

Kitsap Peninsula and Islands (WRIA 15) Watershed Management Plan June 16, 2005

Executive Summary

This plan addresses the water resource issues and recommendations agreed upon by the WRIA 15 Planning Unit. This plan resulted from five years of technical investigations and planning. The planning process produced a significant body of technical work that has greatly improved the water resources information base for the Kitsap Peninsula and Islands. Investigations conducted during the planning process include reports on water quantity and quality, stormwater management, water reuse and water storage, and the interaction of ground and surface water in supporting stream flows.

The brevity and simplicity of this plan are intentional, as the Planning Unit designed this plan to be acceptable to a widely diverse range of interests. For more information on the planning process and documents produced during its course, please refer to the documents mentioned below and in Appendix C.

The sections of this plan are as follows:

<i>Preamble</i>	
<u>Disclaimers, Limitations, and Qualifiers</u>	<u>Page 2</u>
<u>Introduction</u>	<u>Page 3</u>
<u>Legislatively Required Elements</u>	<u>Page 4</u>
<u>State Environmental Policy Act Compliance</u>	<u>Page 4</u>
<i>Issues & Recommendations</i>	
1. <u>Monitoring</u>	<u>Page 6</u>
2. <u>Public Education & Involvement</u>	<u>Page 8</u>
3. <u>Conservation & Efficiencies</u>	<u>Page 9</u>
4. <u>Rainwater Harvesting</u>	<u>Page 10</u>
5. <u>Water Reuse</u>	<u>Page 11</u>
6. <u>Stormwater Management</u>	<u>Page 12</u>
7. <u>Water Quality</u>	<u>Page 13</u>
8. <u>Incentive-Based Approaches</u>	<u>Page 14</u>
9. <u>Hood Canal</u>	<u>Page 15</u>
<i>Implementation & Administration</i>	
<u>Plan Implementation</u>	<u>Page 16</u>
<u>Sub-Area Plans</u>	<u>Page 17</u>
<u>List of Appendices</u>	<u>Page 17</u>

Disclaimers, Limitations, and Qualifiers

This document is the only component of the WRIA 15 planning process that has been approved by the Planning Unit for formal consideration by the participating counties as outlined in the Watershed Management Act (RCW 90.82). The document entitled “WRIA 15 Unapproved Draft Watershed Plan,” the numerous technical documents, and other products of this planning process have not been approved. No aspect of the planning effort other than this document should be interpreted or used as an approved component of the Plan. The remaining documents are additional informational resources that provide a record of the planning process and what the Planning Unit considered. Individual parties to this plan, as well as other entities in the WRIA are not precluded from pursuing action on non-agreed upon items or other water resource related actions, in accordance with applicable laws and regulations.

This Plan, developed under provisions of the Watershed Management Act (Chapter 90.82 RCW), only addresses State-issued water rights and does not address Federal- or Tribal-based water rights except to acknowledge that they have not been quantified and in most cases they are likely to be senior to specific state water rights.

This Plan discusses only those elements that were agreed to by the consensus of the Planning Unit; it does not comprehensively cover all water resource issues in WRIA 15. It contains some general strategies to develop new water supplies to help existing supplies go farther, and assist the health of water resources in the WRIA. The information and recommendations contained in this Plan represent the best set of recommended actions to improve water resource management that the Planning Unit could come to agreement on under time and budget limitations and complexity of the issues. When implementing these recommendations, other preferred methods of addressing particular water resource issues may become apparent. The Planning Unit expects this Plan to be implemented using the concept of adaptive management.

Nothing in this Plan shall be construed by the State as providing grounds for issuing water rights under provisions related to “overriding consideration of the public interest,” nor may this Plan be used to determine what constitutes “detrimental to the public welfare” in processing water right applications.

The adoption of this Plan does not create any specific legal or programmatic obligation on the part of any entity, unless clearly stated in the recommendations. The Planning Unit recognizes the implementation of the Watershed Plan is subject to budgetary constraints and acknowledges that no entity is obligated to implement a prescribed action in this Plan unless adequate authority and funding is available to do so.

The appendix entitled “Unresolved Issues” is included to document various perspectives on certain issues. This Plan does not support or endorse any particular perspective, but only acknowledges that these differences exist. These are important water resource issues that will need to be addressed; however, statements on them are not meant to be adopted or approved at this time.

