

City of Bothell

Public Education and Outreach Program

Summary Report 2013



JanetG
12/20/2013

This page intentionally left blank

Table of Contents

| | |
|---|----|
| Introduction..... | 4 |
| Targeted Outreach Programs..... | 8 |
| Natural Yard Care..... | 8 |
| Car Washing..... | 10 |
| Pet Waste..... | 12 |
| Septic System Maintenance..... | 16 |
| Youth Stormwater Education | 19 |
| Landscaping and Buffers..... | 21 |
| Hazardous Materials Use, Storage, and Disposal..... | 22 |
| Mobile Business Generated Pollution..... | 24 |
| Illicit Discharge Identification, Education, and Reporting..... | 24 |
| Vehicle Leaks..... | 25 |
| Low Impact Development (LID)..... | 26 |
| Environmental Stewardship Actions and Opportunities..... | 28 |
| Conclusion..... | 29 |

Introduction

Many local and regional stormwater issues are caused by the everyday actions of people that live in, travel through, or visit our area. While difficult, changing peoples' daily habits is more cost effective than attempting to clean up pollutants after they've reached our streams.



Goal

The goal of the education and outreach program is to reduce or eliminate behaviors and practices that cause or contribute to water pollution.

Overview

Social marketing, using marketing to change behaviors for the good of the individual and community, has been used for over forty years in the realms of social services, public safety, and disease prevention (think of campaigns such as *click it or ticket, this is your brain on drugs, or five a day*). Social marketing combines standard marketing with social science and other practices to help determine the best way to motivate someone to change a regular habit. The City of Bothell has chosen to use various social marketing strategies to change local behaviors that pollute our local waterways.

There are several steps to changing behavior patterns. They involve understanding the problem, education of the problem, simple and appropriate alternative behaviors, removal of barriers for the change, show of benefits for applied change, cost of competing behaviors, tangible goods and services that can be derived from the change, two-way communication, and goals for success.

The amount of people you reach and the amount of times you reach them over time also play a key role in the initial phases of establishing the change. In the City of Bothell, broad outreach strategies were started in 2008 to provide understanding and education concerning several different water pollution issues. The goal was to give our residents, businesses, and the general public a clear view of the water pollution issues facing our community and establish a level of basic understanding concerning polluted stormwater runoff, pollution control, the flow of water, and the water cycle.



For 2013, broad education was provided to local target audiences through a variety of outreach media. These types of outreach included:

- Bothell Cable News (BCTV)
- Bothell Bridge
- City P.R.I.D.E. Post
- Newspaper articles in Bothell Reporter, Seattle Times, etc.
- Press releases
- City website
- Weekly posts on City social media sites (facebook and twitter)
- Water education presentations
- Workshops
- City-sponsored and private events
- Volunteer events
- Community newsletters
- Utility vehicle signs
- Bus ads
- Banners and stationary signs
- Online web ads
- You-tube videos
- Earned media interviews and articles

The City of Bothell will continue to utilize these outreach media sources in 2014 to ensure that messaging is received repeatedly through a variety of means.

Examples of print media outreach are provided in Appendix A.

Broad awareness outreach messaging was conducted in 2013 in accordance with the Stormwater Outreach for Regional Municipalities (STORM) coalition and the Puget Sound Starts Here (PSSH) campaign found at www.pugetsoundstartshere.org. This allowed the City to align messaging with over 80+ surrounding county and city governments, 100+ businesses, 400+ non-profits, and provide better outreach through a combined regional message. The City of Bothell also co-chaired the STORM coalition to ensure that limited funding resources were utilized effectively and topics were applicable for smaller jurisdictions. Sub-regional outreach was conducted through the Stormwater Outreach Group (known as the SOGgies) which consists of the Cities of Bothell, Kirkland, Redmond, Shoreline, Bellevue,

Sammamish, Kenmore, Issaquah, Lake Forest Park, Clyde Hill, Newcastle, and Seattle. These cities chose to pool funding for sub-regional messaging and evaluation to reduce production costs and leverage larger jurisdictional resources.



Examples of sub-regional bus boards, web ads, and regional outreach we conducted are provided in Appendix B.

The City will continue to be an active participant in STORM and SOGgies in 2014 and will co-chair the STORM coalition to provide essential input and direction on future outreach efforts. The City will also continue to promote the PSSH campaign to raise awareness of individual impacts to Puget Sound and further regional messaging.

Targeted Outreach Programs

Natural Yard Care

Target audience: *Bothell residents with a yard in the neighborhoods surrounding Hollyhills and Canyon Creek (2013)*

Goal for success: *To reduce and potentially eliminate the use of chemical fertilizers and pesticides on Hollyhills and Canyon Creek residential lawns and gardens and provide information on protective yard care techniques.*

Our Natural Yard Care program was tailored after effective strategies from Phase I permittee – King County. We focused our efforts on these key findings from past Bothell surveys conducted by Cascadia Consulting Group (2006):

- 63 percent of respondents were unaware that water from their lawn and pavement goes to the nearest stream and into Lake Washington.
- 37 percent of respondents admitted that they have increased or continued to use the same amount of fertilizer on their lawn.
- Businesses care about the interests of the community.
- Residents who hire out for yard services use more chemicals.

Observations learned during the 2009 Natural Yard Care Program Regional Evaluation and 2012 Bothell evaluation survey were addressed in the 2013 outreach effort. The consultant group, Frause, which helped to create the King County Program, was used to maximize participation. In 2013, we mailed to 1,253 homes and received 98 registrants which is a good return on investment. City of Bothell Natural Yard Care 2013 Report, Geer (2013) provides details concerning this successful program effort.



The City has chosen to partner with Snohomish County for 2014-2015 season to evaluate their slightly different behavior change model format with sixteen other jurisdictions in the County and Puget Sound region. This particular program will be offered in 2014 to the surrounding neighborhoods within the Snohomish County portion of Bothell. All homeowners with under an acre of property will be entered into a database and 1,000 homes will be randomly selected to participate. Using this method, we will be able to determine whether their program model is just as effective as King County for producing the registration numbers, participants, and workshop satisfaction as the King County model. Basic differences in the program will include:

- No door-to-door canvassing will take place
- Mailer solicitation will take place at random instead of by geographic neighborhood location
- Different mailers will be used with substantially different graphics
- The workshops will take place in a church instead of a community center

- Online registration will be changed
- Information packets will not be given out
- Different speakers will be utilized
- The consulting firm will be different

This program is scheduled to continue through 2015 to reach all single-family neighborhoods and provide all Bothell homeowners interested in the program a chance to participate.

Business outreach was conducted in 2013 by our local Source Control Specialist, focusing on known landscaping companies that work and conduct business within Bothell. Technical assistance and training has been and will continue to be offered on-site to ensure proper application, handling, and safety of hazardous products in 2014.

Examples of outreach materials and workshop photos are provided in Appendix C.

Car Washing

Target Audience: Bothell residents that wash their vehicle at home

Goal for success: To reduce and eliminate the number of residents that allow their vehicle wash water to enter the storm drains.

The barriers for adoption of car washing BMPs are significant and provide a unique challenge for outreach strategies. Outreach and alternatives are very subjective to local demographics; so the City of Bothell will focus on neighborhood outreach in order to spend budget funding most effectively.

The results of surveys conducted in 2009 and 2010 were beneficial in directing our outreach and helped with the incentives offered at the Bothell Riverfest events in August 2009, 2010, and 2011. Almost all people who took the survey, and were unwilling to use a commercial car wash, were willing to try a waterless car washing alternative. For this reason, 200 samples were distributed during our Riverfest events each year, along with the necessary microfiber towel applicators. A demonstration was given during the all-day events to allow residents to sample a waterless product using a city staff vehicle and view the

results. This helped to reduce the perceived barriers that these products scratch paint and do not adequately clean a vehicle.

Our car washing program for 2013 focused on education concerning the effects of improper home car washing and continued to emphasize the alternatives. Focus was given to Home Owner Associations (HOA's) as a key component for message delivery. Some key outreach included:

- Flyers and posters provided and placed in common areas surrounding the target neighborhoods.
- An electronic flyer sent to known property owners and HOA board members with education on car washing best practices, incentives for allowing us to speak at a gathering of homeowners, and information concerning potential fines for illicit discharge.
- Free samples of car washing alternatives and commercial car washing tickets given out at events with a cost comparison and location information to make it easy to try these acceptable best management practices.

The following conclusions were derived after five years of utilizing these methods:

- According to an extensive evaluation study conducted in 2012, residents that wash their car in their driveways remained fairly steady (47% of the population) after three years of actively providing outreach and alternatives
- 26% of all residents that wash a vehicle on a paved area allowed the water to run into the storm drain
- Those who were aware of water pollution did not have any different pattern of car washing than those less environmentally aware
- Home car washers were more likely to be male, educated, homeowners, and lower income
- Many homeowners liked the waterless car wash products but were not sufficiently motivated to purchase them on their own once the incentives were taken away



Further research needs to be conducted in order to accurately determine the barriers and appropriate alternatives to prevent polluted wash water from entering our streams via home car washing. In 2014, we will be conducting a more extensive program to complete the necessary research and apply the appropriate program with accurate evaluation measures to ensure success.

Examples of car washing outreach materials are provided in Appendix D.

Pet Waste

Target audience: *All residential properties surrounding the Canyon Park Junior High, Stipek Park, and William Penn Park public spaces (2009-2013).*

Goal for success: *To reduce the amount of pet waste left in these public areas, and better understand the effectiveness of different methods of outreach concerning pet waste.*

Adoption of pet waste BMPs was based on our own research coupled with regional significant points (Cascadia Consulting Group 2004 & Elway 2009). The outreach focused on five key findings:

- Dog owners are often unaware of health dangers from pet waste and are unsure of proper disposal methods.
- Veterinary employees and vets do not discuss pet waste disposal with their clients.
- Only 20 percent of respondents recognized that improper pet waste disposal is a problem.
- Dog owners are more likely to pick up the waste while on walks than in their own yards.
- Picking up waste depended on having a bag, signs, and somewhere to dispose of it.

After visiting several sites, we selected two City parks, William Penn Park and Stipek Park, as well as the right-of-way green strips along one major residential street, 23rd Avenue SE, near the Canyon Park Junior High School, due to the regular high volumes of pet waste present. These choices were reinforced by the fact that they are all within walking distance of each other in a residential area near the center of Bothell.

Counting began in March 2009 within the designated areas. Pet waste counts were tabulated under multiple designated locations for each area to ensure counting accuracy. The Parks staff often removes pet waste before maintaining each site, so timing was coordinated with the Parks Department to prevent inaccurate counts. It was determined that all counting would be conducted on the first Monday of each month to manage schedules and provide an arbitrary starting point.

In August of 2009, a pet waste target mailer was sent out to each home, including multifamily residences. A target mailing distribution list was generated using GIS data. All homes within walking distance of the target pet waste areas were included in our mailing. The mailer focused on the high levels of bacteria found in Bothell streams from regular Total Maximum Daily Load (TMDL) sampling and the potential health risk associated with the amount of pet waste found in their neighborhood. It offered an incentive for owner participation with a reminder of how important it is to pick up pet waste at home as well as in public areas.

The target parks chosen were supplied with signs, waste receptacles, and bags in 2006 to encourage adoption of this BMP. The City has been keeping track of the use of each receptacle and the number of bags used, and comparing it to the amount of waste found at these

sites. Due to severe budget shortfalls, the City was no longer able to provide the bags for these parks beginning in 2011; so we created pet waste bag dispensers that residents could fill on their own, to provide a mechanism for incentive continuation and try to spur a better sense of community and responsibility in resident park users. We continued to count through 2013 to determine whether providing bags and dispensers has had a real effect on the amount of waste present in these target areas.



In 2010-2013, business outreach was also conducted to determine whether the message was being reinforced to residents by our local veterinarians. A City kit was presented to the two relevant Bothell vet offices. The kit contained pet waste bags with convenient containers which clip to a dog collar or leash, stickers for garbage cans, informational posters, fact sheets for distribution (in English and Spanish), and pledges. Pledges were required to be eligible to receive pet waste bags. The vet offices were instructed to provide a sticker and pet waste bag container to anyone who would sign a pledge. One 11x17-inch color poster was given to each office for the lobby area and 15 11x17-inch posters were given to place in hallways and patient rooms. It was found that the pet waste bags were well received, but the outreach materials were not posted in examination rooms or

hallways (mostly due to owners' policies concerning the posting of any material). Most professionals stated they still did not discuss proper disposal of pet waste with their clients, but could do so in the future.

In 2011, a small intercept survey was conducted within the target neighborhoods to determine the understanding of stormwater issues including pet waste, and doorhangers were left which discussed the importance of adopting the proper best management practices. Volunteers placed 200 storm drain markers in the area to reinforce the previous messaging.

Bothell also helped to complete a viral video called "Dog Doogity" www.scooppoop.org, (a parody of the Blackstreet song "No Diggity") which reinforces the importance of cleaning up after your pet in public and private outdoor spaces. This video was funded as part of a grant from the Department of Ecology. The video was wildly successful and generated a long presence in the media, reaching national and international acclaim within the first month of its launch date.

Our Bacterial Pollution Control Plan (BPCP), required by our Total Maximum Daily Load (TMDL) requirements, asked us to look at adopting a pet waste ordinance to help encourage further adoption of this BMP. Staff completed a review of seventeen surrounding jurisdictions and brought those findings before Council along with an example ordinance for their approval. Council reviewed all concerns and approved its adoption in November 2011. These ordinances can be found in Chapters 6.16.011 and 8.60.240 of the Bothell Municipal Code.

In 2012, an extensive phone survey (Elway) was conducted which found that we have reached the late majority of behavior adopters and established pet waste pick up as a social norm, so we feel we have done an adequate job of modifying this behavior. Key findings from this survey include:

- More than 1 in 3 households have a dog
- Most pick up their pet waste regularly
 - 8 in 10 always pick up on walks
 - 3 in 4 pick up at least weekly in yards (44% daily)
 - 3 in 4 who pick up place it in the trash

In order to keep from backsliding we will continue in 2014 to provide reminders through our usual education and outreach methods in

accordance with the established programs, but will not continue to count on a monthly basis.

Another requirement of the TMDL was to address fecal coliform from birds congregating unnaturally due to human feeding. Education staff completed signage to address this issue and placed them in key areas where the general public was known to actively feed waterfowl. This is still a social issue, so we will continue to pursue other social marketing methods to encourage the general public to refrain from feeding local waterfowl.

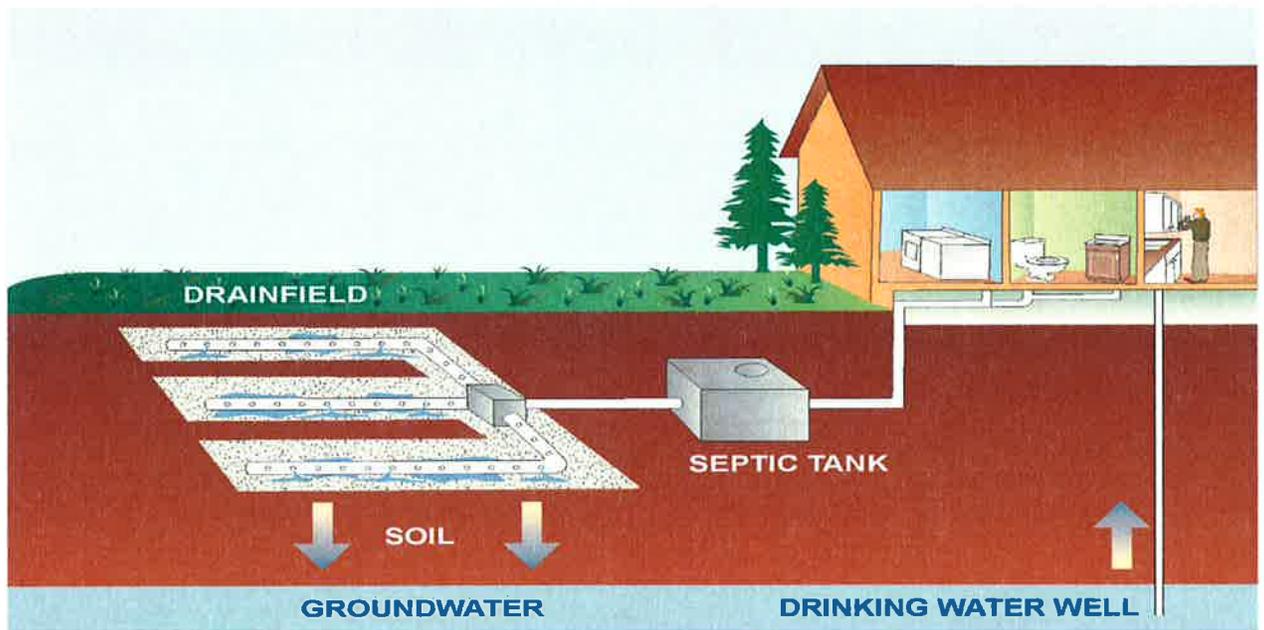


Examples of pet waste and bird feeding materials as well as the adopted ordinance are provided in Appendix E.

Septic System Maintenance

Target audience: Septic System Owners within Bothell city limits.

Goals for success: To reduce the amount of fecal counts found in local creeks by improving maintenance efforts among septic owners and providing sewer connections for failing systems.



Graphic provided by Snohomish County

The septic tank is a watertight box, usually made of concrete or fiberglass, with an inlet and outlet pipe. Wastewater flows from the home to the septic tank through the sewer pipe. The septic tank treats the wastewater by holding it in the tank long enough for solids and liquids to separate. The wastewater forms three layers inside the tank. Solids lighter than water (such as fats, oils, and grease) float to the top forming a layer of scum. Solids heavier than water settle at the bottom of the tank forming a layer of sludge. This leaves a middle layer of partially clarified wastewater.

Septic systems were originally designed many decades ago to allow people to develop an area prior to sewer being available. They were designed as a temporary acceptable measure with a shelf-life, not a permanent fix. Because they weren't designed to be a permanent structure, it isn't a question of whether a septic system will fail but often when the drainfield will become clogged and the failure will occur. However, it is listed as common knowledge among long term health district workers that septic systems can last longer than 30 years with proper annual inspection, strictly adhering to Best Management Practices (BMP's), and pumping as necessary (Frenzl 2011).

For these reasons, the City has decided to actively encourage septic owners to follow BMP's and connect to sewer within five years of it becoming available in their area.

A septic system mailer with response incentive was provided in late 2010 to all suspected septic system addresses within Bothell city limits. The response data received helped update our GIS data records.

In 2012 we worked with Alderwood Water and Sewer to determine a path forward which included updating our map in order to adequately begin.

In 2013, we worked with several partners (other divisions within the City, Health Districts, Alderwood Water and Sewer, and Public Works Trust Fund) to help definitively determine current septic users, discover maintenance and improvement plans to allow for connection to sewer, establish relationships with partners to work together, determine average cost to homeowners for possible connection, and review how other jurisdictions were handling their septic system programs.

In 2014, we plan to send letters to all known septic system owners within 100ft of a sewer line to inform them that they have five years to connect to the existing system. We plan to apply for a loan or grant funds to help residents obtain a low interest cost effective option to complete the necessary work within an adequate timeframe. We also plan to work with existing sewer providers to ensure that known failures are corrected with capital projects and are adequately prepared to handle the additional residents that will connect within the next five years.



Youth Stormwater Education

Target audience: *All Bothell K-12 grade children attending public school.*

Goal for success: *To educate our Bothell students concerning their individual impacts on their local water, direct storm drain connections to local waterways, and basic knowledge concerning water sources and the water cycle.*

Several local cities and counties offer a water-centered educational program to children within their jurisdictions. These programs range from in-class presentations to field trips and festivals, and offer hands-on lessons about water conservation and stormwater education. This is an excellent way to provide basic watershed education to our future generations, and is often a great education and awareness tool for parents as well. Key findings from our past focus groups and personal interviews (Cascadia Consulting Group 2004) confirmed that this type of education is necessary and a positive way to reach out to our residents:

- Clean water and habitat are important among young people.
- People do not understand "water quality."
- People should be educated that streams are an indication of our own health.
- Pet waste focus group suggestion: reach out to residents through their children.

The City of Bothell began contracting in 2009 with the non-profit organization, Nature Vision, Inc., to administer water education courses to all service area schools. These classes are tailored to provide water education courses that meet teachers' Essential Academic Learning Requirements (EALR). Teachers are solicited electronically using a water education flyer (shown in Appendix A), and several classrooms sign up for programs averaging 2,000+ Bothell students per year. In order to be sure the stormwater messages are reaching the parents, a stormwater flyer and return postcard with stormwater education activities are given to all students and teachers (in both hard copy and electronic formats) providing an opportunity for parents to work with their children to understand and quantify their individual stormwater impacts.

The City of Bothell joined with the Cities of Kirkland and Redmond, which also offer Nature Vision presentations to their students, to create the postcards and flyers for the fall school year. This collaboration will allow us to see how the presentations are received in each of our municipalities and will provide the opportunity to compare our information. The education program will continue in 2014 with a few additions:

- Stronger emphasis will be placed on assigning this project as homework or extra credit to encourage participation.
- A large stormwater poster or Low Impact Development (LID) poster will be offered for each classroom that receives a presentation.
- A brief announcement will be provided before each presentation expressing the importance of children giving the postcard and messaging to their parents, as well as parents visiting the City website.
- A three tiered evaluation strategy will be continued to determine student retention, understanding, and teacher satisfaction over time.



The City also became a partnering agency in 2012 to provide the regional Sammamish Watershed Festival which takes place the second week of May. The steering committee is planning to provide this all-day field trip event for over 800 4th grade students within the Sammamish River watershed again in 2014. The City will work within the steering committee to help administer a successful event at the Brightwater Education and Communication Center in Woodinville and help generate enthusiasm for water quality related topics.

Examples of youth education outreach are provided in Appendix F.

Landscaping and Buffers

Target audience: Interested volunteers and residents with a yard that contain or abut wetland systems or surface waters.

Goal for success: To increase the amount of riparian structure, input, and shading along Bothell rivers, creeks, streams, lakes, and wetlands.

The City partnered with the Adopt-A-Stream Foundation and the King Conservation District (KCD) in 2011 to complete a Sammamish Streamkeepers Program which taught streamside landowners and other interested volunteers about restoration and helped them complete a large scale project along the Sammamish River. This project will continue to be maintained with the volunteers through 2014.



The City partnered again with the KCD in 2012-2014 to conduct a riparian enhancement project with a Rose Foundation grant. The project allows students, teachers, businesses, and the general public to learn about stream planting and participate in planting native trees and shrubs around Parr Creek in the North Creek Business Park. Similar programs and strategies will be deployed in 2014 to provide technical expertise to streamside homeowners and encourage further adoption of this BMP.



Hazardous Materials Use, Storage, and Disposal

Target Audience: *All Bothell residents that utilize hazardous products.*

Goal for success: *To increase the awareness of household hazardous materials, provide awareness of proper BMP's for use, handling and storage, increase the use of proper disposal sites, and reduce the amount of hazardous materials being used by our residents wherever possible.*

The City has been participating in hazardous waste outreach for a number of years through funding from the Local Hazardous Waste Management Program (LHWMP). Bothell has offered several collection events as well as provided outreach at every Bothell festival to encourage proper use, storage, and disposal of hazardous household chemicals and materials. In 2011-2013, vouchers were given to Bothell residents to drop off hazardous materials at the Shoreline Transfer Station free of charge. One event mailer, several flyers, and two articles were sent to provide education and information to all residents as follows:

- Articles detailing Wastemobile dates and providing hazardous waste use, handling, and disposal information were printed in the Bothell Bridge, BothellCool Newsletter, and Bothell Reporter.
- A recycling event mailer was sent to all Bothell residences offering information on every program available such as the Wastemobile dates, the Take it Back program, recycling events, Shoreline Transfer Station, City facilities that will accept certain waste, as well as information on use, handling, and storage of all household hazardous chemicals.
- A bill insert was provided to all Waste Management customers detailing disposal dates, locations, and our spill response hotline number.
- Small flyers were provided to the local Senior Center to provide information and solicit participation for the Wastemobile disposal dates among Seniors.

All mailers sent people to our website for more information and offered LHWMP as an additional resource.

More education on use, handling, and storage will continue in 2014 with free disposal opportunities through continued mailers, articles, collections, vouchers, and educational workshops through grant funding.

Examples of outreach materials for 2013 are provided in Appendix G.

Mobile Business Generated Pollution

Target audience: Mobile cleaning companies that service the Bothell area including the North Creek and Canyon Creek Business Parks.

Goal for success: To reduce the amount of pollutants from mobile business chemical use, handling, and improper disposal which discharge to Bothell's MS4.

2012-2013

Snohomish County determined that mobile businesses are not motivated to do the right thing regarding proper handling and disposal BMP's, so we reached out to educate those hiring for services and reinforce the need for property managers to hire reputable contractors that utilize proper BMP's in order to avoid fines for illegal discharges.

Our Local Source Control Specialist (LSCS) also made an effort to contact mobile businesses completing work within the City to provide technical assistance and inform them of the rules and regulations for proper disposal of their waste.

2014

We plan to directly reach out to property management companies and homeowners to reinforce the need to hire reputable companies in order to avoid fines for illegal discharges. Our LSCS will also be following up with known mobile businesses to ensure they are keeping to the required practices.

An example of electronic outreach to property owners is provided in Appendix H.

Illicit Discharge Identification, Education, and Reporting

Target audience: Bothell businesses most likely to have a spill occurrence (restaurants, landscaping companies, auto repair and maintenance).

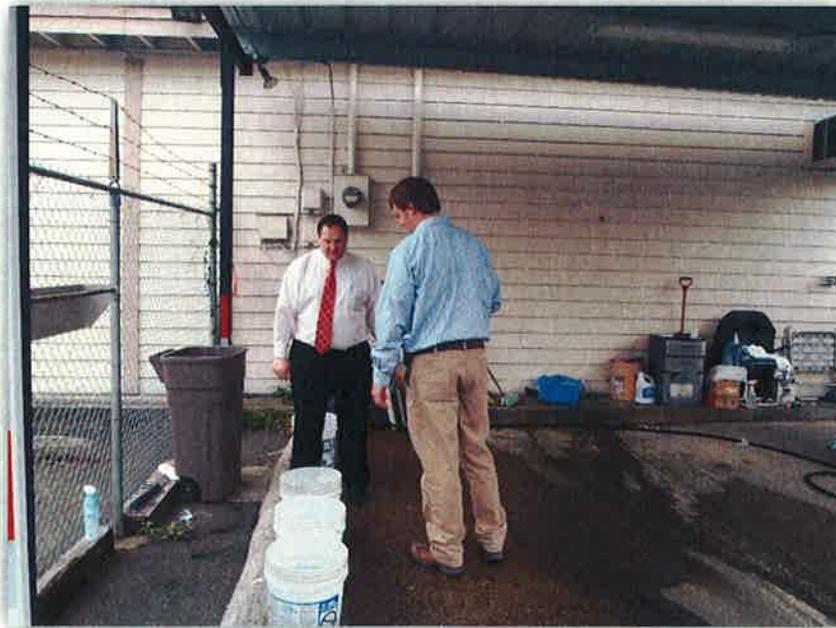
Goal for success: To reduce the amount of pollutants entering our stormwater system from spills and illicit discharges.

