

# WATER RESOURCES ELEMENT

## TABLE OF CONTENTS

	PAGE
<b>INTRODUCTION</b> .....	WR-1
<b>VISION</b> .....	WR-4
<b>GOALS AND POLICIES</b> .....	WR-4
GENERAL WATER RESOURCES .....	WR-4
GROUNDWATER PROTECTION AND MANAGEMENT .....	WR-5
SURFACE WATER PROTECTION AND MANAGEMENT .....	WR-7
STORMWATER PROTECTION AND MANAGEMENT .....	WR-9
RESIDENTIAL ON-SITE SEWAGE SYSTEMS .....	WR-10
<del>CONTAMINATED SITE</del> <b>MOVED TO LU ELEMENT</b> .....	WR-11
PUBLIC EDUCATION AND OUTREACH .....	WR-11
<b>IMPLEMENTATION</b> .....	WR-14



## WATER RESOURCES INTRODUCTION

Bainbridge Island is a quasi-enclosed environment that requires a holistic perspective to understand the interdependence among the Island's three primary water resources: *groundwater*, surface water and *stormwater*. Although these waters are typically regulated and managed independently, they are in nature, intimately connected. In fact, it is all the same water simply given a different name and managed according to where it resides in the hydrologic cycle at any given time (see Fig.WR-1).

When rain falls, rainwater that is not evaporated or taken up by plants will follow one of three paths. It may infiltrate into the ground where it is called *groundwater*. It may drain directly into *streams* and harbors where it is called surface water or it may be captured by manmade *infrastructure* such as street drains, ditches or detention/retention ponds where it is called *stormwater*.

Rainwater that infiltrates into the ground (*groundwater*) may be pumped from wells to provide drinking water or irrigation or seep out of the ground into *streams*, springs and harbors where it is again called surface water. Likewise, *stormwater* may discharge into a nearby stream or harbor and become surface water or infiltrate into the ground and become *groundwater*. (see Fig.WR-1)

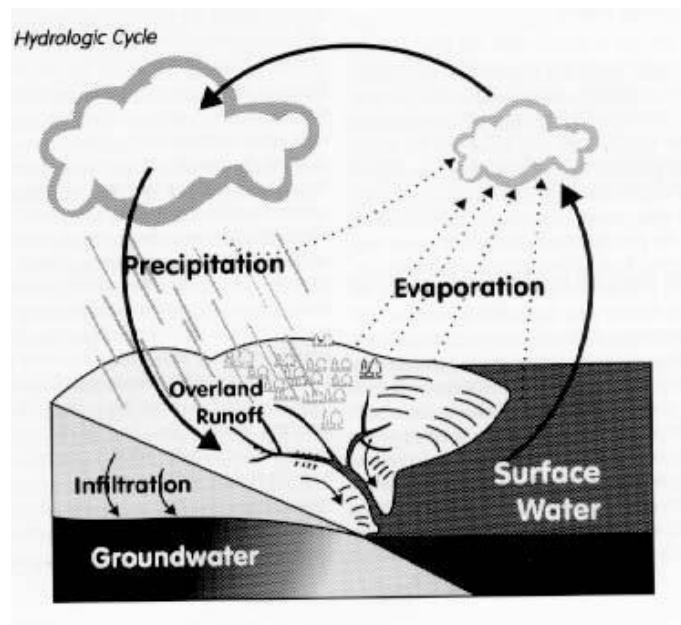


Fig. WR-1 The Hydrologic Cycle

In order to successfully protect and manage any one of these waters one must protect and manage all three. To address these interrelationships, a separate Water Resources Element has been developed as follows:

- General water resources management policies
- *Groundwater* protection and management policies
- Surface water protection and management policies
- *Stormwater* protection and management policies
- Residential on-site sewage system policies
- Contaminated sites policies
- Public education and outreach policies

### Land Use Connection

In the development of policies related to the management of our Island water resources, it is important to understand the links between water resources quality and quantity and *land use*. Most water quality and habitat integrity impacts are caused by the way land was or is used. Developed land allows for rapid *runoff* and inundation of natural conveyance systems such as *wetlands* and *streams*. Rapid *runoff* can cause damage through flooding, erosion and water-borne contamination.