Introduction

This WRIA Plan:

- Recognizes that changes to the hydrogeologic system are usually quite subtle and that monitoring such elements as groundwater levels and stream flows over extended periods of time is needed to evaluate trends. To that end, the Plan recommends a WRIA-wide monitoring program be established.
- Suggests that public education is a key component to successful water resource management in the WRIA.
- Emphasizes the importance of conserving water resources to provide better options in managing available water resources.
- Recognizes the benefits water reuse projects could offer the WRIA in the not-so-distant future.
- Emphasizes enhanced stormwater management, given the importance recharge has to the aquifers in the WRIA (the dominant source of drinking water to WRIA residents).

Throughout the five year planning process to develop this Watershed Management Plan, the Planning Unit considered the option of sub-area plans to address unique circumstances in certain locations. At the time of Planning Unit consideration of this document, only two such sub-area plans are being developed, for Vashon-Maury Island and Bainbridge Island.

Sub-area committees or other interested parties are involved or may become involved in developing sub-area plans or specific water resource projects to address unique issues in the sub-area. It will be the responsibility of the individual or partner agencies that developed the sub-area plans or projects to implement them.

Implementers of the sub-area plans or water resource projects may submit requests for financial support and/or letters of support for implementing actions to the Watershed Implementation Group (WIG). The WIG will prioritize request for Phase 4 funding of sub-area projects along with WRIA-wide funding requests.

The WRIA 15 Planning Unit worked from 2000 to late 2004 compiling existing water resources information, commissioning and considering technical studies, and developing recommended actions to address water resource issues of concern. As the Planning Unit considered early drafts of the WRIA 15 Watershed Plan, areas of agreement and disagreement were identified. This Plan addresses only those elements that were agreed to with the full concurrence of the Planning Unit. It is these elements that will be the focus of implementation efforts.

The recommendations and issues the Planning Unit considered in this process that did not receive the full consensus of the Planning Unit are presented as background information in a detailed supplemental document entitled “WRIA 15 Unapproved Draft Watershed Plan” and supporting documents listed in Appendix C.

This Plan contains succinct sections for each element that was nominated for Planning Unit consensus. Each section contains brief background information and recommended actions.

A section describing unresolved issues is included in the appendices to document the numerous very difficult issues the Planning Unit considered while developing this Plan, and the multiple

interests and preferences for addressing these issues held by different Planning Unit members. These important issues will require future dialogue to resolve.

WRIA 15 is faced with several challenges that must be addressed to solve existing water resource management problems, most notably:

- Water rights administration (e.g. lack of knowledge as to which rights are valid, unacceptably long wait times for water right applications to be processed);
- Need for a more comprehensive, coordinated water resources monitoring program(s);
- Instream flow needs for fish are largely unknown; and
- Population growth and associated issues such as stormwater management and meeting new water demands.

Legislatively Required Elements

The legislatively required elements of the WRIA 15 Watershed Plan related to Water Quantity, Water Quality, Instream Flows and Habitat are found throughout the various reports and investigations developed in the planning process. The elements are described in Appendix A along with references to the appropriate location in other planning reports.

State Environmental Policy Act Compliance

In July 2003, the Department of Ecology published a Final Environmental Impact Statement (EIS) for Watershed Planning under Chapter 90.82 RCW. In accordance with the State Environmental Policy Act (SEPA) rules, the Statewide Watershed Planning EIS provides Planning Units with four options for SEPA compliance:

- Adoption of the Programmatic Watershed Planning EIS and Determination of Significance (DS). This is an option if the Statewide Watershed Planning EIS adequately addresses all probable adverse impacts.
- Adoption, DS and Addendum. Adopt statewide watershed planning EIS with an addendum that provides local decision makers with additional local information such as land cover, environmental, etc.
- Adoption and Supplemental EIS. If the Watershed Planning EIS addresses some but not all of the probable significant adverse environmental impacts, a supplemental EIS will be prepared to address statewide EIS issues not covered.
- Adoption and Determination of Non-Significance (DNS). A DNS could be adopted if it is determined that there are no probable significant adverse impacts associated with the recommended actions contained in the Watershed Plan.

Recommended actions in the Kitsap Peninsula and Islands Watershed Management Plan are consistent with alternatives in the Watershed Planning EIS that require neither supplemental information for SEPA compliance nor enumerations of “alternatives” and potential impacts (i.e. action versus no action) in the standard SEPA format. In addition, the following qualifications also apply to the use of the Watershed Planning EIS and SEPA compliance for watershed planning:

- Recommended actions for studies typically do not have the potential to cause an “adverse environmental impact” and will not trigger a determination of significance.

- Recommended actions for convening interest/stakeholder groups or educating watershed residents do not have an “adverse environmental impact” and will not trigger a determination of significance.
- Recommended actions that involve review or revision of existing ordinances, policies or programs (such as Comprehensive Plans) will undergo the SEPA review process during adoption of the revised ordinance, policy or program.