This program is currently being administered through the use of our LSCS hired through an Ecology grant. This position is designed to

encourage the use of proper BMP's to reduce the amount of improperly disposed materials by small use generators through direct outreach and technical assistance.

We are also educating staff and the general public through outreach media, trainings, incentive items with the spill hotline number (key chains, magnets, window clings, etc.) and will continue to get the spill number out through new and existing channels.

This program will continue through June 2015 and will be evaluated for success after that time.



Examples of outreach materials are provided in Appendix I.

Vehicle Leaks

Target audience: The general public who live near or drive through Bothell

Goals for success: Reduce the amount of oil and mechanical fluids that are released on Bothell impervious surfaces due to vehicle leaks, and provide education for what to do if a spill occurs.

This program was run through a regional effort by the STORM group known as the Don't Drip and Drive Campaign.



Low Impact Development (LID)

Target audience: *City staff, developers, and the general public.*

Goal for success: *To increase the awareness, understanding and acceptance of LID techniques among key staff and the general public.*

Low impact development (LID) techniques are a newer idea for smaller municipalities and communities and involve educating several different groups including City staff and elected officials. The techniques add an element of complication due to lack of knowledge, maintenance concerns, and the fact that each technique requires extensive education and expertise to ensure the success of installation and maintenance. Our current economic situation causes further complication because most techniques require the use of a professional contracting company or consulting group for proper installation.

Our City Council has taken a proactive stance on sustainable practices and has encouraged our division to support use of LID techniques, such as rain gardens, to our residents. They have also asked us to provide rain garden plans to our residents to help people install gardens without the use of a professional landscaping company. We have several booklets available from Washington State University (WSU) Extension that provide great information on all aspects of building a rain garden, including: detail design, placement, size, planting zones, and a list of native plants to suit each type of yard constraints.

A demonstration rain garden was created at the King County library in late 2009- early 2010 using grant funding for the City of Bothell. City staff partnered with the library facility staff to create a functional rain garden in front of the building, as this area experiences heavy foot traffic and is used as an outdoor classroom. Roof water runoff is transported to the garden through a highly visible pipe and is delivered to a grate in the sidewalk. The rain garden serves as a great education piece for both the City and the library. Educational signage was placed on site to increase awareness concerning stormwater pollution and LID techniques.

Our focus for 2011-2013 was on rain gardens and other more simple techniques that are possible to implement without a professional and can be completed with a limited budget. We offered workshops on LID techniques in the fall and spring at the location of our demonstration rain garden so that the public could view a working garden, begin to understand how they function, and gather information for their own property needs.

We also conducted two site visits with Planning and Development Review staff to demonstrate how LID techniques are being designed and implemented in surrounding jurisdictions.

We completed a guide in early 2013 to walk Bothell residents through each approved LID technique and provided resource materials for them to complete each of the techniques on their own property.

For 2014, we are utilizing a grant from Ecology to create a demonstration neighborhood within the Queensborough watershed. We will be designing and placing pervious pavement, rain gardens, and cisterns within a community that is experiencing localized flooding and stream bank erosion in an effort to reduce these occurrences and educate residents on these practices.

Example of a 2013 workshop flyer is provided in Appendix J.

Environmental Stewardship Actions and Opportunities

Target audience: Volunteer and community groups that are interested in learning more and adopting riparian areas in need of restoration on Bothell public lands.

Goal for success: To complete multiple training and restoration projects throughout Bothell.

The City completed a project in 2011 called the Sammamish Streamkeepers which exchanged free, university caliber riparian and watershed education in exchange for volunteer hours to complete, maintain, and monitor a streamside restoration project. The City will continue to maintain and monitor this site with volunteers through 2014 to ensure success of the project.

The City also provided 20 volunteer opportunities in 2013 to engage students, residents, and the larger community in restoration and education efforts to provide stormwater awareness and help improve local water quality through riparian restoration and outreach.

The City will actively seek volunteer opportunities in 2014 to provide education and awareness of local water pollution issues and encourage partnerships with local schools, community groups, organizations, Universities, and the general public to foster improved watershed stewardship.

Examples of volunteer projects and programs are provided in Appendix K.





Conclusion

The City's surface water management education and outreach program is working to reduce and eliminate behaviors and practices that cause or contribute to adverse surface water impacts. Staff are tracking outreach efforts and maintaining records of current public education and outreach activities in accordance with State requirements.

Appendix A

City Manager's Report

Weekly Highlights from City Manager Robert S. Stowe to the City Council

February 22, 2013



City of Bothell

City of Bothell and UW Bothell Partner on Martin Luther King Jr. Day of Service

On Saturday, January 19, City of Bothell Public Works and UW Bothell students partnered to remove invasive plants along the Sammamish River Trail. This maintenance was part of the Sammamish Streamkeepers program funded through a King Conservation District grant in 2011. Volunteers removed Himalayan blackberry and Reed canary grass from around planted natives to allow them space and time to grow and outcompete for the existing resources.



Puget Sound Starts Here Night at the Mariners Saturday, May 11, against the Oakland A's

The Seattle Mariners are once again hosting *Puget Sound Starts Here* to help spread awareness for stormwater pollution. The Puget Sound Starts Here coalition consists of jurisdictions, non-profits, concerned citizens, and state agencies that work together to pool resources to reduce stormwater pollution through a variety of means. Residents, Council, and City staff are encouraged to attend the event to support these efforts. Discounted tickets are available on the Mariners website: www.mariners.com/pugetsound and enter "salmon".

Upcoming Dates To Remember

February is Bothell Heart Month

Below are the remaining days that Firefighters will be in the community to offer free blood pressure and blood sugar screens:

February 24, 10 a.m. – 12 p.m., QFC in Canyon Park (22833 Bothell-Everett Hwy)

February 25, 9:30 – 11 a.m., Northshore Senior Center (10201 E. Riverside Drive)

February 26, 3 – 5 p.m., Albertsons in Canyon Park (22621 Bothell-Everett Hwy)

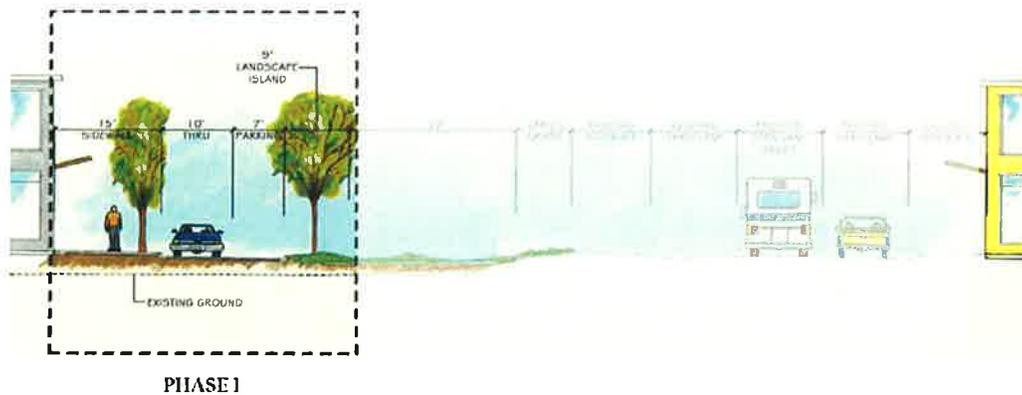
February 27, 3 – 5 p.m., Albertsons in Canyon Park (22621 Bothell-Everett Hwy)

Multiway Boulevard Project Update

The first phase of the project is finally entering its construction phase. It was advertised for contract bids in the Seattle Times and the Daily Journal of Commerce on February 14, 2013 with the bid opening scheduled for March 14.

This initial phase will focus on constructing the frontage improvements along the west side of the boulevard. The work will consist of new sidewalk, paved side access lanes with parking, two rows of trees, two rows of street lights, three new traffic signals, street furniture and raised landscape medians. Once complete, the new frontage will be separated from the existing roadway by a 35' section of grassed area, which will remain in place until the next project phase converts this grassed area into the boulevard's southbound travel lanes.

The project duration for Phase 1 is anticipated to be approximately 6 months.



Spill Cleanup

On Thursday, February 21, a diesel spill occurred in the North Creek Business Park. City crews worked quickly and effectively with private contractors to contain and remove the contaminants. Because of their quick response, the safety hazard was removed without incident, which prevented the harmful chemical from entering nearby streams. Any spills or harmful materials on our roads and storm drains can be reported by using the City's Spill Hotline at 425-806-6750. Quick action helps minimize damage to person, property, and our natural systems.



Spill Cleanup

On Thursday, February 21, a diesel spill occurred in the North Creek Business Park. City crews worked quickly and effectively with private contractors to contain and remove the contaminants. Because of their quick response, the safety hazard was removed without incident, which prevented the harmful chemical from entering nearby streams. Any spills or harmful materials on our roads and storm drains can be reported by using the City's Spill Hotline at 425-806-6750. Quick action helps minimize damage to person, property, and our natural systems.



City Manager's Report

Weekly Highlights from City Manager Robert S. Stowe to the City Council

April 19, 2013



Arbor Day Celebration

The City will hold its annual Arbor Day celebration on Saturday, April 20, beginning at 10 a.m. Citizens are invited to come out and help plant trees and do other landscape work at Brickyard Road Park, 16800 Brickyard Road N.E.

PROSAP Update Process Begins

The Parks, Recreation & Open Space Action Program (PROSAP) helps guide the future for the city's parks and recreation activities. City of Bothell Public Works staff will begin the process to update its PROSAP with four community workshops. The Parks and Recreation Board will incorporate the desires of the community into the draft plan that it will forward to the City Council for adoption in early 2014. The workshops will be held as follows:

- May 2, 7 to 9 p.m., Public Works Operations Center, the emphasis will be on parks
- May 16, 7 to 9 p.m., Bothell Municipal Court, the emphasis will be on parks
- June 6, 7 to 9 p.m., Northshore Senior Center, the emphasis will be on recreation
- June 20, 7 to 9 p.m., Bothell Municipal Court, the emphasis will be on open space

City of Bothell Partners with HaloSource to Complete Volunteer Project

City of Bothell Public Works partnered with a local business, HaloSource, to complete a necessary maintenance project in honor of World Water Day. Over 40 volunteers worked along North Creek near 228th on Friday, April 12, removing blackberry and scots broom, mulching around native plants, and stomping reed canary grass. The group was enthusiastic and happily helped to complete the necessary work onsite. All were pleased with the results and look forward to partnering next year.



City Staff and UWB Partner on Student GIS Projects

In early 2013, staff from GIS, Public Works, and Community Development met with Professor Santiago Lopez and his students from UW Bothell to brainstorm GIS project opportunities. At the end of the winter quarter, staff from GIS attended a presentation session at UWB to review the outcomes of the classroom projects. The projects were impressive, and staff encouraged students to submit them for this year's Richard 'Dick' Thomas Memorial Student Presentation Competition to be held in conjunction with the annual GIS conference sponsored by the Washington State Urban and Regional Information Systems Association.



One student, Christopher Wright, took on a challenging project that evaluated soil infiltration needs, utilizing much of the City's GIS data. Under the mentorship of Professor Lopez, he submitted for consideration an abstract of his report. Christopher's project was selected as one of the "Final 4" presentations. The presentations were followed by questions and answers along with panel judging. Then, during last week's conference that was attended by the City's GIS staff, Christopher's project was selected as the winner of the competition.

This and the other student projects exemplified the City of Bothell's partnership with UWB, our vision for improving the water quality in Bothell, and provided recognition of GIS technology as vital for the City of Bothell and Washington State.



Natural Yard Care Workshops

The City's Natural Yard Care program is almost complete and we have once again had a very successful year. More than 80 residents signed up for our workshop series with over 40 attending each night. Regional experts in soils, yard design, landscape architecture, plants, edibles, irrigation, and lawn care have been brought in to demonstrate how to design, create, and maintain a beautiful lawn and garden without the use of chemical pesticides or fertilizers. Residents are very happy with the program and have provided wonderful feedback concerning the speakers, information, and techniques they will try in the coming year. The last workshop takes place Wednesday, May 22, from 7-9 p.m. at the Northshore Senior Center. Many thanks to City staff in the Public Works Surface Water Division for coordinating and hosting this program.

Upcoming Dates To Remember

Thursday, May 30, 9 a.m., Public Safety Committee Meeting, City Hall Executive Conference Room

Thursday, May 30, 3 p.m., Retirement Reception for Officer Brent Stuvland, Police Community Room

Thursday, June 6, 7 to 9 p.m., PROSAP Community Meeting #3, Northshore Senior Center

Wednesday, June 19, 5 to 7 p.m., Greater Bothell Chamber of Commerce Open House

Thursday, June 20, 7 to 9 p.m., PROSAP Community Meeting #4, Bothell Municipal Court

Puget Sound Starts Here Month

May has been declared by the Governor as Puget Sound Starts Here month to raise awareness for stormwater pollution and help create a message for cohesive local jurisdictions and nonprofits throughout the region.



The month kicked off with a Night at the Mariners event and 36 Bothell staff and family attended in support of the program. Bothell has participated locally by working with local businesses to spread the brand message and provide education to their customers and staff.

City Manager's Report

Weekly Highlights from City Manager Robert S. Stowe to the City Council

May 31, 2013



Sammamish Watershed Festival

Each year several school districts, cities, and water utilities in the Sammamish Watershed come together to teach our 4th grade students about the importance of water in our lives. This year, the festival was held at the Brightwater Education Center on May 20-22 and the City of Bothell helped sponsor the event. Approximately 700 fourth grade students and 150 parents and teachers from Lake Washington, North Shore, and Issaquah School Districts participated in all day outdoor activities such as pond and wetland exploration, macro invertebrate studies, pollution investigations, water scavenger hunts, and much more. The teachers and students were very thankful for the field trip learning opportunity and the other agencies were very appreciative of Bothell's involvement and expertise.



6 Oaks Ground Breaking

Main Street Properties held a ground breaking ceremony today on their 6 Oaks Project (northeast corner of Bothell Way & 183rd Street NE). Within the next couple of weeks, they will begin construction by driving in over 1,000 piles.



Thank you, Northshore YMCA!

On Wednesday, May 29, Fire and E.M.S. presented the Northshore YMCA with a Certificate of Appreciation. The YMCA has generously donated the use of their indoor swimming pool to the Fire Department for water rescue training. This training allows firefighters to learn and practice specialized techniques to rescue someone from bodies of water, such as, the Bothell Slough, creeks, retention ponds, or flooding emergencies. The collaboration by the YMCA and Bothell Fire and E.M.S. is an excellent example of community organizations coming together to create new ways of improving the safety of our citizens.

Upcoming Dates To Remember

- ◆ Saturday, June 1, 9:30 a.m. to 2 p.m., **Sustainamania Community Event**, Public Works Operations Center (flyer attached)
- ◆ Tuesday, June 4, 3 to 5 p.m., **Green Building Certification Celebration** (the first LEED platinum building in Bothell), Global Learning and Arts Building at Cascadia Community College
- ◆ Wednesday, June 5, 4 to 6 p.m., **Reception for Outgoing Chancellor Kenyan Chan**, UW Bothell
- ◆ Thursday, June 6, 7 to 9 p.m., **PROSAP Community Meeting #3**, Northshore Senior Center

Urban Forestry Restoration Project

Public Works received a grant from the Department of Natural Resources which provided a small crew for three weeks in June to help with invasive plant removal and



2013/06/17

native plant encouragement within publically owned urban forest land. The crew has completed necessary maintenance along the Sammamish River and North Creek on sites where conditions required skilled labor and precluded volunteer assistance. The crew will finish up next week completing necessary maintenance within the urban forested wetland area behind the Public Works Operations Center.



Google Volunteers

On Wednesday, June 12 and Thursday, June 13, several staff members from Google in the North Creek Business Park volunteered with the City to give back to their working community. One project consisted of volunteers marking storm drains and providing community outreach in several areas downtown. The other project consisted of a different group of volunteers removing scotch broom from Centennial Park. Google was thankful for the opportunity to give back, and our staff appreciated the help completing these tasks.



Bicycle Helmets

On Thursday, June 13, Fire and EMS Public Educators Kirsten Clemens and Lisa Allen attended the school carnival at Sorenson Elementary where they sold and fit bicycle helmets to students, staff and parents. A proper fitting helmet should sit flat on your head and be snug. The helmets sold by Bothell Fire and E.M.S. are \$10 and have a unique ratcheting system to help achieve a safe fit.



Upcoming Dates To Remember

- Tuesday, July 2
Council meeting canceled
- Thursday, July 4
8:30 a.m. Pancake Breakfast
11:15 a.m. Children's Parade
Noon Grand Parade
- Music in the Park Concerts
6:30 to 8 p.m.
North Creek Sportsfield #3
11905 N. Creek Pkwy. South
 - ◆ July 5
Mach One Jazz Orchestra
 - ◆ July 12
Cherry Cherry
(Bill Evans emcee)
 - ◆ July 19
Spazmatics
 - ◆ July 26
Chance McKinney
 - ◆ Aug. 2
Danny Vernon as Elvis
(Joshua Freed emcee)
 - ◆ Aug. 9
Doctorfunk
(Del Spivey emcee)
 - ◆ Aug. 16
Crème Tangerine
(Tom Agnew emcee)
 - ◆ Aug. 23
Blues Power Revue

Awards for 240th Street SE Bridge Replacement Project

On Wednesday, June 12, City staff made a project presentation at the American Society of Civil Engineers - Seattle Section membership dinner for Bothell's 240th Street SE Bridge Replacement Project. The City and our design consultant, BergerABAM, received awards in the annual competition for the 2013 Local Outstanding Civil Engineering Achievement in the Structures category as well as an Honor Award in the Transportation and Development category.

City Manager's Report

Weekly Highlights from City Manager Robert S. Stowe to the City Council

December 13, 2013



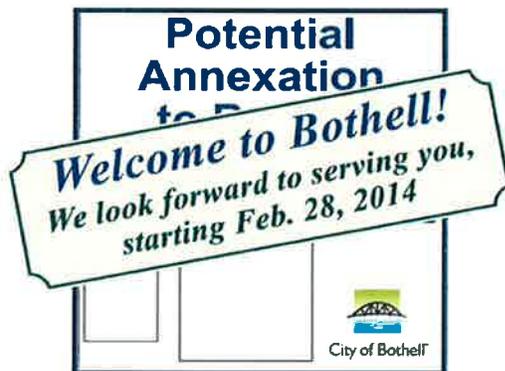
Grant Received

The City of Bothell has been awarded a \$195,000 grant to prepare the final design for the Sammamish River Side Channel Restoration Project by the Salmon Recovery Funding Board and funded by the Puget Sound Acquisition and Restoration Fund. Surface Water Program Coordinator Andy Loch prepared the grant application for the City. Construction of the project is slated for 2015, dependent on additional funding.

The following link provides more detailed information regarding this project: <https://secure.rco.wa.gov/prism/search/ProjectSnapshot.aspx?ProjectNumber=13-1133>

Annexation Signs

Community Development staff has placed "Welcome to Bothell" signs over all the annexation posting boards for the King County PAAs. Additionally, a welcome letter will be mailed next month to all residents within the PAAs, that will provide more information regarding the annexation effective date, City services, etc. And a public celebratory event is being planned for late February. More details will be provided as they become available.



Multi-way Boulevard

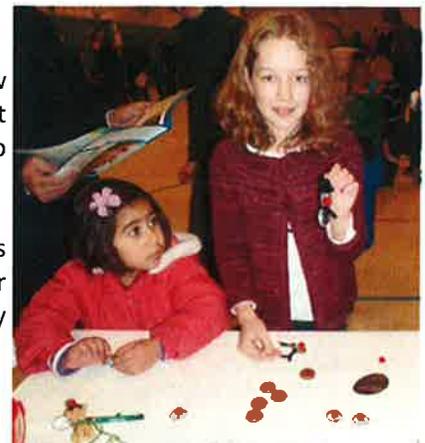


The Multi-way Boulevard Phase I project is progressing and on schedule. The seat wall near McMenamins (pictured above) was being poured today, December 13, and the roadway has started to take shape. The curb has been poured, and the concrete pavers are coming soon. This project is on track to be completed by March 2014.

Teaching Lessons at Science Night

On Friday, December 6, staff from Public Works attended the Shelton View Elementary science education night. Surface Water Program Coordinator Janet Geer made salmon bracelets with students and discussed how they could help salmon by changing habits at home to reduce their stormwater pollution impacts.

Recycle/Public Projects Administrator Sabrina Combs taught students and parents how to reuse materials to create holiday ornaments. The students made reindeer ornaments out of bottle caps and were shown other items that can be made by using recycled/reuse material.



Puget Sound Starts Here: New Website Look and Feel

Submitted by Janet Geer, Public Works

The PSSH website has been revamped with new articles, photos, videos, infographics, tips, recipes, and messages on how the Sound connects our lives to each other and our community. Different themes every month bring new content for you each time you return. The new mobile features ensure you can easily view and play information from your smart phone, tablet, or other mobile device. Check it out!



Summer Volunteers

Submitted by Janet Geer, Public Works

Summer volunteers help us to complete ongoing tasks and outreach assistance (mass mailing, cutting, printing, etc.) which allows staff to focus on major projects and programs. Public Works staff would like to thank our summer Bothell High School volunteers – Anish, Kelsey, and Zane – for their great efforts and attention to detail.



Congratulations!

Nurjamal Apsatarova, Office Specialist in the City Clerk's Office, recently became a United States citizen. Way to go!

Ecotober- Sustainable Series- FREE

Submitted by Janet Geer and Sabrina Combs, Public Works

Come celebrate Ecotober with us and learn from the experts.

October 5, 10:00 a.m. to 2:00 p.m. –Ecotober KickOff Event! Bring the whole family to celebrate Ecotober with booths, activities for all ages, live music, and guided tours. Brightwater Center 22505 State Route 9 SE, Woodinville, WA 98072

October 9, 5:30 to 7:30 p.m. Learn handy tips for growing your own food with Emily Bishton. Emily will guide you through the steps of creating your own outdoor space no matter the size (even with what to plant in containers) and will discuss seasonal gardening for Fall and Winter. This event will take place at the Brightwater Center 22505 State Route 9 SE, Woodinville, WA 98072.

October 16, 5:30 to 7:30 p.m. Join us for an inside look at the Cascade Recycling Center. This facility is located at 14020 NE 190th Street, Woodinville, WA 98072.

October 23, 5:30 to 7:30 p.m. Come join us for popcorn and fun at our Eco Movie Night Event. The feature film will be Tapped- A film about the bottled water industry. We will also have resources on water conservation and best practices to keep your pipes flowing properly.

October 30, 5:30 to 7:30 p.m. Join us for an ADULT trick-or-treat event and ask the experts. Several agencies and businesses will have booths with programs and services for you to utilize. There will also be lots of treats for you to enjoy! This event also takes place at the Brightwater Center 22505 State Route 9 SE, Woodinville, WA 98072.

Visit www.bwecotober.eventbrite.com for more information and to register.

Rain Barrel Workshops- \$20 for supplies

Submitted by Janet Geer, Public Works

Learn how to build your own rain barrel - and then take it home with you! The Snohomish Conservation District and the City of Bothell are presenting this hands-on workshop on Tuesday, October 8, from 6:30-8:30 p.m. at the Northshore Senior Center (10201 E. Riverside Dr., Bothell 98011). This class will cost \$20 for the barrel and fixtures. Some tools will be provided, or you can bring your own (list will be emailed before the event). To register for the class, go to <http://bothellrainbarrels.eventbrite.com> or contact Kate Riley, kate@snohomishcd.org.

Rain Gardens and More Workshops- FREE

Submitted by Janet Geer, Public Works

Learn about rain gardens and other great ways to beautifully manage rain water on your property. Local expert, Ladd Smith from In Harmony Sustainable Landscapes, will discuss these methods and help you decide if these could work under your existing conditions.

Thursdays, October 3 and October 10 from 6:30 to 8:30 p.m. at the Bothell Library

Space is limited, so be sure to RSVP to Janet Geer janet.geer@ci.bothell.wa.us to save your spot

Welcome!!



On November 1, 2013, the Bothell Police Department welcomed **Jacquelyn Scott** to the Department as an Entry Level Police Officer. Officer Scott served as an intern with the Department of Corrections for over a year. She completed her studies and received a Bachelor of Arts degree in Law and Justice from Central Washington University in early in 2013. Officer Scott began training at the Law Enforcement Academy on November 5, 2013.



On November 1, 2013, the Bothell Police Department welcomed **Michael O'Neil** to the Department as an Entry Level Police Officer. Officer O'Neil comes to the Department with several years of experience in various police agencies in the Ellensburg area. This experience includes working as a Corrections Officer/Corporal at the Kittitas Correctional Center for 4 ½ years. He has also served as a Volunteer Senior Reserve Police Officer with the Ellensburg Police Department for the past four years. His most recent experience has been with the Kittitas Sheriff's Office serving as a limited commission Deputy. Officer O'Neil graduated from Central Washington University in 2006 with a Bachelor of Arts degree in Law and Justice.

Officer O'Neill is married and he and his wife have two small children. The family will be relocating to the Bothell area from Ellensburg in the near future.

Officer O'Neil began training at the Law Enforcement Academy on November 5, 2013.

What's New with BothellCool...

Submitted by Sabrina Combs, Public Works

The City of Bothell Green Team is now BothellCool. You can visit one source for all things sustainable. Check out bothellcool.org for information and links to resources; or, three times a year you can check out the BothellCool newsletter as your guide to Green Living in Bothell. The Winter 2013 edition is available here <http://www.ci.bothell.wa.us/Site/Content/Public%20Works/Recycling/BothellCoolNewsltrWinter2013.pdf>.



Feel free to share it with friends and neighbors so we can all help make BothellCooler everyday. At bothellcool.org you can even connect with our twitter and facebook pages with one click. While visiting these resources you can also check out our new logo.

Walk Across Washington Update

Submitted by Lynda Quinn, Wellness Committee

Five teams of City employees participated in the Association of Washington Cities (AWC) Walk Across Washington campaign from October 7 through November 17. Congratulations to all 22 employees. They set individual and team mileage goals, charted a course across the state, and walked to achieve their goals. In addition to walking, some people exercised, swam, biked, ran, or did Zumba.

At a celebration lunch on November 22, Don Fiene received the individual award for the person logging the most miles, with 328.5 miles. The team with the most miles logged was the 6-member BADCATS, with 964 miles in the six week period.

Great job, everyone! Now, on to the Turkey Trot!! (See last page.)