In addition, *households* create sewage that needs disposal either by a wastewater treatment plant or by residential on-site sewage systems. Wastewater treatment plants are reasonably effective at cleaning wastewater but do not at present provide complete removal of nitrogen nor treat for contaminants of emerging concerns that include but are not limited to, byproducts of medications, recreational drugs, health and beauty products and caffeine.

Residential on-site sewage systems can fail and cause contaminants to enter the surface water and/or *groundwater*. Even functioning systems, depending upon *density* and proximity to surface water and *groundwater*, can contribute to accumulations of nitrogen and contaminants of emerging concern in these waters.

Use of fertilizers, pesticides and other chemicals for cropland, lawns and gardens, and vehicle and *household* cleaning and maintenance as well as improper pet and livestock waste management can add significant contamination to surface water, *stormwater* and *groundwater*.

Commercial and industrial uses, past and present, leave behind pollutants in our soils. In particular, historic *land uses* such as large row crop agriculture, lumber, petroleum and others have left behind legacy pollutants in sediments both on upland properties and in the sediments along the bottoms of our *streams*, harbors and nearshore areas.

Without proper coordination of the regulations that will implement policy statements, conflicting signals may be given when dealing with water resources issues. For example, a surface water problem may be resolved by efficiently collecting and removing all water from the area whereas a *groundwater recharge* issue may require that the water be kept on-site to allow for infiltration.

Another conflict arises when infiltration of *stormwater* competes for space with on-site sewage system drain fields. There are physical limitations to the rates of infiltration and absorption based on soil types which may make it impossible to have both of those facilities on the same site. Where development occurs in important *aquifer recharge areas*, special consideration is needed to preserve the volume of *recharge* available to the *aquifer* and to protect the *groundwater* from contamination. A key component of water resources protection and adaptive management is adequate monitoring in order to assess impacts of current land use and the effectiveness of applied management actions.

The overriding theme that runs through all of the policies and *goals* in this element is the preservation and protection of water quality, water quantity, and ecological and hydrologic function.

### **Climate change**

*Climate change* projections indicate that over the coming decades sea level may rise up to four feet in the Puget Sound region, the ocean will become more acidic and climatic conditions are likely to become warmer. This will result in more intense rain events during the wet season with longer, drier summers, though overall annual volume of rainfall will under current models is expected to remain approximately the same.

Ocean acidification will likely impact aquatic species survival and assemblages in our marine areas and sea level rise will likely impact habitat and built *infrastructure* in our nearshore areas including homes, businesses and public facilities such as roads and sewer facilities.

Wetter conditions during the wintertime will increase water availability but may cause flooding or diminish water quality. More intense and frequent storms or heavier rainfall events can cause *stormwater* inundation and localized flooding, chronic flooding, non-infiltrated run-off, erosion and landslides. Increased intensity of rainfall may also diminish *aquifer recharge* rates as saturated soils are less able to absorb large amounts of water falling over short periods of time.

Warmer, drier conditions in the summertime will increase evaporation rates and water demand by plants, wildlife and people, and may diminish water quality. Dry conditions decrease water availability resulting in reduced stream flow and diminished *aquifer recharge*. Warmer and drier conditions can also reduce water quality, both by increasing in-stream temperatures and by concentrating contaminants in smaller volumes of water.

## WATER RESOURCES VISION 2036



Bainbridge Island's water resources (precipitation on the surface and in the ground) are climate resilient and demand and quantity are adequate for all forms of life on the Island. *Aquifers* are continuously monitored and maintained above the early warning level. The water quality for most of the consumed water is monitored to ensure quality fully meets the standards for drinking water.