The majority of the alternatives in the Watershed Planning EIS address modifications to ordinances, plans and policies. Impacts and mitigation measures associated with these types of recommended actions have been addressed adequately for the level of environmental review required for the watershed planning process. Additionally, such actions may undergo individual environmental review at the time that each of the revisions is actually proposed.

If the SEPA lead agency does determine that the actions ultimately recommended will not result in probable significant adverse environmental impacts, further environmental review of such actions under SEPA is not required.

Kitsap County is the SEPA lead agency for the watershed management planning process. Kitsap County has opted to adopt the Watershed Planning EIS and to issue a determination of non-significance (DNS) for the Kitsap Peninsula and Islands Watershed Management Plan.

1. Monitoring

Numerous entities have collected or currently collect data on water resources in WRIA 15, including drilling contractors, US Geological Survey, tribes, WA Department of Health, WA Department of Ecology, water purveyors, counties, citizen groups, US Natural Resources Conservation Service, US EPA, and the National Oceanographic and Atmospheric Administration. While each of these efforts is important, the information is of limited utility for regional water resources management since it is scattered across many agencies, is in various formats, and is of unknown data quality.

The WRIA 15 Planning Unit recognizes that existing data collection programs do not fully encompass the hydrologic cycle. The wide variation in estimates of aquifer recharge for this planning effort shows the need for monitoring, modeling, and analysis of recharge rates and mechanics, including groundwater system flows, at a sub-basin scale. Another area where more data would be useful is in gauging stream flows. Coordination of existing data and efforts will allow identification of data gaps and development of a comprehensive program.

Effective water resources management requires a comprehensive monitoring program including:

- Data collection on:
 - Stream flows,
 - Precipitation,
 - Groundwater levels,
 - Water production quantities,
 - Water quality sampling results,
 - Surface soil types
 - Land cover, and
 - Parameters related to evapotranspiration;
- Analysis to evaluate:
 - The relation between surface water and ground water,
 - Runoff quantities,
 - Recharge rates,
 - Ground water level long-term trends,
 - Stream flow needs,
 - Land cover changes, and
 - Water quality trends.

Since changes in the hydrogeologic system are usually quite subtle, extended periods of monitoring are generally required to evaluate trends. This long-term monitoring by local jurisdictions can be augmented by data collected by citizens, nonprofit groups, etc.

The Planning Unit identified the following set of specific recommendations for water resources monitoring in WRIA 15:

Recommendations: Monitoring		
Recommended Action	Priority	Potential Lead Agencies
<p>1. Coordinate and enhance existing monitoring efforts to establish a local, comprehensive monitoring program. The program should enable water balance evaluations at a small scale (e.g. for each subarea) and encompass the hydrologic cycle and water quality including:</p> <ul style="list-style-type: none"> ▪ Water balance estimates at the sub-basin scale; ▪ Stream flows and related parameters needed for streamflow and habitat modeling; ▪ Characterization of runoff; ▪ Hydraulic continuity; ▪ Aquifer/groundwater levels; ▪ Aquifer/groundwater recharge areas; ▪ Precipitation; ▪ Water production; ▪ Parameters related to evapotranspiration; ▪ Surface soil types; ▪ Land cover; ▪ Groundwater water quality; ▪ Saline intrusion; ▪ Fate of effluent (quality and quantity) exiting on-site sewage systems; ▪ Potential impacts of stormwater on streams; ▪ Nitrate and phosphate levels; and ▪ Surface water quality: fecal coliform and conventional water quality parameters. 	Very High	Ecology, Counties, cities, water purveyors, tribes.
<p>2. Establish a regional mapping, modeling and monitoring clearinghouse for water resource related information in WRIA 15.</p>	High	State, counties, cities, water purveyors, tribes, Health Districts
<p>3. Analyze and improve information on stream flows, e.g.:</p> <ul style="list-style-type: none"> ▪ Prioritize streams for modeling/monitoring ▪ Implement coordinated monitoring/modeling program with consistent data protocols ▪ Use appropriate instream flow methodologies to identify flows needed to support desired numbers of fish¹ ▪ Develop methods to restore flows to support desired numbers of fish ▪ Characterize current stream flows, the natural flow regime, and expected impacts on those flows of alternative water and land use development scenarios. 	High	State, counties, cities, water purveyors, tribes, Health Districts
<p>4. Improve the existing well log process by:</p> <ul style="list-style-type: none"> ▪ Correcting errors in existing information ▪ Entering well log information into a common database (building on existing efforts), ▪ Adding a well site vicinity map, ▪ Employing more accurate determination of well elevation, ▪ Improving the accuracy and consistency in recording geologic logs, and ▪ Requiring a better description of the wellhead including original ground level and casing stick-up 	High	State, counties, cities, water purveyors, tribes, Health Districts
<p>5. Improve the geologic knowledge base of WRIA 15 water resources by:</p> <ul style="list-style-type: none"> ▪ Supporting efforts to update geologic maps of WRIA 15 (e.g., USGS and UW). ▪ Upgrading soil surveys, perhaps utilizing well logs and septic percolation test logs. 	High	State, counties, cities, water purveyors, tribes, Health Districts

