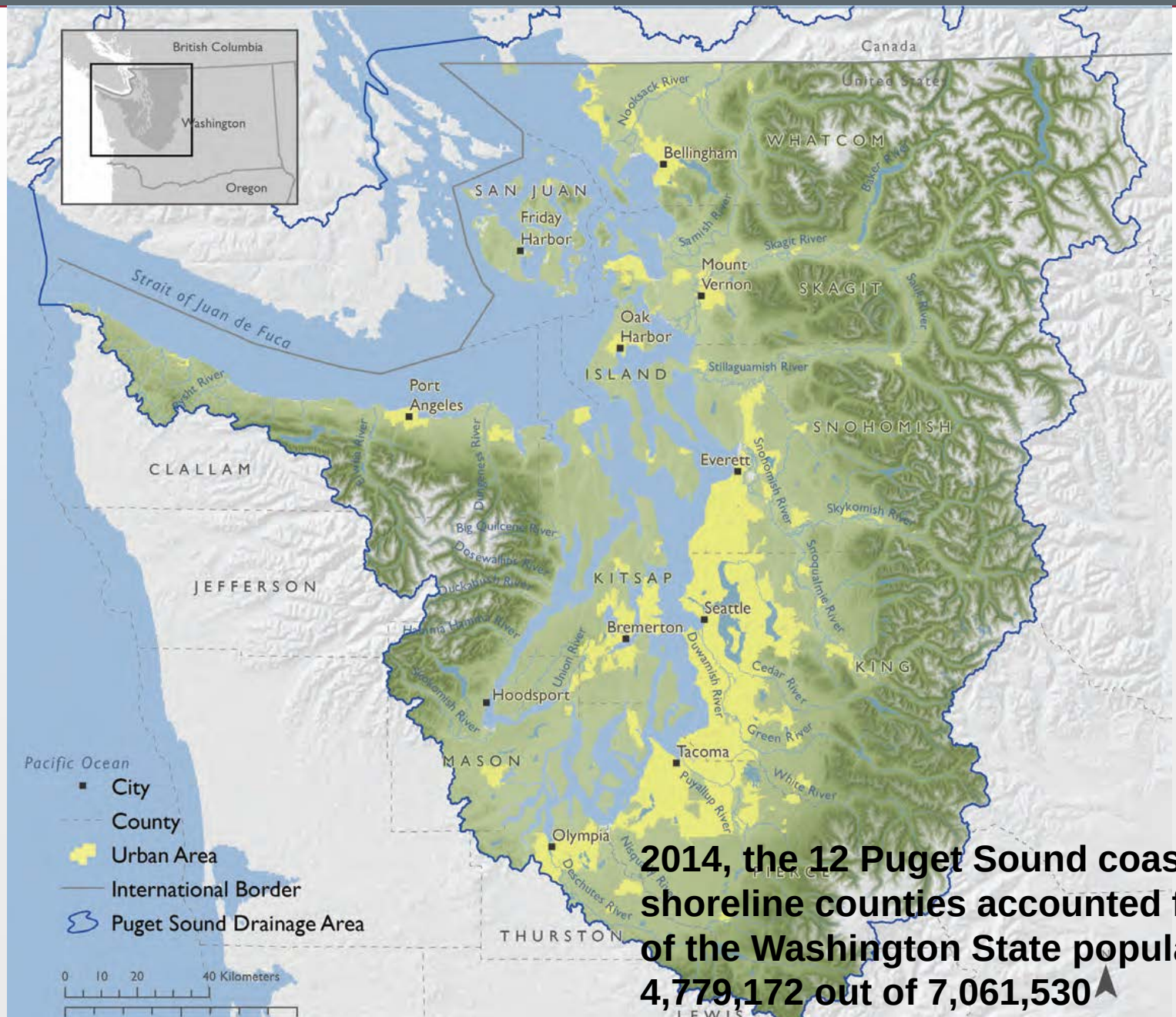
# The WSU Extension GSI Outreach Experience

**Bob Simmons**
**Associate Professor**
**WSU Extension**

# Puget Sound Watershed




**2014, the 12 Puget Sound coastal shoreline counties accounted for 68% of the Washington State population, 4,779,172 out of 7,061,530**

# Local Rain Garden Rebates


% of

# WSU Puyallup Research Facility

WASHINGTON STORMWATER CENTER
ASSISTANCE · RESEARCH · TRAINING

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MUNICIPAL Resource Program | BUSINESS Resource Program | LOW IMPACT Development Program | TAPE Emerging Technologies | W Re

- Home
  - TAPE - Emerging Technologies
  - Watershed-Scale Planning
  - Low Impact Development
    - LID Projects
    - LID Annual Review Presentations
    - LID Across The Country
    - Rain Gardens
    - LID Background History
    - LID Research Facilities
    - LID Resources

## LOW IMPACT DEVELOPMENT PROGRAM

### Welcome To The WSU Puyallup Low Impact Development Research Program

WSU's Puyallup LID Research Program is one of the largest installations in the nation. The program focuses on the rapidly expanding field of low impact development or green stormwater infrastructure. WSU offers the unique capability to conduct long-term research on full-scale, replicated bioretention and permeable pavement facilities.