Education on water conservation ~~has resulted~~ **results** in a significant reduction in the average water consumption per *household*. The Bainbridge Island *groundwater* model is regularly updated with new data and results from model runs are used to maintain long-term *sustainability* of the Island's water resources. *Low impact development* techniques are applied to all *land uses* and redevelopment.

## GOALS & POLICIES

### GENERAL WATER RESOURCES

#### GOAL WR-1

**Manage the water resources of the Island in ways that preserve, protect, maintain, and where necessary restore and enhance and preserve their ecological and hydrologic function.**

- Degradation of water resources is not allowed.
- The long-term *sustainability* of the Island's water resources is maintained, taking into account future climatic conditions and their effects on the water cycle.
- New development and population growth are managed so that water resources remain adequate for the indefinite future.
- *Groundwater*, surface water and *stormwater* monitoring, data assessment and reporting are current and available including future projections of availability, quality and need.
- Use current and future technology to maintain and protect water resources.

#### Policy WR 1.1

Study future climate and demand scenarios to accurately understand-plan for future water resource conditions.

#### Policy WR 1.2

*Groundwater*, surface water and *stormwater* are resources that *shall* be protected and managed to preserve water quality and quantity, and to retain natural ecological and hydrologic function to the maximum extent practicable.

**Policy WR 1.3**

~~To foster sustainable water resources, The City will provide sustainable water resource planning, protection, management and monitoring and on-going education and outreach should be provided by the City in coordination with government agencies at all levels, drinking water purveyors, watershed management groups, Tribes, non-profit organizations, local integrating organizations for regional recovery and protection and other stakeholders.~~

**Policy WR 1.4**

Apply the policies in this element in tandem with the protective measures set by the City's Shoreline Management Master Program, *Critical Areas Ordinance* and any other environmental or water resources management ordinance established by the City.

**Policy WR 1.5**

Identify the areas of the Island that are the most vulnerable to pollution from concentrations of fecal coliforms and nitrates (for example, septic fields, agricultural activities, or fertilizers), and monitor those areas to determine if and when preventative or restorative measures are warranted.

## GROUNDWATER PROTECTION AND MANAGEMENT

**GOAL WR-2**

**Protect the quality and quantity of groundwater on the Island.**

**Policy WR 2.1**

Recognize that the entire Island functions as an *aquifer recharge area*. *Low impact development* techniques are essential for maintaining *aquifer recharge*.

Low impact uses and less intense development are appropriate for areas with high *aquifer recharge*. Low impact uses include development for buildings, roads or parking that has a reduced area of impact on the land. Low impact uses do not depend on regular applications of fertilizers or pesticides.

*Low impact development* is an environmentally-friendly approach to site development and *stormwater* management emphasizing the integration of site design and planning techniques that conserve and protect the natural systems and hydrologic functions of a site.

**Policy WR 2.2**

~~Identify and assess areas of high *aquifer recharge* should be identified and assessed as part of a *land use* application. Care should be taken to~~ Minimize the effect of development on these areas.

**Policy WR 2.3**

To promote efficient use of *groundwater* resources, encourage the expansion of public and private water systems rather than encouraging *shallow* or individual residential wells.

**Policy WR 2.4**

Assess the impacts of proposed activities and development on the flow of springs and *streams* and levels of *wetlands* that are either sustained by *groundwater* discharge or contribute

*recharge to groundwater*, and require an assessment of anticipated hydrologic impacts. Activities or development may be restricted if the report indicates any adverse impacts.

#### **Policy WR 2.5**

In cooperation with the appropriate regulatory agencies (e.g., Washington State Department of Health and the Kitsap Public Health District) institute new wellhead protection procedures.

#### **Policy WR 2.6**

~~Encourage~~ Reduce the use of pesticides and herbicides by encouraging use of integrated pest management techniques and less toxic alternatives and the reduction of pesticide and herbicide use within the City boundaries.

#### **Policy WR 2.7**

Establish a stakeholder group to develop an Island-wide *groundwater* management plan and work with Kitsap Public Utility District to update the Kitsap County Coordinated Water System Plan.

