or Policy Advisory Group (PAG) to influence implementation of the chapter 90.90 RCW, consistent with the WMP objectives.

Tier (readiness to proceed): 1 (ongoing).

Responsible: Klickitat County, City of Kennewick, Benton Conservation District.

Considerations for Implementation:

- The coordination is underway.

Sequential Actions:

- The Implementing Governments will continue their involvement in the advisory groups, and interactions with other WRIAs in the basin to help shape the state's implementation of chapter 90.90 RCW to be consistent with the WRIA 31 WMP.

- The Implementing Governments will continue coordination with federal agencies (e.g., NMFS) to ensure that the WRIA 31 WMP objectives are considered in setting federal policy pertaining to the Columbia River.

L) Fill data gaps regarding factors that affect fish survival within the John Day and McNary Pools and assess fish and wildlife habitat in and adjacent to the Columbia River mainstem.

This action seeks to advance the science to accurately understand the range of factors controlling salmonid survival in the mainstem, including the influence of tributaries (e.g., in WRIA 31) and the oceans on that survival.

Tier (readiness to proceed): 1 (ongoing).

Responsible: Klickitat County, Benton Conservation District, Eastern Klickitat Conservation District.

Considerations for Implementation:

- This action has been initiated through completion of the WRIA 31 instream habitat study, which involved data collection to better understand and document current habitat conditions in several WRIA 31 tributaries (see Section 2.5.1).
- Little is known regarding nearshore habitat of the Columbia River mainstem.

Sequential Actions:

- Continue documentation of instream habitat conditions within WRIA 31, as described in Section 5.1.3.1.
- Continue assessment of aquatic habitat conditions.

5.1.1.2 Limited Water Storage (WMP Section 3.1.2)

Issue: There is little water storage capacity, outside of the John Day and McNary Pools, to help overcome the seasonal timing gap between water availability and water demand.

Objective: Develop new water storage facilities off of the Columbia River mainstem to help meet future demand.

Priority: High.

Actions:

Identify and evaluate storage needs and storage opportunities to best meet those needs throughout the watershed.

Section 3.1.2 of the WMP outlines specific recommendations for the Rock Creek, Wood-Glade, and Kennewick planning areas of WRIA 31.

Tier (readiness to proceed): 1 for Wood-Glade (Horse Heaven) and Kennewick planning areas (ongoing); 2 for Rock Creek planning area.

Responsible: Klickitat County, City of Kennewick.

Considerations for Implementation:

This action is ongoing. Evaluation of water storage projects for the Wood-Glade and Kennewick planning areas are underway, as described in Sections 2.5.2 and 2.5.3. In addition, during Ecology's 2009-2011 biennium watershed planning budget building process, the WRIA 31 PAC submitted a pre-application to assess the feasibility of augmenting instream flows within the Rock Creek subbasin to potentially meet instream objectives (e.g. reduce water temperature and improve salmonid rearing habitat) and/or small out-of-stream demands. To date, the project has not been funded.

Sequential Actions:

- Continue advancing the Wood-Glade (Horse Heaven) and Kennewick storage projects to construction and implementation.
- Continue attempts to obtain funding to assess water storage as a means to meet instream and out-of-stream needs in the Rock Creek subbasin. Refer to the 2009-2011 biennium pre-application for the project as a starting point.

5.1.1.3 Preserve Water Rights in Watershed (WMP Section 3.1.3)

Issue: Relinquishment of existing water rights in the watershed may be occurring because water right holders are not adequately informed regarding relinquishment vs. options to preserve rights, and because mechanisms for efficient transfer of rights (e.g., local water market) are lacking. In addition, the state statutes' 5-year period for relinquishment does not accommodate changes in agricultural marketplaces and economics.

Priority: High.

Objective: Preserve existing water rights as an asset of the watershed.

Actions:

A) Increase public education regarding water rights to avoid inadvertent relinquishment

Many water right holders do not under water right relinquishment or the fact that a water right only exists for the quantity of water actually put to beneficial use (apart from municipal inchoate rights). WRIA 31 water right holders need to be better educated regarding the legal basics of water rights to maintain the WRIA's inventory of water rights.

Tier (readiness to proceed): 1 (ongoing).

Responsible: Benton and Klickitat Water Conservancy Boards, Benton County, Klickitat County, and Benton Conservation District.

Considerations for Implementation:

- The educational efforts should be ongoing. Provide information regarding Family Farm Act water rights, and their limited transferability, and use of the state trust water right program as means to avoid relinquishment.

Sequential Actions:

- While the Benton and Klickitat Water Conservancy Boards each conduct educational outreach, conduct a coordination meeting of both Water Conservancy Boards and respective County representatives regarding education efforts.
- Develop a flyer or other means to present information on water rights and the importance of their preservation. Consider including information regarding establishment of the water market or "clearinghouse" as described in Action 5.1.1.3 B, below. Add Benton and Klickitat Water Conservancy Boards as points of contact on educational material prepared.
- Distribute the materials in ways best suited to the audience to be informed. This can include mailing, posting on counties' web sites, making available for booths at fairs, making presentations at professional meetings (e.g., agricultural), etc.
- Hold periodic public education workshops on water rights within the watershed.

B) Establish WRIA 31 water exchange.

- A water market or "clearinghouse" would provide a link and local point of contact for water right sellers/buyers or leasors/leasees, and municipal entities, to facilitate the transfer of, and prevent relinquishment of, existing water rights. A range of services for a water market could include, among other functions:
    - Providing education and functioning as an information clearinghouse or resource center;
    - Assisting in evaluating existing water rights (i.e., assessing the validity and extent of existing rights in a non-regulatory environment) and identifying potential issues with transferring rights within the basin;
    - Assisting in water right transactions including acquisitions and leases;
    - Facilitating the placement of existing water rights into the State's Trust Water Right Program, consistent with the WMP; and/or
    - Administering a local water bank to provide mitigation of new consumptive uses in the basin.

Tier (readiness to proceed): 1

Responsible: Benton and Klickitat Water Conservancy Boards, Benton County, Klickitat County, and Benton Conservation District. Ecology will participate as required.

Considerations for Implementation:

- Stakeholders have not yet had a chance to discuss the water exchange/water bank concept specific to WRIA 31.
- Benton Water Conservancy Board is undertaking a similar effort in conjunction with CSRIA.

- Since adoption of the WMP, Ecology has set up the Washington Water Exchange (at the time of DIP preparation, the information is on Ecology's Water Resource Program web site at http://www.ecy.wa.gov/programs/wr/ws/drt_wtrxchng.html) to help water users locate or sell water rights available for transfer throughout the state. It could provide a general template for a local "clearinghouse" specific to WRIA 31.
- Consider implementing in coordination with Action 5.1.1.4E(1) below.
- Constraints to implementation might include:
    - There is a general lack of understanding concerning water rights and what is required to avoid relinquishment.
    - Water right holders may have reluctance to divulge information and make use of a water exchange run by any government entity, even one charged with and capable of providing incentives to preserve the WRIA's collective water rights. Therefore, it is crucial that this is a locally-based effort with a mission to preserve water rights within WRIA 31.

Sequential Actions:

- Meeting of PAC to scope content and format of a WRIA 31 water exchange in accordance with WMP objectives. Details of the scope content can include among other things:
    - Develop and implement a framework for establishing a water exchange within WRIA 31.

C) Pursue legislative changes to extend time period for agricultural nonuse of irrigation water.

The intent of this action is to pursue legislative changes to the state water code that define changes in irrigation practices occurring over time periods longer than 5 years as sufficient cause for nonuse during that period (and preventing relinquishment if full use is achieved during the period).

Tier (readiness to proceed): 1.

Responsible: Klickitat Water Conservancy Board, Klickitat County, and Benton Conservation District.

Considerations for Implementation:

- Changing the state water code is challenging, with many competing interests.

Sequential Actions:

- Coordinate with other WRIAs and stake holders in the Columbia River Basin to build strong collective voice for amending the relinquishment statute.

5.1.1.4 Disincentives to Water Conservation (WMP Section 3.1.4)

Issue: Disincentives to conserving irrigation water exist, particularly irrigation conservation. The disincentives include relinquishment of rights to the quantity of water made available through implementing conservation, and in some cases onerous conditions placed on recipients of conservation grants. At the present time, nonuse due to implementation of conservation measures does not qualify as "sufficient cause" for nonuse under RCW 90.14.140, and therefore poses a disincentive to conservation. Conserved water can be used to irrigate new acreage (spreading) subject to the annual consumptive quantity (ACQ) policy (POL-1210) provisions; however, that policy provides limited flexibility for adapting to changing agricultural markets and the conserved water is subject to the 5-year period of nonuse.

Priority: High.

Objective: Maximize water conservation by eliminating disincentives to conserving.

Actions:

A) Pursue legislative change regarding non-relinquishment of conserved water.

The PAC desires statutory changes that prevent relinquishment of rights to conserved irrigation water and provide flexibility in its future use (e.g. irrigation of expanded acreage). Removing the disincentives to water conservation from the state statute is a legislative action needed to implement the WRIA 31 WMP.

Tier (readiness to proceed): 1.

Responsible: Klickitat County, Benton Conservation District, and Klickitat Water Conservancy Board.

Considerations for Implementation: Changing water law is expected to be challenging requiring coordination with various stakeholders.

Sequential Actions:

- Coordinate with other WRIAs and stakeholders in the Columbia River Basin to build strong collective voice for addressing this issue.

B) Develop VRA to make use of conserved water.

Propose and develop voluntary regional agreements (VRA) as one option to make the quantity of conserved water available in the WRIA.

Tier (readiness to proceed): 1.

Responsible: Klickitat County.

Considerations for Implementation:

- Over the past several years, the Columbia-Snake River Irrigators Association (CSRIA), with participation by Benton Conservation District, has been pursuing a VRA to allocate use of water conserved through irrigation best management practices by their members. Many large irrigators in WRIA 31 are members of

CSRIA, therefore this action is already underway for irrigation conservation (the primary means of achieving water conservation in WRIA 31).

- If water conservation is occurring outside of CSRIA members (e.g., water conservation achieved by groundwater users), a separate VRA could be developed to make use of that conserved water in accordance with the WMP.
- The statute enabling VRA development, RCW 90.90.030, expires June 30, 2012.

Sequential Actions:

- Define opportunities for developing VRAs in WRIA 31 and identify objectives, affected areas, and potential participants.
- Evaluate the feasibility (cost/benefit) for entering potential VRA(s), taking into account CSRIA's experience to date.
- Approach Ecology about developing VRA(s) prior to the sunsetting of RCW 90.90.030 in 2012.

C) Eliminate disincentives in conservation grants.

Identify conditions in conservation grants that may (unintentionally) create disincentives to implementing conservation or otherwise undermine the WRIA 31WMP. Communicate this information with proposed solutions to responsible funding agencies.

Tier (readiness to proceed): 1 (ongoing).

Responsible: Benton and Eastern Klickitat Conservation Districts.

Considerations for Implementation:

Benton Conservation District is currently funded to address a portion of this action.

Sequential Actions:

- Survey members of the PAC to identify conditions in conservation grants that create disincentives to conservation or otherwise undermine the WMP.
- Develop specific recommendations to correct these conditions.
- Compile results and communicate to relevant funding agencies via letters and meetings.

D) Encourage conservation.

Despite the current limitations to effectively benefitting from water conservation (described above), conservation of water resources in WRIA 31 is an important objective in the WMP. The WMP encourages conservation as a means to make water available for uses, including irrigation of additional acreage by the water right holder.

Tier (readiness to proceed): 1 (ongoing).

Responsible: Benton and Eastern Klickitat Conservation Districts.

Considerations for Implementation:

- Irrigation best management practices that are ongoing are already achieving substantial conservation of water in WRIA 31, through the efforts of CSRIA, NRCS, the local conservation districts, and individual farms.

Sequential Actions:

- Continue the conservation districts', NRCS', and CSRIA's efforts to conserve water through irrigation best management practices.
- Engage water right holders in WRIA 31 through public outreach/education regarding the issues of water conservation and water right relinquishment, possibly linking efforts to Action 5.1.1.3 A.
- Consider adding water conservation assistance to the list of services offered by a water market or "clearinghouse" as described in Action 5.1.1.3 B.

E) Use State Water Trust as means to use conserved water.

This action is divided into two parts:

(1) Where deemed appropriate by the Implementing Governments in consultation with the PAC, acquire water generated through conservation from willing water right holders to place in the state trust program and make it available to meet out-of-stream and instream water uses in accordance with the WRIA 31 WMP.

(2) The PAC will serve in an advisory capacity for implementation of the state water trust program within the WRIA to ensure continuing conformance with the WMP. In its advisory role, the PAC should propose and develop agreement(s) to ensure that trust water right programs further the purposes of the WRIA 31WMP , not undermine it.

Tier (readiness to proceed): 1 for E1; 2 for E2.

Responsible: Benton County, Klickitat County, and Benton and Klickitat Water Conservancy Boards.

Considerations for Implementation:

- This action overlaps with Action 5.1.1.3B (establish water exchange in WRIA 31) and Action 5.1.1.1I (establish intergovernmental agreement for implementation of state trust program in WRIA 31). Implementation of these actions should therefore be coordinated.
- Ecology guidance GUID-1220 provides guidance for managing the state water trust.

Sequential Actions:

- Meet with Ecology to discuss Action E2, and how best for future coordination to occur to ensure that the state trust water right program is carried out consistent with the WRIA 31 WMP.

- Refer to Action 5.1.1.3B as a mechanism to inform local water right holders regarding potential use of the trust water right program to avoid relinquishment of rights to conserved water.
- In water right educational materials prepared under Action 5.1.1.3A, clearly outline the mechanism by which rights to conserved water could be transferred into temporary or permanent trust to be made available for instream and out-of-stream uses consistent with the WMP, while ensuring such transfers will not result in relinquishment.
- Facilitate WRIA 31 water right holders to complete process of placing into trust water rights to conserved water. If established, a WRIA 31 water exchange could fulfill this purpose (Action 5.1.1.3B).

5.1.2 WRIA-Wide Water Quality

5.1.2.1 Columbia River Water Quality (WMP Section 3.2)

Issue: Water quality of the Columbia River is listed as impaired (state 303d list) and requires TMDLs. The effect of surface water quality discharging from WRIA 31 streams on Columbia River water quality warrants assessment.

The WMP presents the assessment of WRIA 31 streams' extremely small volumetric contribution to flows in the mainstem Columbia River. Therefore, the WMP concludes that surface water quality discharging from WRIA 31 streams does not substantively influence Columbia River water quality, as presented in the WMP.

US EPA is working with the Ecology and other parties in the region to develop a temperature TMDL for the Columbia River. We are aware of no TMDL or water quality improvement activity regarding PCBs and pesticides in tissue of Columbia River fish. A TMDL is currently established for the reaches of the Columbia River in WRIA 31 for total dissolved gas (produced by water flowing over spillways on the dams).

Priority: Low.

