A PRACTICAL GUIDE TO KITSAP WATER

League of Women Voters Kitsap

April 2018

Welcome to A Practical Guide to Kitsap Water

Why should we care about Water? We cannot live without safe, clean, drinking water, and ***the purpose of this guide*** is to educate residents about Kitsap's water so that we can protect our drinking, surface and ground waters.

Drinking Water In Kitsap County, almost all our drinking water comes from groundwater through wells. The groundwater is in both shallow and deep aquifers that are replenished by rainfall. The only exception is the City of Bremerton, which receives much of its drinking water from a surface water reservoir.

Many of us rely on private wells to provide us with safe drinking water. Over 43,300 people get their drinking water from private wells or small water systems, yet they may know little about these wells. All drinking water wells must be operated and maintained properly, or they may become contaminated.

Wastewater Our wastewater doesn't just disappear! It must be treated and disposed of properly, or it can spread disease to humans and wildlife. In 2016, Kitsap County estimated that 60% of the population treats wastewater through individual septic systems, yet few residents know much about their own septic systems. An even smaller number of people in the more developed areas fully understand how their sewers and treatment plants function. All septic systems have a limited lifespan and must be maintained to prevent failures that can pollute groundwater (our drinking water), streams and Puget Sound.

Stormwater Stormwater runoff can pollute our streams and cause flooding and erosion. Stormwater in developed areas must be actively managed to control both its quantity and quality. With the changing climate, winter rainfall in the Pacific Northwest is expected to be more intense in the future, making stormwater management even more important.

Development, climate, the age of the systems, and other factors are constantly changing--all can impact our water resources. Water infrastructure requires maintenance and investment to work properly. Informed residents can make wise investments in water infrastructure to ensure the highest quality of Kitsap Waters.

Our water quality is up to all of us!

LWV

DRINKING WATER

Where does Kitsap County's drinking water come from?

Most people in Kitsap County receive their drinking water from Kitsap Peninsula's groundwater aquifer systems. Over eons of ice age glaciation, layers of aquifers, contained by either bedrock or clay, were stacked upon one another. Water entering these aquifers comes 97% from rain and 3% from return flow. Return flow is water filtered through drainfields from septic systems and stormwater runoff. Rain, rather than mountain snowpack, re-supplies Kitsap County's groundwater system.

The City of Bremerton is unique from the rest of the county because, along with wells, it also impounds surface water, the Union River and watershed drainage in a reservoir contained by Casad Dam, supplying about 60% of Bremerton's water supply.

This guide focuses on wells, which are the sources of most drinking water.

How does drinking water get from underground aquifers to my faucet?

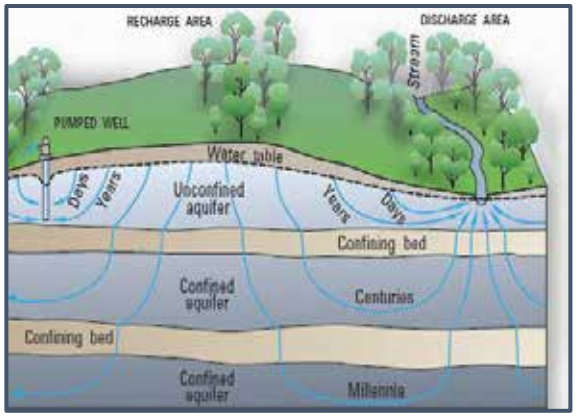
Wells throughout Kitsap County pump water from groundwater aquifers into water storage reservoirs or pressure tanks. From there, water is either pumped or gravity fed through a series of pipes and then distributed across the service area to faucets.

Kitsap County has three categories of water supplies: Group A Public Water Systems, Group B Public Water Systems, and Private Wells.

How are the three categories of Kitsap County water systems different?

- **Group A Public Water Systems** have 15 or more connections. Approximately 150 Group A community water systems in Kitsap County serve about 214,000 people.

  Group A systems are regulated under the federal Safe Drinking Water Act and Washington State law with monitoring and reporting requirements to the state and local government. This means inspections and testing are required.



Aquifer Recharge

Casad Dam

The owner of a Group A system is responsible for the pipes that bring water to the service/water meter or street. The property owner is responsible for the individual waterline and plumbing from that point into the home or business.

Customers of a Group A system pay the owner a regular fee for water usage, inspection, testing, maintenance, and infrastructure replacement.

- **Group B Public Water Systems** have three to 14 connections. Approximately 900 Group B systems in Kitsap County serve about 10,000 people.

  Group B systems are typically co-owned by the property owners who are responsible for maintaining the system, including the source well, reservoir or pressure tank, and distribution pipes. Annual inspection and testing are recommended.

  Depending on how the Group B system was established, customers/owners may pay an annual fee for maintenance and repairs. The arrangements vary considerably from system to system.