#### **Policy WR 2.8**

Develop an incentive based program to ~~strongly~~ encourage exempt well owners to regularly monitor and report the quality of their well water and identify leaks using tools such as flow meters. ~~Results should be self-reported to the Kitsap Public Health District.~~

#### **Policy WR 2.9**

Recognizing that the Island *aquifer* system is a Sole Source *Aquifer* as designated by EPA, institute an added level of development and re-development permit review to prevent or mitigate potential pollutant-generating activities or activities that could affect stormwater runoff and aquifer recharge associated with a proposed *land use*. The Island's aquifers are protected through critical area regulations and Washington Administrative Code (WAC) Chapter 362-190.

#### **Policy WR 2.10**

Develop Retard seawater intrusion through well-location ~~prevention~~ regulations.

#### **Policy WR 2.11**

Develop a water conservation program for all water uses on the Island.

#### **Policy WR 2.12**

Encourage water re-use and reclamation to serve as a supplementary source for high-water users such as industry, parks, schools and golf courses as approved by the Washington State Department of Health.

#### **Policy WR 2.13**

Develop a program that incentivizes and facilitates innovative methods for ~~encourages homeowners and business owners to explore innovative methods for~~ to use stormwater recapturing and reusing surface water runoff and grey water as approved by the Washington State Department of Health and the Kitsap Public Health District.



**Policy WR 2.14**

Maintain a comprehensive program of *groundwater* data gathering and analysis. ~~The program shall including~~ modeling, hydro geologic and geologic studies, and monitoring of static water levels, water use, water quality, surface water flows and acquisition of other data as necessary.

**SURFACE WATER PROTECTION AND MANAGEMENT****GOAL WR-3**

**Achieve no net loss of ecological functions and processes necessary to sustain *aquatic resources* including loss that may result from cumulative impacts over time.**

Over recent decades awareness has grown of the importance of preserving and protecting *aquatic resources*. *Aquatic resources* have a number of important ecological functions, processes and values. These functions vary but include providing water quality protection, flood plain control, shoreline stabilization, contributions to *groundwater* and stream flows, and wildlife and fisheries habitat. *Aquatic resources* also have values as natural areas providing aesthetic, recreational and educational opportunities that *should* be preserved for future generations.

**Policy WR 3.1**

Approve development ~~should not be approved~~ in regulated aquatic *critical areas* or their associated water quality buffer ~~unless only if~~ the subject property is encumbered to such an extent that application of *development regulations* would deny all reasonable use of property.

**Policy WR 3.2**

Require that vegetated buffers be maintained between proposed development and the aquatic resource in order to protect the functions and values of such systems. Restore degraded buffers ~~should be restored~~ to enhance their function. Allow reductions in vegetated buffers only in areas where such reductions, if consistently applied, would not result in significant cumulative impacts to *aquatic resources* and *fish and wildlife habitat*.

**Policy WR 3.3**

Require that buffers be retained in their natural condition wherever possible while allowing for appropriate maintenance. Where buffer disturbance has occurred, require re-vegetation with appropriate species, with a preference for native species, to restore the buffers' protective values.

Vegetated buffers facilitate infiltration and maintenance of stable water temperatures, provide the biological functions of flood storage, water quality protection and *groundwater recharge*, reduce amount and velocity of run-off, and provide for wildlife habitat.

**Policy WR 3.4**

Ensure that development activities are conducted so that *aquatic resources* and natural drainage systems are maintained and water quality is protected.

**Policy WR 3.5**

Prior to any clearing, grading or construction on a site, all *wetlands*, *streams* and buffer areas ~~should~~ are to be specifically identified and accurately located in the field in order to protect these areas during development.

**Policy WR 3.6**

Herbicides and pesticides approved for use near aquatic resources ~~shall not~~ may only be used in aquatic resource areas and buffers when applied by licensed applicators. ~~and should be discouraged in the areas that drain into them.~~

**Policy WR 3.7**

Prohibit access to aquatic *critical areas* by *farm* animals. Require farm management plan for agricultural activities within proximity of *aquatic resources* ~~should complete a farm management plan~~ addressing water quality and other natural resource protection.