Objective: Document the contribution of WRIA 31 streams to impaired water quality in the mainstem Columbia River.

Actions

A) Coordination regarding Columbia River TMDLs.

Ecology will coordinate with the WRIA 31 Initiating Governments regarding TMDL or other water quality-related activities on the mainstem Columbia River within WRIA 31. Ecology will coordinate with EPA as appropriate.

Tier (readiness to proceed): 1.

Responsible: Klickitat County and Ecology.

Considerations for Implementation:

- The PAC and Implementing Governments acknowledge it is difficult for the PAC to affect measures that influence water quality on the mainstem Columbia River,

in part because WRIA 31 streams have negligible effect on mainstem water quality. Nevertheless, the Implementing Governments will coordinate with agencies developing and/or modifying the Columbia River TMDLs to ensure the WMP findings are incorporated appropriately. This also presents an opportunity for cooperation with other WRIAs along the Columbia River.

Sequential Actions:

- As an obligation under RCW 90.82.130(3), Ecology shall contact the WRIA 31 Initiating Governments prior to taking actions to establish new TMDLs or update existing TMDLs affecting waterbodies in WRIA 31. To the extent enabled under RCW 90.82.030, water quality in the WRIA is within the scope of watershed planning. The Implementing Governments and PAC will therefore continue to address water quality issues through implementation of this watershed plan. As such, the Initiating Governments expect to have the opportunity to provide information to and work with Ecology on water quality issues including TMDLs.

B) Develop a WRIA-wide water quality improvement plan.

Irrespective of Columbia River TMDL efforts, the PAC will develop a WRIA-wide water quality improvement and protection plan (WQIPP) to address WRIA 31 streams carrying a 303d temperature listing and streams likely to be listed for exceeding temperature criteria in the future. The WQIPP will identify appropriate locally managed activities to be undertaken to ensure that water quality in the tributaries are maintained and, where practical, enhanced.

Tier (readiness to proceed): 1 (ongoing).

Responsible: Klickitat County, conservation districts, and Ecology.

Considerations for Implementation:

- This action is linked to Action 5.2.2.1 (below) that is intended to develop a WQIPP for Rock Creek. In 2009, the PAC received funding from Ecology to develop a WQIPP addressing Rock Creek water temperature and, to the extent practical, water quality in other WRIA 31 tributaries designated as critical habitat. That effort is underway at time of DIP preparation.

- Despite some land use differences among Rock Creek and other tributary watersheds, there are sufficient similarities that water-quality-related actions recommended for Rock Creek can be applicable to other WRIA 31 tributaries.

Sequential Actions:

- To the extent funding is available, advance the ongoing WQIPP to achieve Ecology approval as a locally managed pollution control plan. This will include: (1) continuing to compile and collect information on tributaries designated as critical habitat; (2) identifying characteristics common to these tributaries (or reaches of tributaries) including water quality concerns and land use practices; and (3) adding recommendations specific to each tributary drainage (e.g., monitoring, grazing and agricultural BMPs, riparian channel and vegetation enhancement, etc.) to improve and protect water quality; and (4) defining

protocols for data quality and data management, reporting, and project tracking and adaptive management during future implementation.

5.1.3 WRIA-Wide Aquatic Habitat

5.1.3.1 Limited Aquatic Habitat Data Available (WMP Section 3.3.1)

Issue: Data regarding fish distribution and fish habitat are sparse throughout WRIA 31.

Objective: Collect quality-assured data to fill data gaps regarding aquatic habitat throughout WRIA 31, so that appropriate actions to address factors affecting fish production can be developed.

Priority: High.

Action:

Collect quality-assured data to fill data gaps regarding aquatic habitat throughout WRIA 31.

Data regarding fish distribution and fish habitat were sparse throughout the WRIA 31 at the time that the WRIA 31 WMP was completed. The habitat study discussed in Section 2.5.1 has since addressed most of this action.

Tier (readiness to proceed): 1 (ongoing).

Responsible: Klickitat County, Eastern Klickitat Conservation District, and Benton Conservation District.

Considerations for Implementation:

- Instream habitat was not documented in Alder Creek due to lack of landowner permission for access. Streams in the easternmost portion of the watershed (e.g., Switzler Canyon) were not surveyed, but are not listed as critical habitat.
- For streams listed as critical habitat and already surveyed, additional data collection is warranted to assess inter-annual variability, to enumerate population size and productivity, to identify the portion of the Wood Gulch population that is resident, and to further evaluate land use interactions with the limiting factors.
- Projects that could be implemented to protect, restore, or enhance habitat have not been identified, but sufficient information is available to complete this task for some drainages.
- An instream habitat assessment in Alder Creek (critical habitat) is needed.
- Habitat assessment in other non-critical-habitat drainages will be warranted to support other projects (e.g., Horse Heaven storage project).
- A large amount of ground may be coming out of NRCS' Conservation Reserve Program (CRP) back into cultivation, which may increase sediment loads to streams.
- Anticipated constraints to implementation include funding and, for some areas, land owner access.

- Habitat monitoring needs to be an ongoing effort.

Sequential Actions:

- Develop a study design to address remaining data gaps not addressed by the instream habitat study discussed in Section 2.5.1.
- Conduct instream habitat assessments in other non-critical-habitat drainages when needed to support other projects.
- Conduct habitat monitoring.

5.2 Rock Creek Planning Area

5.2.1 Water Quantity

5.2.1.1 Natural Streamflow Condition (WMP Section 4.1.1)

Issue: Rock Creek's natural intermittent condition is a key factor influencing Rock Creek water temperature and aquatic habitat potential. Augmenting late-season flows in Rock Creek could provide water to help meet future instream or out-of-stream demands.

Priority: Low.

Objective: Evaluate options including storage to enhance Rock Creek streamflows to meet specific demands defined in the future.

Actions

A) Feasibility study for Rock Creek streamflow enhancement.
As dictated by future demands in the subbasin, conduct a feasibility study of options to enhance streamflows in Rock Creek. As part of the 2009-2011 biennium watershed planning budget building process, the PAC submitted to Ecology a pre-application to conduct feasibility study regarding Rock Creek streamflow augmentation. The feasibility study would evaluate the technical viability and relative cost/benefit of a range of streamflow augmentation concepts, and prioritize them based on apparent feasibility. The outcome of the study would be identification of one or more top-priority streamflow augmentation concepts to carry forward for detailed analysis.

Tier (readiness to proceed): 1

Responsible: Klickitat County, EKCD.

Considerations for Implementation:

- Because water temperatures in Rock Creek are related to streamflows, the flow augmentation concept(s) would complement ongoing activities to improve Rock Creek water temperature under the WQIPP (Action 5.2.2.1 below).

Sequential Actions:

- Secure funding and conduct the flow augmentation feasibility study outlined in the 2009-2011 pre-application. The feasibility study may also be an outcome of proceeding through the WQIPP for Rock Creek (Action 5.2.2.1 below).

5.2.1.2 Groundwater Development Potential (WMP Section 4.1.2)

Issue: There is limited understanding concerning the availability of additional water supply sources should water demand increase in the future. Specifically, there is little information regarding the groundwater development potential in this area. This water resource issue pertains to the geographic areas within the northwestern Rock Creek drainage and Goodnoe Hills. This does not pertain to the Columbia River and that portion of the Rock Creek planning area adjacent to the Columbia River.

Objective: Develop baseline information to support developing additional groundwater supply sources if future water demands in the basin increase significantly.

Priority: Medium.

Action:

Conduct a hydrogeologic evaluation for the Rock Creek planning area.
The study objective would be to explore aquifer systems and better understand whether groundwater quantity and quality is sufficient to meet future demands in the Rock Creek planning area.

Tier (readiness to proceed): 1.

Responsible: Klickitat County.

Considerations for Implementation:

- While designated as medium priority in the WMP, this issue is becoming more urgent due to evolving policies toward exempt domestic wells elsewhere in the state.

Sequential Actions:

- Prepare a scope of work and cost estimate to conduct a water availability study for the Rock Creek subbasin. Similar studies have been conducted as part of WRIA 30 WMP implementation. The assessment can focus on objectives including: (1) Refine the hydrogeologic conceptual model including hydraulic continuity of aquifers with surface waters of Rock Creek and the Columbia River; (2) Work with the local community to establish a well network and initiate a groundwater level monitoring program to better define groundwater-surface water continuity and assess long-term changes in the groundwater resource; and (3) Refine water balances that incorporate estimated current water use to assist in determination of water availability on the subbasin scale.

5.2.2 Rock Creek Subbasin Water Quality

5.2.2.1 Elevated Water Temperature in Rock Creek (WMP Section 4.2.1)

Issue: One segment of Rock Creek is listed on the State's 2004 303(d) list (Category 5) for impaired water quality, based on elevated water temperature in one headwater reach, thus requiring a Total Maximum Daily Load (TMDL) to address water temperature.

Objective: Bring Rock Creek into compliance with state surface water standards for temperature. This could be achieved by collecting additional data and analysis that show the elevated temperatures are a result of natural conditions and human influence is increasing water temperature by no more than 0.3°C, or by developing and implementing a water quality improvement and protection plan (WQIPP) (Category 4A or 4B) that over time results in compliance and reclassification as Category 1 (meets standards) or Category 2 (waters of concern).

Priority: High

Actions

A) Develop a locally-managed water quality improvement plan for Rock Creek.

Develop a locally-managed water quality improvement plan to 1) evaluate the cause of elevated temperature (i.e. effect of natural conditions versus human activity), and 2) continue implementing BMPs to ensure that human impacts on water temperature are within acceptable levels.

Tier (readiness to proceed): 1 (ongoing).

Responsible: Klickitat County, Eastern Klickitat Conservation District. Benton Conservation District will also assist if work under Action A covers changes in streams to the east of Rock Creek, in Benton County.

Considerations for Implementation:

- The weight of available evidence indicates that Rock Creek's intermittent streamflow is a natural, not man-made, condition (Aspect Consulting and WPN, 2004; Aspect Consulting, 2005b). Coordination with Ecology's water quality program is required to determine the quantity and quality of information required to document this with sufficient confidence for Ecology concurrence.
- EKCD in conjunction with the WRIA 31 PAC, Rock Creek Coordinated Resource Management group and NRCS have worked to advance the objectives of the 1996 Memorandum of Agreement (MOA) between EKCD and Ecology since 2001. Although the 1996 MOA is no longer in effect, these actions are ongoing and could be used as the basis for a WQIPP.
- The Forests and Fish Report/Forest Practices Rules will serve as a water quality improvement plan for forested headwaters in the subbasin.
- Documentation and reporting of ongoing actions from the 1996 MOA are key elements to a successful WQIPP and will be important in establishing that ongoing actions should form the basis of the WQIPP.

- Anticipated constraints to implementation include:
    - EPA's willingness to recognize a locally managed plan instead of proceeding with a formal TMDL is not known.

Sequential Actions:

- Continue preparation of the WRIA 31 WQIPP, which focuses on Rock Creek water temperature. The following points are expected elements of WQIPP preparation.
- Meet with Ecology to outline required elements of a WQIPP and define expectations. Specific issues to address regarding Rock Creek water temperature include:
    - Sufficiency of information to document with confidence that the existing water temperature condition is the natural condition. If Ecology does not accept existing information as sufficient, then coordinate with Ecology to develop a data collection and analysis plan for inclusion in the WQIPP.
    - Actions and methods to reduce water temperature (consider completed, ongoing, and new actions[3]). Examples include:
        - Range management practices (grazing)
        - Targeted riparian plantings to increase shade
        - Actions taken for forested headwaters under the Forest Practices Rules
        - Develop and implement practical options to increase instream flows in Rock Creek
    - Monitoring locations, frequency, parameters, duration, quality assurance, and data analysis.
    - Incorporation of streamflow data from newly installed gauge(s). Determine who will measure/maintain gauges if Ecology is not funded in the future.
    - Reporting requirements and schedule.
- Focus temperature improvement actions to those reaches of greatest instream habitat potential. For example, if steelhead rearing locations are identified, enhancement of riparian vegetation in those specific locations would prove more cost-effective than un-targeted efforts.
- Develop draft WQIPP and coordinate with Ecology for approval:

[3] Compile an up-to-date listing of all actions accomplished by EKCD, WRIA 31 PAC, Rock Creek Coordinated Resource Management group, and NRCS to advance objectives of the 1996 MOA, including monitoring and land use BMPs or related programs.

- Verify that actions in WQIPP are consistent with the WMP
- Verify WQIPP does not create obligations or restrictions in addition to or inconsistent with Forest Practices Rules per RCW 90.82.120(2)
- To extent practicable, WQIPP actions should be coordinated with aquatic habitat enhancement actions under the Section 4.3 of the WMP (Section 5.2.3 of this DIP).

B) Continue best management practices identified in the 1996 MOA.

Continue implementation of the management practices identified in the 1996 MOA between Ecology and EKCD until a WQIPP is formalized.

Tier (readiness to proceed): 1 (ongoing).

Responsible: Eastern Klickitat Conservation District.

Considerations for Implementation:

- Section 4.2.1 of the WMP lists actions identified in the 1996 MOA between Ecology and EKCD regarding Rock Creek water temperature.
- A potential constraint to implementation is increased acreage coming out of CRP, back into cultivation, which could impact efforts to implement BMPs.

Sequential Actions:

- Inventory and update the list of management practices that have been and are being conducting, and incorporate into the WQIPP (Action 5.2.2.1A above).
- While the WQIPP is in development, continue to encourage landowners to continue practices that are demonstrating the greatest positive results.

C) Evaluate habitat enhancement projects that include riparian plantings to increase stream shade.

Projects that would include riparian plantings and removal of invasive vegetation can increase shade and be integrated with the WQIPP.

Tier (readiness to proceed): 1.

Responsible: Eastern Klickitat Conservation District.

Considerations for Implementation:

- Introducing habitat enhancement projects into the WQIPP could cause scope creep away from addressing water temperature impacts from human activity.
- Based on information available at the time of WMP development, the middle reach of Rock Creek (between Bickleton Highway bridge and the confluence with Squaw Creek) should be considered for shade enhancement projects, because monitoring indicated a significant temperature increase in that reach.

Sequential Actions:

- During development of the WQIPP, identify opportunities to integrate any habitat enhancement projects that currently, or are planned to, provide water temperature benefit, in accordance with Section 4.3 of the WMP (DIP Section 5.2.3).
- Monitoring and documentation of activities completed.

D) Install additional permanent streamflow gauging stations.

Having reliable streamflow data would assist with: (1) Educated understanding of the causes of elevated water temperatures in the Rock Creek drainage; and (2) Determining appropriate areas of the basin within which to focus temperature improvement actions and thereby provide optimal enhancement of salmonid habitat. The EKCD collects spot streamflow measurements periodically during the months of May through October, when conducting water quality measurements, so some flow data are available; however, only one continuous reading gauge currently exists in the subbasin to provide year-round data (Ecology's gauge 31B070, located approximately a mile upstream of the mouth).

Tier (readiness to proceed): 1

Responsible: Eastern Klickitat Conservation District.