¹ To be defined

2. Public Education/Involvement

Individual behavior choices have a significant cumulative impact on WRIA 15 water resources. Citizen awareness of key water resource issues will help support sustainable management of these resources into the future. Counties, purveyors, watershed councils and other entities in WRIA 15 have existing outreach and education programs related to water but existing efforts would benefit from consistent messages, coordination, and ongoing funding.

Interviews conducted with local residents active in watershed planning in early 2003 revealed additional work is needed to raise awareness of water resource issues and watershed planning.

With this in mind, the Planning Unit adopts the following recommendations related to public education on water issues:

Recommendations: Public Education		
Recommended Action	Priority	Potential Lead Agencies
<p>6. Identify, pursue and develop state or local funding sources for, and implement, new or ongoing regional watershed outreach and education programs focused on behavioral change. Specifically, consider:</p> <ul style="list-style-type: none"> ▪ Creating a coordinated message and format for public information provided through various media (Internet, newspapers, displays, presentations); ▪ Providing staff to make presentations with locally specific information to existing organizations and at community fairs/festivals; and ▪ Providing staff to support school programs such as "I am Clark's Creek." 	High	State, counties, cities, water purveyors, tribes, Health Districts
<p>7. The following audiences and topics should be considered when implementing water resource education efforts:</p> <ul style="list-style-type: none"> ▪ All residents: water conservation including gray water reuse; potential impacts of household hazardous materials on groundwater (including proper use and disposal of fertilizers and pesticides, provide information at point of sale if possible). ▪ Homeowners: Low Impact Development principles and practices such as rain barrel use (coupled with offering rain barrels at discount prices and encouraging hardware stores to stock them), rain gardens, and surface and storm water management practices. ▪ Property owners who own an on-site septic system: operation (including impacts of pharmaceuticals and household hazardous materials) and maintenance of on-site septic systems. ▪ Domestic well owners: wellhead protection, well decommissioning and water conservation. ▪ Builders, developers, planners, landscapers and the public involved with building/remodeling: Low Impact Development and retention of native soils and vegetation. ▪ School districts: water conservation (including capture/reuse of athletic field irrigation water). ▪ Groundskeepers and landscape managers: water conservation and Low Impact Development principles and practices. ▪ Residents in the vicinity of proposed reuse projects: use of reclaimed water for non-drinking water purposes. ▪ School children: basic water resources education. ▪ Businesses that handle moderate risk waste: potential impacts of moderate risk waste to groundwater. 	High	State, counties, cities, water purveyors, tribes, Health Districts

3. Conservation & Efficiencies

Conservation generally refers to using less water on an individual, household or business level compared to past usage rates. Efficiencies encompass a range of techniques water purveyors might employ to avoid loss of water or use less water for public system needs, and applicable techniques for individual water users (exempt wells).

The Planning Unit encourages all water users to be mindful of how much water they are using and to conserve water wherever and whenever possible. Conservation saves citizens money. It also helps reduce the rate of growth of water demand and eases the corresponding pressure to obtain new water rights.

For water purveyors, basic conservation measures are generally very cost effective in comparison to the expense of developing new water sources. Conservation efforts can range from: relatively simple activities targeted at water users such as developing and distributing water conservation kits; to leak detection and repair projects conducted by public water systems that can save large quantities of water at a range of costs; to very expensive programs that involve replacement of plumbing and appliances with more efficient models.

Residents of WRIA 15 appear to be receptive to the conservation message. In the summer of 2001, in response to outreach during a drought, Bremerton customers voluntarily reduced water use by 18% and thereby averted mandatory water restrictions.

Since conservation measures generally have less of an impact on the environment than tapping new water sources, the Planning Unit recommends using conservation to help reduce the rate of growing water demand, make existing water supplies go farther, and ease the pressure for and cost of developing new sources.