**Policy WR 3.8**

Require mitigation to compensate for unavoidable impacts to aquatic *critical areas*. Mitigation ~~should~~ be designed to achieve no net loss in functions and processes of *aquatic resources*.

**Policy WR 3.9**

Promote *watershed*-based mitigation to meet federal regulations, improve mitigation success and better preserve ~~address~~ the ecological function ~~demands~~ of the island's *watersheds*.

**Policy WR 3.10**

Work with state and local health departments to evaluate the merits of new technologies such as grey water capture, package treatment plants and composting toilets as alternatives to septic and sewer systems. ~~Determine which of those systems should be allowed and/or encouraged to better protect the quality and capacity of the Island's surface water and nearshore environment.~~

**Policy WR 3.11**

Consider the impacts of *climate change* and ocean acidification when developing regulations or approving capital projects related to *aquatic resources* including marine nearshore, *wetlands*, *streams*, lakes, creeks, associated vegetated areas and *frequently flooded areas*.

**Policy WR 3.12**

~~Allow Stream relocation~~ will only be allowed where relocation would result in improved stream ecosystem function ~~habitat or when a property owner would otherwise be denied all reasonable use of the property.~~

**Policy WR 3.13**

Degraded channels and banks ~~should~~ be rehabilitated by various methods (e.g., culvert replacement, volunteer efforts, public programs or as offsetting mitigation for new development) to restore the natural function of the riparian habitat for fish and wildlife.

**Policy WR 3.14**

Protect, preserve and enhance fish and wildlife habitate and adjacent riparian areas to ensure sustainable populations of resident aquatic life. ~~and migratory fish~~ *streams* and adjacent land ~~should be preserved and enhanced to ensure a sustainable fishery.~~

**Policy WR 3.15**

Require the construction of public facilities to avoid encroachment into and disturbances of *aquatic resources*.

**Policy WR 3.16**

Maintain a comprehensive program of surface water inventory, data gathering and analysis. The program *shall* include monitoring and assessment of physical, chemical and biological health of surface water ecosystems to include *streams*, ephemeral *streams*, lakes, *wetlands* and marine waters. This may include water, flow, sediment, habitat, pollutants, submerged aquatic vegetation, fish and shellfish tissue, aquatic species diversity and other ecosystem health indicators.

**Policy WR 3.17**

Support a community-wide program to educate Island residents about alternatives to using and disposing of herbicides, pesticides, and other household chemicals, to reduce impacts to marine shoreline areas, wetlands, streams, and other environmentally sensitive areas.

**Policy WR 3.18**

Promote and support volunteer or community-driven restoration projects.

## STORMWATER PROTECTION AND MANAGEMENT

### GOAL WR-4

**Rather than capture and carry stormwater away as a waste stream, protect it from pollutants and retain it on site to replenish *aquifers* and maintain *wetlands* and natural ~~summer~~ stream flows, preserving or mimicking the natural water cycle to the maximum extent practicable.**

**Policy WR 4.1**

Comply with all requirements of the City's National Pollutant Discharge Elimination System Phase II Municipal *Stormwater* Permit (NPDES Permit).

**Policy WR 4.2**

~~Continue to~~ Provide ongoing opportunities for the public to participate in the decision-making process involving the development, implementation and update of the City's *Stormwater* Management Program through advisory councils, public hearings, and *watershed* committees.

**Policy WR 4.3**

~~Continue to~~ Improve and maintain an education and outreach program designed to reduce or eliminate behaviors and practices that cause or contribute to adverse *stormwater* impacts and encourage the public to participate in stewardship activities.

**Policy WR 4.4**

~~Continue to~~ Identify and eliminate sources of pollutants to the City's *stormwater* drainage system through proactive field screening techniques such as effluent monitoring, system inspections and cleaning, and commercial and industrial business inspection, and through the enforcement of the City's Illicit Discharge Detection and Elimination ordinance.