Considerations for Implementation:

This is an ongoing effort. Since approval of the WMP, Ecology installed and is operating one gauge near the mouth of Rock Creek, where EKCD sited its temperature monitoring station RC-10 (see Section 2.5.5). Install additional permanent streamflow gauging stations at or near locations where water temperatures have been measured since 1996. Station locations will be determined once currently planned gauges are operating and data gaps, if any, are identified.

Sequential Actions:

- As part of the WQIPP development, identify locations in the subbasin where continuous flow data would be of greatest benefit, and include in the WQIPP a recommendation that new gauges be installed there.
- Establish responsible party for long term maintenance and monitoring of the gauges, considering uncertainties in future state funding availability. If gauges will be maintained/monitored by an agency other than Ecology, coordinate with Ecology to define monitoring and data analysis and management requirements so that data will be recognized as valid by all parties in the future.
- Coordinate with Ecology regarding ongoing operation and maintenance of its existing telemetered stream gauge, and potential expansion of the gauging network.

5.2.2.2 Water Quality Monitoring (WMP Section 4.2.2)

Issue: Nitrate and fecal coliform levels in the Rock Creek drainage meet water quality standards based on information collected in 2004 and 2005. However, there is no on-going program in Rock Creek drainage to monitor for potential future changes in these

parameters and others parameters (e.g. turbidity, pH, and dissolved oxygen) pertinent to watershed health.

Objective: Document long-term water quality conditions, apart from temperature, that could be attributable to land use in the watershed.

Priority: Low (addressing water temperature is the priority).

Action

Add periodic laboratory analyses for fecal coliform to EKCD's monitoring program.

The 2004/2005 water quality study concluded that current levels of livestock grazing are not creating nutrient or bacterial levels in Rock Creek above state standards. Continued monitoring of nitrate and coliform bacteria can be used to track changes in water quality associated with future land use practices in the subbasin. In addition, monitoring data could be used to evaluate the effectiveness of BMPs intended to minimize grazing impacts to the creek.

Tier (readiness to proceed): 1.

Responsible: Eastern Klickitat Conservation District.

Considerations for Implementation:

- EKCD has monitored nitrate concentrations among other parameters in Rock Creek at four locations using hand-held colorimetric field kits that have a detection limit of 0.4 mg/L, which is above most nitrate levels measured in Rock Creek (0.01 to 0.5 mg/L). Therefore, nitrates levels could rise in Rock Creek before current monitoring methods would detect the increase.

- Expanded efforts would incur increased cost associated with additional laboratory analyses. In addition, monitoring for coliform is logistically difficult because of sampling precautions needed to prevent cross contamination, and the very short timeframe (6 to 24 hours) to get samples from remote locations in the subbasin to an accredited lab.

- Since October 2009, Ecology's Environmental Assessment Program has been conducting an expanded surface water quality monitoring program at stations in WRIA 31, including Rock Creek at Bickelton Highway. At the time of DIP preparation, the information is available on the Ecology River and Stream Water Quality Monitoring Program's web site at http://www.ecy.wa.gov/apps/watersheds/riv/station.asp?sta=31B110. Monitoring parameters include fecal coliform, specific conductance, dissolved oxygen, pH, turbidity, total suspended solids, ammonia, nitrate + nitrite, total persulfate nitrogen, and phosphorus (soluble reactive and total). These data meet QC requirements in accordance with the WMP, and the data will be publicly available. Future funding of this monitoring program is uncertain.

Sequential Actions:

- Add laboratory analysis for nitrate to EKCD's Rock Creek ongoing monitoring if other water quality parameters (e.g. temperature, pH) show significant changes with time.
- Add periodic laboratory analyses for fecal coliform to EKCD's Rock Creek monitoring program to monitor for trends. As a starting point, water samples for fecal coliform analysis could be collected twice annually (e.g. low flow and high flow conditions) to compare with the results of the 2004/2005 study (Aspect Consulting 2005b). Based on the results, a single annual round of sampling (same month each year) could be conducted subsequently to track trends over time.
- Coordinate with Ecology regarding continuing its water quality monitoring program for Rock Creek.

5.2.3 Rock Creek Aquatic Habitat

5.2.3.1 Salmonid Distribution and Use (WMP Section 4.3.1)

Issue: Rock Creek is considered to have the greatest fish production potential of any WRIA 31 stream aside from the Columbia River. However, salmonid distribution and habitat use in the Rock Creek subbasin is uncertain, thus areas of concern for aquatic habitat (low flows, water temperature, passage barriers, etc.) are uncertain.

Objective: Determine the distribution and survival of salmonids in the watershed.

Priority: High.

Actions

There were three components incorporated into this strategy. Some are complete or partially complete. Each is discussed below.

A) Document and monitor the distribution and abundance of spawning salmonids in Rock Creek and its tributaries.

The distribution of juvenile salmonids has been documented and the distribution of spawning salmonids has been roughly evaluated (Glass 2009). Further investigation of the spawning distribution and the abundance of spawning salmonids is needed

Tier (readiness to proceed): 2.

Responsible: Klickitat County.

Considerations for Implementation:

- The documentation of spawning salmonid distribution was largely completed in the WRIA 31 Instream Habitat Assessment (Section 2.5.1); however, abundance warrants further assessment.
- Anticipated constraints to implementation include funding and landowner access for instream survey work.

B) Evaluate the distribution and abundance of juveniles rearing in the subbasin.

Evaluate the distribution and abundance of juveniles rearing in the subbasin. This action was completed as part of the Instream Habitat Assessment (Glass, 2009) conducted in 2008-2009, and described in Section 2.5.1. Monitoring of trends over time is still needed and is addressed in Section 5.2.3.3 of this document.

C) Measure migration of juveniles and total juvenile production.

Migration of juveniles out of the basin and enumeration of total juvenile production can be accomplished through the installation and year round operation of a screw trap.

Tier (readiness to proceed): 2.

Responsible: Klickitat County.

Considerations for Implementation:

- Coordination with the Tribes may be required.

Sequential Actions:

- Measure migration of juveniles and total juvenile production through installation and year-round operation of a screw trap in accordance with an agency-approved quality assurance project plan (QAPP).

5.2.3.2 Habitat Quality & Potential Land Use Effects (WMP Section 4.3.2)

Issue: Information available regarding Rock Creek instream habitat conditions and upslope watershed processes is insufficient to support quantitative evaluation of the land use effects on aquatic habitat or to support the identification of priority actions necessary to improve aquatic habitat.

Objective: Evaluate the quality of habitat in the Rock Creek subbasin and the effects of land use on that habitat.

Priority: High.

Actions

There were six components to this strategy. Some are complete or partially complete. Each is discussed below.

A) Implement the actions described in WMP Section 4.2.1 to restore and protect fish habitat.

See Action 5.2.2.1, which addresses these actions.

B) Quantify spawning habitat.

Quantify spawning habitat in Rock Creek (e.g., document substrate size and embeddedness in potential spawning areas). This action was completed as part of the Instream Habitat Assessment (Glass, 2009) conducted in 2008-2009, and described in Section 2.5.1.

C) Collect additional information on passage barriers.

Collect additional information on passage barriers to help refine estimates of available habitat for anadromous fish. This action was completed as part of the Instream Habitat Assessment (Glass, 2009) conducted in 2008-2009, and described in Section 2.5.1.

D) Develop an inventory of current rearing habitat.

Develop an inventory of current rearing habitat, identifying areas of year-round flow and suitable stream temperatures and areas where these conditions may be reasonably attained. The inventory of current rearing habitat has been completed (Glass, 2009). The other items still need to be addressed.

Tier (readiness to proceed): 1.

Responsible: Klickitat County and the Eastern Klickitat County Conservation District.

Considerations for Implementation:

- This action overlaps the WQIPP for Rock Creek (Action 5.2.2.1A).

Sequential Actions:

- As part of the ongoing WQIPP (Action 5.2.2.1A), areas of year-round flow and suitable stream temperatures in Rock Creek will be identified using the available information. In addition, areas where these conditions may be reasonably attained will be further evaluated, including field reconnaissance and data collection to the extent practical with available funding.

E) Collect water temperature data when conducting snorkel surveys.

Collect water temperature data when conducting snorkel surveys to support evaluation of the temperature tolerances of local steelhead population.

Tier (readiness to proceed): 3.

Responsible: Klickitat County and Eastern Klickitat Conservation District.

Sequential Actions:

- Prior to conducting the survey work, work with stakeholders to develop a QAPP with suitable study design to ensure defensible quality-assured data are collected to address the issue. An approval of the QAPP must be obtained from Ecology before the data would be considered as valid.

F) Implement a public education and communication program.

A public education and communication program would inform landowners regarding the intent of habitat protection and restoration projects, educate the public regarding the influence of land use on the quality of fish habitat, and encourage participation in volunteer efforts.

Tier (readiness to proceed): 1 (ongoing).

Responsible: Eastern Klickitat Conservation District.

Sequential Actions:

- The conservation districts will continue their public education and outreach efforts, and tailor them to emphasize specific habitat-related issues as they arise.

5.2.3.3 Monitoring (WMP Section 4.3.3)

Issue: Monitoring of long-term trends in fish population levels and habitat quality is lacking, but needs to be a part of future habitat-related projects. In addition, the effectiveness of individual projects needs to be monitored to ensure that the projects result in the intended benefit.

Objective: Monitor the effectiveness of aquatic habitat protection and restoration projects.

Priority: High.

Actions

A) Develop and implement monitoring plans.

Monitoring plans will be developed consistent with state protocols that provide for documenting long-term trends in fish population levels and habitat quality, and document effectiveness of habitat-related projects.

Tier (readiness to proceed): 1 (ongoing).

Responsible: Klickitat County and Eastern Klickitat Conservation District.

Considerations for Implementation:

- Data collection efforts must be developed using statistically robust methods and must include a quality assurance process, and all data collected must be made publicly available.
- Monitoring the effectiveness of projects can be conducted once a project has been implemented.
- Actions may need to be coordinated with NMFS to ensure that data collected meets their needs.
- Anticipated constraints to implementation of the habitat and population level monitoring include funding and landowner access.

Sequential Actions:

- Prepare QAPPs including monitoring protocols to measure the effectiveness of habitat improvement projects. The monitoring protocols will strive to be consistent with the statewide monitoring program (Washington Comprehensive Monitoring Strategy for Watershed Health and Salmon Recovery [2002]), but may need to be modified to address individual situations.
- Conduct monitoring in accordance with agency-approved QAPP.

B) Conduct public education and communication program.
See Action 5.2.3.2F above, which is functionally equivalent.

5.3 Wood-Glade Planning Area

5.3.1 Wood-Glade Planning Area Water Quantity

5.3.1.1 Groundwater Level Declines in Basalt Aquifer (WMP Section 5.1.1)

Issue: Groundwater levels in the Wanapum Basalt aquifer continue to decline locally, forcing well deepening and increased pumping costs, and raising uncertainty for the sustainability of irrigated agriculture in areas at distance from the Columbia River that are currently reliant on groundwater supply.

Objective: For affected areas, develop alternative water supply sources to reduce (net) withdrawal from the Wanapum Aquifer and thereby maintain a sustainable groundwater supply.

Priority: High.

Actions

A) Develop conceptual design of a regional water storage and supply system making use of the John Day-McNary reserve.
Exchanging large-scale groundwater withdrawals with Columbia River water from the John Day-McNary irrigation reservation is the most viable way to limit further overdraft of the groundwater resource while maintaining and growing the planning area's population and economy. This action originally considered a regional canal conveyance system, which the PAC has replaced with a different preferred storage alternative being developed under the ongoing Horse Heaven water storage pre-feasibility assessment (see Section 2.5.2).

Tier (readiness to proceed): 1 (ongoing).

Responsible: Klickitat County, Benton County.

Considerations for Implementation:

- This effort has been initiated through the WRIA 31 water storage pre-feasibility Study that is being conducted while this DIP is being drafted in spring 2010. Replacing non-sustainable groundwater pumping for irrigation is a priority water demand to be met by a conceptual water storage project being evaluated under that study.

Sequential Actions:

- Continue advancing the preferred water storage alternative defined in the pre-feasibility study to construction and implementation. At the time of DIP preparation, the PAC is coordinating with Ecology to advance the preferred storage alternative for a more detailed feasibility study. As currently envisioned, the feasibility study would provide a more in-depth analysis of the technical, permitting, and economic feasibility of a storage/supply system, including but not

limited to prospects for funding capital and operation/maintenance costs, assessing regional economic benefits from the project, as well as the administrative means to operate and allocate water from the system.

- If the current preferred storage project alternative for Horse Heaven is not deemed to be feasible, the PAC will continue to assess other water supply options to maintain the level irrigation supplied by overdrafted groundwater supplies.

B) Evaluate a voluntary source exchange program in which groundwater rights are replaced by surface water rights permitted from the John Day-McNary reserve.

The action would involve issuing a superseding water right designating a portion of the groundwater right replaced by water from the John Day-McNary reserve as a standby or reserve right that may be used when water delivered from the reserve is curtailed or otherwise not available. This is identical to the water right solution applied for groundwater rights in the Odessa subarea where source replacement using the Columbia River water is being planned for (RCW 90.44.510).

Tier (readiness to proceed): 2.

Responsible: Klickitat County.

Considerations for Implementation:

- This action is deemed Tier 2 because elements of it are being addressed under the ongoing Horse Heaven water storage pre-feasibility study that is underway while this DIP is being drafted in spring 2010.
- Even if not constructed, information developed in the ongoing pre-feasibility study and potential feasibility study would better inform decision making regarding delivery of water from the reserve.
- Anticipated constraints to implementation might include the availability of new water supplies from the John-Day McNary reserve, developing a mechanism to issue water rights, and securing funding to improve conveyance systems.

Sequential Actions:

- Pending the outcome and success of the ongoing water storage pre-feasibility study, meet with Ecology to discuss applying to the Wood-Glade subbasin the water source exchange solution that is moving forward for the Odessa area, as outlined in the WMP.
- If necessary and not otherwise addressed by the ongoing pre-feasibility study, evaluate the cost and funding possibilities regarding enlarging or constructing pressurized conveyance systems to deliver water to affected areas.

C) Explore Grande Ronde Aquifer.

Because the large water level declines occur in the Wanapum Basalt, scope and conduct a drilling program to explore development potential of the deeper Grande Ronde Basalt aquifer in this area, and assess the hydraulic effect on the Wanapum caused by pumping

the Grande Ronde. The hydrogeology and capacity of the Grande Ronde Basalt aquifer is not well documented in WRIA 31.

Tier (readiness to proceed): 2

Responsible: Klickitat County.