Recommendations: Conservation & Efficiencies		
Recommended Action	Priority	Potential Lead Agencies
8. Encourage and foster conservation and efficiency using the following tools : <ul style="list-style-type: none"> ▪ Increasing awareness of water usage through billing messages and graphs; ▪ Implementing tiered rates or other rate structure incentives; ▪ Metering; ▪ Coordination: <ul style="list-style-type: none"> • Drought response conservation measures among expanding Group A water purveyors; • Joint conservation efforts among counties; • Sharing of resources among purveyors; ▪ Cost-effective investments in long-term conservation; ▪ Development of a comprehensive model water conservation program; ▪ Providing basic conservation kits including free water-saving devices and literature to households; ▪ Gathering data and identifying older homes that would benefit from “low-flow” fixture retrofits; ▪ Identification and utilization of new or locally unused conservation technologies. 	High	Counties, cities, WaterPAK, water purveyors, tribes
9. Large and small water systems implement efficiency and conservation measures.	High	Purveyors

4. Rainwater Harvesting

Usufructuary rights (the right to use and enjoy the profits and advantages of something belonging to another as long as the property is not damaged or altered in any way) are a fundamental corner stone in water rights law. These provide for a common right of people to resources required for basic needs such as water. Every homeowner should have the right to insure a supply of the basic water quantities to sustain his/her life and preserve his/her own well-being. Given the potential for drought or other water supply interruptions, aquifer over drafting or seawater intrusion, this insurance can be enhanced by using a water harvesting strategy.

Well thought out water harvesting strategies can enhance existing water supplies without jeopardizing instream flows. In the case of any drought that lowers stream flows below regulatory flow levels, to preserve fisheries the state is obliged under law to curtail surface water rights junior to the priority date of the regulatory instream flow level and require mitigation for impairment caused by new groundwater rights if they are in hydraulic continuity with the affected streams. Water harvesting has the potential to assist greatly in such situations.

Water can be harvested in and around a home from its impermeable surfaces (e.g., roof, side walks, and driveways) by homeowners and developers channeling water to cisterns from which it can be used for both potable and non-potable uses. The collected water could be diverted to the hydrologic system either directly or after it serves a water supply function. This form of water harvesting is practiced in Europe, Asia, the Near East, Hawaii (60,000 people using ~25,000 cisterns), parts of Alaska, and several southwestern states. Also, the nearby city of Vancouver, British Columbia is allowing developers to install Water Harvesting catchments to off set water losses and cut back on runoff.

Recommendations: Rainwater Harvesting		
Recommended Action	Priority	Potential Lead Agencies
10. Eliminate regulatory disincentives for small-scale rainwater harvesting.	High	State

5. Water Reuse

Water reuse is defined by Washington State as “use of reclaimed water, in compliance with Washington Department of Health and Ecology regulations, for a direct beneficial use.” Reclaimed water is effluent from a wastewater treatment system that is adequately treated for a direct beneficial use.

On average, the 10 largest publicly operated wastewater treatment plants in WRIA 15 currently dispose of a total of about 8 million gallons per day (12 cubic feet per second (cfs), or 9,000 AF/yr) of treated water into the Sound, equivalent to about one-fifth of the WRIA’s estimated water use, which is approximately 42,000 AF/yr. If that water were reclaimed and beneficially reintroduced to the hydrologic cycle, it would be enough water (on average) to increase base flows in 10 streams by more than 1 cfs. These treatment plants have the capacity to produce enough reclaimed water to provide a valuable resource to help maintain aquifer levels and improve stream flows, and directly or indirectly contribute some of the additional potable water that will be needed for new demands.

The most significant barriers to recycling wastewater are the cost of infrastructure and additional treatment, as well as public perception. Elected officials in WRIA 15 have expressed support for public education about reclaimed water.

The State has allocated funding to initiate a pilot project in WRIA 15 to explore the feasibility of water reuse. The WRIA 15 Planning Unit supported three projects that received state funding:

- Central Kitsap Treatment Plant: would send treated water into Steele Creek for stream flows and aquifer recharge;
- Karcher Creek Sewer District and Annapolis Water District: use reclaimed water for beneficial use; and
- City of Bremerton: to develop sources for reclaimed water and use existing “purple” pipe to transport the water.

At a March 1, 2005 gathering, elected officials from WRIA 15 expressed strong support for pursuing water reuse projects in the very near future.