**Policy WR 4.5**

Ensure development of and adherence to required public and private *stormwater* pollution prevention plans for public facilities, construction sites and commercial and industrial *land use*. Encourage the use of such plans where not specifically required.

**Policy WR 4.6**

Ensure development of and adherence to erosion and sediment control plans on all construction and development sites of any size.

**Policy WR 4.7**

Develop and actively enforce a strong *low impact development (LID)* ordinance to require any and all methods and practices for new development and redevelopment to the maximum extent practicable and reasonable. ~~*LID* is a *stormwater* and *land use* management strategy that strives to mimic pre-disturbance hydrologic processes of infiltration, filtration, storage, evaporation and transpiration by emphasizing conservation, use of on-site natural features, site planning and distributed *stormwater* management practices that are integrated into a project design.~~

**Policy WR 4.8**

Prioritize *LID*-based retrofit of public and private *stormwater* drainage systems and built assets through the inventory, management and fiscal planning process.

**Policy WR 4.9**

Incentivize *LID* retrofit of current built environment.

**Policy WR 4.10**

Use *watershed* and basin plans to reduce *stormwater* impacts and *non-point source pollution*.

**Policy WR 4.11**

Comply with all requirements specifically identified by the City's permit for any Total Maximum Daily Load (TMDL) in which the City is a stakeholder.

**Policy WR 4.12**

Conduct effectiveness monitoring and assessments to continue to adaptively manage *stormwater* to ensure optimal protection.

## RESIDENTIAL ON-SITE SEWAGE SYSTEMS

### GOAL WR-5

**Ensure that sewage is collected, treated and disposed of properly to prevent public health hazards and pollution of *groundwater*, Island surface water and the waters of Puget Sound.**

**Policy WR 5.1**

Regulations and procedures of the Washington State Department of Health and the Kitsap Public Health District apply to all on-site disposal systems. ~~The City shall work~~ Coordinate with these agencies to assure regular inspection, maintenance and repair of all *sanitary sewer* and on-site systems located on the Island.

**Policy WR 5.2**

Request notification of all waivers or variances of Kitsap Public Health District requirements such as modification of setbacks, vertical separation, minimum lot size, reserve drainfield, etc., prior to issuance and subsequent modifications by the Kitsap Public Health District of an approved Building Site Application.

**Policy WR 5.3**

Allow alternative systems such as sand filters, aerobic treatment, composting toilets and living-systems when approved by the Kitsap Public Health District.

**Policy WR 5.4**

~~Development regulations shall~~ Require coordination between the on-site septic and storm drainage disposal systems designs to ensure the proper functioning of both systems.

**Policy WR 5.5**

Assist the Kitsap Public Health District in developing a program to require proper maintenance of all on-site waste disposal systems in order to reduce public health hazards and pollution. This program *shall* include periodic system inspection and pumping when necessary.

**Policy WR 5.6**

Work with the Kitsap Public Health District on a collaborative program to fund and pursue grants or low-cost loans for low and moderate-income *households* to repair failed septic systems. Incentivize maintenance, repair and replacement of systems for any income level.

**Policy WR 5.7**

Allow on-site waste disposal systems serving more than one *household* ~~should be allowed~~ only with assurance of proper design, operation, management and approval from the Kitsap Public Health District.

**Policy WR 5.8**

~~The City may~~ Provide the service of operation and maintenance management for approved large on-site *sanitary sewer* systems or community *sanitary sewer* systems in coordination with the Kitsap Public Health District.

**Policy WR 5.9**

~~The City should~~ Support the Kitsap Public Health District in maintaining and improving a public education program to foster proper construction, operation and maintenance of on-site septic systems.

**Policy WR 5.10**

Support the Kitsap Public Health District in developing and maintaining an ongoing inventory of existing on-site disposal systems to provide needed information for future studies.

## PUBLIC EDUCATION AND OUTREACH

### GOAL WR-7

The City, in concert with federal, state and local governments, public water purveyors, watershed councils, non-profits, citizens and other appropriate entities will continue to improve and implement comprehensive public education and outreach program to promote protection and management of all water resources.