Considerations for Implementation:

- There is relatively little hydrogeologic information available for the western Horse Heaven area, where the large groundwater level declines exist. Data gaps include whether geologic structures create barriers to groundwater flow in the basalt aquifers as inferred but not proved by the USGS; the presence/hydraulic characteristics of the Vantage interbed separating the Wanapum and Grande Ronde aquifer systems; and the suitability of water quality in the Grande Ronde for irrigation supply.
- The need to conduct a hydrogeologic study of the Grande Ronde Basalt aquifer could be partially satisfied if a hydrogeologic assessment supporting an ASR storage option is conducted as currently being proposed as part of the water storage feasibility study described in Action 5.3.1.1A.
- In the absence of test wells, water quality data from domestic wells completed in the Grande Ronde basalt aquifer near the Columbia River could be used to improve the understanding of local water quality in the aquifer.
- Anticipated constraints to implementation include:
    - The need to obtain new water rights, not water right transfers, to move existing Wanapum pumping to the deeper Grande Ronde aquifer (different bodies of public groundwater).
    - Potential for poor water quality and/or yield, and high pumping costs, in the Grande Ronde.
    - Permitting, land owner access for test wells.

Sequential Actions:

- If such information is not an outcome of the ongoing storage project, start with a hydrogeologic study using available information ("paper study") to develop the hydrogeologic conceptual model, particularly verify hydraulic barriers in the aquifer created by geologic structures, and thereby assist with siting test wells.
- Determine whether existing wells can be deepened for exploratory purposes, or if new test wells are required.
- Develop and conduct an exploratory drilling plan with the intent to evaluate the capacity and water quality of the Grande Ronde Basalt aquifer, and its hydraulic connection with the overlying Wanapum aquifer and the Columbia River.

D) Complete water storage feasibility studies.

Complete detailed water storage feasibility studies as warranted to address water needs not met through one of the recommended actions above.

Tier (readiness to proceed): 1 (ongoing).

Responsible: Klickitat County.

Considerations for Implementation:

- This action has been initiated through the ongoing Horse Heaven water storage pre-feasibility study described above. However, even if that large-scale project comes to fruition, other smaller-scale, localized storage projects may still be warranted in the future.
- Findings from the ongoing Kennewick ASR pilot study might also be used to advance this action.
- Anticipated constraints to implementation might include:
    - Conveying source water from the Columbia River to potential storage sites could limit feasible water storage opportunities.

Sequential Actions:

- Advance to construction and operation the preferred storage alternative in the ongoing Horse Heaven pre-feasibility study.
- If that preferred storage alternative is not successful in delivering adequate new water supplies, identify other potential storage opportunities within the Wood-Glade subbasin and pursue feasibility study funding for them. Use the lessons learned from the ongoing studies, including Kennewick ASR, to refine storage project concepts to maximize their feasibility.

E) Continue Ecology's water level monitoring program.

Water level trends obtained using water level data collected by Ecology since the 1980s is important to assessing the future sustainability and potential overdraft of the groundwater resource in this subbasin. It is important that Ecology's program of monitoring WRIA 31 wells continue, and if possible expand it to include additional wells in multiple aquifer units as allowed by land owners.

Tier (readiness to proceed): 2.

Responsible: Ecology, Klickitat County.

Considerations for Implementation:

- If Ecology program funding is inadequate to continue/expand monitoring, then consider transitioning effort to a WRIA 31 Implementing Government.
- Anticipated constraints to implementation might include changes to Ecology program funding and future access by land owners.

Sequential Actions:

- Establish whether Ecology can fund continued/expanded well monitoring. If required, identify if a WRIA 31 Implementing Government has funding to take over monitoring efforts.
- If funding allows, identify wells in areas where additional water level data would be useful, and coordinate with those well owners for access to monitor.

F) Establish groundwater management area.

The PAC will consider establishing all or a portion of the Wood-Glade Area as a groundwater management area under RCW 90.44.400.

Tier (readiness to proceed): 2.

Responsible: Klickitat County, Ecology, Benton County.

Considerations for Implementation:

- One concept for GWMA establishment is under consideration as part of the ongoing Horse Heaven water storage pre-feasibility study. For that study, ASR is being considered as a means to offset groundwater declines in the Wanapum Basalt in western Horse Heaven. Establishing a GWMA which dictates that the highest beneficial use for Wanapum groundwater there is irrigation, not drinking water, may help address compliance with the state groundwater quality standards pertaining to injection of river water into the aquifer. At the time of DIP preparation, that concept has not been worked through with Ecology.
- A local government can develop and implement a groundwater management program.
- Stakeholder outreach will be an important factor for implementation.

Sequential Actions:

- The PAC will continue to consider use of a GWMA for portion(s) of this subbasin if it determines that it could achieve an objective of the WMP. The GWMA could apply to specific aquifer zones (laterally and with depth).
- If the PAC deems it a useful tool, petition Ecology to establish a GWMA, and work through the specifics to ensure it would meet the intended WMP objectives. Form a coordinating body and designate a local government as its lead agency, develop a groundwater management plan to meet specific objectives, and implement it.

5.3.1.2 High-Value Crops Could Allow for Water Supply Investment (WMP Section 5.1.2)

Issue: Maintaining a viable agricultural economy will likely require a continued shift toward higher value crops (e.g. from dry land to irrigated farming), to overcome increasing cost of energy and water supply to remain competitive. Availability of existing water rights and adequate water supply is limited in areas historically reliant on dry land

farming practices and areas amenable to high value crops (e.g. wine grape production) that were not cultivated in the past. The place of use in existing water rights poses a constraint to shifting irrigation to production of high value crops. Ecology uses its annual consumptive quantity (ACQ) policy (Ecology Policy POL-1210), and the water conservancy boards with jurisdiction in WRIA 31 use either GUID 1210 or a methodology developed by the Benton County and Franklin County water conservancy boards to evaluate water right changes which include adding acreage to the place of use of an existing water right.

Objective: Achieve policy/regulatory changes that allow for maximum flexibility to change existing water rights in ways that support growth in the agricultural economy.

Priority: High.

Action

Work with Ecology to further evaluate and consider developing policies/regulations, including further review of its ACQ policy, that facilitate, not restrict, shifting existing water rights to new areas that would support production of higher value crops.

The change from dry-land farming to higher value crops will require that irrigation water be available. This can involve developing new irrigation supplies from the Columbia River, as outlined in other actions in the WMP, and/or maximizing use and flexibility of existing water rights.

Tier (readiness to proceed): 2.

Responsible: Benton Conservation District, Benton Water Conservancy Board, Klickitat Water Conservancy Board, Klickitat County.

Considerations for Implementation:

- As part of the CSRIA VRA effort, Benton Conservation District is involved in ongoing efforts to communicate with Legislators regarding potential benefits of revising current policy to allow for greater flexibility to shift to higher value crops including applying conserved water to new acreage.
- Anticipated constraints to implementation might include:
    - Requires legislative changes or changes to agency rules.

Sequential Actions:

- Evaluate the outcome of efforts undertaken to advance Actions 5.1.1.1 and 5.1.1.2 and the CSRIA VRA to determine specific strategies to pursue.
- Continue to communicate to the Governor and Legislature through letters or meetings that it is in the public interest to revise policy/regulations to develop new water sources from the Columbia River (see actions in Section 5.1.1) and/or maximize use and flexibility of existing water rights, because it is critical to the viability of the local community and regional economy.

- Coordinate with Ecology to develop options to amend relevant regulation/policy including:
    - Further review of its ACQ policy to facilitate, not restrict, shifting existing water rights to new areas that would support production of higher value crops.
    - Allowing greater flexibility to apply conserved water to new acreage.
    - Recognize that such changes would not increase annual consumptive use of existing water rights.
- Coordinate with CSRIA and other WRIAs undertaking similar efforts.

5.3.1.3 Expansion of Small Public Water Systems (WMP Section 5.1.3)

Issue: In some areas of the watershed, there has been considerable difficulty in permitting expansion of small public water systems to meet demand.

Typical Washington Department of Health (DOH) water system design criteria used to establish maximum daily water system demand overestimate daily water use for those residences which do not use water for outdoor landscape irrigation. The public water systems addressed under this WMP issue fall in that category. Limiting expansion of public water systems because of insufficient supply to meet (overestimated) demand can result in a proliferation of single-family exempt wells, which are often shallow and vulnerable to water quality impact.

Objective: Eliminate artificial (administrative) constraints that prevent public water systems from meeting growing demand

Priority: Medium.

Actions

A) Allow maximum number of persons/units possible within available water rights and source capacity.

The PAC believes that DOH should work with local public water systems during approval of water system plans to allow service to the maximum number of persons/units possible within the systems' available water rights and source capacity.

Tier (readiness to proceed): 2.

Responsible: Klickitat County, Benton County.

Considerations for Implementation:

- Actual metered water use is DOH's preferred basis for determining demand, and therefore whether a public water system has adequate water rights and source capacity to expand its number of connections. In the absence of metered water use data, water use can be estimated from analogous water systems or using calculations in DOH's Water System Design Manual.
- Metering data may not be readily available for small public water systems in WRIA 31 and that data gap is addressed in Action 5.3.1.3B below.

Sequential Actions:

- Work with small public water systems seeking to expand their systems based on system capacity and water rights. In the absence of metering records, provide guidance for estimating daily residential water use to be used as the basis for water system design, in accordance with the DOH Design Manual.
- Until reliable metering data are available, water use information should be derived from a comparable water system(s) in the area when evaluating the potential for system expansion.
- If needed, meet with DOH to define acceptable methods to estimate water use for small public water systems in various regions of WRIA 31.

B) Provide financial assistance for purchasing flow meters.

Financial assistance, through grants or other means, is needed to allow public water systems in the planning area to purchase/install flow meters for sources and services.

Tier (readiness to proceed): 2.

Responsible: Klickitat County, Benton County.

Considerations for Implementation:

- Funding sources for metering includes sources for water systems complying with the Water Use Efficiency Rule:
    - Drinking Water State Revolving Fund (loan).
    - Public Works Trust Fund (loan).
    - Community Development Block Grant (grant w/ match).
    - USDA Rural Development (loan w/ partial grant).
    - See also DOH Publication No. 331-344 (Funding for Drinking Water Capital Improvement Projects).
- Anticipated constraints to implementation include capital, maintenance, and data collection costs associated with metering programs.

Sequential Actions:

- Work with public water system managers to determine the best method (meters or analogous), given available resources, to refine residential daily water use estimates for use in seeking approval for water system expansions.
- Provide guidance for funding and implementing source or connection metering programs and for conducting studies of metering data for analogous water systems.

C) Pursue legislative action to amend state water code.

It is the position of the WMP that new water right permits should be issued to public water systems where there is available supply and no impairment exists. Pursue legislative action to amend the state water code to provide for expedited processing of water right permits to small public water systems, and provide the state resources to implement it.

Tier (readiness to proceed): 3.

Responsible: Klickitat County, Benton County.

Sequential Actions:

- Coordinate with other WRIAs and stakeholders in the Columbia River Basin to build strong collective voice regarding this action.

5.3.2 Wood-Glade Planning Area Water Quality

5.3.2.1 Nitrate in Shallow Groundwater and Surface Water (WMP Section 5.2.1)

Issue: Across a large area of the Wood-Glade subbasin, elevated nitrate levels exist in shallow groundwater that serves as a domestic drinking water source.

Objective: Ensure that all area residents have a safe source of potable water.

Priority: High.

Actions

Local DOHs, in cooperation with conservation districts, should consider the following actions:

- Inventory nitrate concentrations in all drinking water sources within the planning area;
- Develop an integrated GIS/database to manage the available groundwater quality data;
- Identify if alternative drinking water sources are available to those with unsafe drinking water; and
- Continue to educate the public on proper wellhead protection, groundwater quality testing, and the risks associated with drinking water with elevated nitrates.

Tier (readiness to process): 2.

Responsible: Klickitat and Benton-Franklin Health Districts (pending intergovernmental agreements).

5.3.3 Wood-Glade Planning Area Aquatic Habitat

5.3.3.1 Critical Habitat Designations (WMP Section 5.3.1)

Issue: In August 2005, NOAA Fisheries designated portions of Chapman Creek, Wood Gulch, Alder Creek, and Glade Creek as critical habitat under the ESA, although there were no published data to support those designations.

Objective: Document the quality and extent of fish habitat in reaches identified as critical habitat. Based on the results of data collection efforts, identify projects to restore and protect critical fish habitat.

Priority: Medium.

Actions

The WRIA 31 WMP identified an objective of documenting the quality extent of fish habitat in the designated reaches and identifying projects that will help to restore and protect critical fish habitat. There are eight components to this strategy. Each is discussed separately below.

A) Survey distribution of fish and redds downstream of passage barriers.

Surveys of fish distribution, excluding Alder Creek, have been completed as part of the Instream Habitat Assessment (Glass, 2009). Redd surveys have not been completed.

Tier (readiness to proceed): 3 (partially completed; remaining is low priority).

Responsible: Klickitat County.

Considerations for Implementation:

- Wood Gulch is the only subbasin within the Wood-Glade planning area that is known to support a population of anadromous fish (Glass 2009). Passage of anadromous fish into Pine Creek is blocked at the culverts under Highway 14 and the railroad, near the mouth. No salmonids were found in Chapman Creek or Glade Creek (Glass, 2009). Fish species utilizing Alder Creek have not been assessed.
- Access to conduct redd surveys can be expected to be difficult to attain and may not provide accurate information since steelhead are difficult to observe on redds. Filling this data gap should be given a low priority due to the difficulty in implementing the surveys and the low likelihood of successfully collecting meaningful data.

Sequential Actions:

- Although now considered a relatively low priority, obtain landowner access and conduct instream survey of redds in appropriate streams based on the inventory conducted to date.

B) Quantify spawning habitat after the distribution and life history of the local stock is better understood.

Quantify spawning habitat after the distribution and life history of the local stock is better understood. Map spawning habitat while conducting redd surveys using established protocols. This action, excluding Alder Creek, was completed as part of the Instream Habitat Assessment (Glass, 2009).

Tier (readiness to proceed): 1.

Responsible: Klickitat County, EKCD.

Sequential Actions:

- Collect data for Alder Creek.

C) Collect additional information on passage barriers.

Collect additional information on passage barriers to help refine estimates of available habitat for anadromous fish. This action, excluding Alder Creek, was completed as part of the Instream Habitat Assessment (Glass, 2009).

Tier (readiness to proceed): 1.

Responsible: Klickitat County, EKCD.

Sequential Actions:

- Collect data for Alder Creek.

D) Inventory current rearing habitat.

Inventory current rearing habitat, identifying areas of year-round flow and suitable stream temperatures, and areas where these conditions may be reasonably attained if actions were taken. The inventory of current was completed as part of the Instream Habitat Assessment (Glass, 2009). The identification of areas with year-round flow and suitable temperature has not been completed.

Tier (readiness to proceed): 1 (for remaining tasks).

Responsible: Klickitat County, EKCD.

Considerations for Implementation:

- The remaining elements of this action may be accomplished in conjunction with preparation of the WRIA 31 WQIPP (Actions 5.1.2.1B and 5.2.2.1A). At the time of DIP preparation, it is expected that the degree to which the WQIPP addresses WRIA 31 streams beyond Rock Creek will depend in part of available funding.