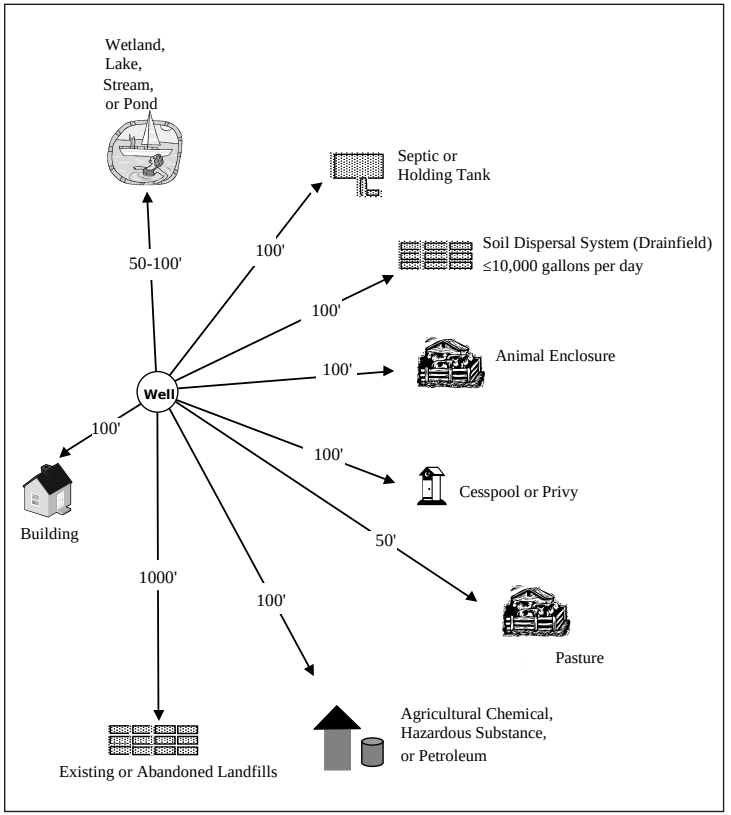
  As with Group A systems, the property owner is responsible for the individual waterline and plumbing into the home or business.

- **Private Wells** serve one or two properties. Approximately 20,000 private wells in Kitsap County serve about 33,000 people.

  When new wells are proposed, the Kitsap Public Health District uses certain criteria to ensure that the well will provide safe drinking water and then approves it for use. There are no ongoing monitoring requirements for private wells.

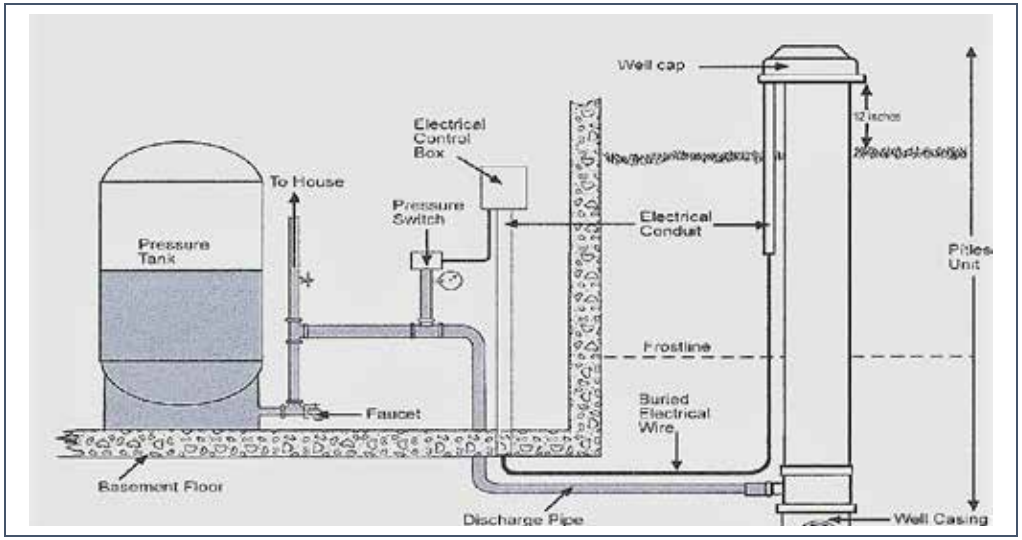
  Since 2018, new private wells in Kitsap County are allowed a maximum withdrawal rate of 950 gallons per day per connection.

  The property owner is responsible for all the parts of a private well, including the waterline and plumbing.



Kitsap-Specific Well Isolation Distances

Modified from Minnesota Dept. of Health, Environmental Health Division, Well Management Section



A typical home well system has several parts, including a pump, a pressure storage tank, and control devices that allow the system to operate automatically.

Minnesota Dept. of Health, Environmental Health Division, Well Management Section

How do I keep my drinking water safe?

Owners of a **Group A** water system are required by law to test and monitor their system.

Users of **Group B** water systems and **private wells** are responsible for maintenance and/or repairs. Funding must be arranged by the users. Group B systems should be tested annually for bacteria through a state-certified lab. The lab provides collection bottles and instructions. This testing can also be done by private well owners but is not required by law. To find a testing lab or to learn what to do if you suspect your water is unsafe, contact the Kitsap Public Health District at 360-728-2235.

Septic system maintenance will prevent harmful bacteria or pollutants from entering an aquifer or your well-pumping area.