Recommendations: Water Reuse		
Recommended Action	Priority	Potential Lead Agencies
11. Support regional water reuse (a.k.a. reclaimed water) projects and/or team up to develop a long-term comprehensive water reuse program including: <ul style="list-style-type: none"> ▪ Identify funding sources and application for grants to support building reclaimed water facilities; ▪ Implement a reuse and recharge pilot project at one of the treatment plants recommended in the watershed planning storage report; ▪ Investigate aquifer storage and recovery opportunities; ▪ Discuss who controls reclaimed water; ▪ Identify end uses for reclaimed water (e.g. irrigation of golf courses); ▪ Conduct public outreach to encourage acceptance of reclaimed water; ▪ Conduct site-specific planning. 	High	State, counties, cities, water purveyors, tribes, Health Districts, and wastewater utilities
12. Modify laws/rules to encourage safe water reuse including technical support and incentives.	High	Ecology, legislature
13. Coordinate the supply and demand of reused water: <ul style="list-style-type: none"> ▪ New treatment plants should be designed with reuse as an integral component. ▪ Public capital funding should be encouraged for the distribution infrastructure (for stream flow augmentation and domestic use) to supply identified end users. 	Medium	State, counties, cities, water purveyors, tribes, Health Districts, and wastewater utilities
14. Develop gray water use recommendations for practical application in appropriate circumstances and locations. Modify laws and create incentives for appropriate gray water use. Educate the public on this issue.	Medium	Ecology, Dept of Health, legislature, cities, Health Districts, and counties

6. Stormwater Management

Precipitation that does not evaporate or infiltrate into the ground ends up as stormwater runoff (to streams, lakes, wetlands, marine waters, and facilities). Land use factors such as increased impervious surface area can lead to less recharge and more water being diverted to runoff. High volumes of stormwater runoff can damage property, scour streambeds, destroy salmon habitat, and increase sediment and pollution.

Stormwater runoff currently represents a significant volume of water in WRIA 15 (Golder’s refined water balance estimates that 37% of precipitation runs off as stormwater including water moving laterally in the upper layer of soil, or interflow (17% of precipitation); the 1997 Kitsap *Initial Basin Assessment* estimated 20% runoff not including interflow). This water is not available to support stream base flows or recharge the groundwater system; however, with better stormwater management, much of the precipitation that currently runs off into marine waters or streams (during high flow season, when it is not needed) could be infiltrated or put to some other beneficial purpose. Better stormwater management presents opportunities for water resource managers to increase the quality and quantity of water available for both people and fish.

The Planning Unit considers stormwater management a high priority issue. The group commissioned a study for this planning effort that considered the possibility of capturing stormwater for groundwater recharge at certain sites in WRIA 15 (*Technical Memorandum – WRIA 15 Stormwater Study, August 19, 2004*). This document is summarized in “WRIA 15 Unapproved Draft Watershed Plan” and is available from Kitsap, Mason and Pierce Counties.

Specific recommendations for stormwater management are below:

Recommendations: Stormwater Management		
Recommended Action	Priority	Potential Leads
15. Avoid increasing stormwater flows where feasible.	High	Cities, Counties
16. Enhance stormwater recharge and retention via following actions: <ul style="list-style-type: none"> ▪ Encourage site-scale Low Impact Development practices when permitting future development, paying special attention to amending topsoils (using BMPs such as “Soil Depth and Quality BMP T.5.13” in the 2005 Dept of Ecology’s <i>Western Washington Stormwater Manual</i>) and implementing other Low Impact Development principles and practices. ▪ Adopt stormwater standards that provide an equivalent amount of recharge and water quality treatment as Ecology’s applicable stormwater manual; ▪ Develop model ordinances, education programs, and incentives for consideration by local jurisdictions to support wetland mitigation banking and/or consider creating a wetland bank and transfer of development rights program (to benefit, among other things, aquifer recharge, water harvesting and storage, and water resource-related wildlife habitat); ▪ Consider implementing Low Impact Development practices through stormwater ordinances, critical aquifer recharge areas ordinances and/or clearing & grading ordinances, and/or by education and incentive programs. ▪ Avoid/minimize degradation of critical aquifer recharge areas when making area-wide land use decisions (e.g. UGA expansions). ▪ Lead by example by implementing Low Impact Development techniques for county/city sponsored construction projects (e.g. buildings, roads). ▪ Examine ways of providing incentives for property owners to reduce impervious surface on their land and retain native soils and vegetation. 	Very High	State, counties, cities
17. For large scale development projects and/or UGA expansion, develop stormwater management master plans based upon geologic/hydrogeologic assessment of the area early in the planning process so that aquifer recharge issues can be addressed.	High	Local jurisdictions

7. Water Quality

Maintaining good water quality is important to the Kitsap Peninsula and Islands for the long-term protection of drinking water, for recreational and commercial (e.g., shellfish) use, and for the maintenance of fish habitat. Declining water quality can threaten drinking water, swimming, fish, shellfish, wetlands and riparian zones, and aquatic/wildlife habitat. The water quality in WRIA 15 is generally good, though there are several surface water bodies on the 303(d) list, as well as localized threats to groundwater from seawater intrusion and elevated nitrates.