Sequential Actions:

- Collect data for Alder Creek.
- Coordinate with ongoing WQIPP activities to conduct data collection and analysis appropriate to identify stream reaches in the subbasin with perennial

flow or pools, and document the water temperature and other habitat features of those reaches.

- Integrate the collective work from the 2009 Instream Habitat Assessment and ongoing WQIPP activities to identify those subbasin stream reaches where it may be feasible to create perennial flow and temperatures suitable for salmonid rearing.

E) Collect statistically robust, quality-assured habitat data consistent with established state protocols.

Collect statistically robust, quality-assured habitat data consistent with established state protocols (see WMP Section 5.3.1); however, modifications of protocols may be required to ensure that the information needed is obtained during the assessments. Data collected will be made publicly available.

The Instream Habitat Assessment (Glass, 2009) accomplished this. Future habitat data collection efforts will also comply with these provisions.

F) Identify opportunities for habitat protection and restoration projects based on data collected to fill data gaps.

Tier (readiness to proceed): 1.

Responsible: Klickitat County, Eastern Klickitat Conservation District.

Considerations for Implementation:

- This component was not completed as part of the 2009 Instream Habitat Assessment. However, much of the information needed to complete it is available from the assessment, and the component could be initiated at any time.
- Additional evaluations may be necessary to refine the most cost-effective approaches to addressing factors affecting habitat in specific reaches.
- Coordination with resource agencies may be warranted for specific actions considered. Coordination with affected landowners will be required.

Sequential Actions:

- The responsible parties will use the results of Instream Habitat Assessment, and ongoing efforts including the WQIPP, to identify specific subbasin stream reaches where habitat protection or improvement actions can achieve the greatest instream benefit for the cost incurred. Funding will be sought and, if secured, work plans will be developed and actions implemented per the plan.

G) Encourage participation in existing voluntary programs that provide for habitat protection.

The WMP addresses protection of existing habitat through regulatory and voluntary efforts, with an emphasis on the local voluntary activities.

Tier (readiness to proceed): 1.

Responsible: Benton and Eastern Klickitat Conservation Districts.

Considerations for Implementation:

- There are several voluntary programs through NRCS and other agencies that encourage the development of riparian reserves and provide habitat protection (see Section 5.3.1 of the WMP).

Sequential Actions:

- Continue efforts for voluntary efforts that achieve habitat protection or improvement, and communicate to landowners the creation of new programs, or new areas of the subbasin in which to apply the existing programs.

H) Implement a public education program to inform landowners.

Implement a public education program to inform landowners regarding the intent of habitat protection and restoration projects, educate the public regarding the influence of land use on the quality of fish habitat, and encourage participation in volunteer efforts.

Tier (readiness to proceed): 1.

Responsible: Benton and Eastern Klickitat Conservation Districts.

Sequential Actions:

- Continue ongoing outreach efforts with landowners throughout the subbasin to further the WMP objectives.

5.3.3.2 Fish Passage Barrier at Mouth of Pine Creek (WMP Section 5.3.2)

Issue: The culvert at the mouth of Pine Creek (under Highway 14) is above stream level and thus a barrier to upstream passage of fish. There is a natural waterfall on Pine Creek, roughly 6 miles upstream of the mouth, which may block upstream passage of fish.

Objective: Restore fish passage at the culvert.

Priority: Medium.

Action

Provide to WSDOT information from habitat surveys.

Provide to Washington Department of Transportation (WSDOT) information from the 2009 Instream Habitat Survey pertinent to observed quality of habitat upstream of the culvert, and support efforts regarding replacement of the culvert or modification of conditions to make the existing culvert functional.

Tier (readiness to proceed): 1.

Responsible: Klickitat County and Ecology.

Considerations for Implementation:

- New information suggests that the culverts might function if the stream was not diverted at a location approximately 100 feet upstream of the culverts by a beaver dam. This information has not yet been provided to the Washington Department

of Transportation (WSDOT). Information on the quantity and quality of habitat upstream of the culvert also needs to be provided to WSDOT. Road engineers will need to evaluate the current situation and determine the best approach to restoring passage.

- The Yakama Nation Fisheries has evaluated design options for culvert replacement.

Sequential Actions:

- Coordinate with WSDOT, Ecology, WDFW, and the Yakama Nation regarding the status of activities pertaining to improving fish passage in Pine Creek.

5.4 Kennewick Planning Area

5.4.1 Kennewick Planning Area Water Quantity

5.4.1.1 Mitigation of Quad Cities Water Right (WMP Section 6.1.1)

Issue: The source and availability of mitigation water to allow Kennewick to exercise its share of the Quad Cities water is uncertain.

Objective: Identify sources of mitigation water to allow for Kennewick's future exercise of the Quad Cities water right without interruption.

Priority: High.

Actions

A) Reassess annual consumptive use.

The Quad Cities water right assumes that, for the first 10 cfs of use, 80% of that use is consumptive, and this the quantity of water that must be mitigated for to access the right at times that permit-specific instream flow objectives are not met. This value can be changed for future allocations, based on actual measurements of consumptive use. A lower estimate of annual consumptive use would reduce the quantity of mitigation water required.

Tier (readiness to proceed): 1 (ongoing).

Responsible: City of Kennewick.

Considerations for Implementation:

- City of Kennewick has metering systems in place and has conducted water system planning and maintenance efforts sufficient to accurately estimate consumptive use including water production, wastewater treatment plant discharges to the Columbia River, and estimates of system losses equating to return flows.

Sequential Actions:

- The City of Kennewick is already conducting the assessment, and will continue to do so for future allocations from the permit.

B) Identify additional water for mitigation (flow replacement).

The Quad Cities water right makes available for municipal use up to 178 cfs from the Columbia River. Flow mitigation is required in perpetuity as a condition of the water right, which is determined in 6-year cycles. At least 50% of the mitigation quantity for each 6-year cycle must be achieved with 1:1 flow replacement. This action is to identify additional sources of water for mitigation.

Tier (readiness to proceed): 1.

Responsible: City of Kennewick.

Considerations for Implementation:

- Options outlined in Section 6.1.1 of the WMP to obtain mitigation water include:
    - Acquire valid water rights upstream of McNary Dam and transfer them to the state water trust;
    - Use ASR to replace diversion from the river during critical flow months;
    - Baseflow enhancement by wastewater infiltration; and
    - Other sources that may become apparent with time through the cities' exercise of the Quad Cities water right or other watershed plan implementation activities.
- Another option could include acquiring water from new water storage projects. For example, the preferred alternative from the ongoing Horse Heaven water storage pre-feasibility study includes a new reservoir in Switzler Canyon, which is a tributary to McNary Pool. The project would involve release of stored water from this reservoir to McNary Pool to mitigate for new diversions from the pool (e.g., future diversions under the Quad Cities water right). The access to and pricing of mitigation water from the prospective storage project would need to be developed as the project evolves beyond the feasibility study.

Sequential Actions:

- Kennewick, as part of the Quad Cities regional water supply planning efforts, will continue to evaluate the full range of existing options to obtain water for flow replacement water, and assess new options as they arise.
- As appropriate, seek funding to examine the feasibility of applying specific options (e.g., using infiltrated wastewater for mitigation).

5.4.1.2 Water for Urban Irrigation (WMP Section 6.1.2)

Issue: There are constraints on reliability of irrigation supplies for the Kennewick planning area, largely derived from the Yakima River.

Objective: Improve reliability of irrigation supplies in the Kennewick area.

Priority: Medium.

Actions

A) Support KID's proposed pump exchange program.

Kennewick Irrigation District (KID) and Bureau of Reclamation are evaluating a pump exchange project that replaces some of the water diverted from the Yakima River with a pumped diversion from the Columbia River using a portion of KID's pending Columbia River water right. The proposed project is consistent with WMP objectives specific to the Kennewick planning area.

Tier (readiness to proceed): 1 (ongoing).

Responsible: City of Kennewick, Ecology.

Sequential Actions:

- During preparation of the WMP, the WRIA 31 Initiating Governments submitted a letter of support for the project to the appropriate agencies and stakeholders.
- The Implementing Governments and PAC can provide continuing support to KID to achieve approval for the project and secure implementation funding for it.

B) Assist implementers of the Tri-Cities Urban Area Landscape Irrigation Plan.

Conservation of urban irrigation water is consistent with WMP objectives. This action involves providing support as warranted to implementers of the Tri-Cities Urban Area Landscape Irrigation Plan (e.g., City of Kennewick, KID, and Columbia Irrigation District [CID]) to pursue funding for urban irrigation conservation projects including public education.

Tier (readiness to proceed): 1.

Responsible: City of Kennewick, Benton Conservation District.

Sequential Actions:

- As requested, submit letters of support to potential funding providers on behalf of City of Kennewick, KID, and/or CID communicating the importance of irrigation conservation efforts to WRIA 31 WMP objectives.
- Consider applying jointly with City of Kennewick, CID, or KID for funding to develop educational resources pertaining to irrigation conservation. Examples of joint projects include developing content for mailings, brochures and web sites and outreach efforts such as seminars to local audiences or developing a demonstration project for irrigation conservation.

C) After adoption, determine applicability of the CSRIA VRA to conservation savings under Tri-Cities Urban Area Landscape Irrigation Plan.

After adoption of the CSRIA VRA, determine applicability of the CSRIA VRA to conservation savings under Tri-Cities Urban Area Landscape Irrigation Plan. If necessary, work with implementers of the Tri-Cities Urban Area Landscape Irrigation

Plan not covered under the CSRIA VRA to evaluate developing a separate VRA that makes the water generated from conservation practices available for other uses.

Tier (readiness to proceed): 1.

Responsible: City of Kennewick, Benton Conservation District. If willing, KID and CID can be partners in implementation of this action.

Considerations for Implementation:

- Any new VRA must be entered into prior to the June 2012 expiration of the VRA section of chapter 90.90 RCW, therefore applicability of the CSRIA VRA (in process) to urban irrigation conservation should be evaluated soon.
- Coordinate efforts with Action 5.1.1.1E that more generally addresses developing VRAs within WRIA 31.

Sequential Actions:

- Evaluate the applicability of the CSRIA VRA to water conservation achieved under the Tri-Cities Urban Irrigation Plan.
- If a separate VRA is desired, coordinate with members of CSRIA and Ecology regarding guidance and lessons learned and the feasibility of implementing a new VRA.
- If desired, develop and enter into a VRA by June 30, 2012.

5.4.1.3 Use of Reclaimed Water (WMP Section 6.1.3)

Issue: There are obstacles to use of reclaimed municipal water, including high cost relative to benefit (benefit mainly to 1/2 mile of Columbia River between source diversion and treated effluent discharge in Kennewick's case) and public stigma re: use of reclaimed water.

Objective: Identify opportunities for cost-effective use of reclaimed municipal water.

Priority: Low.

Action

Identify opportunities for cost-effective use of reclaimed municipal water.
As outlined in Section 6.1.3 of the WMP, the cost of using reclaimed water from the City of Kennewick's wastewater treatment plant outweighs the potential benefits to the watershed at this time. Nonetheless, the City should continue to evaluate using reclaimed water as water treatment technologies improve, potentially allowing more cost effective production of Class A treated wastewater for beneficial reuse. The WMP recommends no immediate action with respect to reclaimed water.

Tier (readiness to proceed): 3.

Responsible: City of Kennewick.

Considerations for Implementation:

- The City can evaluate usage of its non-consumptive water to reduce the quantity of mitigation water required under the Quad Cities water right.
- Anticipated constraints to implementation include stringent regulatory requirements for use of reclaimed water, coupled with substantial capital and O&M costs to achieve wastewater of sufficient quality (Class A) for use in ways that Kennewick could benefit from.

Sequential Actions:

- City of Kennewick continues to evaluate evolving water treatment technologies and applications, and regulatory changes, which can affect the future technical and economic feasibility of reclaimed water use.
- City of Kennewick will work with Ecology to evaluate use of non-consumptive return flows as mitigation for future Quad Cities water right consumptive use.

5.4.2 Kennewick Planning Area Water Quality

5.4.2.1 Vulnerability of Single Supply Source (WMP Section 6.2.1)

Issue: The City of Kennewick's reliance on the Columbia River system as its water supply source makes it vulnerable to water quality contamination.

Priority: High.

Objective: Diversify supply sources to reduce system vulnerability to water quality impact.

Action

To evaluate groundwater sources of supply, conduct a detailed evaluation of ASR feasibility through pilot testing.

There are no surface waters other than the Columbia River that are viable sources for municipal supply in the Kennewick planning area. Therefore, alternative water sources for this planning area are limited to groundwater: ASR and/or conventional production wells. An initial ASR feasibility study was conducted as part of WRIA 31 planning work, and the project has continued, with funding from the Columbia River Basin Water Supply Development Account, into a pilot testing phase (see Section 2.5.3).

Tier (readiness to proceed): 1 (ongoing).

Responsible: City of Kennewick.

Sequential Actions:

- The City will work with Ecology through the defined pilot testing program to assess the viability of the Columbia River Basalt aquifer system for ASR. The project is phased with funding for subsequent phases depending on concurrence of the City and Ecology that the results of previous phases are acceptable.

- If ASR is deemed feasible, the City will secure additional funding for construction of the ASR facility.
- The City will apply for a permit to use groundwater available though the ASR facility during emergency.
- The City will apply for a permanent groundwater permit for using the ASR facility to diversify its source water supply.

5.4.2.2 State Antidegradation Policy as Applied to ASR (WMP Section 6.2.2)

Issue: The current application/interpretation of the state antidegradation policy to ASR (e.g. storage of water containing chlorination byproducts) could constrain Kennewick's use of ASR.

Priority: High.

Objective: Obtain from Ecology a written policy, specific to ASR, which allows for de minimus impact to the quality of the receiving body of groundwater, as long as beneficial use of the groundwater resource is not impaired and it is not detrimental to the public interest.

Action

Meet with Ecology water resource and water quality staff to discuss Ecology drafting a water quality policy or pursuing a statutory exemption, specific to ASR, which allows for de minimus water quality impact to the receiving body of groundwater as long as beneficial use of the groundwater resource is not impaired and it is not detrimental to the public interest.

If City of Kennewick were to apply ASR, it would store the same treated water that is served to the City's customers. The water is disinfected using chlorine and therefore contains trace concentrations of disinfection byproducts which are not naturally present in the storage aquifer. If the water to be stored during ASR has chemical constituents present at concentrations above that in the ambient groundwater in the storage aquifer, the storage could be interpreted to violate the antidegradation provision of the state's Ground Water Quality Standards. The antidegradation standard is not violated if (1) An overriding consideration of the public interest will be served; and (2) all known, available, and reasonable methods of prevention, control, and treatment ("AKART") is applied prior to water injection. The WMP position is that the water treatment currently conducted by City on the water to be stored would represent AKART for the purposes of an ASR project. Because this issue affects Kennewick's ASR project and future ASR projects statewide, the WMP recommends that a statewide policy be developed to specifically address this issue.