#### Policy WR 7.1

Educate and inform the public about:

- The purpose and importance of aquatic environments, their vulnerabilities and observed status and trends in ecological health and function;
- Expected *climate change* impacts and how these will affect the Island's water resources and their beneficial uses;
- The characteristics of the *aquifer* system, the Island's dependency upon it and its vulnerability to contamination (including seawater intrusion) and depletion;
- The Environmental Protection Agency's Sole Source Aquifer Designation Program and what this designation means for the Island's *aquifer* system;
- Wellhead protection and the critical importance of restricted chemical use or storage within the protection area around wells;
- Critical *aquifer recharge areas* (or other special conservation areas) and the purpose they serve to the *aquifer* system;
- How to report spills or illicit dumping of hazardous waste or other pollutants and how to access information about location and status of contaminated sites;
- How to find information about their well and how to properly maintain it;
- Methods to identify wastewater indoors and outdoors and practices to conserve water such as native landscaping, xeriscaping and water use reduction or reuse;
- Resources for streamside and shoreline landowners;
- Water resources protection best management practices for commercial, industrial, residential, agricultural and other *land uses* to prevent or reduce pollution. These practices include but are not limited to, septic system maintenance, pet and livestock waste management, landscaping and gardening, *farm* plans, appropriate methods for use, storage and disposal of hazardous materials and other chemicals, on-site drainage system maintenance and automotive care.

#### Policy WR 7.2

~~Educate and inform the public about expected *climate change* impacts and how these will affect the Island's water resources and their beneficial uses.~~

#### Policy WR 7.3

~~Educate the public about the characteristics of the *aquifer* system, the Island's dependency upon it and its vulnerability to contamination (including seawater intrusion) and depletion.~~

#### Policy WR 7.4

~~Educate the public about Environmental Protection Agency's Sole Source Aquifer Designation Program and what this designation means for the Island's *aquifer* system.~~

**Policy WR 7.5**

Educate the public about wellhead protection and the critical importance of restricted chemical use or storage within the protection area around wells.

**Policy WR 7.6**

Educate the public about critical *aquifer recharge areas* (or other special conservation areas) and the purpose they serve to the *aquifer* system.

**Policy WR 7.7**

Inform the public about how to report spills or illicit dumping of hazardous waste or other pollutants and how to access information about location and status of contaminated sites.

**Policy WR 7.8**

Inform the public about how to find information about their well and how to properly maintain it.

**Policy WR 7.9**

Educate and provide technical assistance to the public on methods to identify wastewater indoors and outdoors and practices to conserve water such as native landscaping, xeriscaping and water use reduction or reuse.

**Policy WR 7.10**

Provide “how to” or “dos and don’ts” resources for streamside and shoreline landowners.

**Policy WR 7.11**

Provide information and guidance on water resources protection best management practices for commercial, industrial, residential, agricultural and other *land uses* to prevent or reduce pollution. These practices include but are not limited to, septic system maintenance, pet and livestock waste management, landscaping and gardening, *farm* plans, appropriate methods for use, storage and disposal of hazardous materials and other chemicals, on-site drainage system maintenance and automotive care.

**Policy WR ~~7.2~~ 7.12**

~~Provide and~~ Promote opportunities for citizen stewardship and involvement.

**Policy WR ~~7.3~~ 7.13**

Provide *LID* technical guidance and workshops to businesses and contractors working on the Island.

## WATER RESOURCES IMPLEMENTATION

To implement the goals and policies in this Element, the City must take a number of actions, including adopting or amending regulations, creating outreach and educational programs, and staffing or other budgetary decisions. Listed following each action are several of the comprehensive plans policies that support that action.

### HIGH PRIORITY ACTIONS

**WR Action #1 Adopt aquifer conservation zoning regulations and innovative permit review processes designed to protect the Island’s surface and ground waters.**

#### Policy WR 1.4

Apply the policies in this Element in tandem with the protection measures set by the City’s Shoreline Master Program, *Critical Areas Ordinance* and any other environmental or water resources management ordinance adopted by the City.