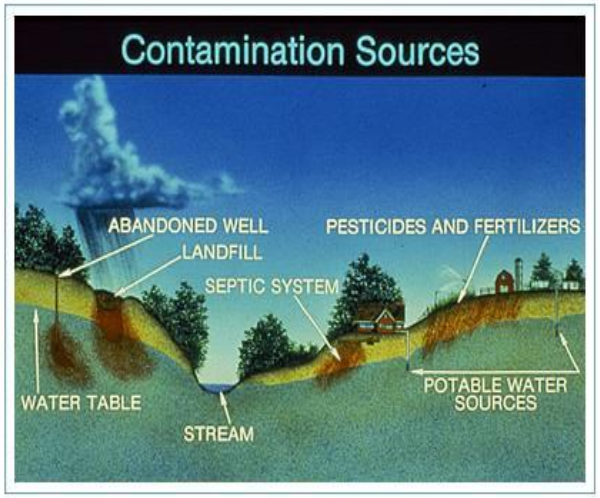
More information on maintaining private wells:

www.kitsappublichealth.org/environment/files/protect_your_wellhead.pdf

Pressure Storage Tanks

What can harm Kitsap County's drinking water?

- Failing or improperly maintained wells can become pathways for groundwater contamination.
- Failing septic and sewer systems can allow harmful bacteria or pollutants to enter an aquifer or a well-pumping area.
- Pet and livestock pollutants can enter the groundwater or a well-pumping area.
- Leakage from petroleum or other chemical storage areas can enter groundwater.
- Stormwater runoff from roads, industrial sites (automotive or junk yards), unlined landfills, or other heavy industrial areas where aquifers are shallow can contaminate groundwater.



How long do the parts of a water system last?

All property owners should know the age and materials (galvanized steel, copper or plastic) of the pipes and plumbing for which they are responsible. Each material has a different lifespan and maintenance requirements. Failure of wells, pumps and pipes not only disrupts water supply but also may damage property and other infrastructure.

The Useful Life of Drinking Water System Components

Component	Useful Life (Years)
Reservoirs and dams	50-80
Treatment plants	
Concrete structures	60-70
Treatment plants	
Mechanical and electrical	15-25
Trunk mains	65-95
Pumping stations	
Concrete structures	60-70
Pumping stations	
Mechanical and electrical	25
Distribution pipes	60-95

What actions should I take if I stop using a well?

State law requires that any unused or abandoned well--or any well that could threaten public health--be properly decommissioned by a licensed well driller.

What agencies are responsible for protecting drinking water sources?

- **Kitsap County Department of Community Development** (DCD) and the planning departments of the cities of **Bainbridge Island, Bremerton, Port Orchard** and **Poulsbo** are responsible for zoning and critical areas protections. Portions of the county are designated "critical aquifer recharge areas" that limit the types of activities that can take place in these locations.

- **Kitsap Public Health District** (KPHD) approves siting of wells on properties prior to drilling, ensuring they are a safe distance away from sources of pollution. Once wells are drilled, KPHD assesses their quality and approves

them for building permit applications. KPHD also provides limited oversight of Kitsap County's 900+ Group B Water Systems.

- **Kitsap Public Utility District** (KPUD) is the lead agency for constructing regional drinking water infrastructure in Kitsap County. This regional system takes into consideration the different rainfall patterns across the county and provides utility resiliency by maintaining interconnected systems that can provide water from various regional sources when needed to face climate change and other challenges.

  KPUD also maintains an extensive countywide hydrologic monitoring network that observes and checks precipitation, streamflow and groundwater levels. Data from this network is used in research and management decisions.

  In addition to operating its own water systems, KPUD will take over smaller failing water systems if their owners cannot operate them safely.

- **Washington State Department of Health** administers the Safe Drinking Water Act within Washington ensuring all Group A water systems are monitored and maintained to meet or exceed federal and state water quality criteria.

- **Washington State Department of Ecology** administers water rights within the state and designates the minimum water levels necessary in streams and rivers for the protection of salmon and other wildlife.

How to use water wisely?

See www.ci.bremerton.wa.us/383/Waterwise-Guidelines.

How will climate change affect Kitsap County's aquifers?

Specific impacts from climate change are a challenge to determine, thus rainfall statistics are important to monitor.

Kitsap County's rainfall average is 40 inches per year, with the amount varying widely across the county. Southwest Kitsap County receives three times as much rain as the

Contact Information

Kitsap County DCD kitsapgov.com
"County Departments & Offices," then "Community Development," or call 360-337-5777

Kitsap Public Health District
kitsappublichealth.org "Environmental Health" or call 360-728-2235

Kitsap Public Utility District www.kpud.org or call 360-779-7656

Washington State Department of Health
www.doh.wa.gov
"Community and Environment,"
then "Drinking Water," or call 800-525-0127

Washington State Department of Ecology
www.ecy.wa.gov "Water & Shorelines" or call 360-407-6000

Bainbridge Island www.ci.bainbridge-isl.wa.us
"Government," then "Planning & Community Development" or call 206-842-7633

Bremerton www.Bremertonwa.gov "Our Government," then "Public Works & Utilities" or call 360-473-5290