Tier (readiness to proceed): 1 (ongoing).

Responsible: City of Kennewick, Ecology, Klickitat County.

Considerations for Implementation:

- An early task in Kennewick's ASR pilot testing program is an AKART assessment for disinfection byproducts. It is expected that that study will form the basis for development of a statewide policy on the topic.
- The PAC believes that the provisions in chapter 173-200 WAC (Ground Water Quality Standards) and chapter 173-157 WAC (ASR rule) provide Ecology the needed flexibility to make this policy determination. However, a written policy from Ecology, clarifying the position specific to ASR state-wide, should facilitate application of ASR within WRIA 31, the larger Columbia Basin, and the state as a whole.

Sequential Actions:

- Kennewick will work with Ecology through the defined pilot testing program including the AKART study.
- Using the results from the AKART study, the responsible parties will approach Ecology regarding drafting a policy to address application of the antidegradation standard to ASR projects statewide.

5.4.2.3 Water Quality Outside Kennewick Water Service Area (WMP Section 6.2.3)

Issue: It is uncertain whether rural domestic wells – outside Kennewick water service area - have water quality issues. For example, currently there is no requirement that single-family domestic wells in the area test their well.

Objective: Ensure that the rural population, outside Kennewick's water service area, has a safe source of potable water.

Priority: Low.

Actions

Local DOHs, in cooperation with conservation districts, should consider the following actions:

a. Inventory nitrate concentrations in all drinking water sources within the planning area;

b. Develop an integrated GIS/database to manage the available groundwater quality data;

c. Identify if alternative drinking water sources are available to those with unsafe drinking water; and

d. Continue to educate the public on proper wellhead protection, groundwater quality testing, and the risks associated with drinking water with elevated nitrates.

Tier (readiness to proceed): 2.

Responsible: Benton-Franklin Health District (pending intergovernmental agreement).

5.4.3 Kennewick Planning Area Aquatic Habitat

5.4.3.1 Kennewick Area Aquatic Habitat (WMP Section 6.3)

Issue: The Quad Cities water right allows for habitat improvements that benefit Columbia River system fish as mitigation for up to 50% of the future consumptive water use. Understanding the amount of habitat to be created or restored to offset water use impacts and identifying opportunities for improvement could therefore be useful to Kennewick in future exercise of the water right.

Priority: Medium.

Objective: Develop better understanding of opportunities to improve aquatic habitat which is beneficial to Columbia River salmon populations, thus assisting Kennewick in implementing its portion of the Quad Cities water right.

Actions

The Quad Cities water right states that, in determining the sufficiency of any proposed habitat action as mitigation for water allocation, Ecology will give deference to WDFW, the Confederated Tribes and Bands of the Yakama Nation, Nez Perce Tribe, the Confederated Tribes of the Umatilla Indian Reservation, and the Confederated Tribes of the Warm Springs Reservation of Oregon. There are four components to this strategy which are discussed below.

A) Seek clarification regarding the types of mitigation.

Seek clarification regarding the types of mitigation that would be found acceptable and the geographical range within which mitigation can be developed, under the Quad Cities water right.

Tier (readiness to proceed): 3.

Responsible: City of Kennewick. Ecology, as representative of the state agencies caucus, will partner with WDFW and Kennewick in implementation of this action.

Sequential Actions:

- Coordinate with WDFW and the applicable Tribal entities, including Yakama Nation Tributaries Program, to identify project types, and potentially specific project opportunities, that could be conducted as mitigation under the Quad Cities water right.

B) Evaluate the potential for habitat restoration.

Evaluate the potential for habitat restoration and the need for supplemental information by examining existing information regarding baseline habitat conditions and talking with WDFW Tri-Cities personnel regarding potential to improve habitat within the Kennewick planning area.

Tier (readiness to proceed): 3.

Responsible: City of Kennewick.

Sequential Actions:

- Coordinate with WDFW Tri-Cities personnel to compile and evaluate existing habitat information and discuss potential actions to improve habitat. Supplemental information may include a quantitative assessment of existing instream habitat conditions in local streams/wasteways and backwater areas of the mainstem Columbia River.
- If warranted, conduct instream habitat surveys to document the condition of current spawning and rearing habitat, identify potential land use effects on habitat, and identify opportunities to improve the existing habitat.

C) Identify opportunities for applicable habitat improvement in WRIA 31 and/or other WRIAs.

Identify, using existing and any supplemental information, opportunities for applicable habitat improvement in WRIA 31 and/or other WRIAs.

Tier (readiness to proceed): 3.

Responsible: City of Kennewick, Ecology.

Sequential Actions:

- Coordinate with Planning Units in other WRIAs, WDFW, and/or other resource agencies, and the Yakama Nation Tributaries Program, to identify areas inside or outside of WRIA 31 where opportunities for habitat improvement actions exist.
- Conduct followup assessment for the most promising opportunities to better define project specifics and the relative costs and benefits expected.

D) Consider contributing funds to habitat projects outside of the Quad.

Consider contributing funds to habitat projects outside of the Quad Cities in exchange for a proportionate credit for the mitigation achieved. This approach would need to be negotiated with Ecology in advance.

Tier (readiness to proceed): 3.

Responsible: City of Kennewick.

Sequential Actions:

- If a promising habitat improvement action with generally defined project costs is identified outside of the Quad Cities, and the agencies and Tribes concur that the project satisfies a quantity of mitigation that is acceptable to Kennewick, Kennewick and the other Quad Cities can initiate negotiations for funding a portion of the project proportionate to the mitigation achieved.
- Seek funding to implement any identified projects.

6 Funding

6.1 Watershed Planning Grants

6.1.1 Phase 4 Implementation Grants

A DIP is required to be completed during the first year as a condition to receive grant funding over the four subsequent years of the implementation phase. Potential grant funding supporting implementation provided by chapter 90.82.040 RCW is listed below.

Year 1: $100,000

Year 2: $100,000

Year 3: $100,000

Year 4: $50,000

Year 5: $50,000

As of spring 2010 when this DIP was being drafted, there is considerable uncertainty regarding future state funding availability for watershed planning. In early 2010, watershed planning groups across the state, including Klickitat County as lead agency for WRIA 31, submitted letters to and testified before their Legislators describing the importance of continued funding for watershed planning in light of the good-faith efforts undertaken by various stakeholders to develop locally-derived water resource management plans. It is currently not clear to what extent the Phase 4 implementation grants will be funded beyond June 30, 2010.

6.1.2 Other Watershed Planning Grants

Ecology's Watershed Planning Implementation Grant program is available to watershed planning groups to implement local projects based on completed detailed implementation plans. These competitive grants are made available on a 2-year cycle to fund implementation of operational, capital and stream gauging projects. As with Phase 4 watershed planning, it is currently not clear to what extent this program will be funded beyond June 30, 2010.

6.2 Other Potential Funding Sources

The Columbia River Basin Water Supply Development Account funds are available for design and construction of new storage projects; feasibility studies, environmental review, design and construction of modifications to existing storage facilities; and design and construction of conservation or storage projects that are ready to construct within 1 year of the grant award.

Many watershed implementation projects are traditionally funded based on their habitat or water quality benefits. To expand funding opportunities, the PAC should seek to

coordinate funding, where feasible, with projects that have mutual water quantity and habitat/water quality benefits. For example, funding may be available for projects promoting irrigation or agricultural improvements through capital projects and public education that result in water conservation and improved water use efficiencies. Water quality-related projects may be applicable for funding under the state's Centennial Clean Water Act Section 319 grant program.

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7 References

Aspect Consulting and Watershed Professionals Network (WPN), 2004, Level 1 Watershed Assessment, WRIA 31 (Rock-Glade Watershed), November 12, 2004.

Aspect Consulting, 2005a, Glade-Fourmile Subbasin Water Quality Report, Water Resource Inventory Area 31, June 21, 2005.

Aspect Consulting, 2005b, Rock Creek Water Quality Report, Water Resource Inventory Area 31, June 22, 2005.

Aspect Consulting, 2005c, Preliminary Water Storage Assessment, Glade-Fourmile Subbasin, WRIA 31, Prepared in coordination with Anderson-Perry Inc., September 23, 2005.

Aspect Consulting, 2005d, Aquifer Storage and Recovery Assessment, City of Kennewick, WRIA 31 Supplemental Water Storage Project, October 24, 2005.

Aspect Consulting, 2006, Evaluation of Winterizing Existing River Pump/Conveyance Systems for Use in Developing New Water Storage, Glade-Fourmile Subbasin, WRIA 31, prepared in coordination with SCM Consultants, November 28, 2006.

Aspect Consulting, 2008, Evaluation of the Adequacy of the Final Statewide Watershed Planning EIS in Meeting SEPA Requirements Associated with Adoption of the WRIA 31 WMP, June 10, 2008.

Ecology, 2003, Final Environmental Impact Statement for Watershed Planning under Chapter 90.82 RCW, Ecology Publication No. 03-06-013, July 18, 2003.

Ecology, 2004, Guidelines for Preparing Quality Assurance Project Plans for Environmental Studies, Ecology publication no. 04-03-030, July 2004.

Ecology, 2006, Water Quality Program Policy 1-11, September 2006.

Ecology, 2009, Water Rights Impairment Standards for Reclaimed Water: Stakeholder Views and Ecology Recommendations 2009, Report to the Legislature, Ecology Publication No. 09-11-027, December 2009.

Glass, D., 2009, WRIA 31 Instream Habitat Assessment, Prepared for Klickitat County and Washington Department of Ecology Shorelines and Environmental Assistance Program, Funded by Ecology Grant Number G0900072, http://www.klickitatcounty.org/NaturalR/default.asp?fd=3.

MacDonnell, L. J., 2008, Protecting Local Economies; Legislative Options to Protect Rural Communities in Northeastern Washington from Disproportionate Economic, Agricultural, and Environmental Impacts when Upstream Water Rights are Purchased and Transferred for Use, or Idled and Used as Mitigation, in a Downstream Watershed or County, Report to the Washington State Legislature, November 30, 2008.

NMFS, 1999, Endangered and threatened species; The status of two ESUs of steelhead in Washington and Oregon, 50 CFR, Part 222, Federal Register, Vol. 64, No. 57, pp. 14517-14528.

NMFS, 2005, Endangered and Threatened Species; Designation of critical habitat for 12 Evolutionarily Significant Units of west coast salmon and steelhead in Washington, Oregon, and Idaho; Final rule 50 CFR Part 226, Federal Register, Vol. 70, No. 170, pp. 52620-52858.

NMFS, 2006, Endangered and threatened species; Final listing determination for 10 distinct populations segments of west coast steelhead; final rule 50 CFR, parts 223 and 224, Federal Register, Vol. 71, No. 3, pp. 834-862.

NMFS, 2009, Recovery Plan for the Rock Creek Population of the Middle Columbia River Steelhead Distinct Population Segment, National Marine Fisheries Service, Portland, OR, http://www.nwr.noaa.gov/Salmon-Recovery-Planning/Recovery-Domains/Interior-Columbia/Mid-Columbia/upload/Mid-C-Rock-Crk.pdf.

WRIA 31 Planning Unit, 2008, Watershed Management Plan, Rock-Glade Watershed (WRIA 31), January 2008.

Limitations

Work for this project was performed and this report prepared in accordance with generally accepted professional practices for the nature and conditions of work completed in the same or similar localities, at the time the work was performed. It is intended for the exclusive use of WRIA 31 Planning and Advisory Committee for specific application to the referenced property. This report does not represent a legal opinion. No other warranty, expressed or implied, is made.

Table 2 - Summary of Recommended Actions in WRIA 31 Watershed Management Plan (WMP)
Actions are grouped by priority as indicated in the WMP

DIP Section, Project Type, Planning Area, (WMP Section)	Issue	Objective	Recommended Actions	Tier (project readiness)	Responsible Parties (for abbreviations, see bottom)
High Priority Issues					
5.1.1.1 Quantity WRIA-wide (WMP 3.1.1)	Columbia River Water Supply	Ensure that adequate water supplies are available to meet current needs, provide for long-term sustainability of irrigated agriculture, and support economic and population growth within WRIA 31. Achieve this objective through active participation in the implementation of the Columbia River Basin Water Supply Act (Engrossed Second Substitute House Bill [ESSHB] 2860) and through Ecology's processing/granting new water right permits to exercise the John Day-McNary Pools reserves appropriated in chapter 173-531A WAC.	a. Develop a process with Ecology for expediting the issuance of permits from the John Day-McNary Pools reservations to meet beneficial uses as specified under chapter 173-531A WAC. The process may include use of VRAs, rulemaking (if the need for rulemaking is determined by the PAC and approved as provided in Section 8.8 of this plan), MOU with Ecology, or other legal method.	1	KC, BC, Ecy
			b. The PAC and Implementing Governments will pursue legislation to define the consultation process for processing water right applications that is consistent with the consultation process established for VRAs in RCW 90.90.030(4)(a). That is, establish a 60-day period for consultation with county legislative authorities, local watershed planning units, WDFW, affected tribal governments, and federal agencies, for applications that are not covered by an approved VRA or otherwise covered by statute.	1	KC, BC, BCD
			c. (1) Support implementation of the VRAs that are consistent with this watershed management plan (e.g., CSRIA VRA). (2) The WRIA 31 Lead Agency and or Implementing Governments should seek an agreement with Ecology regarding utilization of the WRIA 31 watershed planning process to support identification and prioritization of mitigation actions.	(1) 1; (1) 2	(1) BCD; (2) KC
			d. Explore developing a VRA as a mechanism for expanding water supply availability within WRIA 31 (e.g. water storage; availability of conserved water).	1	KC, Ecy
			e. Pursue developing an intergovernmental agreement between the WRIA 31 Lead Agency or Implementing Governments with Ecology to ensure effective implementation of VRAs that would be applicable within the WRIA, and ensure harmonization of VRAs with the WRIA 31 watershed management plan as required under chapter 90.90 RCW. This may include defining a list of potential storage and conservation projects that make available new water supplies within WRIA 31. The PAC will consult with Ecology regarding any proposed VRA that would be applicable within the WRIA.	1	KC
			f. Pursue funding for water supply projects within WRIA 31. This can include larger projects like a Kennewick ASR pilot project and/or a regional water storage project in the Wood-Glade planning area (Section 3.1.2), and/or a source exchange project in which groundwater supply from pumping of deep wells is replaced by Columbia River supply (Section 5.1.1). It could equally include projects to meet smaller-scale water demands throughout the watershed, not limited by distance from the mainstem Columbia River.	1	KC, , BC, CK
			g. Develop a strategy in the context of the chapter 90.90 RCW to address existing interruptible Columbia River rights in WRIA 31 that are not included in the CSRIA VRA.	1	KC, CK
			h. The WRIA 31 Implementing Governments will provide information and help revise future Columbia River water supply inventories and long-term water supply and demand forecasts. This will include stronger recognition of smaller-scale water demands throughout the watershed, not limited by distance from the mainstem Columbia River. It is of importance to WRIA 31 that smaller-scale water supply projects, including those at distance away from the mainstem Columbia River, be recognized and planned for within implementation of the Columbia River Basin Water Supply Act. The PAC may seek funding for this participation.	1	KC, Ecy
			i. Pursue developing an intergovernmental agreement between the WRIA 31 Lead Agency and Ecology regarding implementation of the state trust water program within the WRIA. The intent is to ensure that, if state funding is used to acquire water rights, or parts of water rights, for placement in the state water trust program, such acquisitions are consistent with the watershed management plan and include early consultation with the Implementing Governments or PAC. It is also recommended that the PAC and Implementing Governments investigate legislative actions that may be necessary to provide clarification about the timing and consultation criteria to ensure consistency with the approved watershed management plan.	2	KC, Ecy
			j. The PAC will serve as an advisory body for implementing the Columbia River Basin Water Supply Development Program within WRIA 31.	1	KC, BC, BCD