#### Policy WR 2.1

Recognize that the entire Island functions as an *aquifer recharge area*. *Low impact development techniques* are essential for maintaining aquifer recharge.

#### Policy WR 2.9

Recognizing that the Island *aquifer* system is a *Sole Source Aquifer* as designated by EPA, institute an added level of development and re-development permit review to prevent or mitigate potential pollutant-generating activities or activities that could affect stormwater runoff and aquifer recharge associated with a proposed *land use*. The Island’s aquifers are protected through critical area regulations and Washington Administrative Code (WAC) Chapter 362-190.

#### Policy WR 4.7

Develop and actively enforce a strong Low Impact Development (LID) ordinance to require any and all methods and practices for new development and redevelopment to the maximum extent practicable and reasonable.

#### Policy LU 13.4

Protect aquifer recharge functions throughout the Island, all of which is an *aquifer recharge area*, through the application of *critical areas regulations*, Shoreline Master Program use regulations, *low impact development regulations*, and the *wellhead protection regulations* administered by the Kitsap Health District.

**WR Action #2 Adopt an Island-wide Groundwater Management Plan.**

#### Policy WR 2.7

Establish a stakeholder group to develop an Island-wide groundwater management plan and work with Kitsap Public Utility District to update the Kitsap County Coordinated Water System Plan.



**WR Action #3** Apply *adaptive management* to assure that land use on the Island will continue to be adequately served by the available water resources.

**Policy WR 3.16**

Maintain a comprehensive program of surface water inventory, data gathering and analysis. The program *shall* include monitoring and assessment of physical, chemical and biological health of surface water ecosystems to include *streams*, ephemeral *streams*, lakes, *wetlands* and marine waters. This may include water, flow, sediment, habitat, pollutants, submerged aquatic vegetation, fish and shellfish tissue, aquatic species diversity and other ecosystem health indicators.

**Policy WR 4.12**

Conduct effectiveness monitoring and assessments to continue to adaptively manage *stormwater* to ensure optimal protection.

**Policy WR 6.1**

Assemble and maintain an inventory of contaminated sites on the Island to track site location, contaminant(s) of concern, cleanup status, and potential to impact nearby surface or *groundwater*.

## MEDIUM PRIORITY ACTIONS

**WR Action #4** Launch a program of public education about how individual actions can help protect the quality and quantity of the Island's surface and groundwaters.

**Policy WR 2.11**

Develop a water conservation program for all water uses on the Island.

**Policy WR 2.13**

Develop a program that incentivizes and facilitates innovative methods for encourages homeowners and business owners to explore innovative methods for to use stormwater ~~recapturing and reusing surface water runoff~~ and grey water as approved by the Washington State Department of Health and the Kitsap Public Health District.

**Policy WR 3.17**

Support a community-wide program to educate Island residents about alternatives to using and disposing of herbicides, pesticides, and other household chemicals, to reduce impacts to marine shoreline areas, wetlands, streams, and other environmentally sensitive areas.

**Policy WR 3.18**

Promote and support volunteer or community-driven restoration projects.

**Policy WR 7.2**

~~Provide and~~ Promote opportunities for citizen stewardship and involvement.

## OTHER PRIORITY ACTIONS

**WR Action #5** Work with other jurisdictions and the environmental and development communities to promote programs and projects to protect the Island's surface and ground waters.

### Policy WR 2.5

The City, in cooperation with the appropriate regulatory agencies (e.g., Washington State Department of Health and the Kitsap Public Health District) will institute new wellhead protection measures.

### Policy WR 3.10

Work with state and local health departments to evaluate the merits of new technologies such as greywater capture, package treatment plants and composting toilets, as alternatives to septic and sewer systems. ~~Determine which of those systems should be allowed and/or encouraged to better protect the quality and capacity of the Island's surface water and near-shore environment.~~