Port Orchard www.cityofportorchard.us
"Permits & Licensing" or call 360-876-4407

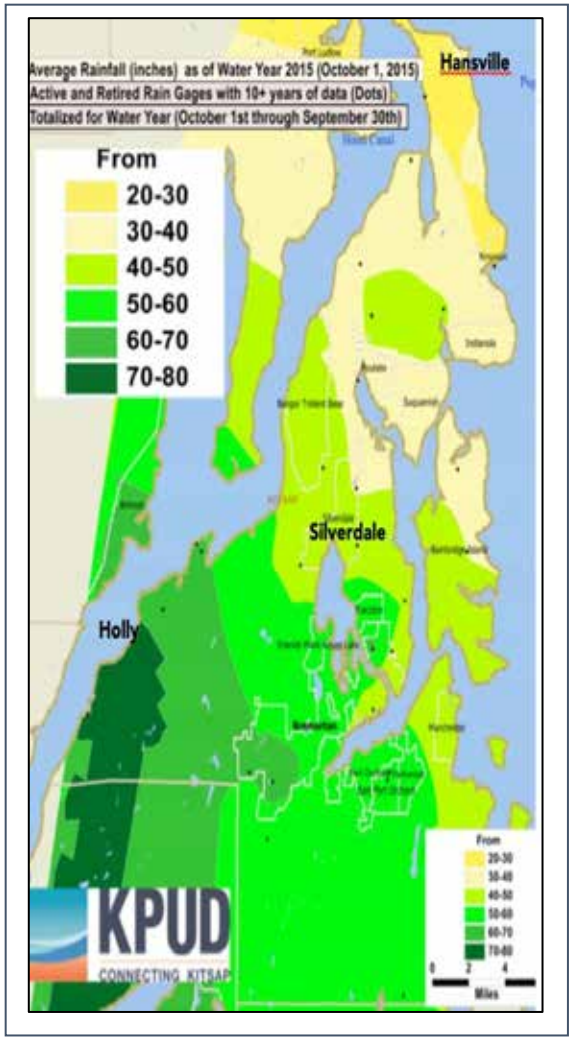
Poulsbo cityofpoulsbo.com
"Government," then "Departments," then "Planning & Economic Development" or call 360-394-9748

northern part. Holly receives 80 inches of precipitation a year while Hansville, in the rain shadow of the Olympics, only receives 30 inches. As long as average annual rainfall remains at current levels, groundwater stored in the aquifers is expected to be at stable levels.

Different models demonstrate what might happen as global temperatures continue to rise. One consequence of climate change could be increased intensity of winter storm systems. Abnormally high rainfall amounts could add more water to our aquifers. However, more intense rainstorms could also cause water to rapidly run across the ground rather than soaking into it, lessening aquifer recharge.

Another result of climate change could be that winter storm systems become less frequent as the atmosphere and oceans warm and wind patterns shift. Fewer storms mean less precipitation. Less rainfall means less water in Kitsap County's aquifers.

Photograph by Leni Skarin



The safety of our drinking water ultimately depends on the health of our septic systems and our control of stormwater. In Kitsap County, we only have this groundwater, sustained by rain, and we must protect it.

WASTEWATER

What happens to the water we use?

When we turn on our faucets, clean water comes out. We use it for drinking, showering, laundering and flushing. The water we've used then goes down the drain as "wastewater."

How we treat wastewater depends on where we live. In urban areas, wastewater is often collected in pipes and transported through sewer lines, called sanitary or municipal sewers, and is then processed at a central treatment facility. In more rural areas, on-site septic systems are typically used to treat wastewater. Both types of treatment systems are designed to help prevent the spread of illness and disease. Once treated, the wastewater is dispersed into the nearby native soils and waterways.

Residential Wastewater Sources

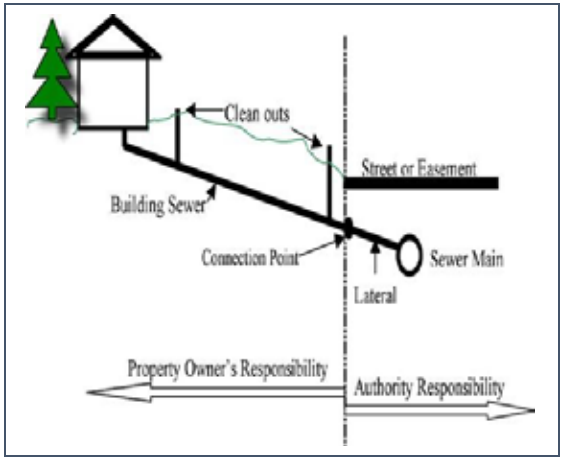
Sanitary Sewer Systems

Where does the waste go in a sanitary sewer system?

Wastewater from a home is discharged through pipes and conveyed to a wastewater treatment plant, which is a complex system that removes solids, chemicals and bacteria from wastewater. Once processed, the resulting treated water is usually discharged into nearby natural water systems.

A residential wastewater collection system is made up of the following components:

- **Building sewer line**: A four-inch diameter drainpipe, typically plastic or iron, that runs to the property line and connects to the side sewer lateral line.
- **Side sewer lateral line**: Typically, a six-inch diameter drainpipe that runs from the property line to the sewer main.
- **Sewer cleanout**: A vertical capped pipe that provides access to remove blockages in the building sewer line.
- **Sewer main**: A pipe, typically eight-inch or larger diameter, which connects to the side sewer line and conveys the wastewater to a pumping station or a sewage treatment facility. The sewer utility is responsible for the sewer main.