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DIP Section, Project Type, Planning Area, (WMP Section)	Issue	Objective	Recommended Actions	Tier (project readiness)	Responsible Parties (for abbreviations, see bottom)
5.1.1.1 Quantity WRIA-wide (WMP 3.1.1) (continued)	Columbia River Water Supply	Ensure that adequate water supplies are available to meet current needs, provide for long-term sustainability of irrigated agriculture, and support economic and population growth within WRIA 31. Achieve this objective through active participation in the implementation of the Columbia River Basin Water Supply Act (Engrossed Second Substitute House Bill [ESSHB] 2860) and through Ecology's processing/granting new water right permits to exercise the John Day-McNary Pools reserves appropriated in chapter 173-531A WAC.	k. The PAC will communicate with other planning units and local governments in the Columbia River basin in order to better develop a Columbia River basin-wide perspective of water resource issues and to identify opportunities for cooperative efforts. It is further recommended that the PAC be represented on relevant water resource policy advisory groups and forums on the state and federal level.	1	KC, CK, BCD
			l. Fill data gaps regarding factors that affect fish survival within the John Day and McNary Pools and assess fish and wildlife habitat in and adjacent to the Columbia River mainstem.	1	KC, BCD, EKCD
5.1.1.2 Quantity WRIA-wide (WMP 3.1.2)	Limited Water Storage	Develop new water storage facilities off of the Columbia River mainstem to help meet future demand.	The PAC or subcommittee should identify and evaluate storage needs and storage opportunities to best meet those needs throughout the watershed. Refer to Section 3.1.2 for planning area-specific recommendations.	Wood-Glade, Kennewick ASR 1; Rock Creek 2	KC, CK
5.1.1.3 Quantity WRIA-wide (WMP 3.1.3)	Preserve Water Rights in the Watershed	Preserve existing water rights as an asset of the watershed.	a. Increase public education regarding water rights to avoid inadvertent relinquishment. This can include developing a flier that explains water rights and their potential for relinquishment in layman's terms, and distributing it widely throughout the watershed.	1	KC, BC, KWCB, BWCB
			b. Establish a water market or "clearinghouse" that would provide a link and local point of contact for water right sellers/buyers or leasors/leasees, and municipal entities, to facilitate the transfer of, and prevent relinquishment of, existing water rights.	1	KC, BC, KWCB, BWCB, Ecy
			c. Pursue legislative changes to the state water code to define changes in irrigation practices occurring over time periods longer than 5 years as sufficient cause for nonuse during that period (and preventing relinquishment if full use is achieved during the period).	1	KC, BCD, KWCB
5.1.1.4 Quantity WRIA-wide (WMP 3.1.4)	Disincentives to Water Conservation	Maximize water conservation by eliminating disincentives to conserving.	a. The PAC should pursue legislation to effect changes in the water code that prevent relinquishment of rights to conserved irrigation water and provide flexibility in its future use (e.g. irrigation of expanded acreage). Removing the disincentives to water conservation from the state water code is a legislative action needed to implement the WRIA 31 watershed management plan and, as such, should be included in Ecology's annual report the appropriate standing legislative committees pursuant to RCW 90.82.043(5).	1	KC, BCD, KWCB
			b. Propose and develop voluntary regional agreements as one option to make the quantity of conserved water available in the WRIA.	1	KC
			c. Identify conditions in conservation grants that may (unintentionally) create disincentives to implementing conservation or otherwise undermine this watershed management plan. Communicate this information with proposed solutions to responsible funding agencies.	1	BCD, EKCD
			d. Encourage conservation as a means to make water available for irrigation of additional acreage by the water right holder.	1	BCD, EKCD
			e. (1) Where deemed appropriate by the Implementing Governments in consultation with the PAC, acquire water generated through conservation from willing water right holders, put it in the state trust program and make it available to meet out-of-stream and instream water uses in accordance with this watershed management plan. (2) The PAC will serve in an advisory capacity for implementation of the state water trust program within the WRIA to ensure continuing conformance with the watershed management plan. In its advisory role, the PAC should propose and develop agreement(s) to ensure that trust water right programs further the purposes of this watershed management plan, not undermine it.	(1) 1; (2) 2	KC, BC, BWCB, KWCB
5.1.3.1 Habitat WRIA-wide (WMP 3.3.1)	Limited Aquatic Habitat Data Available	Collect quality-assured data to fill data gaps regarding aquatic habitat throughout WRIA 31, so that appropriate actions to address factors affecting fish production can be developed.	Collect quality assured data to assess current habitat conditions and limiting habitat characteristics, in accordance with the IAC's Washington Comprehensive Monitoring Strategy for Watershed Health and Salmon Recovery and other established and accepted protocols. Identify specific projects to address fish habitat issues based on the results of those studies. Specific information regarding available information and recommended approaches are outlined in WMP Sections 4.3, 5.3, and 6.3 for Rock Creek, Wood-Glade, and Kennewick planning areas, respectively.	1	KC, BCD, EKCD

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Actions are grouped by priority as indicated in the WMP

DIP Section, Project Type, Planning Area, (WMP Section)	Issue	Objective	Recommended Actions	Tier (project readiness)	Responsible Parties (for abbreviations, see bottom)
5.2.2.1 Quality Rock Creek (WMP 4.2.1)	Elevated Water Temperature in Rock Creek	Bring Rock Creek into compliance with state surface water standards for temperature. This could be achieved by collecting additional data and analysis that show the elevated temperatures are a result of natural conditions and human influence is increasing water temperature by no more than 0.3°C, or by developing and implementing a water quality improvement and protection plan (Category 4A or 4B) that over time results in compliance and recategorization as Category 1 (meets standards) or Category 2 (waters of concern).	a. Develop a locally-managed water quality improvement plan to 1) evaluate the cause of elevated temperature (i.e. effect of natural conditions versus human activity) and 2) continue implementing BMPs to ensure that human effects on temperature are within acceptable levels. The Forests and Fish Report/Forest Practices Rules serve as a water quality improvement plan for forested headwaters in the subbasin.	1	KC, EKCD, BCD if covers drainages in Benton Co
			b. Continue implementation of the management practices identified in the 1996 MOA between Ecology and EKCD until a water quality improvement plan is formalized.	1	EKCD
			c. Evaluate habitat enhancement projects that include riparian plantings to increase stream shade.	1	EKCD
			d. Install additional permanent streamflow gauging stations at or near locations where water temperatures have been measured since 1996. Station locations will be determined once currently planned gauges are operating and data gaps, if any, are identified.	1	EKCD
5.2.3.1 Habitat Rock Creek (WMP 4.3.1)	Salmonid Distribution and Use	Determine the distribution and survival of salmonids in the watershed.	a. Document and monitor the distribution and abundance of spawning salmonids in Rock Creek and its tributaries.	2	KC
			b. Evaluate the distribution and abundance of juveniles rearing in the subbasin.	Completed	
			c. Measure migration of juveniles and total juvenile production through installation and year-round operation of a screw trap, in cooperation with WDFW	2	KC
5.2.3.2 Habitat Rock Creek (WMP 4.3.2)	Habitat Quality and Potential Land Use Effects	Evaluate the quality of habitat in the Rock Creek subbasin and the effects of land use on that habitat.	a. Implement the actions described in Section 4.2.1 to restore and protect fish habitat.	1	KC, EKCD
			b. Quantify spawning habitat (e.g., document substrate size and embeddedness in potential spawning areas).	Completed	
			c. Collect additional information on passage barriers to help refine estimates of available habitat for anadromous fish.	Completed	
			d. Develop an inventory of current rearing habitat, identifying areas of year-round flow and suitable stream temperatures and areas where these conditions may be reasonably attained.	1	KC, EKCD
			e. Collect water temperature data when conducting snorkel surveys to support evaluation of the temperature tolerances of local steelhead population.	3	KC, EKCD
			f. Implement a public education and communication program to inform landowners regarding the intent of habitat protection and restoration projects, educate the public regarding the influence of land use on the quality of fish habitat, and encourage participation in volunteer efforts.	1	EKCD
5.2.3.3 Habitat Rock Creek (WMP 4.3.3)	Monitoring	Monitor the effectiveness of aquatic habitat protection and restoration efforts.	a. Develop and implement an aquatic habitat monitoring plan consistent with state protocols that provides for documenting long-term trends in fish population levels and habitat quality and documents effectiveness of habitat-related projects. Data collection efforts must be developed using statistically robust methods and must include a quality assurance process, and all data collected must be made publicly available.	1	KC, EKCD
			b. Conduct public education/communication to inform landowners regarding the intent of habitat-related projects and to foster understanding regarding the influence of land use on the quality of fish habitat and encourage participation in volunteer efforts.	1	EKCD
5.3.1.1 Quantity Wood-Glade (WMP 5.1.1)	Groundwater Level Declines in Basalt Aquifer	For affected areas, develop alternative water supply sources to reduce (net) withdrawal from the Wanapum Aquifer and thereby maintain a sustainable groundwater supply.	a. Develop conceptual design of a regional water storage and supply system making use of the John Day-McNary reserve.	1	KC , BC
			b. Evaluate a voluntary source exchange program in which groundwater rights are replaced by surface water rights permitted from the John Day-McNary reserve.	2	KC
			c. Scope and conduct a drilling program to explore development potential of the Grande Ronde Basalt aquifer in this area and assess the hydraulic effect on the Wanapum Basalt aquifer caused by pumping the Grande Ronde.	2	KC
			d. Complete detailed water storage feasibility studies as warranted to address water needs not met through one of the recommended actions above.	1	KC
			e. Continue Ecology's program of monitoring water levels in WRIA 31 wells, and ideally expand it to include additional wells in the multiple aquifer units as allowed by land owners.	2	KC, Ecy
			f. The PAC will consider establishing all or a portion of the Wood/Glade Area as a groundwater management area under RCW 90.44.400. A local government can develop and implement a groundwater management program.	2	KC, BC, Ecy

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DIP Section, Project Type, Planning Area, (WMP Section)	Issue	Objective	Recommended Actions	Tier (project readiness)	Responsible Parties (for abbreviations, see bottom)
5.3.1.2 Quantity Wood-Glade (WMP 5.1.2)	Higher-Value Crops Could Allow for Water Supply Investment	Achieve policy/regulatory changes that allow for maximum flexibility to change existing water rights in ways that support growth in the agricultural economy.	Work with Ecology to further evaluate and consider developing policies/regulations, including further review of its ACQ policy, that facilitate, not restrict, shifting existing water rights to new areas that would support production of higher value crops. Communications with legislators by the Implementing Governments and/or PAC may also be an option.	2	KC, BCD, KWCB, BWCB
5.3.2.1 Quality Wood-Glade (WMP 5.2.1)	Nitrate in Shallow Groundwater and Surface Water	Ensure that all area residents have a safe source of potable water.	Local DOHs, in cooperation with conservation districts, should consider the following actions:	2	BFHD, KCHD
			a. Inventory nitrate concentrations in all drinking water sources within the planning area;	2	BFHD, KCHD
			b. Develop an integrated GIS/database to manage the available groundwater quality data;	2	BFHD, KCHD
			c. Identify if alternative drinking water sources are available to those with unsafe drinking water;	2	BFHD, KCHD
			d. Continue to educate the public on proper wellhead protection, groundwater quality testing, and the risks associated with drinking water with elevated nitrates.	2	BFHD, KCHD
5.4.1.1 Quantity Kennewick (WMP 6.1.1)	Mitigation for Quad Cities Water Right	Identify sources of mitigation water to allow for Kennewick's future exercise of the Quad Cities water right without interruption.	a. Reassess the current assumption of 80% annual consumptive use for mitigation under the Quad Cities water right. A more accurate estimate of annual consumptive use will reduce the quantity of mitigation water required.	1	CK
			b. Identify additional sources of water for mitigation of the remaining 168 cfs of diversion under the Quad Cities water right (see WMP Section 6.1.1 for options).	1	CK
5.4.2.1 Quality Kennewick	Vulnerability of Single Supply Source	Diversify the City of Kennewick's supply sources to reduce system vulnerability to water quality impact.	To evaluate groundwater sources of supply, conduct a detailed evaluation of ASR feasibility through pilot testing.	1	CK
5.4.2.2 Quality Kennewick (WMP 6.2.2)	State Antidegradation Policy as Applied to ASR	Obtain from Ecology a written policy, specific to ASR, which allows for de minimus impact to the quality of the receiving body of groundwater, as long as beneficial use of the groundwater resource is not impaired and it is not detrimental to the public interest.	Meet with Ecology water resource and water quality staff to discuss Ecology drafting a water quality policy or pursuing a statutory exemption, specific to ASR, which allows for de minimus water quality impact to the receiving body of groundwater as long as beneficial use of the groundwater resource is not impaired and it is not detrimental to the public interest.	1	CK, Ecy, KC

Table 2 - Summary of Recommended Actions in WRIA 31 Watershed Management Plan (WMP)
Actions are grouped by priority as indicated in the WMP