Reminder for Washing City Vehicles

Submitted by Janet Geer, Public Works

Vehicle wash water contains oil, grease, heavy metals, solvents, soap and other harmful pollutants that are a danger to us, our pets, and our environment. That's why it's against the law (BMC 18.04.260) to allow polluted wash water to enter any of our streams or stormwater systems. When washing your City or personal vehicle, be sure to choose one of the following approved options:



- 1) When fueling your vehicles at the Public Works Operations Center, use the self-service bay or automatic truck wash (instructions are posted on COBnet).
- 2) Use waterless car washing products with microfiber towels.
- 3) If a grass or gravel area is available (separate from our storm system), pull vehicle onto these areas or divert the wash water and allow it to completely infiltrate into the surrounding soils.

Remember: Nothing but Rain Down the Drain

For questions, contact Janet Geer janet.geer@ci.bothell.wa.us or 425.486.2768 ext. 4416

Bothell's AWC 2012 WellCity Award Pays Off in 2013 With 2% Medical Premium Reduction

Submitted by Steve Anderson, Executive Department

For the past few years, the City's Wellness Committee has been actively promoting healthy lifestyles for employees through wellness programs and health screenings. Through the Committee's efforts, the City of Bothell has received a WellCity Award from the Association of Washington Cities (AWC) for the past four years. Earning the WellCity Award results in the City receiving a 2 percent reduction in health insurance costs for those employees covered under AWC's HealthFirst and Group Health plans (primarily AFSCME and Non-represented).

In 2012, the City received the AWC WellCity Award and with it came a 2% medical premium reduction saving the City approximately \$50,000. In 2013, the City once again received the Award and the savings amounted to approximately \$39,000. Our City is on target to achieve this award again in 2014.

One important aspect of last year's Wellness program was the incentive program. Forty-seven employees participated; 23 were awarded additional vacation hours as a result of their participation and meeting their self-set goals. Participants are eligible to receive up to 4 hours of additional vacation. The program continues this year. To get started to a healthier you, contact your Wellness Committee member or go to COBNet to get details and to register.

Thank you to both the Wellness Committee for their hard work and to the employees who participate in helping the City achieve the WellCity Award. Please take a few minutes to check out this wellness program that will be of long-term benefit to you.



Fall and Winter Gardening

Submitted by Janet Geer, Public Works

We enjoyed a wonderful summer, and now it's time for fall. With fall comes decisions on preparing our yards and gardens for winter.

Preparing Your Lawn

Remember, if you need to fertilize, fall is the best time to do it. Simply spread a ¼ inch of compost or organic fertilizer on top of your lawn and watch it come back to life with the rains.

Preparing Your Garden

It's important to protect your soils with compost, mulch, or a cover crop to stop erosion, suppress weeds, and provide organic matter for the following year. If using compost or mulch, be sure to spread an even layer approximately 2 inches thick.

Cover crops are plants grown to protect soils during idle periods and provide organic matter. They can be used just to cover or as part of your regular rotation. Common cover crops are grains, grass, legumes, and other broad leaf plants. Grains and grass grow vigorously while legumes grow more slowly and pull nitrogen from the air into your soil. For more information on the types, directions, and specific benefits of differing cover crops, visit the Washington State University (WSU) website: <http://cru.cahe.wsu.edu/CEPublications/eb1824/eb1824.html>

Planning to Use Your Garden?

Many residents are able to plant and utilize their gardens throughout the year. While it's too late to plant many species (most fall gardening is sowed in July-August), there are still a few varieties that you can plant in September. These varieties include; chard, kale (green varieties), cornsalad (lamb's lettuce), garlic, mustard greens, onions, carrots, cilantro, and even peas. For more information on growing vegetables, download a copy of the WSU publication, "Home Vegetable Gardening in Washington EM057E" from their online library.

Special Olympics Fund Raiser

Submitted by Carol Cummings, Police

The Bothell Police Department (BPD) Spirit of 12 team participated in the Special Olympics fund-raising event on August 17, selling programs prior to the Seahawks game. Comprised of employees, family members and friends, the BPD team earned \$5,337.50 for the Special Olympics, making it the top fund-raising cart for the fifth year in a row and beating its own record by \$2,091.50! Acknowledgment should be given to Sgt. Bryan Keller who has been responsible for organizing the BPD Spirit of 12 team for all five years that the program has been running. Great job Sgt Keller. GO Hawks!



Chief Carol Cummings, Officer John Rogers, Officer Bobby Buendia, and Sgt. Bryan Keller. Not pictured Officer Vinnie Domingcil

BOTHELL COOL₂

PLANTING TREES HELPS EVERYONE!

Did you know that planting trees helps reduce flooding, cools and cleans the air, provides habitat for local wildlife, and can increase the value of your home? Realize the



benefit of trees for your property by planting some today! For more information or to sign up to receive a FREE plant or seed packet, visit our website www.ci.bothell.wa.us and search "planting trees"

COMING TO A MEETING NEAR YOU!

Are you a Homeowners Association (HOA) member with questions about rules, regulations, or practices related to your stormwater system? **Want to find out** more about what you can do to help our local streams? Are you interested in learning about programs, services, or incentives for your area? We can attend your next meeting or provide information for your next newsletter. For details, contact Janet Geer at 425.486.2768 or janet.geer@ci.bothell.wa.us.

PLANS FOR SUMMER CLEAN-UP OR RENOVATIONS?

Summer is a great time to make home repairs, complete maintenance work, or spruce up your yard. Whether you are performing the work yourself or hiring a business, please be sure to keep all polluted wash water out of our storm drains. Polluted wash water needs to be sent to sewer or diverted to grass or gravel and allowed to infiltrate your soil.

High polluting activities can include:

- Carpet cleaning
- Painting
- Pressure washing
- Concrete work
- Vehicle maintenance
- Pesticide/fertilizer application



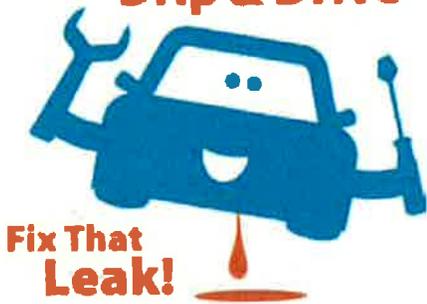
Wash water from these practices can contain harmful substances, regardless of the type of paint or cleansers used.
Remember, Nothing but Rain Down the Drain!

REPORT SPILLS 425.806.6750

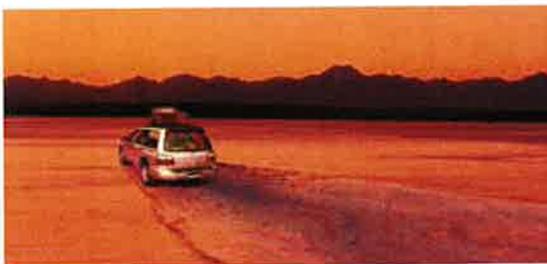
Reporting any spills you see entering our storm drains allows us to respond and minimize damage to local streams. Contact us right away if you see or smell anything suspicious!

**Remember,
Nothing but Rain
Down the Drain!**

Don't Drip & Drive



More than 7 million quarts of motor oil enter Puget Sound each year, washing into storm drains from roadways, driveways, and parking lots. Detecting and fixing leaks is the best way to prevent this pollution from harming our community and our waters. Visit www.fixcarleaks.org to find an ASA auto shop that will provide you with a FREE visual inspection (up to an \$80 value) and will give you 10% off any repairs (up to \$50). Appointments are recommended to ensure less waiting time. Hurry! This deal is only available for a limited time.



SALMON WATCHERS

Why not volunteer to watch the salmon returning this year? In August, we will announce the training schedule for our Fall salmon watching program. All you need to do is attend one training session and choose a site to watch near your home, school, or work. Then just watch the site for 15 minutes twice a week and record your findings online.

It's a simple, relaxing way to help local biologists determine fish blockages and estimate spawning numbers while getting some time outdoors with our local streams. Interested? Contact Janet Geer at 425.486.2768 or janet.geer@ci.bothell.wa.us to learn more.

Bothell/CO₂L

FREE Sustainable Series Workshops & Tours

The Sustainable Series is brought to you by BothellCool. The series features a new topic each week to promote sustainable programs in your area.

The Kickoff is on Saturday, October 5th at 10am with a tour of the Brightwater Facility (22505 State Route 9 SE in Woodinville) and a Trash Talk from Waste Management expert Candy Castellanos.



The Series Wednesday evenings from 5:30-7:30pm you can attend special sessions for the topics below:

- **October 9th** – Speaker Emily Bishton will share Fall and Winter gardening tips at the Brightwater Educational Center
- **October 16th** – Tour of the Waste Management Cascade Recycling Center (14020 NE 190th St, Woodinville) and learn recycling tips from the experts.
- **October 23rd** – See the movie “Tapped” and learn about Bottled Water and importance of your municipal water resources at Brightwater Educational Center.
- **October 30th** – Come learn about local sustainable resources and programs available to you at Brightwater Educational Center.

Register today to reserve your space at BothellCool.org.

Rain Gardens, Barrels and Landscape Design Workshops SAVE YOUR SPACE!

Come and learn about building rain gardens, rain barrels, cisterns, landscape design, and gardening with a purpose to help beautifully manage rainwater on your property.

Rain Gardens and More

This FREE workshop with experts from *In Harmony Sustainable Landscapes* will provide you with tips, tools, handbooks, and expert advice on rain gardens and landscape design with rainwater in mind.

- **Thursday, October 3rd**
from 6:30 – 8:30 p.m. at the Bothell-King County Library
- **Thursday, October 10th**
from 6:30 – 8:30 p.m. at the Bothell-King County Library

To Register: Call or email Janet Geer at 425.486.2768 x4416 janet.geer@ci.bothell.wa.us

Build Your Own Rain Barrel

The Snohomish Conservation District will show you how to build your own rain barrel to take home! This class will cost \$20 for supplies. Some tools will be provided, or you can bring your own (a list will be sent before the event).

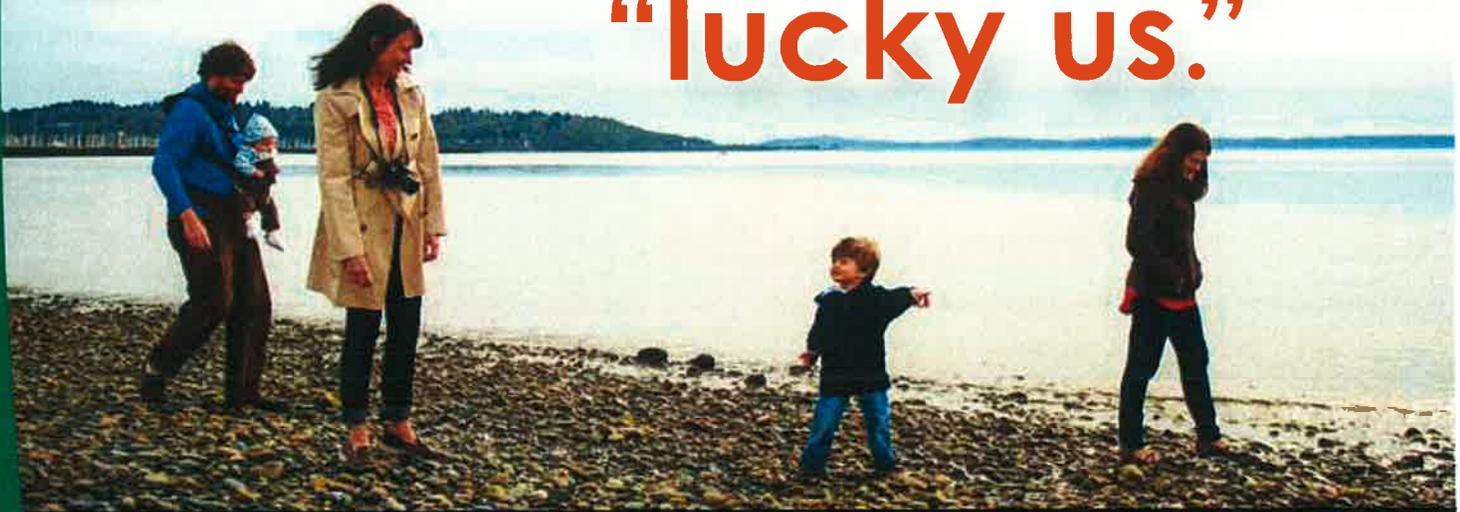
- **Tuesday, October 8th**
from 6:30 – 8:30 p.m. at the Northshore Senior Center

To Register: Call or email Kate Riley at 425.335.5634 x119 cate@snohomishcd.org or visit, <http://bothellrainbarrels.eventbrite.com>





Feed that feeling, “lucky us.”



Explore short films, photos, articles, and more about the amazing place we call home. Visit PugetSoundStartsHere.org.



HARD LANDSCAPE - The Dirt on Impervious Surfaces

As we develop our landscape, we change soft surfaces (soil, plants, trees, etc.) that allow water and nutrients to pass through the soil into hard surfaces (roads, driveways, roofs, sidewalks, buildings, etc.) that force rain water to runoff. To keep these hard surfaces from flooding, we channel rain water into storm drains, pipes, vaults, and ponds which flow into nearby natural waters like lakes, streams, and wetlands.

When this water runs off hard surfaces, it picks up any pollutants left behind by our daily practices (oil, chemicals, heavy metals, dirt, pesticides, etc.) and deposits them into our streams where they cause a lot of harm. You can join us and make a difference each day by simply changing a few of your habits:

- **Use compost** on your lawn instead of chemical fertilizers
- **Use a commercial car wash** or divert your polluted wash water to grass or gravel
- **Fix any vehicle leaks** right away
- **Report any spills** on our roads to our hotline 425.806.6750



Bothell Residents **GAVE BACK** in 2013

Bothell residents contribute a lot in their community, and we all reap the benefits of their participation, hard work, and dedication. Here are just a few examples of how their participation has helped:

Many residents participated in our **E-scrap and oil recycling program** which recycled 12,283 pounds of electronic waste and 181 gallons

2,985+ **elementary students** participated in a water activity to learn about pollution and what they can do to make a difference

518 hours were donated by individual high school, university, and retired volunteers to help with **outreach, events, and administration**. This effort reduced costs and **improved efficiencies within the City** which allowed staff to offer more programs and services.

518

331 people attended our annual **Sustainamania Event** and learned about many ways they can improve their homes, yards, gardens, and vehicles while helping our environment. They also had a chance to speak with our Public Works staff to learn more about what we do and how we help in the community.

331

281+ people volunteered their time to **remove invasive plants** and replace them with beautiful native plants along our trails, parks, and public spaces

281

150+ citizens attended our **sustainable series** to learn more about water conservation, edible gardening, tours, water resources, recycling, composting, food scraping, medicine return, and senior programs

150

150+ parents and teachers chaperoned **watershed field trips** to help our students interact with our natural systems

150

129 residents participated in the **waste watcher recycling** pledge to reduce their cart size and their garbage bill which resulted in savings of over \$1412.40 a year and a waste reduction of 14,625 gallons of waste in our landfills

129

98 residents attended **yard care workshops** to improve their yards and gardens without the use of chemical pesticides and fertilizers

98

48 residents attended workshops to **improve stormwater reclamation and infiltration on their property for the benefit of their neighborhood**

48

18+ residents helped those less fortunate improve their outdoor living space for the **benefit of the community**

18

Student getting a feeling for hauling water, like many people do every day around the world.



Crew helping remove invasive blackberry along the North Creek trail



Students learning about their neighborhoods and



Lisa Taylor teaching about building your soils for our natural yard care program

ns of used oil

12,283

2,985

Emily Bishton teaching about edible gardening for our natural yard care program



Local business, Halosource, helping native plants along North Creek for World Water Day



stormwater pollution sources in and how to prevent them

These are only a few of the ways Bothell residents have helped themselves and each other. We are proud to be a part of this great community and look forward to providing more opportunities in 2014! To learn more and sign up, visit our volunteering page at www.ci.bothell.wa.us or www.bothellcool.org

FREE Auto Leaks Workshops

Does your car drip? Ever wondered if a 'spot' on the ground came from your car? Want to learn how to properly maintain your car? Join the experts at participating Certified Automotive Training Centers near you for a FREE Auto Leaks workshop - a \$125 value. Open to everyone in Puget Sound. At this workshop you'll:

- Get a free professional inspection from a **certified automotive instructor**.
- Learn how to identify and prevent leaks.
- Receive tips on repairing common leaks.
- Learn preventive maintenance.
- Leave the class with a FREE Vehicle Maintenance Check Kit and the confidence to talk to your mechanic.

Watch our video and hear what past participants have to say: <http://www.youtube.com/watch?v=fEyl0Tedzho> Here is a one-minute promo video: <http://www.youtube.com/watch?v=qnRJDnvRxAA> to share with friends and family.

WORKSHOP LOCATIONS

One hour in-class session and three hours in-the-shop demonstrations):

- Renton Technical College: Saturdays, 1 pm – 5 pm
- South Seattle Community College: Saturdays, 9 am – 1 pm
- West Seattle High School Automotive Center: Saturdays, 9 am – 1 pm
- Shoreline Community College: Coming Soon!

HURRY NOW! SPACE IS LIMITED.
TO REGISTER GO TO: www.fixcarleaks.org



These free workshops are brought to you by the Department of Ecology and Seattle Public Utilities.



Bothell/CO₂L

A GREEN LIVING GUIDE

FREE THIS ISSUE

- + What is BothellCool?
- + Recycle Event
- + Waste Watchers
- + Know Your Watershed
- + Car Washing
- + Vehicle Leaks

FEATURED ITEMS

- + Kids Activity
- + Calendar of Events
- + Workshops
- + Resources





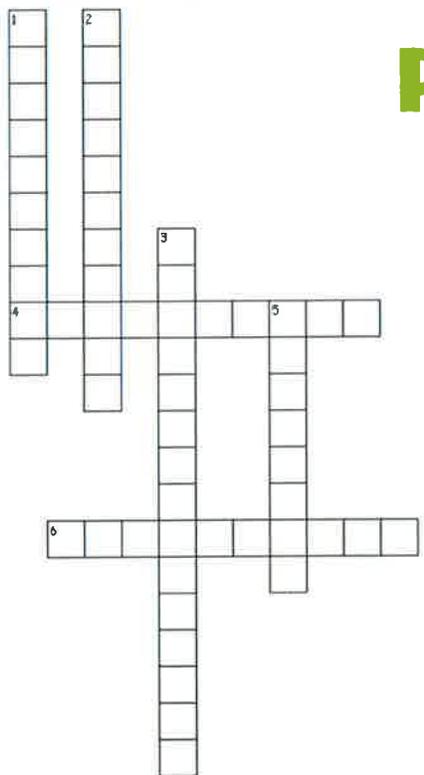
TEST YOUR NATIVE PLANT KNOWLEDGE

Across

- 4. What native shrub is one of the first to leaf in the spring?
- 6. What native rose was used by the Native Americans for its medicinal properties?

Down

- 1. What native conifer was first to establish after a fire on wetter sites and can live over 1,000 years?
- 2. What native sedge shares its name with the swamp and is a popular basket making material?
- 3. What deciduous tree grows tall, holds lots of water, readily drops its branches, and was used as an antiseptic?
- 5. What native fern grows from Washington to California and shares its name with a woman of noble birth?



* Answers are located in the article below

KNOW YOUR WATERSHED



Welcome to Perry Creek

A watershed is an area of land that drains to a single river, lake, or stream. This means no matter where you are in Bothell, you are standing in a watershed. Our Perry Creek watershed is located in the middle of the Snohomish County portion of Bothell. It currently contains over one square mile of property. Salmon, raccoons, frogs, salamanders, and blue herons are just some of the animals that call Perry Creek home. The banks along the creek also have some beautiful native plants like Indian plum, Slough sedge, Black cottonwood, Douglas fir, Lady fern, and Nootka rose. Perry Creek flows through North Creek to the Sammamish River, Lake Washington, and Puget Sound.

To learn more about your Bothell watersheds, visit our surface water pages at www.ci.bothell.wa.us

CAR WASHING

When washing your car on paved surfaces, please be sure to keep all wash water from entering our storm drains. Wash water contains harmful materials like grease, solvents, heavy metals, oils, soap, and other pollutants which harm us, our families, and our environment. Instead, please try one of the following options:

- + Use a **Commercial Car Wash**- car washes discharge their water to sewer for treatment
- + **Divert Your Wash Water**- to a grass or gravel surface and allow it to infiltrate into your soil
- + Try **Waterless Car Wash Products**- for those who regularly clean their vehicles and are worried about commercial car washes scratching their paint, waterless products are an effective alternative that leave a lasting shine and can repel dirt

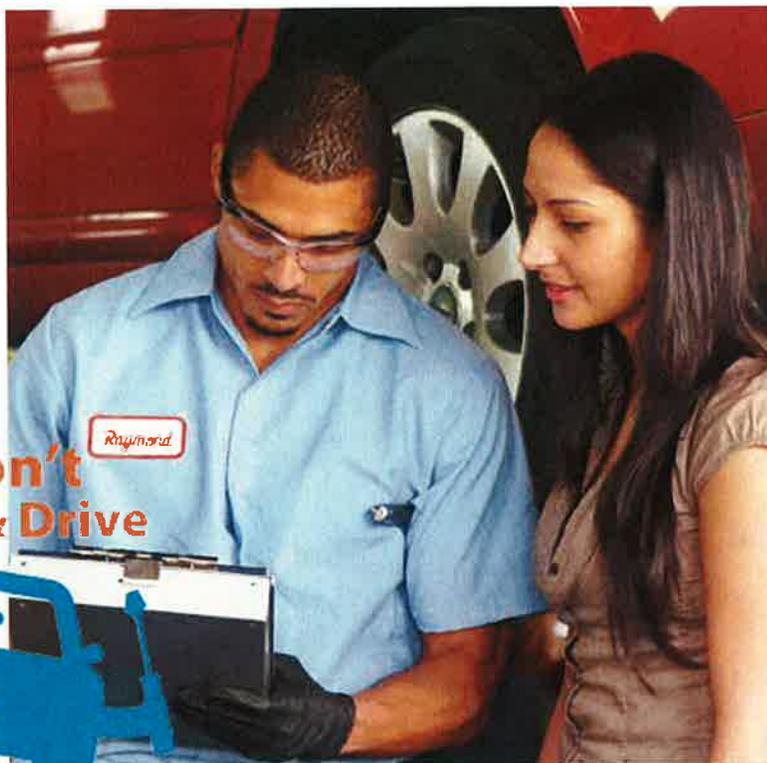
Remember: Nothing but Rain Down the Drain!



DON'T DRIP & DRIVE:

A Campaign for Your Puget Sound

More than 7 million quarts of motor oil enter Puget Sound each year, washing into storm drains from roadways, driveways, and parking lots. **Detecting and fixing leaks is the best way to prevent this pollution from harming our community and our waters.** Visit www.fixcarleaks.org to find an ASA auto shop that will provide you with a **FREE visual inspection (up to an \$80 value) and will give you 10% off any repairs (up to \$50).** Appointments are recommended to ensure less **waiting time.** **Hurry! This deal is only available for a limited time.**



Fix That Leak!



Like us on Facebook!

EVENTS + ACTIVITIES

Wastemobile - *Time is Running Out to Participate in this Great Program!*

- + 9/20-9/22 from 10am to 5pm
- + 10/25-10/27 from 10am to 5pm

Seattle Times Building located at 19200 – 120th Ave NE, Bothell. More Details available at: HazWasteHelp.org, click the “Wastemobile” link in the orange box or call 206.296.4692

Rain Gardens and More workshops - *Space is limited... Register today!*

- + Thursday, October 3 from 6:30 - 8:30 p.m. at the King County library in Bothell
- + Thursday, October 10 from 6:30 – 8:30 p.m. at the King County library in Bothell

Register at www.ci.bothell.wa.us and search “LID workshops”

The Sustainable Series - *(every week in October)*

The Sustainable Series is brought to you by BothellCool. The series features a topic each week in October to promote sustainable programs in your area.

The series kicks off on Saturday, October 2nd at 10am with a tour of the Brightwater Facility and a Trash Talk from Waste Management expert Candy Castellanos. Then every Wednesday evening from 5:30-7:30pm you can attend special sessions for the topics below:

- + October 9th – Expert Speaker will share Fall and Winter gardening tips at the Brightwater Educational Center
- + October 16th – Tour of the Waste Management Cascade Recycling Center in Woodinville and learn recycling tips from the experts.
- + October 23rd – See the movie Tapped and learn about Bottled Water and importance of your municipal water resources at Brightwater Educational Center.
- + October 30th – Come learn about local sustainable resources and programs available to you at Brightwater Educational Center.

Farmers Market

You can check out the BothellCool booth at Farmers Markets this summer. We will be on site on:

- + August 9th
- + August 23rd
- + September 6th

We will bring a topic to help you Go Green with tips from BothellCool staffers. The Bothell Farmers Market is located at Country Village (23718 Bothell Everett Hwy in Bothell) on Fridays from noon to 6pm.

**LAST
CHANCE!**



Winter 2013 Edition

Bothell/COOL

A GREEN LIVING GUIDE

FREE THIS ISSUE

- + Holiday Collection Event
- + Green Holidays
- + Flood Protection
- + Salmon Runs
- + Family Tips

FEATURED ITEMS

- + Holiday Recycle Event
- + Kid's Activities
- + Calendar of Events
- + Resources





FLOODING

Flooding can affect you no matter where you live, but especially if your home is in a low-lying area, near a river or creek, or below street level. To reduce your chances of flooding, be sure to keep street drains, storm grates, and flap gates free of leaves and other debris. Most homes also contain harmful chemicals that can contaminate flood waters and be very hazardous to your family, property and environment. It is important to properly use, store, and dispose of these materials to reduce your risk.

For more information, visit the City's website

www.ci.bothell.wa.us

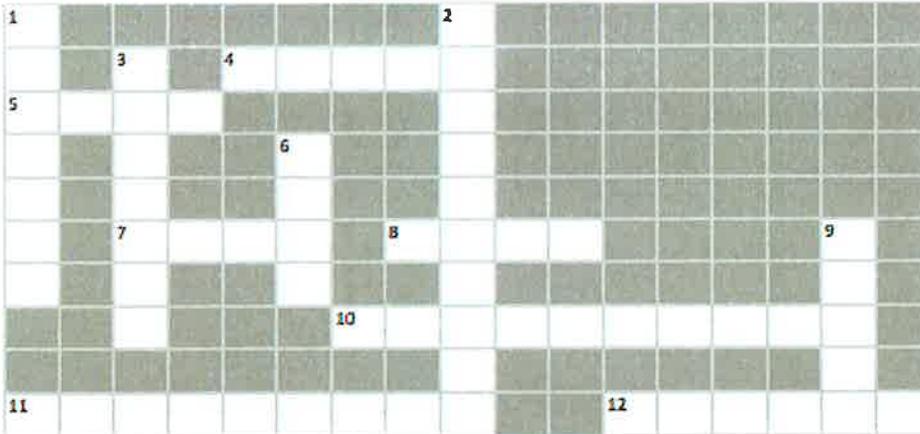
www.takewinterbystorm.org



BEFORE A FLOOD: FLOOD SAFETY TIPS

- ✓ **Find out if you are in a flood-prone area.** Look for, view and print online maps using County data including parcels, floodway, and floodplain boundaries. Look up information on locating Flood Insurance Rate Maps (FIRM), understand how to read them, and request a map change if necessary.
- ✓ **Make a plan.** Make sure everyone knows emergency phone numbers and when to call them. Learn the safest routes to high ground. Make arrangements for housing in the event you need to evacuate your home. Establish meeting places and phone numbers in case family members are separated by rising flood waters.
- ✓ **Mitigate flood damage.** Store valuables and necessary household chemicals at higher elevations. Remove all possible unused hazardous chemicals, appliances, and materials from your home, garage, and property by taking advantage of The City's many recycling programs (visit BothellCool.org for recycling info). Ensure that underground storage tanks are fully sealed and secure. Have check valves installed in building sewer traps to prevent flood waters from backing up in sewer drains. Move vehicles to higher ground. Keep street drains and storm grates free of leaves and other debris.
- ✓ **Keep emergency supplies on hand.** Create a Disaster Supplies Kit. Be sure to include: portable radio, emergency cooking equipment, flashlights, fresh batteries, non-perishable food and drinking water, essential medicines and a first-aid kit. Purchase a NOAA Weather Radio.
- ✓ **Consider buying flood insurance to protect your property.** Homeowners' insurance does not cover flood loss, but most homeowners' insurance agents also sell flood insurance.