Sanitary Sewer System Responsibilities

How can I maintain my sewer?

- Maintenance of the sewer cleanout, the building sewer line, and the side sewer lateral line are the responsibility of the building/property owner.
- Locate and cap your sewer cleanout to keep rainwater, leaves, tree limbs and soil from entering and clogging the sewer line.
- Occasionally have a professional contractor inspect the building and side sewer lines for cracks, leaks and possible tree root intrusion.

What items should I avoid putting in my sewer line?

The only thing that should be put into the toilet is human waste and toilet paper. Items that should *not* be flushed are listed below:

- Sanitary wipes, cotton swabs
- Large amounts of hair
- Feminine hygiene products
- Paint, paint cleaners
- Grease, fat, oil, bones
- Produce stickers
- Medications, pharmaceuticals
- Cat litter
- Band Aids, dental floss
- Paper towels
- Toxic chemicals
- Food scraps
- Cigarettes
- Baby wipes, diapers

Where are the sanitary sewer systems and treatment plants in Kitsap County?

Forty percent of Kitsap County's population is served by sanitary sewer systems. Below are the sewer collection systems and treatment plants in Kitsap County:

- **Kitsap County** has collection systems in Silverdale, Central Kitsap, Kingston, Manchester, Navy Yard City and Suquamish. Kitsap County has treatment plants in Central Kitsap, Suquamish, Kingston and Manchester.
- The City of **Bremerton** has collection systems and two treatment plants serving the City of Bremerton and Gorst.

Did you know?

Purple pipe is a distribution pipe for recycled wastewater that has been treated to be safe for non-drinking purposes.

Tips

Kitsap County provides a list of approved sewer contractors:

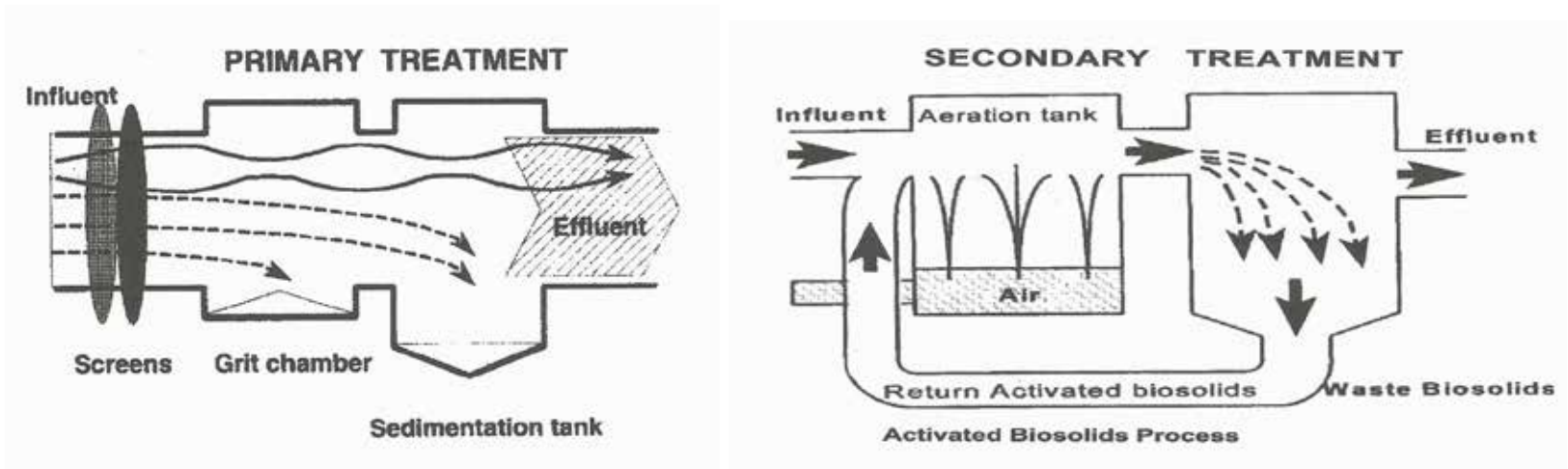
kitsapgov.com/pw/Pages/Sewer-Contractors.aspx

If your property is connected to a Kitsap County Sewer Utility, you can determine where the sewer line is located by checking the original sewer permit. Receive a free copy by calling 360-337-5777.

If you are unsure who provides sewer to your property, check your utility bill or tax statement.

- The City of Port Orchard and West Sound Utility District jointly own a treatment plant serving Port Orchard and West Sound Utility District's sewer service area. They independently operate collection systems serving the City of **Port Orchard** and surrounding areas.
- The City of **Poulsbo** operates sewer collection lines. The sewage from Poulsbo is treated in a Kitsap County treatment plant.
- The United States Navy operates sewer collection systems at **Puget Sound Naval Shipyard**, **Bangor** and **Keyport** that feed into a Kitsap County or City of Bremerton treatment plant after industrial pre-treatment by the Navy.
- The **Port Gamble S'Klallam Tribe** operates a small collection system and treatment facility serving the reservation.
- Pope Resources owns a collection system and small treatment facility, operated by Kitsap Public Utilities District, which serves **Port Gamble**.
- The Port of Bremerton owns and operates a collection and treatment facility serving **Puget Sound Industrial Park**.
- The City of **Bainbridge Island** operates a collection system and treatment plant for the Winslow area. The South Island area is served by a collection and treatment plant operated by Kitsap County Sewer District # 7.