The mission of the WSU Puyallup Low Impact Development (LID) Research Program is to reduce the impacts of stormwater on streams, lakes, wetlands, coastal areas and food through effective, research-based application of LID principles. These approaches are part of a larger suite of land and water management tools. We also provide education and outreach to the community on sustainable stormwater practices.

The mission of the program is accomplished through demonstration sites, research and collaboration with partners. This includes: :

- A living laboratory with full-scale, replicated LID management practices.
- Ongoing long-term research examining:

# Statewide LID Training Program


- Home
  - TAPE - Emerging Technologies
  - Watershed-Scale Planning
  - Low Impact Development
    - LID Projects
    - LID Annual Review Presentations
    - LID Across The Country
    - Rain Gardens
    - LID Background History
    - LID Research Facilities
    - LID Resources

HYBRID LOW IMPACT DEVELOPMENT
**Certificate Program**

## *The Hybrid LID Certificate Program is HERE!*

We are pleased to be offering a new year of the Hybrid Low Impact Development (LID) Certificate Program - formerly known a
LID Training Program! Beginning in 2018, the training program has transitioned from a solely in-person training system to a hy
in-person) system. The online, self-paced courses include the theoretical basis for designing and maintaining LID systems. Th
trainings will provide critical practical skills and real-world examples taught by the foremost practicing experts in the field.

### REGISTRATION FOR THE IN-PERSON TRAINING IS NOW OPEN!

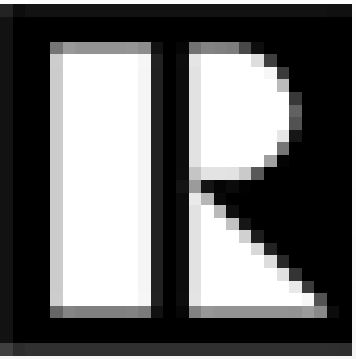
Dates for the spring offerings of the in-person trainings are all scheduled to take place in Everett, WA. There will be another ro
person trainings offered in the fall, with locations and dates to be determined.

# LID and Rain Garden Resources



# Real Estate Professional Training

## Why Real Estate Professionals?



We want to change how development occurs

Real estate brokers can be or often work with small and large scale developers – and could influence development.

Sale/transfer of land is often at the nexus of re-development and thus represents an educational moment

“Captive” audience in need of clock hours for license.

# Real Estate Professional Training

## Low Impact Development

## *A workshop for Real Estate Professionals*

**Monday December 17th, 8:30am-5pm**

**Mason County Public Works**

100 W Public Works Drive, Shelton, WA 98584

***Real Estate Professionals***

*EARN 7.5 CLOCK HOURS*

*$100*

*To Register and for more info:*

***mary.dimatteo@wsu.edu or***

*360-427-9670 x 682*

WASHINGTON STATE UNIVERSITY

*World Class. Face to Face.*

Water Resource Education Program for Real Estate Professionals

MASON COUNTY

# Real Estate Professional Training

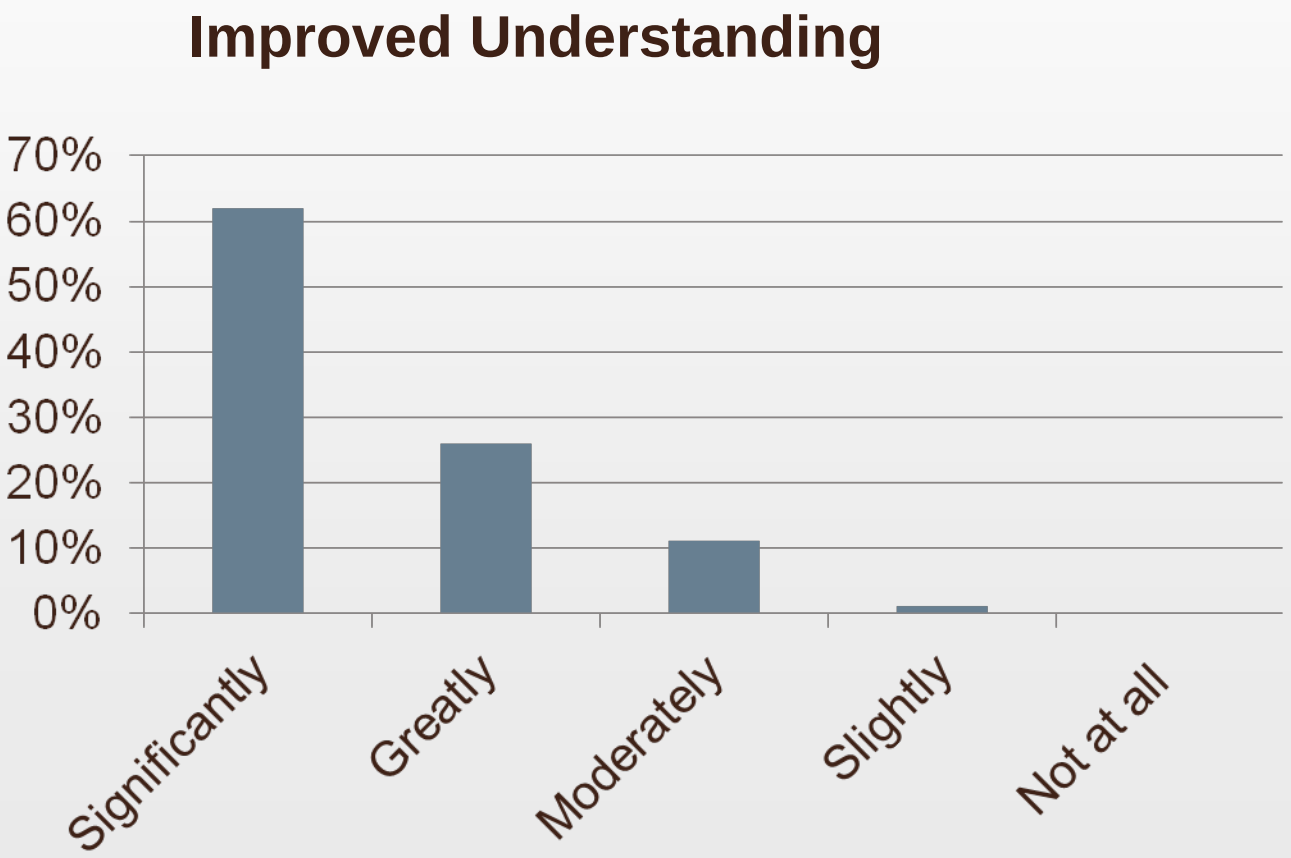
Eight full-day workshops were presented across Washington State in 2013.