THE SALMON ARE RUNNING



ACROSS

- 4. This word is used to describe the **eggs** of aquatic animals, usually in mass
- 5. This salmon species is **very shy** and spawns later in the season
- 7. This **large, majestic aquatic animal** relies on salmon populations in Puget Sound to survive
- 8. This **water temperature** is needed to hold sufficient oxygen for salmon
- 10. This type of **pollution** is listed as the **#1 problem** for water quality today
- 11. Scientists can show the decline in salmon runs in Alaska by counting the size of these
- 12. This **animal** has the **largest impact** on local salmon populations

DOWN

- 1. This salmon species has a **very distinct pink color** and typically spawns in larger numbers
- 2. This word is used to describe how salmon migrate from freshwater to saltwater
- 3. This salmon species is the **largest** and spawns early in the season
- 6. This **large land mammal** feeds on spawning salmon especially in the Alaskan region
- 9. This **local bird predator** lives on **juvenile salmon** and can be seen throughout Bothell

The fall and winter are great times to witness one of the most spectacular wonders of the Northwest. Every year the adult salmon return to our rivers and streams to complete the circle of life and spawn the next generation. This return culminates in one of nature's most exciting dramas. It begins with their migration as tiny juveniles from small streams into large rivers, then to Puget Sound and out into the Pacific Ocean. Here they embark on an ocean journey that covers a few hundred to thousands of miles taking anywhere from one to seven years. Eventually, they are drawn back to their stream of birth. This holiday season, take a moment to walk our trails along North Creek and the Sammamish River to view this spectacular event. Want to know the best spots?

Visit the King County salmon watcher map to find a site near you: <http://www.kingcounty.gov/environment/animalsAndPlants/salmon-and-trout/salmon-watchers/salmon-watcher-viewer-map.aspx>

*See page 6 for more fun family activities



*Answers to the crossword are listed at BothellCool.org

Like us on Facebook!

Appendix B



2512

Pizza! Sound! Starts Here
THIS ORAINS HERE

WARNING



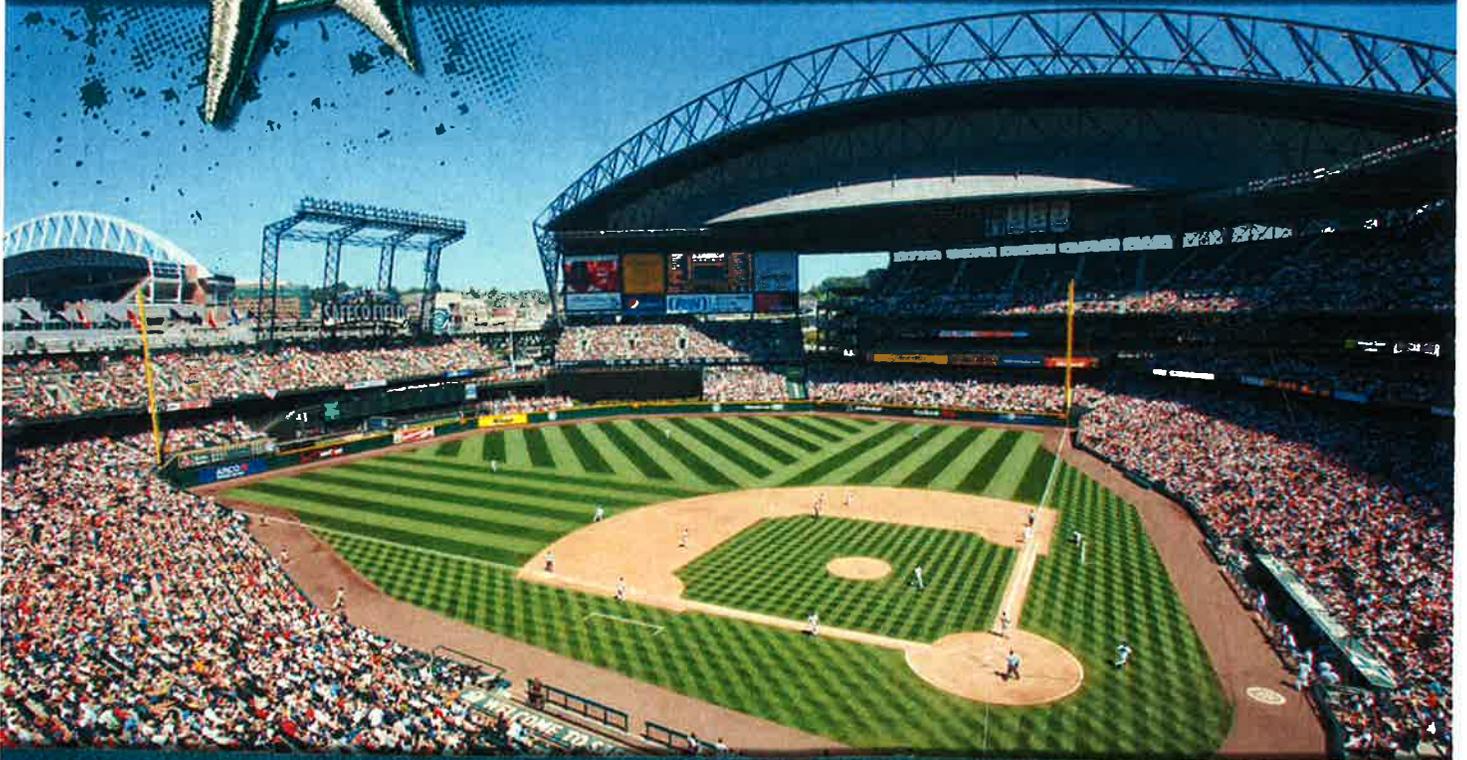
Only rain down the storm drain.

A WALK IN THE PARK SHOULDN'T STINK
HARMFUL ORGANISMS CAN BE TRANSMITTED FROM PET WASTE TO CHILDREN.

BAG IT!

Field
OFF

PUGET SOUND STARTS HERE



Saturday, May 11, 2013 Athletics vs Mariners 6:10 pm

Join the Seattle Mariners as they team up with Puget Sound Starts Here to teach baseball fans simple things they can do to keep local waterways and Puget Sound clean during "Puget Sound Starts Here Night."

Each ticket purchased online for this promotion will include a free Puget Sound Starts Here Night cap.

Don't forget to stop by the Puget Sound Starts Here booth and get a picture with Scoopy Doo and Bert the Salmon!

The deadline to purchase tickets through this special offer is Friday, May 10 at NOON.

Pricing:

- ▶ \$15 View Reserved
- ▶ \$29 Main Level Seats

To Order Up To 25 Tickets:

- ▶ Visit Mariners.com/pugetsound

To Order 20 Tickets or More, Or if you require wheelchair seating:

- ▶ Please call Elizabeth McCloskey at (206) 346-4519

Groups of 20 or more will have their group name on the scoreboard during the game. Groups of 40 or more will also receive two complimentary tickets along with the group.







SAFECO FIELD

MARINERS
Salute to Kids Night

ROOT SPORTS

Nikon

Mobile

WELLS FARGO

Pepsi

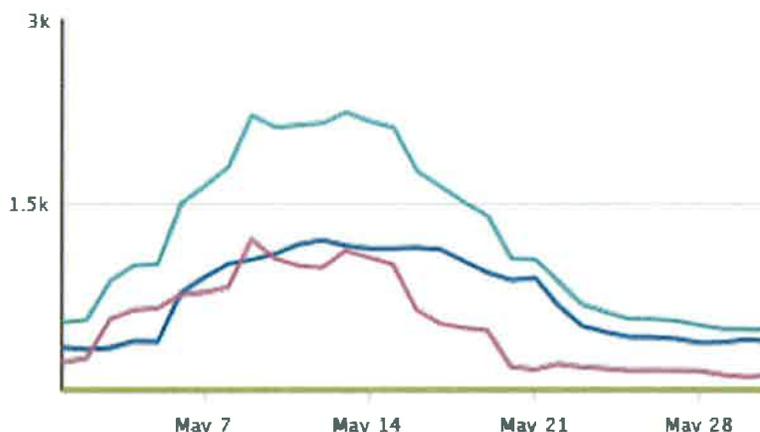


Mariner's Night & PSSH Month 2013



Puget Sound Starts Here Month by the Numbers

- **672**: tickets sold to Puget Sound Starts Here Night at Safeco Field
- **1,000**: estimated fan visits to the Puget Sound Starts Here Night booth on the concourse
- **Over 20**: different non-profits, agencies, and N.G.O.'s represented by game day volunteers
- **5,000**: fans exposed to message and PSSH brand outside of stadium via street theater
- **50**: Estimated Drip & Drive coupons distributed
- **2,500 vs. 500**: daily PSSH Facebook impressions near game day vs. typical PSSH social media traffic (see graph below)
- **1**: PSSH Mascot throwing the first pitch.
- **2**: PSSH mascots dancing with Mariners Moose during 7th inning stretch
- **1,000**: estimated PSSH-branded items distributed in-game
- **75**: Safeco-area storm drains marked
- **672**: Co-branded baby blue PSSH/Mariners hats distributed
- **30,089**: Safeco Field stadium attendance
- **Indefinite**: Amount of fun had



PSSH Facebook Impressions: Impressions on y-axis, Date on x-axis.

- **37,500**: PSSH coasters distributed region-wide
- **57,200**: Coffee sleeves distributed region-wide
- **4,127**: Attendance at PSSH Night with the Tacoma Rainiers
- **21**: Events run by separate organizations region-wide
- **900,000**: Viewer impressions via region-wide PSSH cinema ads (May - Nov)
- **53**: Number of weeks separate theaters featured PSSH ads (May - Nov)
- **97.4%**: King County Metro-area population reached by PSSH bus ads
- **21.5**: Number of views by each individual in PSSH bus ad areas

Mariner's Night & PSSH Month 2013



Appendix C



NATURAL YARD CARE NEIGHBORHOODS

Natural Yard Care is taking root in Bothell's neighborhoods, and we'd love to have you join us. It's free!

An attractive yard that fits your lifestyle... Inviting, functional outdoor spaces... Gardens that are designed for easy maintenance... A sustainable living environment that is safe for your family, pets and community... These are goals that many of us aspire to. Natural Yard Care can help you get there—whether you're starting from scratch or planning a complete yard overhaul.

The Natural Yard Care program is a series of four free workshops brought to you by King County and the City of Bothell through a great grant opportunity. We'll have design tips to help make the most of your yard—big or small, flat or hilly. Along the way, you'll learn about controlling pests without toxic pesticides or herbicides, building healthy soil, practicing smart watering and natural lawn care, and designing with plants. We'll answer your tough questions and offer advice from some of the Puget Sound's most notable experts.

As a Natural Yard Care workshop participant, you'll receive:

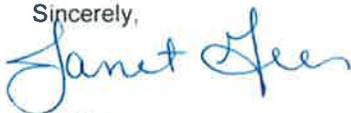
- **expert advice** about natural yard design from local landscape and gardening professionals,
- a **yard care kit** loaded with materials and resources to design a beautiful yard that's healthy and safe; and
- a chance to win natural yard care products, including a **free personal yard consultation** with a landscape architect.

We have an exciting line-up of workshops where you'll get the dirt on how to design your yard. Check out the attached Natural Yard Care Workshop Schedule for dates and details!

Space is limited, so reserve your seat now. Our registration deadline is **April 29**. Remember, each week we will randomly draw from the names of everyone present for great natural yard care prizes.

A beautiful, healthy yard that is your own personal haven. Interested? To sign up, email register@naturalyardcare.com or call 425-286-1001 and leave your name, address, and phone number

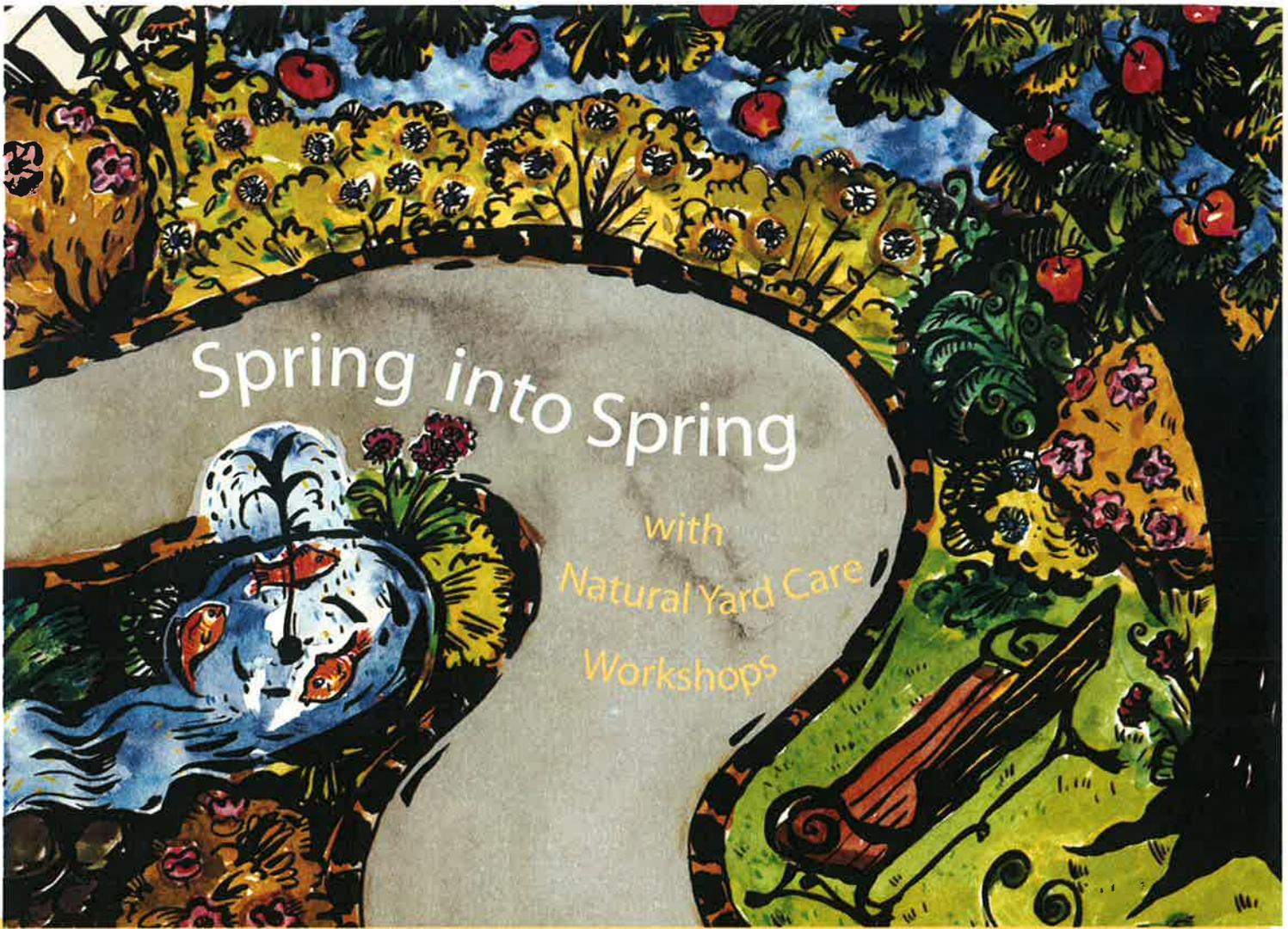
Sincerely,



Janet Geer
City of Bothell

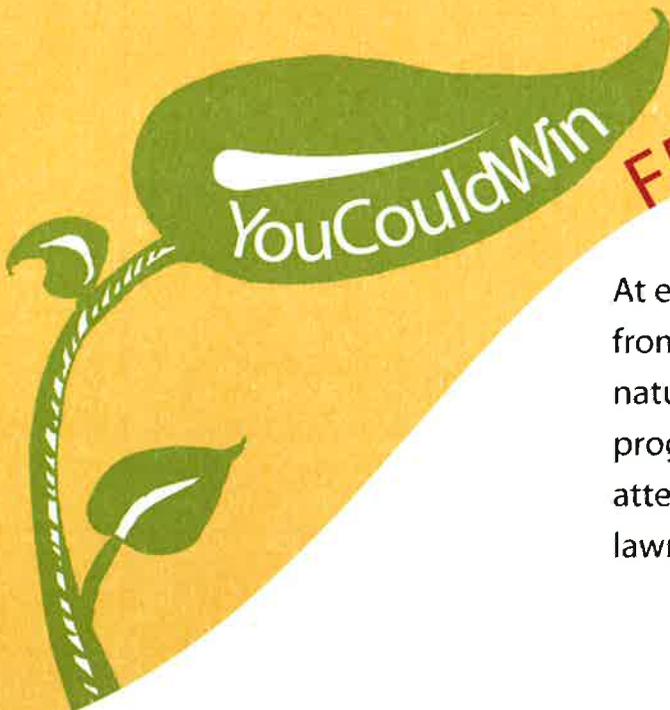


Puget Sound
Starts Here.org



Spring into Spring

with
Natural Yard Care
Workshops



FREE Yard Care Products...

At each workshop we'll randomly draw from the names of everyone present for great natural yard care products featured during the programs. Earn an entry at every workshop you attend for the final drawing to win a professional lawn and garden consultation!

**NATURAL
YARD CARE
NEIGHBORHOODS**

Natural Yard Care Workshop Schedule

Mark Your Calendars!



Our workshops teach you how easy and rewarding natural yard care can be. They're fun, informative, and FREE! Each workshop is open to the public, so anyone may attend.

Workshop 1: Garden Design & Growing Healthy Soil

Wednesday, May 1, 7-9 p.m.

Any beautiful landscape starts with good design. Landscape Architect, Doug Rice, will share professional advice and resources to get you started with Garden Design. Lisa Taylor of Seattle Tilth will also discuss the importance of Growing Healthy Soil. You'll learn how to improve your yard's soil and grow more attractive, robust plants by mulching, composting, and top dressing.

Workshop 2: Designing with Plants & Smart Watering

Wednesday, May 8, 7-9 p.m.

Designing with Plants is presented by Greg Rabourn, expert on Greendays Gardening for KUOW. This segment offers natural yard design options that don't rely on having a lot of lawn. Greg will help you choose beautiful plants that thrive in your yard's conditions. Watering expert Greg Butler, owner of Design of the Times, presents a session on how to use less water in your yard and garden. In his Smart Watering presentation, you'll learn tips about different watering methods, irrigation, etc.

Workshop 3: Edible Gardening & Natural Pest Control

Wednesday, May 15, 7-9 p.m.

Emily Bishton from Green Light Gardening will present Edible Gardening. You'll learn to grow your own delicious and healthy fruits, vegetables, and herbs while avoiding problems like plant disease. Her practical tips will help you succeed in feeding your family right out of the garden. Dan Corum from Woodland Park Zoo will provide an entertaining presentation on Natural Pest Control. Hear his professional secrets, collected during years of working with the Zoo, Seattle Public Utilities, and the Organic Recycling Council.

Workshop 4: Natural Lawn Care

Wednesday, May 22, 7-9 p.m.

Ladd Smith, owner of In Harmony Sustainable Landscapes, will present a two hour session on Natural Lawn Care. He'll discuss mulch mowing, slow-release fertilizers and other ways to help you grow a beautiful, healthy lawn. He will also be on hand to answer questions you have about your specific site conditions.



You could win free natural yard care products and services! At each workshop we will randomly draw from the names of everyone present for great natural yard care prizes. Enter for a chance to win at every workshop you attend! A drawing of all names will be conducted on the last evening for a FREE professional consultation, you must be present to win!

Location: Bothell Northshore Senior Center, 10201 East Riverside Drive, Bothell

To register, or with questions about any of our workshops: Email register@naturalyardcare.com or call 425-286-1001 and leave your name, address, and phone number

This program is brought to you by:



City of Bothell



King County



Local Hazardous Waste
Management Program
in King County, Washington

Puget Sound
Starts Here.org

Alternate Formats on Request: 425-486-2768 TTY Relay: 711



Free workshops

How to design a beautiful yard the natural yard care way.

- Hear advice from local experts
- Access useful information and resources
- Enter to win great yard care products

1 Wednesday, May 1
Garden Design & Growing Healthy Soil

2 Wednesday, May 8
Designing with Plants & Smart Watering

3 Wednesday, May 15
Ethical Gardening & Natural Pest Control

4 Wednesday, May 22
Natural Lawn Care & Questions with Grant Prize Giveaway

Time: All classes are 7-9 p.m.
Location: Bothell Northshore Senior Center
10201 East Riverside Dr., Bothell

To Register: Email register@naturalyardcare.com or call 425-286-1001 and leave your name, address, and phone number
Alternate Formats on Request: 425-486-2768 TTY Relay 711

This program is brought to you by:





Thank you
for
Registering



Illustration ©Lida Breche-Keene 2008

Thank you for registering for our
Natural Yard Care Workshops!



City of Bothell
Public Works
9654 NE 182nd Street
Bothell, WA 98011

- May 1 | Garden Design & Healthy Soil
- May 8 | Designing with Plants & Smart Watering
- May 15 | Edible Gardening & Natural Pest Control
- May 22 | Natural Lawn Care & Grand Prize Giveaway

Time? 7-9 p.m.

Where? Bothell Northshore Senior Center
10201 East Riverside Drive, Bothell

Questions? Call: 425-286-1001 and leave
your question along with contact information or
email: register@naturalyardcare.com



This program is brought to you by:

Alternate Formats on Request: 425-486-2768 TTY Relay: 711



Appendix D

CLEAN CAR DIRTY STREAMS



USE A COMMERCIAL CAR WASH
Washing your car at home dumps oil, heavy metals, solvents, and soap into our storm drains, waterways, and ultimately Puget Sound

Puget Sound 
Starts Here

Appendix E



WHY SHOULDN'T WE FEED THE BIRDS?

Bread and similar products such as crackers, chips, donuts and popcorn offer little nutritional value for ducks, geese, and other birds.

In fact, bread is the equivalent to junk food for the birds, and too much bread can lead to excessive weight and malnutrition as well as a host of other issues.

PLEASE DON'T FEED THE BIRDS

FEEDING BIRDS CAN LEAD TO PROBLEMS...

| | | | | | | |
|--|--|---|--|---|---|--|
| <p>Duckling Malnutrition</p> <p>In an area where birds are regularly fed bread, babies will not receive adequate nutrition for proper growth and development. Furthermore, because birds will naturally seek out an easy food source such as human handouts, babies will not learn to forage for natural foods as they.</p> | <p>Overweighting</p> <p>When an area that is not meant to be a feeding site, such as a park or public space, their waste can create a pollution problem on the ground and in our water. The waterbirds in Botolph are currently faced as the amount of their matter present in our streams. This bacteria makes human contact with the water a health risk.</p> | <p>Pollution</p> <p>When ducks and geese are unmanageably gathered in a feeding site, such as a park or public space, their waste can create a pollution problem on the ground and in our water. The waterbirds in Botolph are currently faced as the amount of their matter present in our streams. This bacteria makes human contact with the water a health risk.</p> | <p>Disease</p> <p>Feeding ducks bread can increase the spread of disease in their ways. For example, a common disease that leads to greater infection, and that leads to a higher mortality rate, is called avian influenza. This disease can be transmitted to humans.</p> | <p>Unwanted Pests</p> <p>Feeding ducks bread can increase the spread of disease in their ways. For example, a common disease that leads to greater infection, and that leads to a higher mortality rate, is called avian influenza. This disease can be transmitted to humans.</p> | <p>Loss of Natural Behavior</p> <p>When birds become accustomed to humans, they lose their natural fear of humans and may become aggressive or enter to get many food. This loss of fear can also cause other behaviors, such as a willingness to enter busy areas in order to reach humans. This is also a loss of natural migration, which is a natural instinct for many birds.</p> | <p>Habitat Degradation</p> <p>Feeding waterfowl can lead to severe habitat degradation. Feeding too much bread attracts concentrations of waterfowl beyond what the natural ecosystem can support. Large concentrations of waterfowl can de-vegetate natural areas, cause mud erosion problems, and can create an unsightly mess.</p> |
|--|--|---|--|---|---|--|

City of Botolph

For more information: www.cityofbotolph.org.uk

Information provided by the City of Botolph

It's easy to properly dispose of pet waste! Landfills are designed to safely handle pet waste. Yards are not. Protect your family, your pets, and the quality of nearby streams by scooping dog poop when on walks and from your yard.

Apply the **We Scoop** sticker to your garbage can to show that you are a caring and responsible dog owner.



This dispenser is provided to you by:
City of Bothell

It's easy to properly dispose of pet waste! Landfills are designed to safely handle pet waste. Yards are not. Protect your family, your pets, and the quality of nearby streams by scooping dog poop when on walks and from your yard.

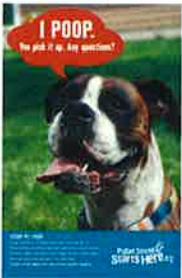
Apply the **We Scoop** sticker to your garbage can to show that you are a caring and responsible dog owner.



This dispenser is provided to you by:
City of Bothell

It's easy to properly dispose of pet waste! Landfills are designed to safely handle pet waste. Yards are not. Protect your family, your pets, and the quality of nearby streams by scooping dog poop when on walks and from your yard.

Apply the **We Scoop** sticker to your garbage can to show that you are a caring and responsible dog owner.



This dispenser is provided to you by:
City of Bothell

It's easy to properly dispose of pet waste! Landfills are designed to safely handle pet waste. Yards are not. Protect your family, your pets, and the quality of nearby streams by scooping dog poop when on walks and from your yard.

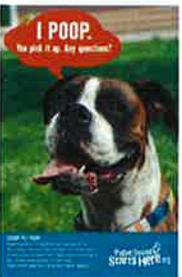
Apply the **We Scoop** sticker to your garbage can to show that you are a caring and responsible dog owner.