Central Kitsap Treatment Facility



From EPA Publication 833-F-98-002 **HOW WASTEWATER TREATMENT WORKS—The Basics**

Septic Systems

Where does the waste go in a septic system?

Onsite septic systems are typically made up of two or more components linked together by pipes. Approximately 58,000 properties in Kitsap County are served by onsite sewage systems.

Standard Gravity systems have two main parts, a septic tank and drainfield. Wastewater flows into the septic tank, slowing the flow so that solids will settle out. Greases and oils float to the top of the tank, forming a scum layer, and are prevented from entering the drainfield by baffles. Wastewater from the septic tank then flows untreated into a drainfield by gravity alone. The wastewater filters or percolates ("percs") through the soil where microorganisms remove pathogens.

Alternative systems are used where standard gravity systems will not work. These systems cost more, often involve complicated components and electronics, and must be recorded in a "Notice to Title" so that future property owners are made aware of the alternative system. Owners of alternative systems are required to have a contract for monitoring and at least one inspection per year by a certified maintenance service provider. Results of the inspection must be filed with the Kitsap Public Health District.

How much does it cost to repair or install a new gravity septic system?

Septic system installation costs typically range from $10,000 to $25,000. Septic system repair costs will vary depending on the repair that is needed. Many repairs require a permit and must be done by a certified septic installer. Protect and maintain your system so that repairs are unnecessary.

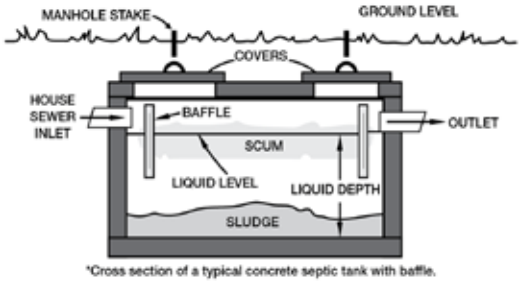
How can I find out the specifics of my septic system?

Your permit application and the details of your system's location, type and components can be accessed by contacting Kitsap Public Health.
www.kitsappublichealth.org/irecordsearch/

What if I can't afford to fix my septic system?

Fixing a failing septic system can be expensive. Clean Water Loans are available to help repair or replace failing septic systems. www.Craft3.org/CleanWater

Standard Gravity System



*Cross section of a typical concrete septic tank with baffle.

Cross section of a septic tank

Types of Alternative Septic Systems

- Pressure Distribution System
- Mound System
- Sand Filter System
- Aerobic Treatment Unit
- Biofilter

Who can help me maintain and monitor my septic system?

Only septic contractors who are certified by the Kitsap Public Health District may work on septic systems. You may obtain a list of certified contractors from the Health District. If you occupy your own single-family home, you can become certified to maintain your own system.

Where can I find more information on septic systems and maintenance?

Kitsap Public Health District: 360-728-2235
www.kitsappublichealth.org/environment/septic_systems.php

Washington State University Extension: 360-337-7157
http://extension.wsu.edu/kitsap/nrs/water-stewards/septic-sense/

What happens when a septic system fails?

When a septic system fails, the toilet, tub and other drains may not drain and may back up and overflow into the house. Sometimes, however, the sewage does not back up into your house but rather surfaces on the ground outside because of a failed drainfield. A failing septic system is a health hazard. Sewage can cause illness by contaminating nearby wells, groundwater, streams, marine water and shellfish.

How can I tell if my septic system is failing?

- Sewage on the surface of the ground or discharging into surface waters.
- Foul smelling, slimy, blackish/greyish liquid in the drainfield area or flowing out of down-slope pipes or banks.
- Standing/flowing water or soggy soils in the drainfield area.
- Toilet will not flush. Sewage backs up into the bathtub or other places in the residence.

Wastewater must be carefully managed to prevent illness and to preserve our clean water and the natural processes in our environment.

How can I protect my septic system?

Maintain your system by having it periodically inspected and pumped. Watch what goes into the system.

- Use dryer sheets instead of liquid fabric softener.
- Spread laundry loads throughout the week.
- Install low-flow toilets, faucets and showerheads.
- Take showers of 10 minutes or less.
- Fix leaking faucets and toilets.
- Do not use automatic toilet bowl cleaners.
- Do not drive, dig, park, or plant shrubs or trees on the drainfield.
- Don't flush anything other than human waste or toilet paper.

STORMWATER

Stormwater runoff is rainwater or other accumulated moisture that is unable to soak back into the ground and instead runs off roads, roofs, driveways, lawns, etc. into ditches or drains and eventually into natural waterways.

Why should we care about stormwater runoff?

Stormwater often contains chemicals from cars (copper, lead, oils), pesticides, animal waste, and other pollutants that are harmful to people and the environment. Toxic pollutants in runoff can cause returning Coho salmon to die before they spawn. Excessive stormwater runoff can trigger flooding, erosion and landslides.

Is stormwater regulated?