DIP Section, Project Type, Planning Area, (WMP Section)	Issue	Objective	Recommended Actions	Tier (project readiness)	Responsible Parties (for abbreviations, see bottom)
Medium Priority Actions					
5.2.1.2 Quantity Rock Creek (WMP 4.1.2)	Groundwater Development Potential	Develop baseline information to support developing additional water supply sources if future demand in the basin increases significantly.	Conduct a hydrogeologic evaluation to explore aquifer systems and better understand whether groundwater quantity and quality is sufficient to meet potential larger future demands in the Rock Creek planning area.	1	KC
5.3.1.3 Quantity Wood-Glade (WMP 5.1.3)	Expansion of Small Public Water Systems	Eliminate artificial (administrative) constraints that prevent public water systems from meeting growing demand.	a. DOH should work with local public water systems during approval of water system plans to allow service to the maximum number of persons/units possible within the systems' available water rights and source capacity.	2	KC, BC
			b. Provide financial assistance, through grants or other means, to allow all public water systems in the planning area to purchase and install totalizing flow meters for sources and services.	2	KC, BC
			c. Pursue legislative action to amend the state water code to provide for expedited processing of water right permits to small public water systems, and provide the state resources to implement it.	3	KC, BC
5.3.3.1 Habitat Wood-Glade (WMP 5.3.1)	Critical Habitat Designations	Document the quality and extent of fish habitat in reaches identified as critical habitat. Based on the results of data collection efforts, identify projects to restore and protect critical fish habitat.	a. Survey distribution of fish and redds downstream of passage barriers, using established protocols supported by WDFW including summer snorkel surveys.	3	KC
			b. Quantify spawning habitat after the distribution and life history of the local stock is better understood. Map spawning habitat while conducting redd surveys using established protocols.	Completed	
			c. Collect additional information on passage barriers to help refine estimates of available habitat for anadromous fish.	Completed	
			d. Inventory current rearing habitat, identifying areas of year-round flow and suitable stream temperatures and areas where these conditions may be reasonably attained if actions were taken	1	KC, EKCD
			e. Collect statistically robust, quality-assured habitat data consistent with established state protocols (see WMP Section 5.3.1); however, modifications of protocols may be required to ensure that the information needed is obtained during the assessments. Data collected will be made publicly available.	Completed	
			f. Identify opportunities for habitat protection and restoration projects based on data collected to fill data gaps.	1	KC, EKCD
			g. Encourage participation in existing voluntary programs that provide for habitat protection.	1	BCD, EKCD
			h. Implement a public education program to inform landowners regarding the intent of habitat protection and restoration projects, educate the public regarding the influence of land use on the quality of fish habitat, and encourage participation in volunteer efforts.	1	BCD. EKCD
5.3.3.2 Habitat Wood-Glade (WMP 5.3.2)	Fish Passage Barrier at Mouth of Pine Creek	Restore fish passage at the culvert.	Provide to WSDOT information from habitat surveys recommended in WMP Section 5.3.1 regarding quality of habitat upstream of the culvert. Support WSDOT efforts to obtain funding for their replacement of the culvert.	1	KC, Ecy
5.4.1.2 Quantity Kennewick (WMP 6.1.2)	Water for Urban Irrigation	Improve reliability of irrigation supplies in Kennewick area.	a. Support KID's proposed pump exchange program including the Planning Unit writing a letter of support to stakeholders, and then assist KID as warranted to secure funding for program implementation.	1	CK, Ecy
			b. Assist implementers of the Tri-Cities Urban Area Irrigation Plan to pursue funding for urban irrigation conservation projects, including public education.	1	KC, BCD
			c. After adoption of the CSRIA VRA, determine applicability of the CSRIA VRA to conservation savings under Tri-Cities Urban Area Irrigation Plan. If necessary, work with implementers of the Tri-Cities Urban Area Irrigation Plan not covered under the CSRIA VRA to evaluate developing a separate VRA that makes the water generated from conservation practices available for other uses.	1	CK, BCD
5.4.3.1 Habitat Kennewick (WMP 6.3)	Kennewick Area Aquatic Habitat	Develop better understanding of opportunities to improve aquatic habitat which is beneficial to Columbia River salmon populations, thus assisting Kennewick in implementing its portion of the Quad Cities water right.	a. Seek clarification regarding the types of mitigation that would be found acceptable and the geographical range within which mitigation can be developed, under the Quad Cities water right.	3	CK, Ecy
			b. Evaluate the potential for habitat restoration and the need for supplemental information by examining existing information regarding baseline habitat conditions and talking with WDFW Tri-Cities personnel regarding potential to improve habitat.	3	CK
			c. Identify, using existing and any supplemental information, opportunities for applicable habitat improvement in WRIA 31 and/or other WRIAs.	3	CK, Ecy
			d. Consider contributing funds to habitat projects outside of the Quad Cities in exchange for a proportionate credit for the mitigation achieve. This approach would need to be negotiated with Ecology in advance.	3	CK

Table 2 - Summary of Recommended Actions in WRIA 31 Watershed Management Plan (WMP)

Actions are grouped by priority as indicated in the WMP

DIP Section, Project Type, Planning Area, (WMP Section)	Issue	Objective	Recommended Actions	Tier (project readiness)	Responsible Parties (for abbreviations, see bottom)
Low Priority Actions					
5.1.2.1 Quality WRIA-wide (WMP 3.2)	Columbia River Water Quality	Document the contribution of WRIA 31 streams to impaired water quality in the mainstem Columbia River.	a. Ecology will coordinate with the WRIA 31 initiating governments regarding TMDL or other water quality-related activities on the mainstem Columbia River within WRIA 31.	1	KC, Ecy
			b. Develop a WRIA-wide water quality maintenance/improvement plan for tributary streams that are designated pursuant to the ESA as critical habitat for Middle Columbia steelhead. The plan would identify appropriate locally managed activities to be undertaken to ensure that water quality in the tributaries are maintained and, where practical, enhanced.	1	KC, BCD, EKCD, Ecy
5.2.1.1 Quantity Rock Creek (WMP 4.1.1)	Natural Streamflow Condition	Evaluate options including storage to enhance Rock Creek streamflows to meet specific demands defined in the future.	As dictated by future demands in the subbasin, conduct a feasibility study of options to enhance streamflows in Rock Creek.	1	KC, EKCD
5.2.2.2 Quality Rock Creek (WMP 4.2.2)	Water Quality Monitoring	Document long-term water quality conditions, apart from temperature, that could be attributable to land use in the watershed.	Monitor for trends in fecal coliform levels in Rock Creek by adding periodic laboratory analyses to EKCD's monitoring program.	1	EKCD
5.4.1.3 Quantity Kennewick (WMP 6.1.3)	Use of Reclaimed Water	Identify opportunities for cost-effective use of reclaimed municipal water.	No immediate action is recommended with respect to reclaimed water. City of Kennewick should continue to evaluate use of reclaimed water as water treatment technologies improve, potentially allowing more cost-effective production of Class A treated wastewater.	3	CK
5.4.2.3 Quality Kennewick (WMP 6.2.3)	Water Quality Outside Kennewick Water Service Area	Ensure that the rural population, outside Kennewick's water service area, has a safe source of potable water.	Local DOHs, in cooperation with conservation districts, should consider the following actions:	2	BFHD
			a. Inventory nitrate concentrations in all drinking water sources within the planning area;	2	BFHD
			b. Develop an integrated GIS/database to manage the available groundwater quality data;	2	BFHD
			c. Identify if alternative drinking water sources are available to those with unsafe drinking water;	2	BFHD
			d. Continue to educate the public on proper wellhead protection, groundwater quality testing, and the risks associated with drinking water with elevated nitrates.	2	BFHD

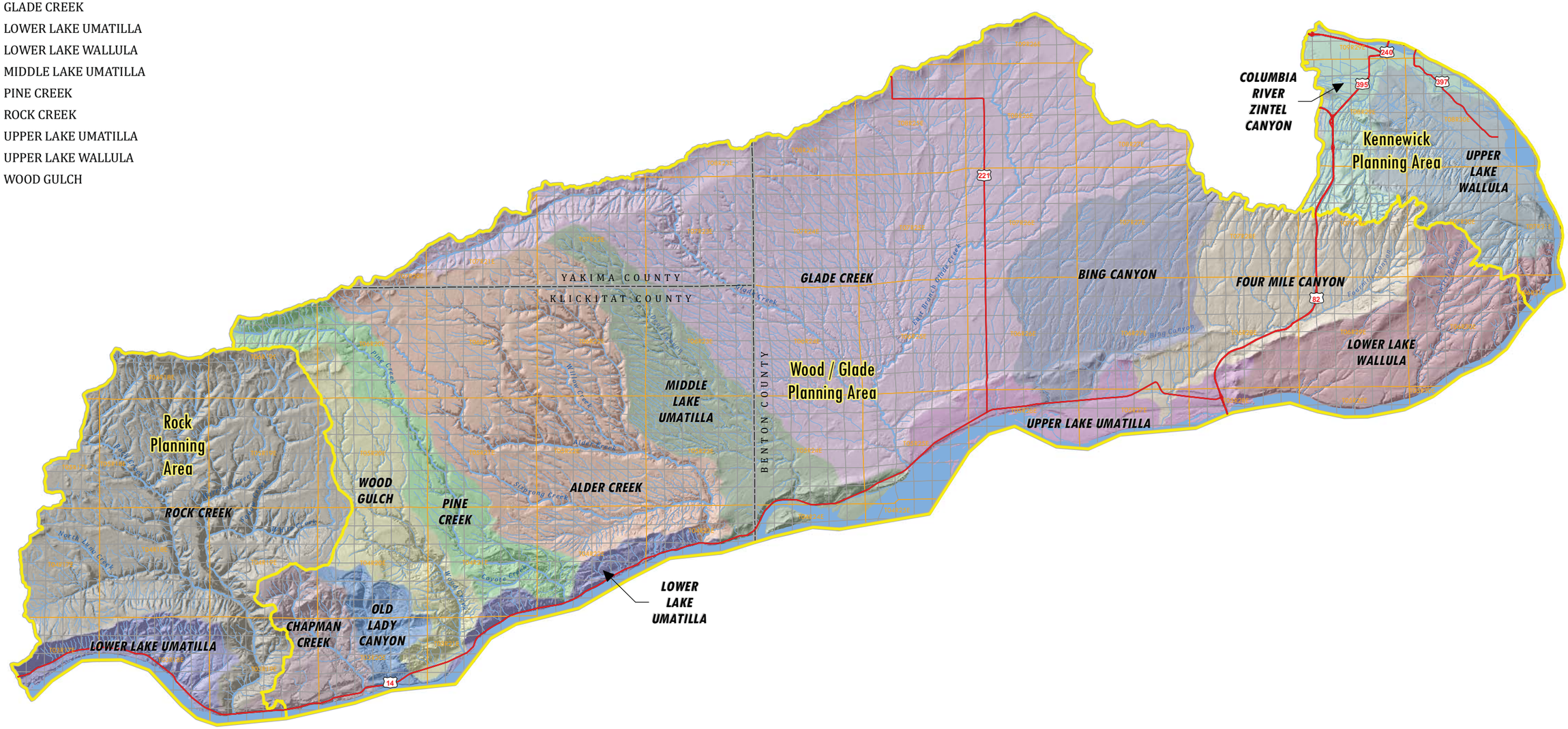
Responsible Party Abbreviations

BC: Benton County
BCD: Benton County Conservation District
BFHD: Benton Franklin Health District
BWCB: Benton County Water Conservation Board
CK: City of Kennewick
Ecy: Washington Department of Ecology
EKCD: East Klickitat Conservation District
KC: Klickitat County
KCD: Klickitat Conservation District
KCHD: Klickitat County Health Department
KWCB: Klickitat County Water Conservation Board

Drainages

- ALDER CREEK
- BING CANYON
- CHAPMAN CREEK
- OLD LADY CANYON
- COLUMBIA RIVER/ZINTEL CANYON
- FOUR MILE CANYON
- GLADE CREEK
- LOWER LAKE UMATILLA
- LOWER LAKE WALLULA
- MIDDLE LAKE UMATILLA
- PINE CREEK
- ROCK CREEK
- UPPER LAKE UMATILLA
- UPPER LAKE WALLULA
- WOOD GULCH

- Planning Areas (Aspect Consulting)
- Counties
- State Routes
- Township and Range
- Sections



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Aspect consulting
earth+water
www.aspectconsulting.com
a limited liability company

WRIA 31 Drainages and Planning Areas

WRIA 31 Detailed Implementation Plan

DATE: Apr 2010	PROJECT NO. 090045
DESIGNED BY: ACM	
DRAWN BY: PPW	FIGURE NO. 1
REVISED BY: ---	

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APPENDIX A

Invitation Letter to Group A Public Water Systems

January 2010

Contact
Water System Name
Street Address
City, State ZIP

Re: Water System Data Request
WRIA 31 Detailed Implementation Plan
Project No. 090045-004

Dear Water System Operator:

Klickitat County, Benton County, and the Water Resource Planning and Advisory Committee (PAC) are currently involved in a State watershed planning process for your local watershed. The Rock-Glade watershed, Water Resource Inventory Area (WRIA) 31, extends from approximately the John Day Dam to the City of Kennewick in Washington. From west to east, major drainages in WRIA 31 include Rock, Wood Gulch, Pine, Alder, Dead Canyon, and Glade Creeks, and Fourmile and Switzler Canyons.

Enacted in 1998 by the Washington State Legislature, the Watershed Planning Act provides a framework for developing local solutions to issues facing individual watersheds – including water quality, water quantity, and aquatic habitat. The WRIA 31 Watershed Planning effort to date has included completion of technical studies and a Watershed Management Plan, which summarizes the current status of the watershed and outlines recommendations for future management of watershed resources. The Watershed Management Plan was formally adopted in September 2008. The adopted plan, along with other technical studies and documents, may be found on Klickitat County's website: http://www.klickitatcounty.org/NaturalR/default.asp?fD=3

The next step following adoption of the Watershed Management Plan is implementation of the plan's recommendations, which entails preparing a Detailed Implementation Plan (DIP). The DIP defines a schedule and specific actions to be taken to achieve the recommendations outlined in the Watershed Management Plan.

Key to the DIP development is notification and involvement from the community, especially entities that possess municipal water rights, as required by State Law (Revised Code of Washington (RCW) 90.82.048). This ensures that all existing water rights, including inchoate water, are accounted for in developing strategies to meet projected future water needs. Inchoate rights are defined as that portion of a water right that has not been put to beneficial use (perfected), and is *not* subject to relinquishment because the water right is legally defined as Municipal, as per Chapter 90.03.015 RCW. The statute specifically requires consideration of how the use of inchoate rights will be addressed when implementing instream flow strategies in WRIA 31.

Therefore, we request your assistance in helping us gather specific information about your water system to meet the statutory requirements for the DIP. This information should already be publicly available in your Water System Plan. The information we are requesting includes:

- Current Water Rights, including identification number and authorized amounts (instantaneous flowrate and annual volumes);
- Current annual usage; and
- Projected water demand over the next 20 years, or similar planning horizon.

We request you email, fax, or mail this information to Aspect Consulting – the PAC's technical consultant – by the end of February 2010:

Aspect Consulting, LLC
Attn: Bill Sullivan
23 S Mission Avenue
Wenatchee, Washington 98801

Email: bsullivan@aspectconsulting.com

Fax (888) 840-3317. Phone (509) 888-5766.

Additionally, you are invited to participate in defining the timelines and interim milestones to be included in the DIP for planned future use of existing water rights for municipal supply purposes.

We appreciate your assistance in gathering this information and hope that you will participate in the development of the DIP. If there are any questions or comments, please don't hesitate to contact me (206-838-5830), Dave McClure at Klickitat County (509-773-2606), or Adam Fyall at Benton County (509-736-3053).

Sincerely,

Aspect consulting, LLC

Steve Germiat, LHG, CGWP
Sr. Associate Hydrogeologist
sgermiat@aspectconsulting.com

cc: Dave McClure, Klickitat County
Adam Fyall, Benton County
Greg Schuler, Washington State Department of Ecology

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