This dispenser is provided to you by:
City of Bothell

It's easy to properly dispose of pet waste! Landfills are designed to safely handle pet waste. Yards are not. Protect your family, your pets, and the quality of nearby streams by scooping dog poop when on walks and from your yard.

Apply the **We Scoop** sticker to your garbage can to show that you are a caring and responsible dog owner.



This dispenser is provided to you by:
City of Bothell

It's easy to properly dispose of pet waste! Landfills are designed to safely handle pet waste. Yards are not. Protect your family, your pets, and the quality of nearby streams by scooping dog poop when on walks and from your yard.

Apply the **We Scoop** sticker to your garbage can to show that you are a caring and responsible dog owner.



This dispenser is provided to you by:
City of Bothell



Dog Poop is not Fertilizer!!



HARMFUL ORGANISMS CAN BE TRANSMITTED
to family, friends, and the environment. These harmful bacteria can
persist in your yard for weeks and are washed into our storm drains
when it rains, making our streams unsafe for all of us

SCOOP it, BAG it, TRASH it

Puget Sound 
Starts Here

Appendix F

A Utility Partner for

WATER EDUCATION



The City of Bothell Surface Water Division of Public Works offers several fun and exciting classroom presentations in local schools to help students explore the fascinating world of water. All presentations are tailored to our region and are offered free of charge. An experienced naturalist from Nature Vision, Inc., a company that spawned from the King County Nature Connection program, will conduct each class. This program was the recipient of the Environmental Education Association of Washington's Award of Excellence.

provided
FREE
to your
classroom

"The in-class presentation was excellent. It was just the right amount of "teacher-talk", interactive communication and activities. It was fast-paced and the kids were totally engaged."

-Teacher from Juanita Elementary School

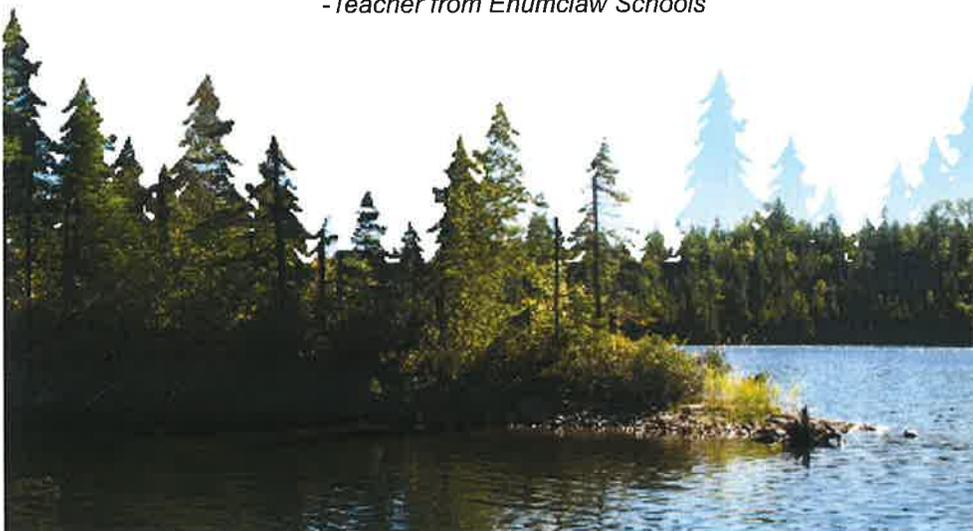
"I really enjoyed both presentations we had this year. They tied in beautifully as the introductions to the science units we had planned. I especially enjoyed the fact that the kids were out using our own wetland area behind our school to examine the trees and wetland facets."

- Teacher from Peter Kirk Elementary School



"The Nature Vision class went extremely well. The students learned so much about the environment around us, and actually started to take care of the environment by asking parents to recycle and planning a neighborhood clean up day."

-Teacher from Enumclaw Schools



PROGRAMS OFFERED



Water Cycle (Grades K-4)

Students will learn the stages of the water cycle and play the role of a water molecule as it travels through the cycle. Discussion will include the function of watersheds and our local water supply.



Salmon Cycle (Grades 3-6)

Discover the connection between salmon, people, and the water we share. Students will explore water quality issues and why healthy salmon habitat is good for people too!

Wetland Wildlife (Grades K-6)

Wetlands are important to both people and wildlife. This program introduces students to the plants and animals who are part of this important ecosystem.

Wetland Filters (Grades 3-6)

Wetlands clean our water like our kidneys clean our blood. Students will participate in a demonstration of how wetlands keep our water clean.



Enviroscape (Grades 5-6)

Students will work with a table-top model of a typical community and learn how the choices we make in everyday life affect our water quality

Water Connection Field Trip (Grades 2-6)

Classes visit a local water site (lake, stream, pond, or wetland) and are guided through the process of dipping and sorting aquatic bugs to test the water quality. Older students may also participate in further water quality studies by taking the water temperature, pH, and dissolved oxygen.



Photo provided by EnviroScape®.
EnviroScape is a patented product (No. 5,427,530) located at envirosapes.com.



City of Bothell™

Get Started!

To schedule a program, please contact Nature Vision at info@naturevision.org or call (425) 836-2697.

If you have any questions regarding programs or other services offered, please contact your Bothell Storm/Surface Water Coordinator, **Janet Geer**, at (425) 486-2768.

Additional Resources

PugetSoundStartsHere.org
Learn about how you can help heal Puget Sound.

KingCounty.gov/Salmon
Find additional salmon information online.

Janet Geer - City of Bothell
Contact Janet for environmental community service and stewardship opportunities.
(425) 486-2768 or Janet.Geer@ci.bothell.wa.us.



Water Education Learning Materials and Take Home Activity

Thanks so much for having a water education presentation in your classroom! We would like to ensure that your students get as much as possible out of these presentations. In order to achieve this, we would like to offer you some materials to extend the learning experience:

Flyers for your students to take home (*electronic and hard copy*)

This flyer will provide your students' families with information about water pollution and offers resources to learn more about this important issue.



Postcard with instructions for a take-home activity to be completed online.

We created an online activity which will give students the opportunity to share what they have learned with an adult in their household and to explore water pollution issues around their home. Students will return the signed postcard to you when they have completed the activity. To encourage participation, please consider assigning this as extra credit or homework.



We really appreciate your participation, and hope that these efforts help strengthen the program!





STORM DRAINS FLOW TO OUR WATERWAYS WITHOUT TREATMENT

The Washington State Department of Ecology estimates that each year millions of pounds of toxic pollutants flow into our streams, our lakes, our rivers, and then into Puget Sound.

Stormwater that runs off paved roads and driveways, rooftops, yards and other developed land is a major source of this pollution.

Our streams are in trouble. Puget Sound is in trouble. We are the solution, and we can do something about it.



We can leave a legacy of clean, healthy water for our kids by taking some simple steps:



Taking our car to a commercial car wash and fixing leaking auto fluids.



Scooping the poop, bagging it, and tossing it in the trash (not the yard waste bin.)



Using pesticides sparingly, if at all, and using compost instead of fertilizer.



Using nontoxic cleaners in and around your home when possible. Purchasing only what you need to minimize storage of toxic chemicals.

Learn more by going to : **Puget Sound Starts Here**

Presentations are sponsored by: **KCD**
King Conservation District

Visit Bothell's Surface Water page to answer our stormwater questions and receive credit:
www.bothell.wa.us



Howdy Drain Ranger,

Now that you've been deputized, we have an assignment for you and a trusty sidekick (adult in your home) to complete.

In this assignment, we will ask you to investigate potential sources of water pollution that can be found around your home.

1. Go to **<http://www.ci.bothell.wa.us>** and search for "drain rangers"
2. Complete all of the questions in the assignment listed on the page
3. Click "submit" when you are finished
4. Fill out the other side of this postcard and return it to your teacher.

I _____ (your name)

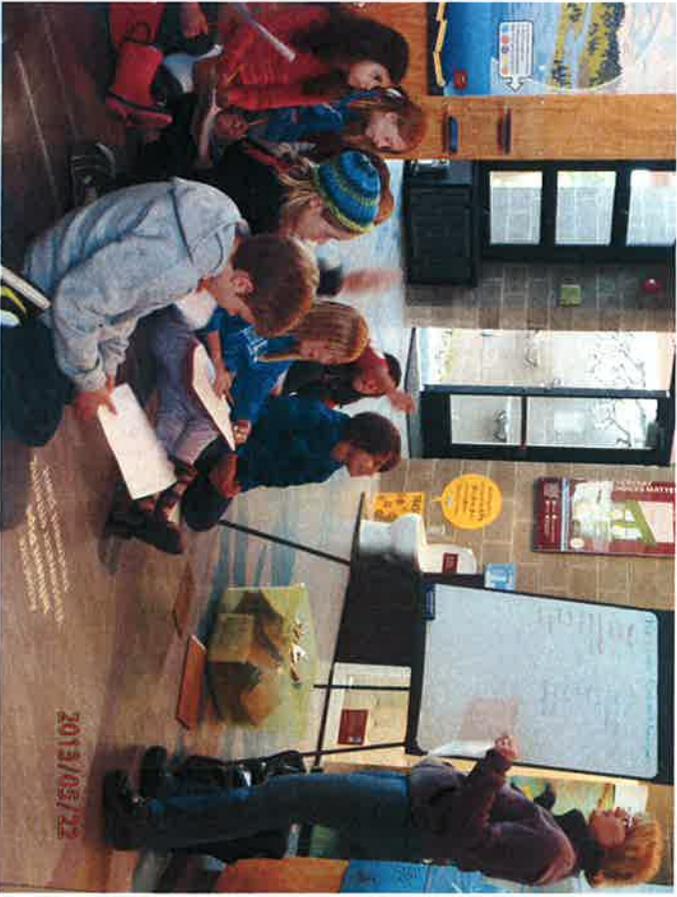
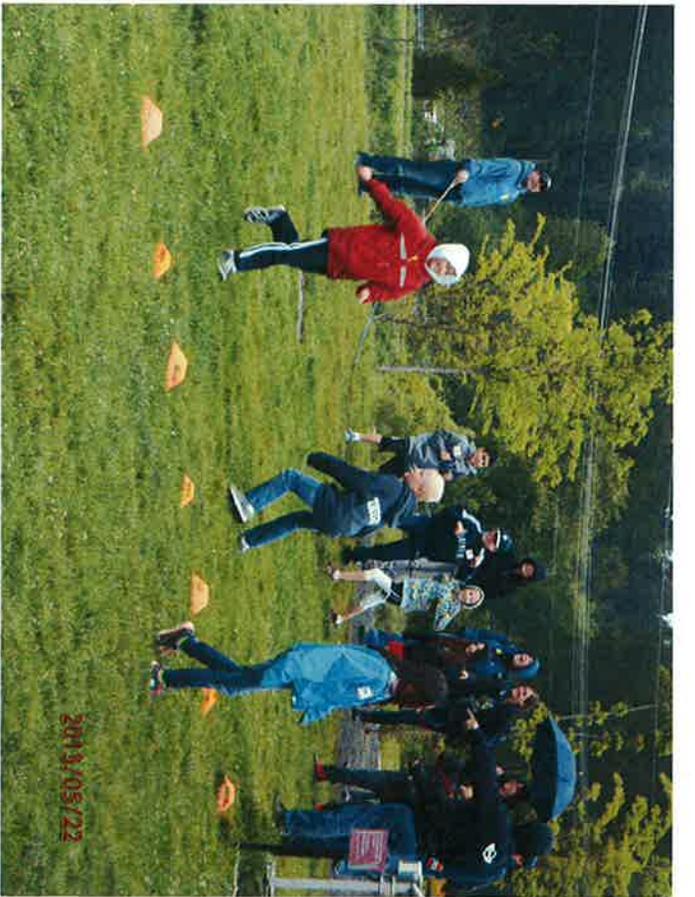
have completed and submitted the stormwater assignment listed at this address:

<http://www.ci.bothell.wa.us>

as part of our water educational presentation.

_____ (adult signature)





Evaluation Results for the City of Bothell Water Quality Education Programs 2013

Description and Purpose:

The City of Bothell's Water Quality Education Program continues to educate students about pollution prevention, stormwater quality, and watershed ecosystem health. Students who participate in these workshops learn how natural water systems keep our water healthy, how human built water systems interact with these natural systems, and what we can all do to be good stewards of our watershed. This program is helping to create awareness and foster sustainable practices and behaviors in the City of Bothell.

This report presents the evaluation results for these programs in 2013, as outlined in the Evaluation Methods and Procedures document presented at the January, 2010 Review Team meeting.

Evaluation Goals:

The evaluation was designed to measure:

1. **Student Retention:** To evaluate the retention of lessons in short-term and long-term student memory (short term immediately following the lessons, long term after 90 days).
2. **Teacher Satisfaction:** To evaluate how the program is received by teachers, i.e. are the workshops helping teachers meet state and local education standards and therefore desired by teachers as a teaching resource.
3. **Agency Goals Met:** To evaluate how we can more directly meet agency goals within NPDES permit and budget parameters.

Methods Employed by Goal:

Goal 1 – Student Retention: Retention of lessons is clearly a desired outcome for a culture of sustainability and for water resources to thrive in Bothell. Both short-term and longer term retention parameters will be measured for this project. For the purposes of this program, we seek to get information about the effectiveness of:

- *Encoding:* encoding of key messages
- *Retention:* students' ability to retain concepts (avoiding the loss of information and skills)
- *Retrievability:* students' ability to retrieve the newly-learned information and apply it in daily practice long-term.

Method 1- "Silent Moment" Technique: In this method, presenters will pole students at the end of each workshop by using the "Silent Moment" technique. This summative method measures the number of lesson points retained by elementary students immediately after the lesson in short-term memory. It seeks to gain clues about how much was encoded in students' brains by having students mirror back to the presenter how many things they learned. Presenters will employ this classroom feed-back activity at least once during each program as follows:

As the culminating activity of each workshop, presenters will ask students to close their eyes, raise both fists in the air, and be silent for one minute. While students are silent, they are to put one finger up for every new thing they learned in the lesson today. Before students open their eyes, the presenter quickly counts fingers and records them. Then a short review and sharing ensues after students are directed to open their eyes. Over the school year, data is collected as presenters report the number of fingers raised to the main evaluator, who will compile the data. The effectiveness criterion to strive toward is a high finger count consistently in each presentation. *An average of 3 fingers per student is considered nominal and meeting the goals of the workshop.* If students are showing less than that programs should be revamped for better retention. Parameters such as age-appropriateness, presentation techniques, prop attractiveness, and developmental capability of the particular group of students themselves should be reconsidered. Higher than 3 fingers per student average is considered excellent.

Note: This method does not indicate concepts retained, just whether or not anything was retained and how much. Some feedback can be obtained just from dialoging with students in an inquiry-based way, gaining some information about content, but that information will not be recorded by the presenter here for the purposes of this evaluation project.

Method 2- Select Classroom Survey: This method measures retention of specific content from lessons presented, and can be employed for elementary students. Ten elementary teachers will be selected to have their classrooms participate in a survey. Students from selected classrooms will be asked to take a short pre-presentation survey of 4-6 questions by their presenter prior to the program. The students will then take the same survey immediately following the presentation. Survey questions asked will be phrased and presented to be attractive to elementary students and each question will relate back to key workshop messages. Survey answers are designed to be true/false, circle the correct answer, or short essay format. Presenter staff will bring in all survey materials needed for ease of the teacher. Answers will be collected and compiled by the main evaluator as part of the bi-annual report. This technique needs to be used early on in the school year to facilitate the Method 3 Follow-up Survey.

Method 3 - Follow-up Survey: This method will be a repeat of the questions in the Select Classroom Survey but done about 3 months after the initial survey to test long-term retention. Ideally, students would be tracked over their childhood and then reviewed for behaviors practiced once they are adults, but that is beyond the scope of this process at this time. However, since it is generally accepted that short-term memory lasts about two weeks to a month for most people, re-surveying at 3 months would indicate with some certainty whether or not the encoded lessons have remained in the minds of the students at all past the short-term memory time span.

Note on Retrievability: Long-term behavior retrievability may be guided by a few major factors, such as practice, promise, and connection to value. Presenters employ techniques in the overall program that encourage long-term retention and sustainable life-style practice, such as:

- programming to encourage continuing use of the desired behaviors through student action projects that last most of the school year

- having students make a pledge at some point during the presentation
- using props, anecdotes, and metaphors that illicit a positive emotional value response from students (like seeing live animals).

Method 4 - Student Letters Analysis: This method will gauge content retention for students. Many teachers like to have students write thank you letters to the City for sponsoring the program. These student letters can tell us much about what students learned if analyzed.

Presenters will leave a short instruction sheet with teachers encouraging them to send thank-you letters, the address to which letters can be sent, and a few leading questions for students to write about in the letters. Once the letters are received by the evaluator, they will be reviewed and analyzed for specific criteria. Each time a student shows content competency in a letter, a mark will be entered by the evaluator. For example, if a student writes that he/she learned that storm drains lead directly to streams, then that information will be noted. Each class's marks will be counted and summarized the bi-annual report.

Goal 2 – Teacher Satisfaction: Successful registration numbers depend upon satisfying teachers' needs, such as meeting state standards, ease-of registration, and presentation quality. The following methods seek to evaluate the effectiveness of satisfying teachers.

Method 5 – Post Workshop Email Survey: In this method, an email with just a few essay questions is sent to each teacher who receives a presentation. This method gleans specific feedback from teachers on the quality of the presentation, the perceived value of content, and indicates whether or not repeat registrations are likely. The following is an example of real email feedback trail from a teacher:

My class loved the presentation on Wetland Wildlife. We'd been studying beavers, so they were especially excited to see the beaver pelt, skulls, etc. The lesson was appropriate and full of great info. I would strongly encourage funding of the program again for next year.

Tami Palmer

On Nov 2, 2012, at 1:55 PM, Nature Vision wrote:

Dear Teacher(s),

We'd like to give you an opportunity to evaluate the following program(s), presented to your class:

Crystal Springs Elementary

Tami Palmer

26-Oct-12 Wetland Wildlife

Naturalist: Christie

This education program was paid for by

City of Bothell

Note: Teachers do not have the time and therefore will not respond to more than 3-5 easy questions on the email survey.

Goal 3 – Agency Goals Met

Method 6 – Classroom Observations: In this method, a City or designated representative, will sit in the back of at least one classroom (per reporting time) with a score sheet of their own design, and record the content presented by the presenter. The score sheet could contain a prioritized list of key messages with a check box to indicate that the message was delivered in an effective way during the presentation, and a place for observation notes and comments. This information will also be included in the annual report for review by the City. Any specific feedback for presenters will be forwarded on.

Below is a sample city evaluator survey Nature Vision created for the City of Bothell in 2013:

Salmon Cycles 10/15 Shelton View Elementary

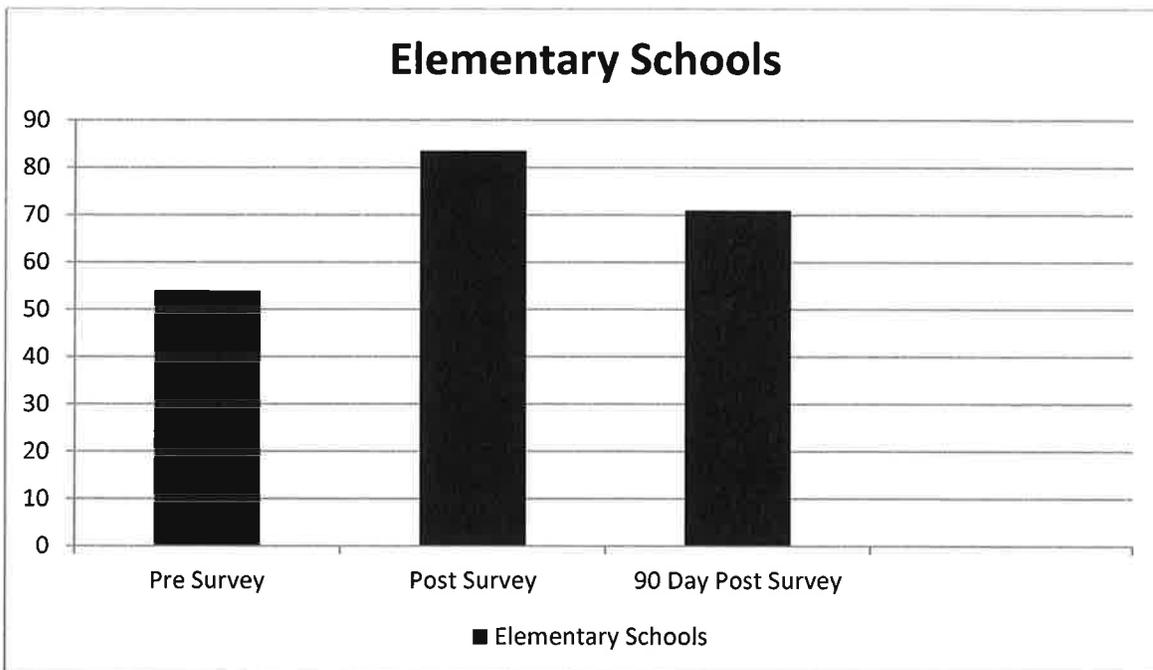
| The presenter: | Yes/No, additional notes |
|--|---------------------------------|
| Credits the program sponsor | |
| Is organized in presentation delivery | |
| Shows knowledge of the subject matter | |
| Shows enthusiasm or passion for the subject | |
| Shows good classroom management skills | |
| Answers main program questions in an age appropriate manner (or some derivation of these questions): | |
| What is the lifecycle of a salmon? | |
| What are the 5 main types of salmon found in our area? | |
| Why are salmon important to our habitats or ecosystems? | |
| How does pollution impact salmon? | |

| | |
|------------------------------------|--|
| | |
| What can people do to help salmon? | |

Results:

The 5-6 question evaluation surveys given before and after each workshop showed significant short-term retention of key facts by students at the elementary school level. Fifteen elementary level classes of 340 students total participated in this portion of the evaluation process. The elementary level survey results showed that students had an average score of 54% on the survey prior to the workshop and an average score of 83.5% immediately following the workshop. The average long term retention score was 70.9% ninety days after the program for the 130 students that took the 90 day post survey. Teachers explained that they did not have time to complete the long term survey with their students due to school common core standard demands. No surveys were completed at the middle school level as no middle school classes registered. We instead evaluated 5 additional elementary classes.

Elementary school students sent 133 thank you letters with an average of 4.9 points per letter. The “silent moment” evaluation of elementary school students resulted in an average of 5.2 fingers per student counted.



This year we also looked more closely at some of the individual questions from each of the surveys. We surveyed classes on the Salmon Cycle, Enviroscape, and Water Cycle B programs, using questions pre-approved by the City of Bothell Contract manager. See Survey Questions on pages 13-14 of this document.

We chose to combine data from schools, as grade bands of students took the surveys and their teacher prepared students for the lessons in similar ways:

3/4 Water Cycle B Shelton View Elementary, two 4th grade classes, Nelson and VanDeusen

Question:

We need to conserve our water resources so people, plants and animals all have enough (T/F)

- Pre Survey

35/44 students answered correctly, or 80%

- Post Survey

42/44 students answered correctly, or 95%

- 90 Day Survey

19/20 students answered correctly, or 95%

The 90 day retention of this question at the same rate as the post survey immediately following the presentation is significant. Both teachers spent some time ahead preparing their students for the presentation.

3/12 Enviroscape Canyon Creek Elementary, two classes Booth 5th grade, and Brush 5/6

4 Questions were looked at on these surveys as this topic is so closely related to pollution prevention:

- 1) Most of our water pollution comes from (a. factories or b. Individual people)

- Pre Survey

16/54 students answered correctly, or 29.6%

- Post Survey

31/54 students answered correctly, or 57.4%

- No 90 day data is available

- 2) The best way to deal with pet waste (like dog poop) is to: (a. Bury it, b. Put it in a plastic bag and throw it in the garbage, c. Put it in your garden to fertilize it)

- Pre Survey

30/54 students answered correctly, or 55.5%

- Post Survey

49/54 students answered correctly, or 90.7%

- No 90 day data is available

- 3) The best place to wash your car is a commercial car wash to prevent soapy water from entering storm drains (T/F)

- Pre Survey
29/54 students answered correctly, or 53.7%
- Post Survey
50/54 students answered correctly, or 92.6%
- No 90 day data is available

- 4) Water that goes into the storm drain is cleaned before reaching Puget Sound (T/F)
- Pre Survey
34/54 students answered correctly, or 63%
 - Post Survey
50/54 students answered correctly, or 92.6%
 - No 90 day data is available

Questions 2-4 show significant differences in students understanding of what to do with pet waste, where to wash the car to prevent pollution, and what happens to water entering storm drains. These teachers did not spend very much time preparing for the visit ahead of time.

Salmon Cycles 3/11 Shelton View Elementary, two 4th grade classes, Clements and Siccardi

Question:

Everything that goes into a storm drain goes where? (Circle one: Away, To a water treatment plant where it is cleaned, Directly into a nearby body of water, like a river, lake or stream)

- Pre Survey
19/37 students answered correctly, or 51.3%
- Post Survey
32/37 students answered correctly, or 86.5%
- 90 Day Survey
39/45 students answered correctly, or 86.7%

These students improved significantly in their understanding of where storm drains lead and retained that information well after 90 days.

Salmon Cycles 3/22 Woodin Elementary, four 3rd grade classes Ducharme, Belinsky, Ro, Montalvo

Everything that goes into a storm drain goes where?

- Pre Survey
38/90 students answered correctly, or 42.2%
- Post Survey
59/90 students answered correctly, or 65.6%
- 90 Day Survey
32/65 students answered correctly, or 49%

These results are inconclusive. Teachers informed our instructor upon arrival that the third grade

classes were having many issues with listening and behavior that week and this school year in general, so this may have contributed to these results.

Salmon Cycles 10/15 Shelton View Elementary two 4th grade classes, Clements and Siccardi (new school year, so different students)

Everything that goes into a storm drain goes where?

- Pre Survey

38/53 students answered correctly or 71.7% of students

- Post Survey

39/53 student answered correctly, or 73.5% of students

- No 90 day data is yet available, we will report on this if received at a later date

These results are inconclusive. Teachers informed us that they had prepared their students before the presentation and had been talking about storm drains.

Salmon Cycles 11/15- Woodin Elementary, three 3rd grades classes, Rodriguez, Ro, and Layes (new school year, new students)

Everything that goes into a storm drain goes where?

- Pre Survey

29/62 students answered correctly, or 46.8%

- Post Survey

32/62 student answered correctly, or 51.6%

These results are inconclusive. Teachers informed our instructor upon arrival that the third grade classes were very young and felt like the subject matter may be difficult for them, but they wanted to push them a bit.