Yes! The Federal Environmental Protection Agency and State Department of Ecology identify those pollution levels in stormwater that are harmful to humans and wildlife. Regulations at the local level require stormwater to be managed when land is cleared or developed to reduce the risk from excessive stormwater flows and protect water quality.

What are the local governments' responsibilities to manage runoff and drainage?

Kitsap County Public Works Stormwater Division was established to meet state and federal requirements to protect people, property and natural resources by reducing flooding, stormwater runoff and stormwater pollution. The Stormwater Division operates and maintains the county's stormwater pipes, drains, catch basins, ponds and other facilities. It also builds and upgrades facilities to improve water quality and habitat, conducts inspections, monitors waterbodies to prevent and respond to spills, and provides education and outreach to the public on how to reduce stormwater runoff. The Division partners with other agencies to fund Clean Water Kitsap.

The cities of Poulsbo, Bremerton, Port Orchard and Bainbridge Island have similar stormwater programs that perform the same functions in the incorporated areas.

Road Runoff

.

Annual Stormwater Fees (2017)

Kitsap County	$ 91
City of Bremerton	$138
City of Port Orchard	$168
City of Bainbridge Island	$169
City of Poulsbo	$210

What are private property owners' responsibilities for water runoff and drainage?

Generally, property owners must manage the drainage on and from their property. They must also maintain any drainage system on the property to minimize negative effects on their neighbors and the water quality of downstream waterways. Property owners cannot block a natural drainage course.

As development in Kitsap County progresses, older ditches or existing stormwater piping systems may be overloaded during heavy rains, causing new or increased flooding. In an effort to decrease flooding events and improve water quality in streams, Washington State and local stormwater regulations have been updated. Most new development or redevelopment must meet these requirements. Contact the county or your city to learn if any actions on your property might trigger these new rules.

Who is responsible for stormwater on or near a roadway?

State roads are managed by the Washington State Department of Transportation (WSDOT).

For county roads, the Kitsap County Roads Division maintains the ditches, and the Stormwater Division maintains the piped system.

If a state road is within a city, the state and city share responsibilities based on a maintenance agreement contract:

www.wsdot.wa.gov/NR/rdonlyres/B206FE4C-1BAF-40B3-911E-CAF15A5051AD/117070/ConformedAgreementCityStreetsGuideline.pdf

A city's public works department is responsible for ditches and culverts less than 60 inches wide.

Generally, the goal of the roads department, whether state, county or city, is to ensure roads are usable and not flooded. Impacts to adjacent property are not a primary concern.

Have a question about a particular ditch or stormwater pipe?

Kitsap County: 360-337-5777

Poulsbo: 360-779-4078
cityofpoulsbo.com/public-works-stormwater/

Bremerton: 360-473-5920
www.ci.bremerton.wa.us/458/Stormwater

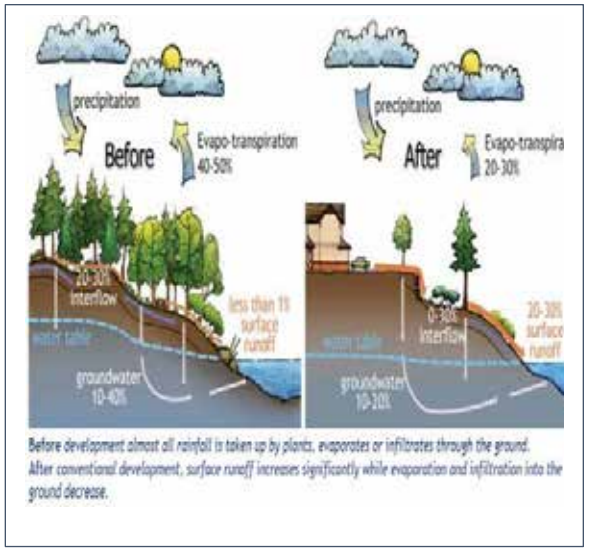
Port Orchard: 360-876-4991
www.cityofportorchard.us/stormwater-management/

Bainbridge Island: 206-842-1212

"Only Rain Down the Drain!"

Has stormwater management changed over time?

Yes! For years the conventional wisdom about stormwater management was simply to direct all runoff to a pipe or ditch. But unmanaged runoff can cause flooding and carry pollutants into streams. Piping water towards large waterbodies can starve streams and wetlands of needed water. While developed areas may need pipe and ditch systems to manage runoff, we now know it is important to reduce the runoff rate to prevent soil erosion and keep pollutants from reaching streams, groundwater and Puget Sound. Additionally, mimicking natural processes for cleansing runoff by filtering it through soils and plants removes pollutants before they can reach natural waterways.



Before development almost all rainfall is taken up by plants, evaporates or infiltrates through the ground. After conventional development, surface runoff increases significantly while evaporation and infiltration into the ground decrease.

"Low Impact Development" (LID) or "Green Stormwater Infrastructure" techniques are usually required in drainage plans for new or remodeled homes and businesses. A rain garden, such as a landscaped depression designed to absorb stormwater runoff from a rooftop, driveway, road, parking lot and/or lawn area, is an example. Using natural landscaping and native plants helps. Even for developed spaces, rain barrels collecting rainwater from roofs and installation of permeable pavement can reduce the impact of runoff.