The Planning Unit identified three general approaches to protecting water quality in WRIA 15, with specific recommendations associated with each. These are listed in the table below:

Recommendations: Water Quality		
Recommended Action	Priority	Potential Lead Agencies
18. Implement source water protection programs , e.g. wellhead protection programs or Critical Areas Ordinances.	High	State, counties, cities, water purveyors, tribes, Health Districts
19. Safely manage hazardous materials by: <ul style="list-style-type: none"> ▪ Enforcing existing hazardous material laws and local ordinances, ▪ Reviewing programs that manage small quantity hazardous waste; ▪ Supporting Ecology's fertilizer and pesticide research, and ▪ Taking advantage of existing education and technical assistance. 	High	State, counties, cities, water purveyors, tribes, Health Districts
20. Monitor and implement new technologies to minimize impacts of existing and proposed wastewater treatment outfalls upon marine resources.	High	Health Districts, Wastewater utilities, State, Federal Govt
21. Evaluate the effectiveness of local governments' water quality protection efforts.	High	State, counties, cities, water purveyors, tribes, Health Districts, Federal Govt
22. Minimize the adverse impacts of on-site sewage systems using the following tools as appropriate: <ul style="list-style-type: none"> ▪ Conducting sanitary surveys when problems are indicated; ▪ Prioritizing corrective actions among areas with known problems; ▪ Providing technical assistance and education programs to assist property owners with operation and maintenance of systems; ▪ Providing grants and loans to low-income residents to correct on-site sewage system problems. 	High	State, Health districts
23. Monitor and manage groundwater to avoid seawater intrusion . If onset of seawater intrusion is detected, be prepared to take appropriate actions such as: <ul style="list-style-type: none"> ▪ Increasing monitoring and analysis to identify/confirm trends; ▪ Providing information to property owners and realtors; ▪ Reducing production from wells in the affected area via conservation, reuse, importing water (e.g. through interties) or relocating withdrawal points; and/or ▪ Enacting ordinances that restrict new wells in aquifers affected by seawater intrusion. 	High	Counties, water purveyors

8. Incentive-Based Approaches

The Planning Unit believes that it is generally more effective to focus on the positive and reward people for taking desirable actions rather than to focus on the negative and punish people for taking undesirable actions. Therefore, the Planning Unit recommends expanding the use of incentives where possible to encourage desirable behavior related to water resources.

Several recommendations in this Plan suggest the use of incentives, including:

- Encourage and foster conservation and efficiency using...tiered rates or other rate structure incentives;
- Develop model ordinances, education programs, and incentives for consideration by local jurisdictions to support wetland mitigation banking and/or consider creating a wetland bank and transfer of development rights program (to benefit, among other things, aquifer recharge, water harvesting and storage, and water resource-related wildlife habitat);
- Consider implementing Low Impact Development practices through incentives in stormwater ordinances, critical aquifer recharge areas ordinances and/or clearing & grading ordinances, and/or by education; and
- Examine ways of providing incentives for property owners to reduce impervious surface on their land and retain native soils and vegetation.

Implementing these recommendations is, for the most part, within the existing authority of local jurisdictions; however, some additional funding and legislation will be needed to fully develop and implement these incentive programs.

Specific recommendations for the use of incentives include:

Recommendations: Incentive-Based Approaches		
Recommended Action	Priority	Potential Lead Agencies
24. Develop for consideration model ordinances, education programs, and incentives on low water use landscaping for new construction and commercial landscaping.	High	Cities, Counties, Purveyors
25. Consider incentive-based protection strategies for key hydrologic areas such as: <ul style="list-style-type: none"> ▪ Purchase of land outright or purchase of conservation easements; ▪ Reduction of property taxes through the Public Benefit Rating Program or implementation of incentives that encourage Low Impact Development practices including retention of areas with natural vegetative cover; ▪ Transfer of development rights; ▪ Land trades; and ▪ Trust water rights. 	High	Cities, Counties, State agencies, Legislature

9. Hood Canal

A particularly important water quality issue in WRIA 15 relates to low dissolved oxygen levels in Hood Canal (about 38% of WRIA 15 drains to Hood Canal; about 25% of the landmass draining into Hood Canal is within WRIA 15). Water testing in early 2004 revealed that dissolved oxygen in Hood Canal is at its lowest level since data began to be collected 50 years ago.