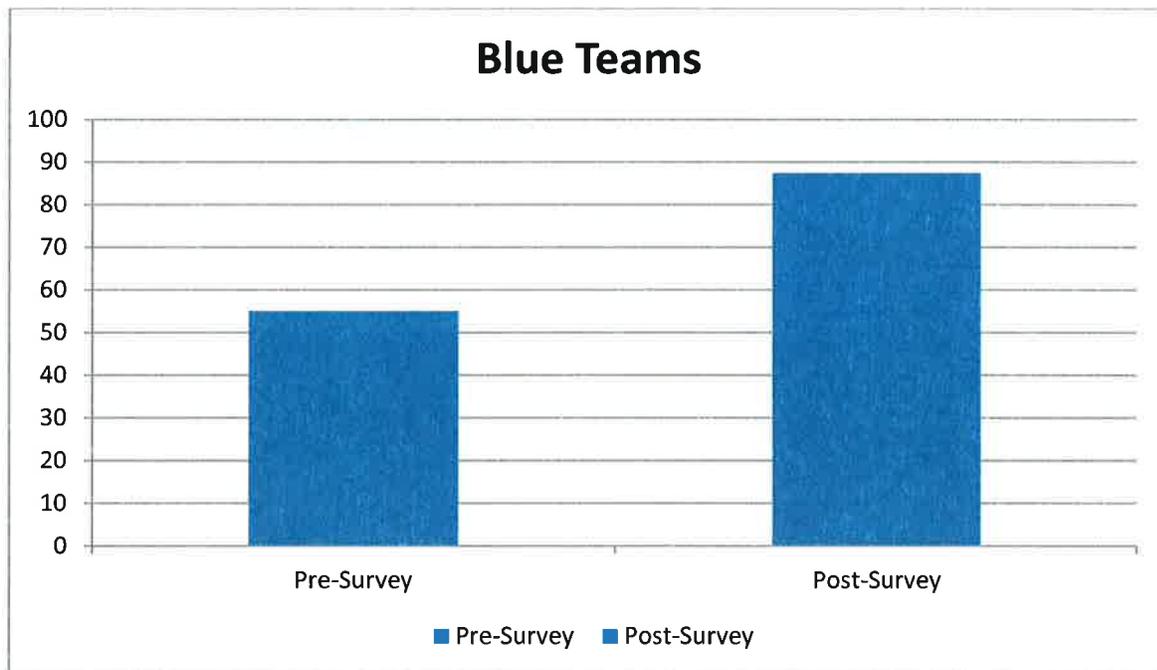
Blue Teams

100 students from Maywood Hills Elementary participated in Blue Team Projects in 2013. Linda Norwalk's 2nd grade class paired with Bridget Martin' 6th grade class in a "big buddy, little buddy" model to learn more about water quality. The classes started by learning more about native and invasive plants (we supplemented all 4 teams with funds from King County Noxious Weed Control Program in order to run 4 teams with the funding of 3). The students removed English Ivy from their school campus and took a field trip to Stipek Park to learn more about macroinvertebrates, water quality, wetland ecology, bioswales and filtration of stormwater, and wetland wildlife. For part two of the Blue Team project, John Fogarty's, Scott Herman's, and Bridget Martin's classes participated in learning sessions about pollution prevention and stormwater quality, native and invasive plants, and also removed English Ivy and Himalayan and Evergreen Blackberry from the same project site at their school. Fogarty and Herman's classes also took a field trip to Stipek Park to learn the same topics as Martin and Norwalk's had a few weeks prior.

Blue Team Surveys

Blue Team pre-surveys of 97 students at Maywood Hills Elementary school showed an average score of 55.1%. The 44 students that took the post survey received 87.5% (The classes had many special needs students and the teachers opted out of further testing for them). The teams ended too late in the school year to obtain 90 day data.

Blue teams sent 21 thank you letters with an average of 2.2 points per letter. The “silent moment” evaluation of Blue Team students resulted in an average of 6.3 fingers per student counted.



In examining two questions more closely from the Blue Team Surveys, we found some interesting results:

Students in Linda Norwalk's 2nd grade classes were asked:

What is a watershed?

- Pre Survey

2/20 students answered correctly, or 10%

- Post Survey (taken ~1.5 months after the Pre Survey)

15.5/19 students answered correctly, or 81.6%

This is a significant jump in understanding of watersheds, especially for young students.

The three 6th grade classes were asked to circle ways to prevent pollution on their survey. There were 6 options, and all 6 were relevant to circle.

Pre Survey

- 77 students took the pre survey, and circled 319/462 possible choices, receiving 69% average

on this question

- 25 students took the post survey, and circled 131/150 possible choices, receiving 87.3% average on this question.

While not all of the students took the post survey about 1.5 months after the Pre Survey (teachers declined further testing of their students as many were special needs), this result shows significant improvement in understanding of how students can prevent pollution in the City of Bothell.

Teacher satisfaction results are all in an essay format and are reported as such. All of the teachers that responded to the survey email were very positive and also stated that they would like to have the respective program again.

Discussion:

The 2013 evaluations of the City of Bothell Water Quality Education Programs have shown the programs to be effective in helping students learn about and understand stormwater quality, pollution prevention, how natural water systems work, and human interactions with these water systems. Additionally, students have learned best management practices to help keep our watershed healthy alongside their families and friends.

The short term retention of the key messages and concepts is excellent. The long term retention results were very good and on trend with our annual results, though represented a smaller sample set than we hoped for. We hoped to have more 90 day surveys sent in to complete the evaluation process, and will report on any additional surveys we receive for the fall 2013 classes. The 2010 Evaluation Methods and Procedures document states that “higher than 3 fingers per student average is considered excellent” for the “silent moment” technique. The result of this evaluation technique was this year 5.2 fingers per student average, again showing the success of the short term retention of key messages.

The student thank you letters show impressive reiteration of key messages. Many of the students have taken the messages they learned from programs and translated the information into direct practices. According to verbal comments to our instructors from teachers, these students have many ideas about actions they can and are taking to maintain and improve the health of their watershed. The Blue Team program is very popular, and teachers from Maywood Hills Elementary have already requested working with us again in 2014:

We 6th grade teachers here at Maywood Hills thought your program last year was great and are wondering if we could arrange a repeat of it for this year's students. I'm just writing at this time to see if such a thing were possible –John Fogarty

Repetition of the key messages in schools each year is a more effective way to help students develop a desired culture of sustainability for our watershed. As these students reach the secondary level, they should have very good long term retention if they have participated in multiple workshops that are available for the different grade levels.

Teacher Evaluation Comments:

Chuck did a wonderful job facilitating the salmon cycle. He was great with the kids and they were engaged. I particularly enjoyed the PowerPoint and the "experiment" with the rocks w/ the

marbles and the sand w/the marbles. Well done! I appreciate that it was funded by the City of Bothell. We have many new students this year. Funding and transportation for students has become a problem. This way our "field trip" was easy and free. Thank you so very much.

-Emily Miller, Canyon Creek Elementary

My students gained increased awareness of their ability / power to positively affect the viability of our streams. Several have made comments since your visits regarding the storm drainage system at school, and the effect of that our grounds have on the quality of water entering the system. We also have been able to compare and contrast the salmon life cycle to other life cycles in our literacy material.

Thank you for providing this valuable education experience for our students,

-Carole Siccardi, Shelton View Elementary

Chuck was fantastic—he has a good background in early childhood curriculum, and that definitely shone through. He was also open to incorporating what we have been doing in the classroom into his program. We very much appreciate the City of Bothell funding this program. If we expect children to one day be the caretakers of our environment, then they need to learn about it and appreciate it. It was a lovely area, and the children (and parents!) learned a great deal.

-Cecile Culp Mielenz, Director, Woodinville Family Preschool

Thank you for the helpful, engaging learning opportunities!

-Carol Siccardi, Shelton View Elementary

This week we had a visit to our classroom from Mr. Chuck, who taught us about Watersheds. Chuck was an excellent teacher! He taught us to make a watershed with our hands, and he showed us some interesting pictures on a PowerPoint presentation. Also, he taught us lots of important vocabulary and facts about the environment. In addition, he used a very cool model of a watershed to show us the effects of pollution on our local rivers and streams. He was very patient, and let us ask lots of questions. I would like to compliment Mr. Chuck on his excellent work as a teacher.

I learned many things from the presentation. For example, sewer pipes feed into a water treatment plant, while drain pipes on public streets feed directly into streams! Also, I learned that when I wash my car on the driveway, the soap can run into streams, hurting fish by removing essential oils from their skin. Finally, I learned that I should keep my car well maintained, so it won't drop any excess oil or chemicals on the street that might end up in a local stream after a rain shower.

I want to thank you for funding this program for our schools. We really enjoyed having Mr. Chuck visit, and we learned many ways to help keep our local watershed clean. I really appreciate it!

Sincerely,

-Jeff Booth, Canyon Creek Elementary

No improvements are needed at this time. Yes, I would like to see these programs funded in my school next year. My students were able to connect this experience to the use of alternate eco-friendly energy forms and how the water cycle is so important to the environment and the habitats of animals. The instructors/naturalists are very informative and share a deep knowledge and respect for the environment.

-Jan Clements, Shelton View Elementary

We are working on conservation of resources in our classroom. These programs helped the students understand the significance of conserving and protecting our environment which includes the wildlife it contains. The wetland filters gave them a new appreciation and understanding on how we, as human, affect our environment. Thank you for such knowledgeable and prepared instructors. My students found the lessons very informative and interesting.

-Jan Clements, Shelton View Elementary

My students were able to better understand the concept of the life cycle. The presentation also supported their study of ecosystems and how humans can affect the balance of healthy ecosystems. Students were able to discuss harmful effects, such as pouring chemicals in storm drains. They were then able to extend this discussion into the other ways in which salmon habitats could be affected.

-Jan Clements, Shelton View Elementary

The discussion and presentations support student learnings in the new Common Core Student Standards. The students were able to make connections and provide examples of sustainability; such as how water is polluted and the levels of filtering necessary to filter a wetland. The presentation also demonstrated the human interaction with our environment and how we affect the ecosystem. It is an excellent program with well-informed presenters.

-Jan Clements, Shelton View Elementary

I would definitely encourage that this program is funded next year. My students really enjoyed their Nature Vision visit and we study cycles in 2nd grade but don't touch on the water cycle, so it's nice to get more information on that. Also- in my class students only get science in Spanish so it was great for them to get some science instruction in English. The students were very engaged the entire time and really love making their precipitation habitats.

Thanks!

-Kimberly Ratti, Woodin Elementary

Blue Team Teacher Evaluation Comments

Thanks for the great program. It struck me as well-put together, valuable, and engaging for the students.

Best,

-John Fogarty, Maywood Hills Elementary

Survey Questions:

Water Cycle B PRE/POST and 90 Day Survey

Circle the correct answer

1) Circle the forms we can find water in

Solid Liquid Rocks Gas

2) Nature cleans and recycles water for us again and again. True False

3) Circle the main parts of the water cycle

precipitation accumulation/collection evaporation condensation

4) The water we have on the earth now is millions of years old. True False

5) Extra water sometimes comes to Earth from outer space, and adds to what we have now.

True False

6) We need to conserve our water resources so people, plants and animals all have enough.

True False

Salmon Cycles PRE/POST and 90 Day Survey

Circle the correct answer

1) Circle the names of the salmon that live in our area:

King Chinook Chum Sockeye Golden Coho Pink

2) A female salmon can lay up to how many eggs?

1 10 100 1,000 2,000-4,000

3) Salmon hatch in fresh water, swim to the ocean, then return to the same fresh water to spawn. True False

4) Everything that goes into a storm drain goes where?

Away.

To a water treatment plant where it is cleaned.

Directly into a nearby body of water, like a river, lake or stream.

5) Which words below describe the parts of the salmon cycle?

egg fry alevin oceanic smolt herring

Enviroscape *PRE/POST and 90 Day Survey*

Circle the correct answer

1) Most of our water pollution comes from: a) Factories b) Individual people

2) The best way to deal with pet waste (like dog poop) is to:

a) Bury it

b) Pick it up in a plastic bag and throw it in the garbage

c) Put it in your garden to fertilize it

3) The best place to wash your car is a commercial car wash to prevent soapy water from entering storm drains.

True

False

4) Water that goes into a storm drain is cleaned before reaching Puget Sound.

True

False

5) List 5 ways you can help keep water in our rivers, lakes, streams and Puget Sound healthy:

Appendix G

WASTEMOBILE COMING TO BOTHELL

SAVE THE DATE



2013 Wastemobile Events!

March 1-3, May 10-12, June 28-30

August 2-4, September 20-22 & October 25-27

10 a.m. to 5 p.m.

Seattle Times Building
19200 120th Ave. NE, Bothell

For details about this event and future Bothell Wastemobile dates, visit HazWasteHelp.org and click "Wastemobile"

For more recycling information, visit bothellcool.org and click "Recycling"

Alternate Formats Available
Voice: 425.486.2768 or TTY Relay: 711



YOUR GUIDE TO HAZARDOUS WASTE

Some examples of hazardous products are:

Automotive or cleaning supplies (see label), home improvement products (yard chemicals, varnish, adhesives, etc.), pesticides, and synthetic fertilizers.

For a complete list, visit bothellcool.org and click "Recycling."

How do I dispose of household hazardous waste?

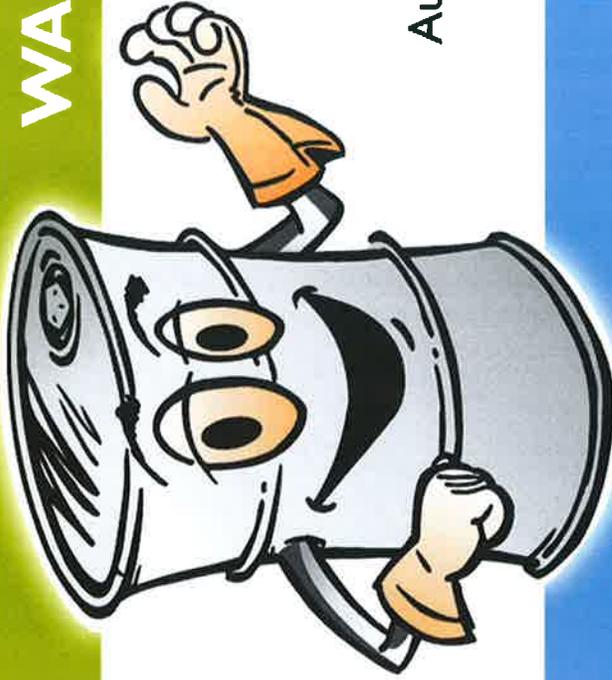
You can take your unwanted household hazardous products to a hazardous waste facility, or utilize one of the six Wastemobile opportunities listed on the front of this card.

For more information on this and other options, please visit:

HazWasteHelp.org and click "Wastemobile"
or call **206.296.4692** or **888.TOXICED (869.4233)**

WASTEMOBILE COMING TO BOTHELL

SAVE THE DATE



2013 Wastemobile Events!

March 1-3 • May 10-12 • June 28-30

August 2-4 • September 20-22, & October 25-27 • 10 a.m. to 5 p.m.

Seattle Times Building • 19200 120th Ave. NE • Bothell

For more Recycling information, visit
bothellcool.org and click "Recycling"

For details about this event and future Bothell Wastemobile dates, visit
HazWasteHelp.org and click "Wastemobile" or
call (206) 296-4692 or 1.888.TOXICED (869.4233)

A product is hazardous if the label says: **CAUTION-WARNING-DANGER-POISON**

WHAT TO DO WITH

UNWANTED HOUSEHOLD HAZARDOUS PRODUCTS

All these products are hazardous and do not go in the garbage.
Empty containers may go in the garbage—except propane tanks.

| | | | |
|---|---|---|--|
|  | <p>YES TAKE THESE PRODUCTS TO A HOUSEHOLD HAZARDOUS WASTE SITE Limit: 50 gallons per customer per day; no container over 5 gallons</p> |  | <p>NO THESE PRODUCTS ARE NOT ACCEPTED</p> |
| <p>Household Cleaners </p> <p>Lawn & Garden Products </p> <p>Automotive Products </p> <p>Household Appliances </p> <p>Oil-based Paints, Thinners & Stains </p> <p>No Latex</p> <p>Batteries: Household & Vehicle </p> <p>Limit: 5 car batteries</p> <p>Antifreeze </p> | <p>CALL HOUSEHOLD HAZARDOUS LINE AT 206-296-4692 FOR DISPOSAL OPTIONS</p> <p>Ammunition </p> <p>Fireworks </p> <p>Explosives </p> <p>Latex Paint (Empty paint cans OK to toss in trash with lid off)</p> <p>CALL KING COUNTY SOLID WASTE AT 1-800-325-6165. EXT. 6-4666</p> <p>Medical Sharps (needles) </p> <p>CALL PUGET SOUND CLEAN AIR AGENCY AT 206-343-8800</p> <p>Asbestos Containing Materials </p> <p>CALL 1-800-RECYCLE OR GO TO www.TakeItBackNetwork.org</p> <p>Televisions & Computer Monitors, Electronics </p> | | |

For more information call the Household Hazards Line Monday – Friday, 9 a.m. to 4:30 p.m., except holidays At 206-296-4692 or 1-888-TOXIC ED (869-4233).

Interpreters available. Please be patient while we locate an interpreter.

Or visit www.HazWasteHelp.org

There is no fee for hazardous waste disposal. It is paid for in your utility bills.

WHERE DO I BRING MY HAZARDOUS PRODUCTS?

If you live in King County you can use any of these facilities. Disposal service is paid for in your utility bills, use it!

| | |
|--|--|
| <p>NORTH SEATTLE HOUSEHOLD HAZARDOUS WASTE FACILITY 12550 Stone Ave North, WA 98133</p>  | <p>FACTORIA HOUSEHOLD HAZARDOUS WASTE DROP-OFF SERVICE 13800 SE 32nd Street, Bellevue, WA 98005</p>  |
| <p>SOUTH SEATTLE HOUSEHOLD HAZARDOUS WASTE FACILITY South Transfer Station's Gate 3 8105 Fifth Ave South, Seattle, WA 98108</p>  | <p>WEEKLY AUBURN SUPERMALL WASTEMOBILE HAZARDOUS WASTE DROP-OFF SERVICE At the NW corner off of SuperMall Way next to Sports Authority.</p>  |

Plan ahead! Please note when facilities are open. Call for holiday schedule.

| | SUN | MON | TUES | WED | THUR | FRI | SAT |
|---|--------|--------|--------|--------|--------|--------|---|
| NORTH SEATTLE: Open 9:30 a.m. - 4:30 p.m. | CLOSED |
| FACTORIA: 9 a.m. - 5 p.m. | CLOSED | CLOSED | CLOSED | CLOSED | CLOSED | CLOSED | FACTORIA: 9 a.m. - 5 p.m. |
| AUBURN WASTEMOBILE: www.hazwaste.org/home/HHW/dropoff-locations.aspx#auburn | CLOSED | CLOSED | CLOSED | CLOSED | CLOSED | CLOSED | AUBURN SUPERMALL WASTEMOBILE: Open weekly Saturday and Sunday from 10.00 a.m. - 5.00 p.m. |

For more info, about Wastemobile drop-off sites in other King County cities: www.hazwaste.org/home/HHW/dropoff-locations.aspx#auburn or call 206-296-4692, 1-888-TOXIC ED

For more information call the Household Hazards Line Monday-Friday 9 a.m. to 4:30 p.m., except holidays at 206-296-4692 or 1-888-TOXIC ED.

Interpreters available. Please be patient while we locate an interpreter.

Or visit www.HazWasteHelp.org

For poison emergencies call:

WASHINGTON POISON CENTER 1-800-222-1222

Household Hazardous Products: www.kingcounty.gov/solidwaste For information visit www.kingcounty.gov/solidwaste

Questions about trash?

King County Solid Waste Information Line: 206-296-4466 or 1-800-325-6165. Ext. 6-4466 www.kingcounty.gov/solidwaste
Seattle Public Utilities Customer Service: 206-684-3000 www.seattle.gov/util/services

Local Hazardous Waste Management Program in King County, Washington

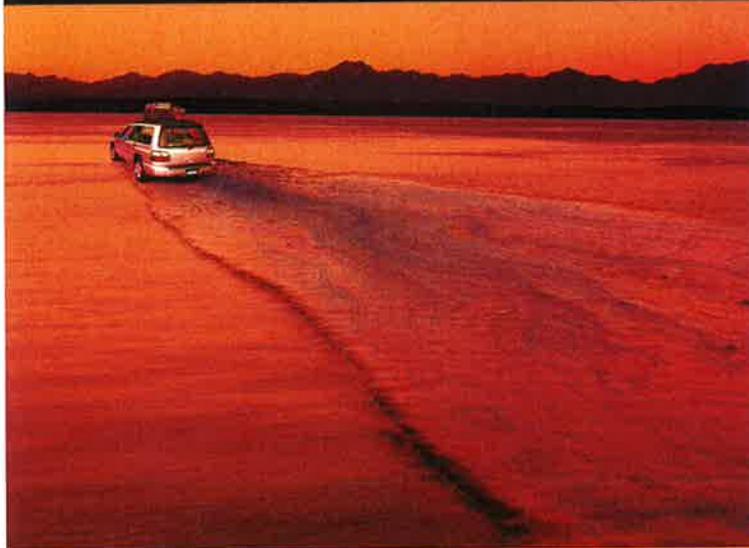


Revised December 2013
Printed on recycled paper
Photo: WCCS

Alternate formats available
206-296-4692 or TTY relay 711

WC File 112 - Hazardous Waste 11.8 - 12/13/13 (Rev. 12/13)

Is that oil leak harming
more than your car?



FIX VEHICLE LEAKS RIGHT AWAY

More than 7 million quarts of motor oil enter Puget Sound each year, washing into storm drains from roadways, driveways, and parking lots.



Puget Sound 
Starts Here.org

Additional Information

Online Resources:

City of Bothell Surface Water Management Division
<http://ci.bothell.wa.us/CityServices/PublicWorks/SurfaceWaterManagement.ashx>

Bothell Municipal Code
<http://www.codepublishing.com/wa/bothell/>

Department of Ecology Stormwater Management Manual
<http://www.ecy.wa.gov/programs/wq/stormwater/manual.html>

King County Surface Water Design Manual Appendix A
<http://your.kingcounty.gov/dnrp/library/water-and-land/stormwater/surface-water-design-manual/appendix-a.pdf>

Contact Information:

City of Bothell
 Public Works Department
 9654 NE 182nd Street
 Bothell, WA 98011
 Phone: 425.486.2768
 Fax: 425.806.6898

Surface Water Inspection Program



City of Bothell™

Program Overview

The goal of the Inspection Program is to protect and restore our local water resources by ensuring a high performance level from current and future stormwater systems.



Left: clean control structure

Above: Bothell neighborhood

This effort can reduce flooding and polluted runoff from reaching our streams, rivers, wetlands and Puget Sound.

Remember,



Without regular maintenance and inspection, your system can become compromised, allowing water to be directly discharged into local streams without sediment and pollution control.



Above: Sediment flowing into a stream
 Left: Pollutants flowing into a storm

An unmaintained system can cause flooding on your property and those around you, resulting in costly damage or loss.



Above: flooding of the downtown area
 Right: flooding in North Creek Business Park

Together we can help keep our lakes, rivers, streams, and Puget Sound clean

Common Questions

Q What is a stormwater system?

A stormwater system is any part of an engineered drainage system that collects rain water. Examples include detention ponds, underground vaults, swales, and catchbasins.



Q Why do I need an inspection?

To ensure your system is functioning properly and to keep us in compliance with federal, state, and local regulations.



Q Why should I maintain my system?

In Bothell, these facilities protect your property from flooding and drain directly into our lakes, rivers, and streams without treatment. This means that any pollutants in the water can cause many problems for our local community and can make contact with the water a health risk. In addition, according to BMC 18.04.270, owners are required to maintain their system semi-annually.



Above: Catchbasin in great need of repair, cleaning, and scheduled maintenance

Q How often will I need to have my system cleaned?

Maintenance will depend on the type of system in your care and the surrounding conditions in your community. Establishing a maintenance schedule is the best way to ensure your system is functioning properly.



Q What should I do if my system needs maintenance?

First, you will need to get one or more cost estimates for required maintenance and repair work. A list of licensed contractors is provided for your convenience. Then, you will need to choose a contractor, schedule the work, and finally you will need to return the work order to us once everything is complete.

Q How much time will I have to complete the work?

You will typically have 30 days after you receive the work order. Extensions can be granted if written proof of intent is submitted within the 30 day timeframe. Failure to comply with these requirements can be subject to civil penalties described in BMC 11.20.010.



Above: Pond is overgrown and unable to function

Q What information do I need to provide to the City?

The City needs to have current contact information for the lead property owner, manager, or homeowners association president who represents all affected parties. The information needs to include full name, address, phone number, and email. This information can be updated by sending an email to: gunnar.rybacki@ci.bothell.wa.us



Above: Pond is cleaned and able to hold water as designed

Appendix H



DID YOU KNOW?

Anything that enters our storm drains goes directly into the nearest lake, stream, or wetland without treatment.

When maintaining or remodeling your home or business, please be sure to dispose of all wastewater properly.

These high polluting activities can include:

- carpet cleaning
- painting
- pressure washing
- concrete work
- vehicle maintenance
- chemical pesticide/fertilizer use

City of Bothell
Public Works Department
9654 NE 182nd Street
Bothell, WA 98011



Wastewater from cleaning equipment, carpets, and rinsing paint brushes contains harmful substances, regardless of the type of paint or cleansers used. Please be sure to rinse all equipment and deposit all wastewater into a sink or toilet.

Pressure washing chemicals are also harmful and not allowed in storm drains.

Please feel free to contact Janet Geer at janet.geer@ci.bothell.wa.us for personal consultation or HOA presentation on this topic.

*Remember, Nothing but Rain Down
the Storm Drain*

We Keep it Clean Using the 4Cs



Yes ✓

Cover

Cover outdoor work and storage areas



No ✗



Yes ✓

Capture

Capture fluids before they run to the drain



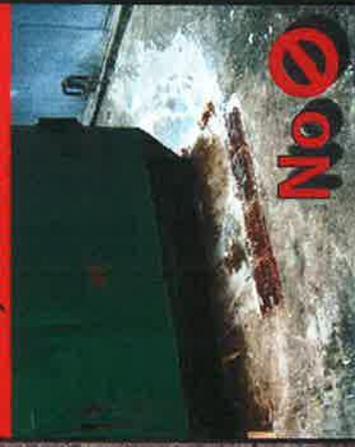
No ✗



Yes ✓

Clean

Clean up spills before they reach the drain



No ✗



Yes ✓

Contain

Contain stored fluids to capture leaks



No ✗

Only Rain Down the Drain

No Oil • No Suds • No Paint • No Chemicals
Even small amounts can pollute our waterways

This project was funded by a grant provided by
Washington State Department of Ecology

OUR RESTAURANT KEEPS IT CLEAN

DUMPSTER

Properly dispose of garbage and sweep any debris around dumpster.



HOOD VENTS

Wash all hood vents in a combination sink, mop sink, or dishwasher.



MATS

Wash all kitchen floor mats indoors near a floor drain or utility sink.



WASH WATER

Dispose of all washwater in a utility sink or indoor floor drain.



City of Bothell

Only Rain Down the Storm Drain

NO grease, NO dirt, NO garbage, NO wash water!