Rain Garden

Kitsap Public Works incorporates green stormwater systems into many new projects and modifications of older facilities. Examples are Kitsap County's new Keyport sidewalks, the Manchester Stormwater Park, and the Clear Creek Wetland and Floodplain Restoration Project. Bremerton residents can see green stormwater systems as part of Lillian & James Walker Park. The utility fee included in property taxes pays for these projects as well as operation and maintenance, inspections and monitoring of stormwater facilities. The fee also funds educational outreach to the public.

What can property owners do to minimize the effects of stormwater runoff?

Check where the water from the downspouts goes. Create raingardens. Plant trees. Use permeable paving to filter water before it runs off. Install rain barrels. Improve soil with compost and mulch so it will absorb more water. Reduce the use of fertilizers and

pesticides. Keep pet waste, soaps, oil, and grease out of runoff. For more information and solution ideas, visit www.CleanWaterKitsap.org.

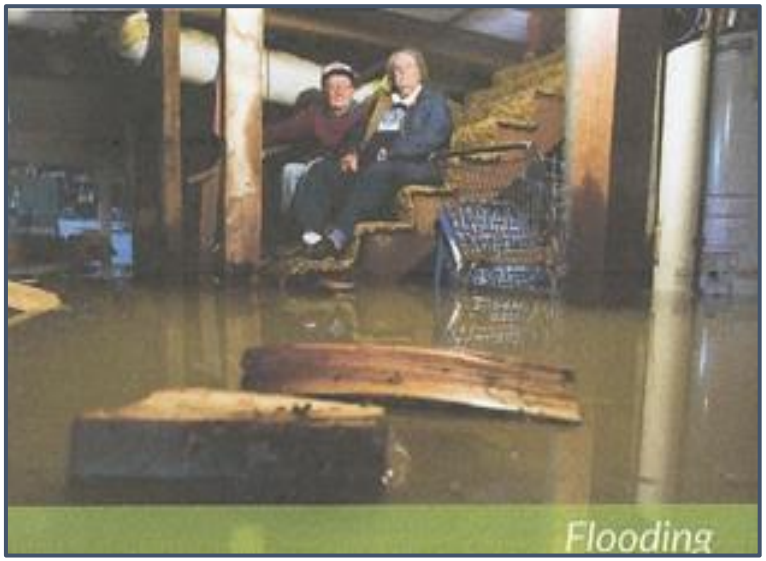
How do I report flooding, drainage problems, or pollution going into a storm drain, ditch, or waterway?

Anywhere in Kitsap County, call 360-337-5777.

E-mail: Kitsap1@co.kitsap.wa.us.
Report online: https://www.kitsapgov.com/pw/Pages/Report-a-Problem.aspx

If the pollution looks hazardous, call the State Department of Ecology at 1-800-OILS-911 (1-800-645-7911).

Development, climate, the age of the systems, and other factors are constantly changing, all affecting water quality. Stormwater infrastructure requires maintenance and investment to work properly. Understanding stormwater management helps us make wise decisions about stormwater investments.



Contact Information

Kitsap County, Department of Public Works Stormwater Division:
360-337-5777
Email: Kitsap1@co.kitsap.wa.us

Kitsap Conservation District has information on native plants and raingardens: www.kitsapcd.org

Cleanwater Kitsap:
www.cleanwaterkitsap.org

Low Impact Development:
www.kitsapcd.org/programs/raingarden-lid/what-is-lid

Rain Garden Handbook for Western Washington:
www.kitsap.cd.org/programs/raingarden/lid/resources

Rain Garden Incentive Rebate Program in unincorporated Kitsap County:
www.kitsapcd.org/programs/raingarden-lid

Washington State University-Kitsap County Extension for watershed stewardship and rain gardens:
extension.wsu.edu/kitsap/

This Guide was created by League of Women Voters of Kitsap - Water Resources Committee

Betsy Cooper, Chair **Martha Burke** **Shirlee Clarke** **Susan Daniel** **Rhonda Fairgrieve**
Shelley Kneip **Alice Millis** **Alys Orsborn** **Leni Skarin** **Janet Stegemeyer**

Our thanks to . . .

We would like to acknowledge the assistance and patience of multiple agencies for their willingness to meet with our committee, educate us, and provide information for this guide. Several individuals also assisted in reviewing drafts. All have our great thanks!

Kitsap Public Health District	**John Kiess** **Eric Evans**	Environmental Health Director, Manager, Drinking Water & Onsite Sewage Program
Kitsap Public Utility District	**Bob Hunter** **Mark Morgan**	General Manager Manager, Water Resources
Kitsap County Public Works	**Lisa Horanyi**	Communications Specialist
Kitsap County Public Works, Stormwater Division	**Chris May** **Eva Crim** **Michelle Perdue**	Senior Program Manager Water Quality Program Manager Stormwater Education and Outreach Coordinator
City of Poulsbo Public Works	**Anja Hart**	Stormwater Program Manager
City of Bremerton Public Works and Utilities	**Kathleen Cahall**	Water Resources Manager
City of Bremerton Wastewater Treatment Plant	**John Fleming** **Teddy Lyon**	Principal Operator Maintenance Manager

Kitsap-specific isolation distance graphic prepared by **Kathleen Wooten**.
Cover photograph by **Mark Morgan**.