Many factors contribute to the low dissolved oxygen problem in Hood Canal. Some of these are naturally occurring, including: poor circulation and flushing of the Canal; the Canal's great length coupled with great depth in the middle, with a shallow north end and shallow, blocked south end; and the degree of stratification of the seawater (at depth) and freshwater (at the surface) that restricts vertical mixing. People also contribute to the problem by adding nitrogen to the Canal from fertilizers, human sewage, animal manure and decaying fish carcasses. This nitrogen fuels algae growth, which requires dissolved oxygen that would otherwise be used by fish.

The Planning Unit is partnering with planning units from adjacent water resource inventory areas to address water quality issues for Hood Canal, and recommends this partnering continue beyond this watershed planning process.

Recommendations: Hood Canal		
Recommended Action	Priority	Potential Lead Agencies
26. Support efforts to investigate and field test nitrate-reducing technologies for on-site sewage systems.	High	State, Federal Govt, Cities, Counties, Health Districts, Tribes
27. Coordinate future management actions with other water resource planning groups in the Hood Canal area.	High	State, Federal Govt, Cities, Counties, Health Districts, Tribes
28. Support regional efforts to determine the sources of nitrogen and bacteria (fecal coliform) in Hood Canal.	Very High	State, Federal Govt, Cities, Counties, Health Districts, Tribes
29. Consider programs and practices to minimize impacts of fertilizer in areas of the Hood Canal watershed where/if/when nitrate contributions from fertilizers are shown to be an important cumulative contributor to water quality problems.	High	State, Federal Govt, Cities, Counties, Health Districts, Tribes

Plan Implementation

The Planning Unit agrees on the need for continued management of and planning for water resources in the Kitsap Peninsula and Islands region. Participating stakeholders have expressed interest in continuing their involvement in water resources management efforts in the region.

To address competing desires, the Planning Unit recommends a group, similar in structure to the current Planning Unit that includes willing governmental as well as non-governmental stakeholders, called the Watershed Implementation Group (WIG), be formed to focus on implementation of recommended actions in this Plan. The WIG could also discuss and develop strategies to address issues that this planning effort has left unresolved.

Membership in the WIG would be open to any interested party. The WIG would likely contract out for technical studies.

Phase 4 funding would be used to organize and administer the WIG.

Recommendations: Plan Implementation		
Recommended Action	Priority	Potential Lead Agencies
30. Implement this Plan by creating a multi-stakeholder Watershed Implementation Group (WIG) to focus on implementing this Plan and discuss and develop strategies to address issues that this planning effort has left unresolved.	High	State, cities, counties, water purveyors, tribes, Health Districts, stakeholders

Sub-Area Plans

Sub-area plans are considered to be part of the WRIA 15 Watershed Plan. The Vashon sub-area plan is a separate and stand-alone unit and is not applicable to any other areas of the WRIA. Other sub-area plans or projects are expected to primarily address unique circumstances in individual sub-areas with the basic WRIA plan covering most water resource issues. Proposals for funding specific projects from sub-area plans from WRIA 15 sources would be made by the group conducting the sub-area planning effort and forwarded to the Watershed Implementation Group for approval.

Vashon-Maury Island Sub-Area Plan

The Vashon-Maury Island Plan (website address to be added) is included as a component of the WRIA 15 Plan, but is to be implemented as a separate and stand alone unit. As agreed upon by the WRIA 15 Planning Unit, Vashon-Maury Island (King County) independently developed a sub-area plan with separate, specific recommendations for water resource management on the islands. The Vashon-Maury Plan was not reviewed by nor was it approved, disapproved, or endorsed by the Planning Unit. The Vashon-Maury Plan has no applicability to the other sub-areas within WRIA 15 or to the other general terms of the WRIA 15 Plan. The Planning Unit does favor using Phase 4 funds to financially support selected actions specified in the Vashon-Maury Island Sub-area Plan.

Bainbridge Island Sub-Area Plan

The Bainbridge Island Sub-area Plan (developed to address unique water resource issues on the Island) is included as a component of the WRIA 15 Plan. The Bainbridge Plan was not reviewed by nor was it approved, disapproved, or endorsed by the Planning Unit. The terms of the WRIA 15 Plan are applicable to Bainbridge Islands, but the Bainbridge Plan has no applicability to the other sub-areas within WRIA 15 or to the other general terms of the WRIA 15 Plan. The Planning Unit does favor using Phase 4 funds to financially support actions specified in the Bainbridge Island Sub-area Plan submitted to and approved by the WIG.

Appendices

- A. PU Response to Legislative Requirements
- B. Acknowledgments
- C. List of Documents Produced During This Planning Effort
- D. Unresolved Issues *[If this document can be finalized in time.]*