Appendix I



Whatever enters
Bothell storm drains
goes directly to the
nearest lake,
stream, or wetland
without treatment

*Nothing But Rain
Down The Drain*

REPORT SPILLS TO OUR **HOTLINE: 425-806-6750** 



Whatever enters
Bothell storm drains
goes directly to the
nearest lake,
stream, or wetland
without treatment

*Nothing But Rain
Down The Drain*

REPORT SPILLS TO OUR **HOTLINE: 425-806-6750** 



Whatever enters
Bothell storm drains
goes directly to the
nearest lake,
stream, or wetland
without treatment

*Nothing But Rain
Down The Drain*

REPORT SPILLS TO OUR **HOTLINE: 425-806-6750** 



Whatever enters
Bothell storm drains
goes directly to the
nearest lake,
stream, or wetland
without treatment

*Nothing But Rain
Down The Drain*

REPORT SPILLS TO OUR **HOTLINE: 425-806-6750** 



Whatever enters
Bothell storm drains
goes directly to the
nearest lake,
stream, or wetland
without treatment

*Nothing But Rain
Down The Drain*

REPORT SPILLS TO OUR **HOTLINE: 425-806-6750** 



Whatever enters
Bothell storm drains
goes directly to the
nearest lake,
stream, or wetland
without treatment

*Nothing But Rain
Down The Drain*

REPORT SPILLS TO OUR **HOTLINE: 425-806-6750** 



Whatever enters
Bothell storm drains
goes directly to the
nearest lake,
stream, or wetland
without treatment

*Nothing But Rain
Down The Drain*

REPORT SPILLS TO OUR **HOTLINE: 425-806-6750** 



Whatever enters
Bothell storm drains
goes directly to the
nearest lake,
stream, or wetland
without treatment

*Nothing But Rain
Down The Drain*

REPORT SPILLS TO OUR **HOTLINE: 425-806-6750** 



Whatever enters
Bothell storm drains
goes directly to the
nearest lake,
stream, or wetland
without treatment

*Nothing But Rain
Down The Drain*

REPORT SPILLS TO OUR **HOTLINE: 425-806-6750** 



Whatever enters
Bothell storm drains
goes directly to the
nearest lake,
stream, or wetland
without treatment

*Nothing But Rain
Down The Drain*

REPORT SPILLS TO OUR **HOTLINE: 425-806-6750** 

Pollution Found in Your Area!

This is not a citation

This is to inform you that City of Bothell staff found the following pollutants in the storm system in your area. This storm system leads directly to:

- Oil
- Antifreeze/transmission fluid
- Paint
- Solvent/degreaser
- Cooking grease
- Detergent
- Home Improvement Waste (concrete, mortar, etc.)
- Pet waste
- Yard Waste
- Excessive dirt and gravel
- Trash
- Construction debris
- Pesticides/fertilizers
- Other _____



*Remember, Only Rain
Down the Drain*



Report Spills:

Reporting spills right away helps us to minimize the damage to ourselves and our natural systems. Please call us as soon as possible if you see or smell something in your storm drains.

425-806-6750

Puget Sound Starts Here

Did you know?

City of Bothell storm drains do not connect to the sewer system, so anything that enters the storm drain passes directly to the nearest pond, river, or wetland without treatment. This is why it's so important to keep all pollutants out of our storm water system.

The pollution comes from our every day activities and can only be prevented by changing our habits. Here are some tips to keep the water clean that leaves your property:

- Use little to no synthetic pesticides and fertilizers
- Use a commercial car wash
- Sweep yard debris rather than hosing down areas
- Properly maintain your vehicle
- Properly dispose of pet waste
- Properly use, store, and dispose of household hazardous chemicals
- Reduce impervious surfaces on your property
- Report any discharges



REPORT SPILLS TO OUR HOTLINE

425-806-6750

SpillReport@ci.bothell.wa.us

**Call the
Spill Hotline
425-806-6750**

Appendix J

Fall into Fall...

With Rain Gardens And More!

WHAT: Learn about Rain Gardens and other great ways to beautifully manage stormwater on private property

WHEN: Thursday, October 3 from 6:30 - 8:30 p.m.
Thursday, October 10 from 6:30 - 8:30 p.m.

WHERE: Bothell- King County Regional Library
18215 98th Ave NE
Bothell, WA 98011

WHY: There are many ways to beautify your property and reduce impacts from stormwater. Local expert **Ladd Smith from In Harmony Landscaping** will discuss these methods and help you decide if these could work for your home and property.

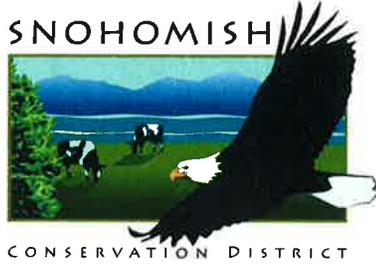


Space is limited and registration is required so be sure to RSVP today to save your spot:

Contact Janet Geer 425.486.2768 janet.geer@ci.bothell.wa.us



City of Bothell



SCD 528 91st Ave NE, Ste A, Lake Stevens, WA 98258-2538
Phone 425-335-5634, ext 4 FAX 425-335-5024 Website: www.snohomishcd.org

Date September 24, 2013
Contact Person: Lois Ruskell
Outreach Director
(425) 335-5634, Ext. 108

Build Your Own Rain Barrel - Bothell
Tuesday, October 8, 2013 from 6:30 p.m. to 8:30 p.m.
Northshore Senior Center, Bothell

Learn how to build your own rain barrel - and then take it home with you! This class is hands-on, and will cost \$25 for the barrel and fixtures (a \$70 value!). Some tools will be provided, or you can bring your own (list will be emailed before the event). Refreshments will be also be provided. For questions, contact Kate Riley at Kate@snohomishcd.org. Register at bothellrainbarrels.eventbrite.com

See photos attached for a glimpse of one of our other sold-out rain barrel classes!

Managing Rainwater

{ A Homeowners Improvement Guide for
Low Impact Development (LID) in Bothell }



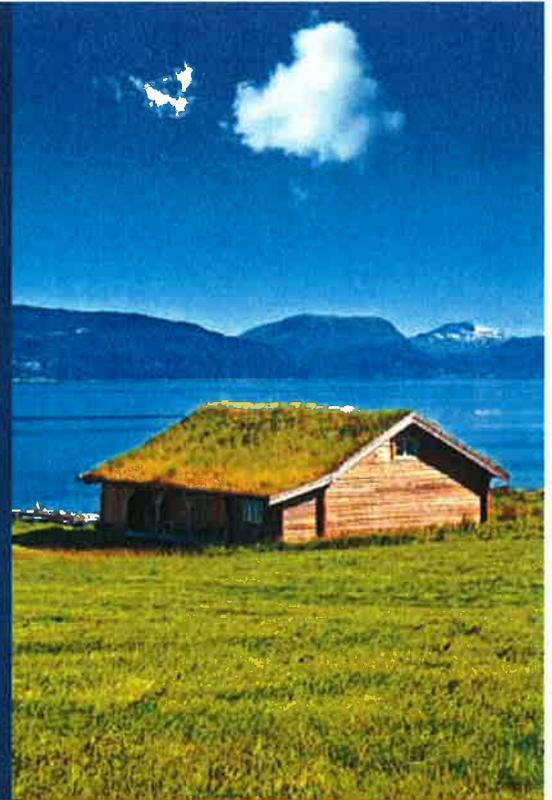
What is LID?
Why is LID important?
What are the Benefits?
What Should I Consider Before Deciding?

Rain Gardens
Green Roofs
Resources
Cisterns

Disconnecting Downspouts
Planting/Saving Trees
Permeable Paving
Improving Soil

What is LID?

It's an approach that helps your home look and work better for you and your neighborhood. Low Impact Development manages the rainwater that falls on your property by allowing some to evaporate back into the air, some to absorb into the ground, some to be captured and used later as needed, and the rest to slowly pass into the stormwater system and back into nearby streams. Many of these techniques also add value to your home through energy and efficiency cost savings, curb appeal, and general perception.



Why is LID Important?

Protecting Your Property

When it rains, water falls on hard surfaces like roads, roofs, and driveways and flows quickly into ditches and storm drains where it is deposited into the nearest lake, stream, or wetland. This rush of water can back up, flooding homes and property and causing erosion of hillsides and local streams.

Protecting Our Water

The water also picks up pollutants found on these hard surfaces from our daily activities (gasoline, motor oil, heavy metals, fertilizers, pesticides, chemical compounds, pet waste, etc.) and deposits them into the nearest lake, stream, or wetland making the water unsafe for us, our children, and the environment.

Because this pollution is caused by each one of us in our daily activities it is called non-point source pollution. Stormwater is the largest contributor of pollution to our local, regional, and national waterways and is listed as the major reason why Puget Sound is in trouble.

Low impact development techniques capture the water before it leaves your property, slows it down, and allows it to absorb into your soil where plants, materials, and tiny organisms filter and clean the water and allow it to recharge our groundwater systems.



What are the Benefits for Me?

When designed and installed properly, LID can benefit your home and neighborhood in a variety of ways.

Property Value

Several techniques beautify your home and property adding value and curb appeal. Many properties that are sold as "green homes" are sought after by homebuyers in the region for their efficiency and aesthetic value.

Saves Money

Many LID techniques are less expensive than installing standard pipes, storm drains, vaults and past conventional systems. A few techniques are more expensive for installation but provide efficiency benefits over time. The amount of excess water and pollution removed before it reaches the stream saves on tax dollars for increased infrastructure needs and pollution removal.

Reduce Flooding

Localized property flooding is often caused by clogged, slow moving, or inadequate drainage. LID techniques slow the water down and allow it to absorb into the soil over time. This also helps to protect our local streams from excessive water flow which can cause major flooding and erosion downstream.

Improve Water Quality

Non-point rain water pollution is caused by each of us and our daily activities. This means that each of us have the power to make a real difference. By adopting a few techniques on your property, you can join thousands of others in reducing your individual impacts.

Helps Protect Against and Remove Erosion

Erosion causes huge problems for property owners and the environment. Many people have lost their homes, lawns, outbuildings, and property value due to eroded soils. Erosion also causes major stream damage by suffocating fish beds and the small organisms that the fish need to survive.

Helps Recharge Local Groundwater Supplies

Many drainage problems on private property are caused by a lack of previously existing groundwater. When water is carried into a pipe and away from property, it can cause large pockets underground from the lack of previously existing water. This can cause sink holes, loss of well water for neighbors, foundation instability, and causes our streams to experience high volumes of water when it's not wanted, but not enough in the summer when it's desperately needed.





What Should I Consider Before Making a Decision?

Size of Project

The size and intent of your project will affect the cost, permitting process, amount of time, and design considerations. This guide is meant to help homeowners learn how to better manage the rain that falls on their property, whether they're making voluntary changes to improve their property conditions that don't require a permit or doing a small home or landscape remodel that requires drainage review.

Requirements

This guide provides a general overview of improving soil, planting trees, selecting and installing permeable paving, installing a green roof, and redirecting roof runoff to cisterns or rain gardens. Each technique page will mention if you are required to show plans or apply for a permit for a voluntary remodel.

For larger projects that are triggering required consideration of LID, this guide can provide some initial information and resources. For specific requirements, please refer to our Construction Design Standards which includes our Stormwater Design Manual located on our City website: http://www.ci.bothell.wa.us/Site/Content/Public%20Works/Bothell%20Standards/Standards_ALLSECTIONS_03-31-12.pdf

Decide What You Want

Be sure to assess your wants, needs, and constraints before designing details. It is important to rank your priorities and consider options that work with your existing landscape and features to save on costs. Be sure to include the cost of efficiency over time, maintenance, and conservation in your budget so you can assess the true value of each technique before choosing what will work best for you. For example, while a green roof initially costs more than a conventional roof, it lasts 1.5 to 2 times as long while adding insulation to your home. Environmental, social, and health costs are not listed in the price tag, so be sure to consider these factors when receiving quotes.

Buyer Beware

Often a lower purchase price can be due to a lack of quality, durability, or an increase in maintenance so be sure to do your homework. Identifying all the materials and products you want to use down to the specific brands will help you determine total cost and avoid expensive last minute decisions.

Also, be sure any installer pays close attention to local building codes to save yourself the hassle and expense of having to tear something out or relocate something out of a fire setback.



Planting Trees

Preserving existing trees and planting new ones are easy and effective ways to manage rainwater at home. Trees and plants, especially evergreens, do a good job of catching rainfall on their leaves and needles, detaining rainwater and returning much of it to the atmosphere. Tree roots and leaf litter feed soil microbes that prevent erosion and allow more rainwater to soak in.

Trees in your yard can also help improve air quality and moderate the microclimate around your home by providing cool shade during hot summer months and protecting your home from cold winds in winter. Because of their beauty and functional value, trees are known to add to property values — a well-placed mature tree can add thousands to the sale price of a home.

Getting Started

Site trees in places where they can thrive over time. You may want to consider factors like: is there enough room to accommodate the full canopy at maturity? Is there enough room for root growth away from underground foundation and utilities? You may also consider whether to plant an evergreen or deciduous tree:

- Evergreens keep their leaves or needles all year and are much more effective at reducing stormwater runoff. Evergreens planted north and west of your home block winter winds and hot afternoon sun.
- Deciduous trees help reduce stormwater runoff during non-winter months. These trees placed south and east of your home welcome winter sunlight and provide shade in summer.

Northwest natives are often a good choice because they have few pest problems and provide habitat for native birds and wildlife, including unseen but crucial soil microbes. However, many non-native trees are well adapted to our climate and can provide fruit, nuts, or other benefits. Weigh all of these factors carefully when selecting and planting trees – they'll be with you for a long time!

Maintenance

Newly planted trees need to be watered weekly for at least the first 2-3 years and areas around trees should be weeded and mulched annually (see Improving Soil with Compost and Mulch on page 5 for more information). To protect tree health, avoid excavating, paving, or driving in the critical root zone (the area underneath the canopy).

Resources

For information on native tree planting techniques and programs please visit our website, www.ci.bothell.wa.us and search "planting trees".

Permit Requirements

No permit is needed for this type of landscaping provided you are on your property and not located in the right-of-way. For plants in the right-of-way, please review Bothell Municipal Code 12.18.060

<http://www.codepublishing.com/wa/bothell/> for rules and regulations regarding species, trimming, sidewalk access, garbage collection setbacks, and vehicle visibility. Please contact a City Planner (425) 486-2768 with any further questions regarding trees in the right-of-way.



"Northwest natives are often a good choice because they have few pest problems and provide habitat for native birds and wildlife..."





Permits

A Permit is only required if you are moving over 50 cubic yards of dirt or working in a critical area (area directly surrounding a lake, stream, or wetland).

Please make an appointment with a City Civil Engineer at 425-486-2768 with any questions regarding the need for a permit.



Improving Soil with Compost & Mulch

Amending your soil with compost and mulch is a simple improvement that helps absorb rainwater and enhances your existing soil conditions. Attractive and healthy lawns and gardens require soil rich in life and nutrients. This technique makes plants healthier and saves you money by reducing irrigation and the need for expensive fertilizers and pesticides. Compost and mulch added to your soil feed the beneficial organisms that create structure and spaces within your soil so that rainwater can easily soak into the ground. These soil organisms also break down pollutants, and help move carbon dioxide from the atmosphere into long-term storage in your soil.

Getting Started

Spread 2-4 inches of compost over the entire area before planting, then mix the compost 6-8 inches deep into the soil to provide water, air and nutrients to plant roots. You should mix in compost before:

- Planting lawns, perennials, trees and shrubs.
- Replanting annual beds.
- Repotting container plants.

Adding mulch (organic material applied to the surface of the soil) to new or existing plantings helps reduce evaporation, limit weed growth, maintain an even soil temperature, and limit erosion that can choke streams and fish. The best mulches are arborist wood chips (available from tree services), fall leaves or grass clippings. Apply mulch to these depths:

- Grass clippings: ½ to 1 inch
- Compost, leaves, straw, bark (medium ground): 1 to 2 inches
- Coarsely shredded wood chips, bark, or tree trimmings: 2 to 4 inches

Things to remember about mulching:

- Apply annually or as needed to maintain a mulch layer 2 inches thick around annuals and perennials, or 3-4 inches around woody plants and trees. Keep mulch one inch away from stems and trunks of plants.
- Mulch in spring to conserve moisture and prevent weed seedlings from sprouting.
- Mulch in fall to protect soil from erosion, winter weeds, and cold snaps.
- You can also "mulch" your lawn by leaving the grass clippings, which improves lawn rooting depth and drought resistance.

Maintenance

Routinely mulching and adding compost to your soil helps keep plants healthy year round, and can eliminate the need for fertilizer. If you use fertilizers, choose organic forms of the nutrients you need, which are less likely to wash off into streams. Test soil before you apply fertilizer, and add only the amount that the results recommend (free testing is available to most King County residents through the King Conservation District - see www.kingcd.org/pro_far_soi.htm) Avoid using pesticides as they may hurt beneficial soil life, wildlife, and human health. You can find better alternatives at <http://your.kingcounty.gov/solidwaste/naturalyardcare/index.asp>.

Compost & Mulch Types

| | SOIL AMENDMENT CHOICE | | BENEFITS | DRAWBACKS |
|--|---|---|---|---|
| Best All-Purpose Materials |  | Compost made from yard debris or barnyard manure Tips: yard trimmings can be composted at home | recycled and readily available contains balanced nutrients | homemade compost can contain weeds, pests, and diseases (commercially available composts eliminate these problems) |
| |  | Leaves (composted or fresh) | no cost rich in nutrients | usually contain some weed seeds |
| Other Materials |  | Aged bark or sawdust | improves drainage in clay soils good for trees and shrubs | if not composted until dark brown in color, they can tie up nutrients and inhibit plant growth mix with compost for better results |
| |  | Peat moss | improves moisture and nutrient storage in sandy soils | does not support soil life compost works better and is usually less expensive |
| |  | Coconut coir | Improves moisture and nutrient storage in sandy soils | does not support soil life |
| |  | Topsoil mixes | good for raised beds on top of compacted or poorly drained soil | may contain poor fill soil or weed (best to use mixes containing only compost and clean sand) |
| | MULCH CHOICE | | BENEFITS | DRAWBACKS |
| Shrubs and Trees The best mulches for shrubs and trees are coarse, woody materials that protect the soil for a year or longer, slowly releasing nutrients for steady plant growth. |  | Wood chip and shredded prunings ("arborist wood chip mulch") | low or no cost, reuses a potential waste product also works for perennials if soil is amended provides more nutrients than bark | may spread weed seeds |
| |  | Fresh bark | readily available | Inhibits growth of some plants |
| |  | Wood shavings | often free | cannot wood shavings from chemically treated lumber best if aged |
| Annuals/Perennials/ Berries & Roses Annuals and perennials benefit from mulches like compost which feed plants quickly, and can be mixed into the soil without tying up nutrients. |  | Composted yard debris, bark, barnyard manure or biosolids | neat appearance | compost does not suppress weeds bark is low in nutrients |
| |  | Leaves and grass clippings | leaves and grass clippings are free | may spread weed seeds |



Permit

The water during heavy rain events must flow back into our storm system so you may need to apply for a storm-water connection permit, right-of-way permit, or grading permit depending on your situation. Please make an appointment with a City Civil Engineer 425-486-2768 to discuss any permit related questions or concerns before beginning your project.

Disconnecting Downspouts

During a one-inch rain event, a 1,000 square foot roof receives 625 gallons of water. Diverting some of this water to a cistern, rain garden, or permeable pavement can slow these flows, reduce erosion, and minimize water pollution from your property.

Some areas of Bothell do not allow residents to disconnect their downspouts due to erosion, landslides, and poor soil conditions. If you live in Bothell south of the Sammamish River, please consult with a City Civil Engineer at 425-486-2768 before deciding to disconnect your downspouts. Also, the City requires you to connect back into our storm system to protect you and your neighbors during major flooding events. This means any technique must allow heavy flows to tie back into the stormwater system.

Getting Started

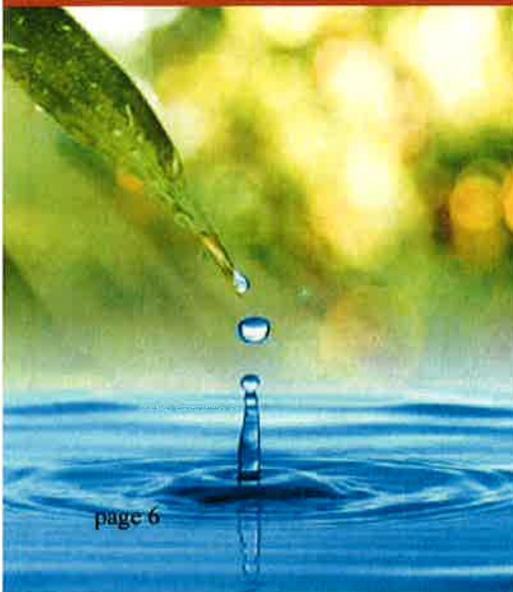
Disconnecting downspouts require proper procedures to avoid risks of flooding, erosion and landslides. Does the water have a path to move safely away from your house? What happens in a big storm? These are questions you need to answer before disconnecting your downspouts.

Consider where rainwater would flow from your downspout. Effective downspout disconnection requires adequate grading and vegetation to convey water away from the house and let it soak into the ground. Make sure that even in heavy rainfall water can still overflow downhill to the street drains without flooding sidewalks or your neighbor's property. Avoid directing runoff toward foundations, contaminated soils, steep slopes and landslide areas. If you can't disconnect all of your downspouts, even one could help infiltrate hundreds of gallons per year.

Completing your research before you start, and making informed decisions can save a lot of hassle in the future. Please make an appointment with a City Civil Engineer 425-486-2768 to discuss any questions or concerns before beginning your project.

Maintenance

Disconnected downspouts require simple but regular maintenance. Routinely check your gutters for leaks and remove any accumulated leaves and debris at least twice a year, and more often if you have overhanging trees. Take care of the downspout discharge locations and make sure that they have appropriate erosion control and proper drainage.



Ways to Manage Downspout Runoff

Downspout runoff can be managed in various ways. Splashblocks and conveyance furrows direct rainwater to infiltration areas or capture systems

| MATERIAL | SYSTEM TYPE | DESCRIPTION/TIPS | BENEFITS | DRAWBACKS |
|---|-------------------|---|---|--|
| <p>Splashblocks</p>  | Conveyance | <p>Rainwater pouring out of downspouts can cause erosion and moisture problems around your foundation. Splashblocks help disperse runoff away from your home and prevent landscape erosion.</p> <p>Tip: For a more eco-friendly solution, go with a splashblock made from recycled concrete or post-consumer plastic.</p> | <p>low cost disperse runoff reduce scour prevent landscape erosion</p> | <p>limited varieties and designs available on the market</p> |
| <p>Rain gardens</p>  | Infiltration | <p>Described further on page 8</p> <p>A shallow depression with a designed soil mix and native plants captures runoff and allows it to soak into the ground.</p> | <p>low long-term maintenance absorb and infiltrate more water than the same size area of lawn attractive and interesting landscape features</p> | <p>require regular maintenance</p> |
| <p>Permeable paving</p>  | Infiltration | <p>Described further on page 10</p> <p>Permeable pavement, constructed as a facility, can accept rooftop runoff and soak it into the soil.</p> | <p>reusable, can be reconfigured extremely durable can serve as a patio, walkway, or driveway</p> | <p>can have high initial cost most manufacturers require professional installation</p> |
| <p>Cisterns</p>  | Capture/detention | <p>Described further on page 12</p> <p>Designed to catch roof runoff, cisterns are big rain barrels that hold hundreds of gallons of water.</p> | <p>low cost (rain barrels) reduce use of potable water for irrigation reduce runoff volume and delay peak flow</p> | <p>high initial cost (cisterns) can be expensive and time consuming to construct require regular maintenance</p> |
| <p>Conveyance furrows</p>  | Conveyance | <p>Conveyance furrows offer a more flexible option than piping.</p> <p>These shallow depressions can convey runoff away from buildings to a better discharge location such as a rain garden.</p> <p>Furrows can be vegetated or rock-lined, depending on aesthetic preference and the slope of the site.</p> <p>Deeper rock trenches can hold and infiltrate water.</p> | <p>low cost layout can be flexible does not require extensive disturbance of yard or lawn slow runoff and provide more benefits than piped conveyance options</p> | <p>rocks can collect sediment over time and require weeding</p> |



Rain Gardens

You can improve the look of your home and help the environment by incorporating rain gardens into your yard. A rain garden is simply a shallow depression that uses soils and plants to manage runoff from hard surfaces such as your roof or driveway. The plants and compost-amended soil can hold several inches of rainwater and allow the stormwater to slowly seep into the ground.

Consult the WSU Rain Garden Handbook http://county.wsu.edu/mason/nrs/water/Documents/Raingarden_handbook.pdf with step-by-step instructions for design, placement, and construction details. Please be sure to call before you dig to ensure no utilities are located in your digging area (toll free 1-800-424-5555). Please call and make an appointment with a City Civil Engineer to discuss questions on plans, permits, and City regulations regarding rain gardens.

Getting Started

Initial research and careful planning can help you avoid damage and future reconstruction costs – saving you time and hassle in the long run. There are several things you need to assess before you start digging and planting. Is your yard fairly level? Do you have a big enough area free of big tree roots and utilities? Is there a way for roof or driveway runoff to flow to your rain garden? What kind of soils and slopes do you have?

Rain gardens are best sited where runoff can flow freely to them, and where there is a safe path for overflow in bigger storms. Their effectiveness will depend on your property's soil type and amendments. You may also want to consider the location of the rain garden that will best fit and enhance the appearance of your home.

For a detailed factsheet on getting started and safety precautions, visit www.seattle.gov/util/rainwise. There, you will find the useful WSU Rain Garden Handbook which offers complete design and construction details.



Rain Garden Plants

To plan a successful rain garden, you'll need to familiarize yourself with plants that tolerate both saturated and drought conditions. Rain gardens have three planting zones characterized by different soil conditions. Here are some plant examples well suited to rain gardens:

Native Plants for Rain Gardens in the Sun

- Coastal Strawberry, *Fragaria chiloensis*
- Common Camas, *Camassia quamash*
- Dense Sedge, *Carex densa*
- Douglas Aster, *Aster subspicatus*
- Northwest Cinquefoil, *Potentilla gracilis*
- Oregon Iris, *Iris tenax*
- Slough Sedge, *Carex obnupto*
- Tufted Hair-grass, *Deschampsia cespitosa*
- Western Columbine, *Aquilegia formosa*
- Yarrow, *Achillea millefolium*

Native Plants for Rain Gardens in the Shade

- Coastal Strawberry, *Fragaria chiloensis*
- Creeping Oregon Grape, *Mahonia nervosa*
- Dagger-leaved Rush, *Juncus ensifolius*
- Deer Fern, *Blechnum spicant*
- False Solomon's Seal, *Smilacina racemosa*
- Fringecup, *Tellima grandiflora*
- Large-leaved Avens, *Geum macrophyllum*
- Piggyback Plant, *Tolmiea menziesii*
- Salal, *Gaultheria shallon*
- Stream Violet, *Viola glabella*
- Sword Fern, *Polystichum munitum*
- Wood Sorrel, *Oxalis oregano*
- Western Bleeding Heart, *Dicentra Formosa*

Maintenance

Once a rain garden is built, new plants need to be watered regularly for the first two to three years until they are well established. Mulching annually conserves water and reduces weeds until the plants close in over the soil. You can also help the plants to establish by weeding in the spring, summer, and fall months. If you use native plants and mulch with leaf litter or arborist wood chip mulch, there should be no need for fertilizers, herbicides or pesticides. Keep the inlet and outlet clear of debris and well protected from erosion with rocks. Appropriate care and regular maintenance can protect your investment for many years to come.

Permit

A permit is required if you are moving over 50 cubic yards of soil or are connecting back to the stormwater system. Please make an appointment with a City Civil Engineer to discuss plans, permits, or other questions related to installing a rain garden.



Permit

A right-of-way permit is required to ensure your driveway adequately connects to the street. A grading permit may also be required, so it's best to make an appointment and submit plans to a City Civil Engineer 425-486-2768 for proper drainage and grading review.



Permeable Paving

Using permeable pavement for driveways, walkways, and patios can add character to your site while maintaining access and durability for vehicle and foot traffic. Permeable pavement can improve water quality by infiltrating or slowing runoff and breaking down pollutants that would otherwise enter local streams and Puget Sound.

The simplest solution can be converting unnecessary pavement into permeable landscaping with lawn or garden beds. For areas that require pavement, there are a variety of environmentally friendly choices. Permeable pavements contain void spaces which allow stormwater to flow from the pavement surface to the subbase and into underlying soils.

Options include interlocking concrete pavers, concrete or plastic grids, and poured-in-place permeable asphalt and concrete – all of which can be used to improve the aesthetics of your home and protect the health of your neighborhood and environment.

Runoff Control Systems

Permeable pavement surfaces are most practical for do-it-yourself home remodels. These systems consist of a permeable surface layer and a clean angular gravel subbase of at least 3 inches installed over the approved subgrade. Permeable pavement surfaces are designed to manage only the rain that falls directly on the pavement.

Permeable pavement facilities are typically used for Stormwater Code credit on larger projects. They are similar to surfaces, except they have a deeper gravel subbase (at least 6 in.) and may have an underdrain in poorly infiltrating native soils. This more intensive design allows permeable pavement facilities to receive runoff from surrounding surfaces.

Getting Started

Certain characteristics make some sites more suitable for permeable pavement than others. Analyze your site: does it have gentle slopes (<5%, or less than 1 ft. drop per 20 horizontal ft.)? Do the subgrade soils have a percolation rate of at least ¼ inch per hour? What are the intended traffic loads and frequency? Is there an overflow route for runoff from big storms to flow to street drains or a rain garden? Understanding the site helps with design decisions and avoids flood risks.

Driveways and parking areas need careful design and installation to support the weight of cars and trucks. Patios and walkways are better tasks for do-it-yourself installation, but you still need to follow the manufacturer's directions exactly. If you install the pavement yourself, remember to excavate at least 3 inches below the pavement and fill in with angular rock or gravel to provide a stable base and help drain the surface. Consider hiring a qualified professional with local permeable paving experience for big projects to advise you, design and complete the work.

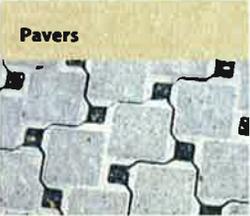
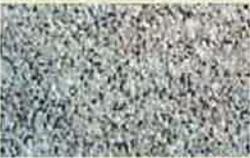
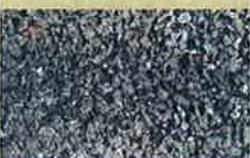
Maintenance

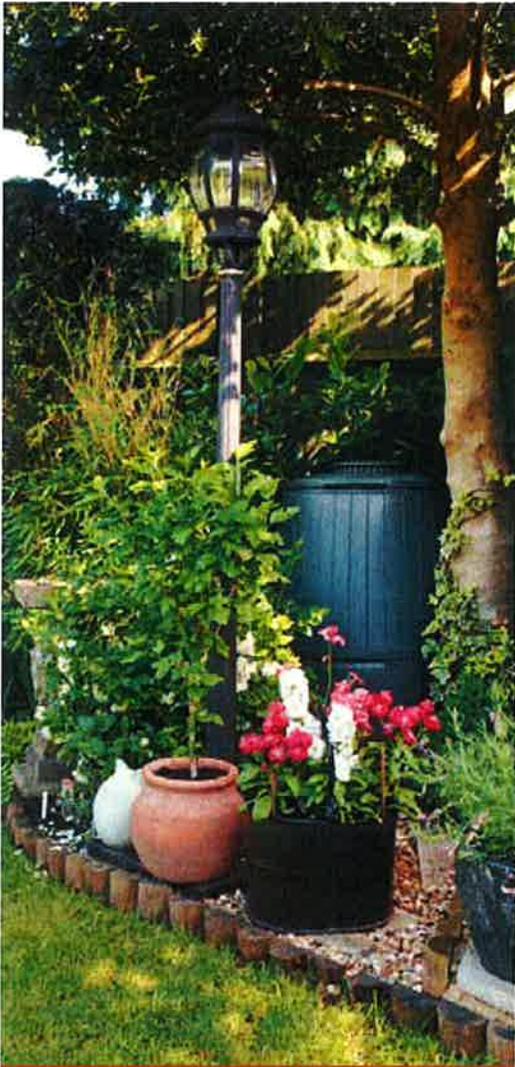
The maintenance requirements of permeable surfaces will depend on the materials used and the location of the installation. For permeable concrete and asphalt, it is recommended that the surface be vacuumed or pressure-washed two to four times a year, or as required to ensure that the surface does not become clogged. Concrete and plastic grid systems will require semi-annual inspection by the homeowner to discourage weed growth and to ensure that the system rings are not exposed. Exposed areas should be raked and weeds should be removed without the use of herbicides.

Resources

See the "Reducing pavement and permeable paving options" factsheet and Materials and Suppliers link on the RainWise website (www.seattle.gov/util/rainwise) to learn about Seattle area sources for permeable pavement materials. The best way to decide what you want is to see the various products, and talk to suppliers and installers.

Permeable Paving Choices

| PAVER TYPE | DESCRIPTION | BENEFITS | DRAWBACKS | TYPICAL LOAD |
|--|--|--|--|---------------|
| Pavers  | Interlocking concrete pavers have tabs that space them apart to allow water through the joints, shapes that interlock to provide stability and the aesthetic of brick and stone pavers. | <ul style="list-style-type: none"> low maintenance available in a variety of styles reusable; can be reconfigured extremely durable ideal for driveways or high-use patios and walks | <ul style="list-style-type: none"> some manufactures require professional installation | medium - high |
| Concrete open celled paving grids  | Concrete lattice with open area for drainage to be used with grass or crushed stone has a traditional yet modern appeal. | <ul style="list-style-type: none"> works well on level sites for occasional parking areas or low-use walkways | <ul style="list-style-type: none"> requires routine landscape maintenance of lawn, weeding, reseeding, and irrigation (for grids with grass) can be difficult to avoid compaction which can kill vegetation uneven surface can be difficult for wheelchair travel | medium-low |
| Plastic lattices  | Plastic grid system, sometimes with filter fabric, to be used with grass or crushed stone ("grasscrete" and "gravelcrete"). | <ul style="list-style-type: none"> works well on level sites for occasional parking areas or low-use walkways an eco-friendly option -often made with 100% recycled plastic | <ul style="list-style-type: none"> requires routine landscape maintenance of lawn, weeding, reseeding, and irrigation (for grids with grass) can be difficult to avoid compaction which can kill vegetation only certain products are suitable for wheelchair travel | low |
| Permeable concrete  | Permeable concrete is made with larger pea gravel and fewer fines to achieve a pebbled, open surface that allows stormwater infiltration. | <ul style="list-style-type: none"> even surface good for wheelchair accessibility accommodates relatively high traffic volumes long-lasting if installed correctly | <ul style="list-style-type: none"> like conventional concrete, permeable concrete is energy-intensive to make and has a large carbon footprint good installation depends on contractor's experience difficult and expensive to install in small batches | medium-high |
| Permeable asphalt  | Open-graded asphalt with reduced fines and stable air pockets allow water to drain to the soils below. | <ul style="list-style-type: none"> works well with pedestrian-only areas and for low-volume, low-speed areas such as overflow parking even surface good for wheelchair accessibility | <ul style="list-style-type: none"> wears out faster than concrete or pavers good installation depends on contractor's experience difficult and expensive to install in small batches | medium |
| "Hollywood driveways"  | An attractive approach to improving your driveway, this approach consists of a vegetated strip running between two parallel strips of concrete, spaced so that a vehicle's wheels can drive on them. | <ul style="list-style-type: none"> cheaper than driveways constructed with solid concrete reduces impervious surface since less concrete is needed adds green space and character to your driveway low maintenance | <ul style="list-style-type: none"> long driveways may be hard to follow or back up on works better on straight driveways where the automobile can stay on the tracks if used on a driveway or alley that requires turning, the center strip will become compacted over time | medium-low |



Worried about mosquitoes?

Don't be. Rain barrels and

cisterns have screens to keep

out mosquitoes. Opaque cistern

materials also reduce the growth

of algae and other organisms.

Cisterns for Rainwater Harvesting

Capturing rainwater helps keep your lawn or garden green while reducing water consumption. It is also a simple and effective way to keep your rooftop runoff out of the public drainage system, reducing impacts to wildlife and receiving waters.

Rainwater harvesting uses rain barrels or cisterns (larger systems that hold 200-1000 gallons or more), to capture and store rainwater for beneficial use. These storage systems installed near downspouts or in your yard can capture roof runoff for non-potable uses, enough to significantly reduce or even eliminate the need to use municipal water for landscape purposes, especially when combined with drought-tolerant plants. Plants flourish with irrigation from rainwater as it does not contain chlorine, an additive to keep water safe for drinking. Cisterns and rain barrels also offer the added benefits of reducing stormwater peak flows during winter and water demand during summer.

If you are considering rainwater for indoor use (such as toilet flushing, irrigation and clothes washing), read the factsheet "Rainwater Harvesting and Connection to Plumbing Fixtures", which is available along with more rainwater harvesting design resources at www.seattle.gov/util/services/yard. Look under "Natural Lawn and Garden Care" and then "Rainwater Harvesting."

Greywater harvesting is the capture and reuse of non-sewage domestic wastewater from baths, showers, and washing machines. This water is typically used for flushing and irrigation purposes. Because greywater typically has more bacteria and nutrients than rainwater, its reuse has more code requirements. For more information on how to harvest and use greywater, visit www.seattle.gov/dpd/codes/stormwatercode/CAMs.

Getting Started

Before you buy any type of cistern, consider how much rainwater is available from your roof and how much you intend to use. A cistern or rain barrel requires an outdoor, level, and solid base. It also must have an overflow which ties back into the stormwater system. To protect the quality of harvested rainwater, avoid roofing materials that contain copper, zinc, or asphalt, as they can release contaminants into your collection system. To learn more about safety precautions, visit www.savingwater.org/outside_watering.htm

Underground cisterns require pumps to operate, but are out of sight and do not compete with other uses in your yard. New designs also allow these types of cisterns to be placed under porches, decks, and within crawl spaces to reduce issues with land use, property setbacks, etc.

Permits

Smaller cisterns and rain barrels do not require permits, but larger cisterns may require land use or building permits depending on their size and location. Please make an appointment with a City Civil Engineer to discuss any questions and determine whether a permit is required.

Maintenance

Keep your gutters clean and sloped so they dry quickly between rains and ensure that no particulate matter or other parts of the roof are entering the gutter and downspout to the rain barrel or cistern. Rainwater harvesting systems require relatively low maintenance, however components of your system should be inspected twice a year. In the fall you'll need to clean leaves and other debris off the top to keep the screen from clogging and make sure the overflow is not blocked. In the winter when rains are heaviest, you may want to reconnect your downspouts if you do not have sufficient vegetation or a raingarden to

Green Roofs

People notice green roofs — plants on top of buildings are unexpected and visually striking. In addition to their aesthetic appeal, green roofs offer a variety of functional benefits, including:

- Capturing and slowing roof runoff
- Reducing energy costs by acting as an additional insulating layer
- Adding more green space to your property
- Providing habitat for birds and beneficial insects
- Improving air quality
- Potential for LEED™ credits
- Food production (under special conditions)

While green roofs (also known as eco-roofs or living roofs) can appear to be wild pockets of rooftop nature, they are in fact highly engineered systems. Specifics vary depending on the project, but generally green roofs consist of a membrane and drainage layer topped with a soil-like growing medium and hardy plants. Residential-scale versions usually have a shallow soil profile and are planted with sedums and other low-growing succulents. Note: if a green roof is needed to meet Stormwater Code requirements, it must have at least 4" of growing medium.

Getting Started

Before any construction can take place, it is important to determine if your structure can support a green roof. A structure's capacity to hold weight depends on its design and condition. When saturated, extensive green roofs range from 10-50 lbs per square foot and intensive green roofs range from about 80-120 lbs per square foot. Low-pitched roofs are best suited to green roof applications, but check with a licensed structural engineer to ensure your roof can handle the additional load.

To better understand what a green roof entails ask your green roof designer or contractor the right questions. What type of system is proposed? What are the maintenance requirements? Is there a warranty?

Vegetation used on single family home green roofs should be drought tolerant and self-sustaining. Green roof plants typically include succulents, grasses, herbs, and wildflowers that are adapted to harsh conditions. Visit the www.seattle.gov/dpd/permits/greenfactor/greenfactortools for a plant list including recommended species for green roofs.

Maintenance

Once a well-designed green roof is established, its maintenance requirements are usually minimal, including inspection of the waterproof membrane, weeding (twice a year), and maintenance of the drainage layer flow paths. Even though green roof plants are selected for hardiness and drought-tolerance, they still require irrigation during establishment (the first two to three years). Once the plants are well established, extensive green roofs only need occasional water in the hottest periods of summer. When creating a planting plan, select species that won't require fertilizer after establishment – fertilizer in rooftop runoff could cancel out a green roof's beneficial impacts.

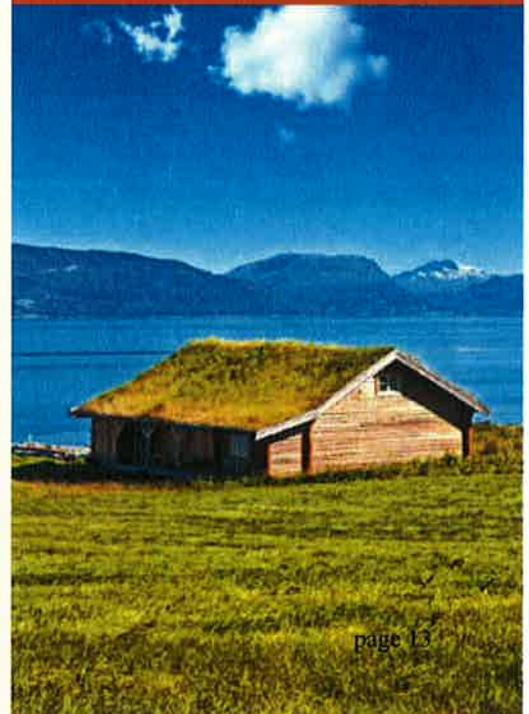
Resources

Visit www.seattle.gov/dpd/greenbuilding and search for "green roof technical brief" for more info on green roof design and case studies.



Permits

All green roof installations require approval from a licensed structural engineer to prove your roof can handle the additional load. An appointment should be made with a City Plans Examiner 425-486-2768 to review the engineering report and approve your design plans.



Resources

Print

- **Green Roof Plants: a Resources and Planting Guide** by Edmund Snodgrass and Lucie Snodgrass (Timber Press, 2006). A useful reference for photographs and cultural information for over 200 species of plants suitable for use on extensive green roofs.
- **Rain Gardens: Managing Water Sustainably in the Garden and Designed Landscape** by Nigel Dunnett (Timber Press, 2007). A great introduction to various methods of rain gardening and water harvest systems.

Online

- Visit our City Website www.ci.bothell.wa.us for information on codes, permits, contact information, tools, and additional resources. For permitting, contact our City Civil Engineers at 425-486-2768 or visit our website for an additional contact list and design and construction standards: <http://www.ci.bothell.wa.us/CityServices/PublicWorks/BothellStandards.ashx?p=1770>
- Review Natural Yard Care information on soils, plants, fertilizers, pesticides, best maintenance practices, etc. on the King County documents page: <http://your.kingcounty.gov/solidwaste/naturalyardcare/documents.asp>
- Find home improvement ideas and technical information in the "Low Impact Development Technical Guidance Manual for Puget Sound" at www.psp.wa.gov

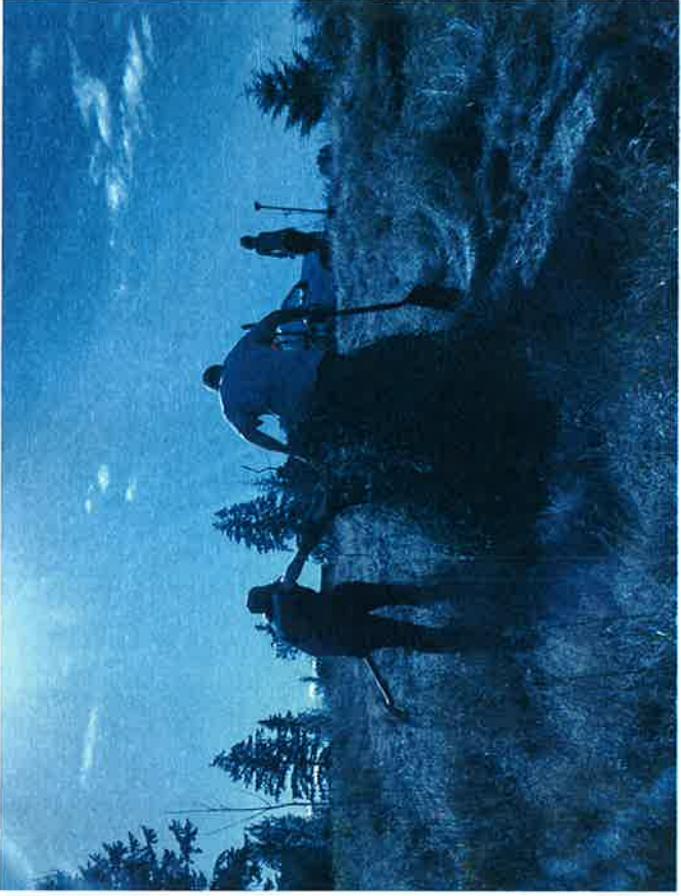
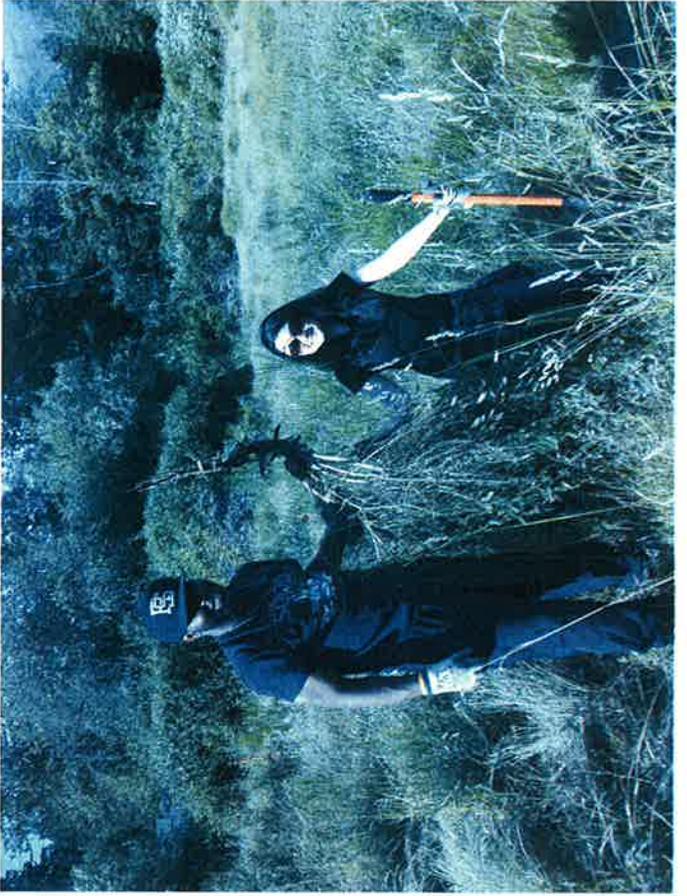
Hotline

- Get personalized answers to your natural landscaping questions and order Natural Lawn Care guides by contacting the Natural Lawn & Garden hotline at info@lawnandgardenhotline.org or calling (206) 633-0224.

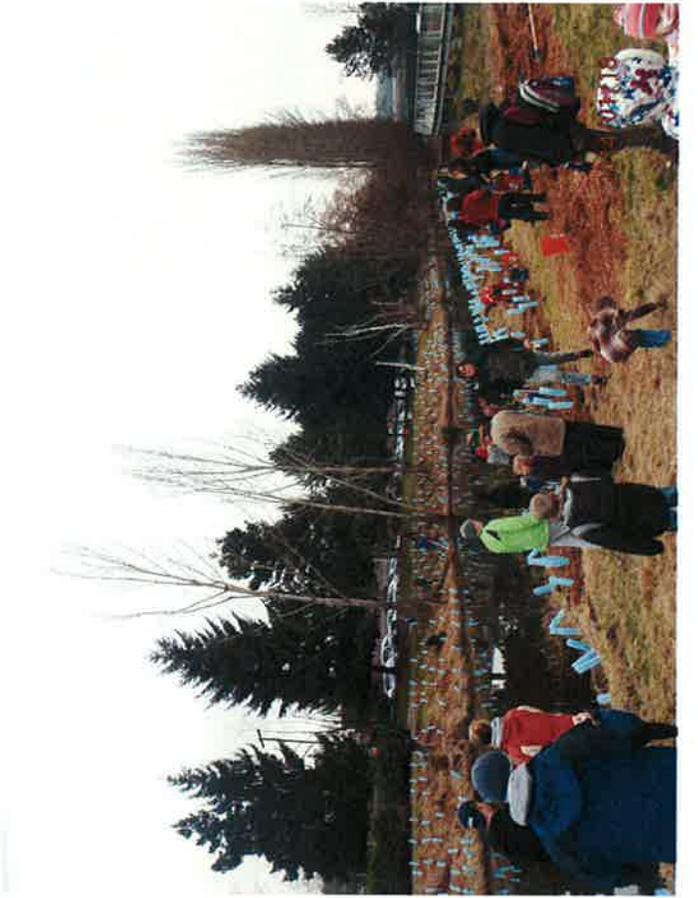


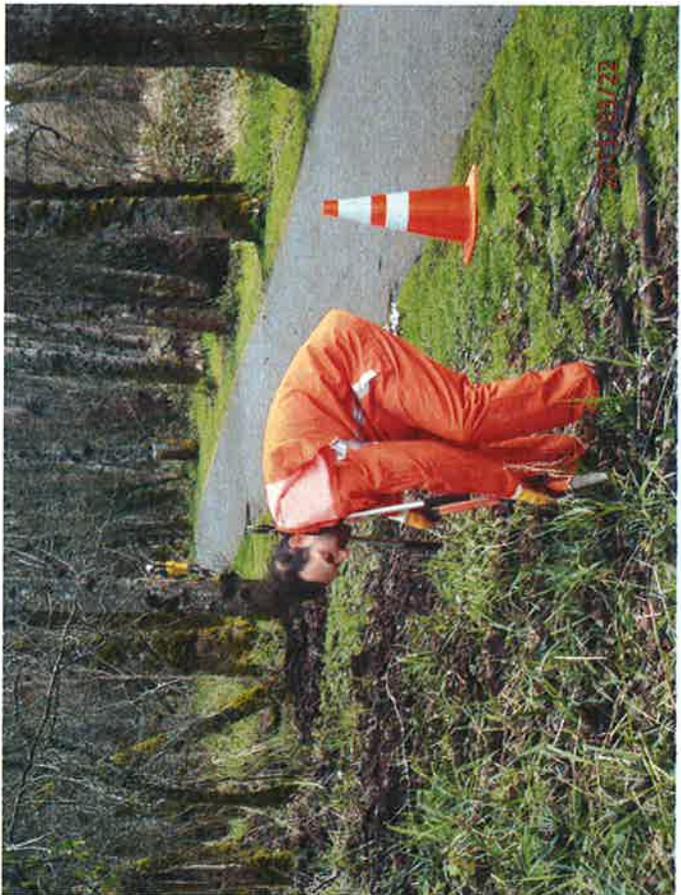
Special thanks goes to the City of Seattle Department of Planning and Green Building Program for allowing us to utilize portions of their guide.

Appendix K









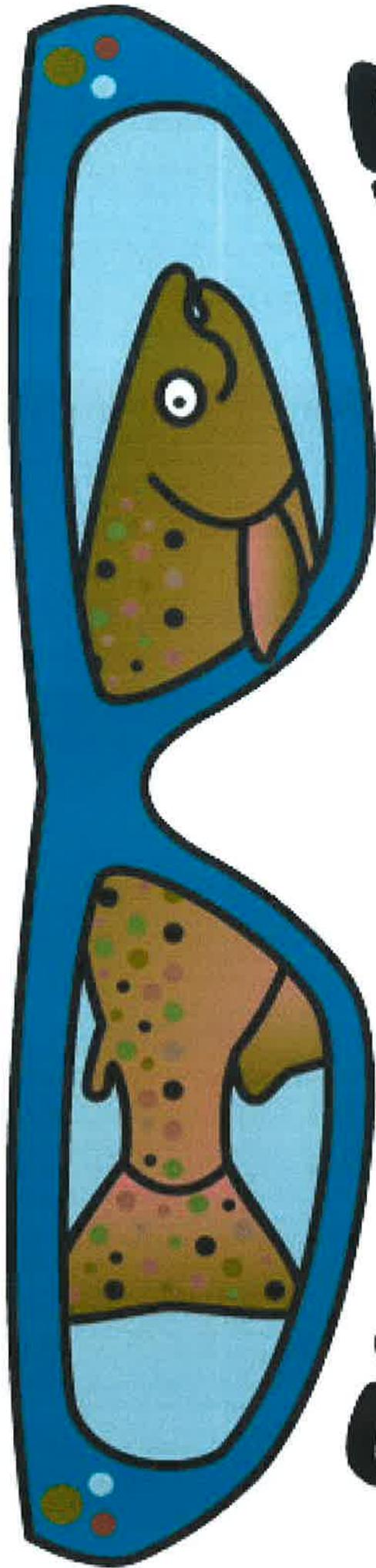


This drains to a creek and then to Puget Sound

Puget Sound

Starts Here

BE A



SALMON WATCHER