Provided 7.5 clock hours of continuing education credit for licensed real estate brokers and appraisers.

# Course Locations

# Evaluation: Follow-up Survey Monkey Results (N=100)

My understanding of how LID techniques help filter pollutants increased:



# LID Factsheets

## CATCHING RAIN: Low Impact Development — Protecting Our Waters

1

Low Impact Development (LID) is one way we can help keep our waterways, as well as the surrounding land, healthy and safe. This is a beautiful place to live, so it is no wonder that an additional 1.9 million people are expected to move here by 2040. As we grow, we replace forests and prairies with rooftops and pavement, thereby increasing stormwater runoff and the associated pathogens and chemicals it carries to our waterways. The health of humans and our ecosystems is threatened.

**Look for the other helpful fact sheets in this series:**

1. ✔ Low Impact Development
2. LID Stormwater Regulations
3. LID Development Process
4. Pavement Maintenance
5. Rain Garden Maintenance
6. Rain Garden Construction Checklist
7. Rain Garden Construction Sequencing

### What's the problem with stormwater?

Stormwater is created by precipitation (rain or snowmelt) that doesn't soak into the earth but instead creates puddles and runs off. This stormwater can pick up pollution and carry it directly into storm drains, streams, rivers, lakes, inlets, and bays.

*Some consequences of stormwater pollution and increased surface runoff include:*

- Pollutants such as motor oil, yard chemicals, and pet wastes contaminate local waterways, threatening human health and wildlife health.
- Numerous beaches are too polluted to harvest shellfish.

## CATCHING RAIN: Washington's New LID Stormwater Regulations

2

Washington State has new rules for how cities and counties manage stormwater runoff. Washington cities and counties under a Municipal Stormwater Permit have a legal obligation to prevent pollution from rainwater that washes over roofs, driveways and developed areas. The new rules will require many future developments to incorporate certain Low Impact Development (LID) techniques.

LID techniques imitate the natural processes that help rainfall absorb into the ground, instead of running into pipes and large holding ponds that drain to streams and water bodies. LID measures, such as rain gardens, bioretention facilities, and permeable pavements, treat and retain stormwater at the source. These practices help preserve fish and wildlife by keeping natural waters clean.

Washington State Municipal Stormwater Permits, administered by the Department of Ecology, govern how cities and counties manage stormwater runoff. Three separate permits covering different parts of the state were recently updated, and LID requirements were added. The Phase I permit applies to Tacoma, Seattle, and the four most populous counties in Western Washington. The Phase II permit for Western Washington covers 80 cities and the urban portion of four counties. The Phase II permit for Eastern Washington covers 18 cities and urban areas of six counties.

**Look for the other helpful fact sheets in this series:**

1. Low Impact Development
2. ✔ LID Stormwater Regulations
3. LID Development Process
4. Pavement Maintenance
5. Rain Garden Maintenance
6. Rain Garden Construction Checklist
7. Rain Garden Construction Sequencing

### Local Development Codes will be Revised to Include LID Measures

The new permits require Phase I cities and counties to enact codes incorporating LID measures by June 30, 2015, and most Phase II jurisdictions in Western Washington must follow suit by the end of 2016. The Stormwater Manual for Western Washington, revised in 2012, contains the LID design details. The Eastern Washington permittees must update their codes, if needed, by December 31, 2017. The Department of Ecology, in collaboration with Eastern Washington permittees, is still developing a stormwater manual with LID practices for the east side of the state.

**Timeline for New LID Requirements in Washington State**

- **August 1, 2013** — *New Phase I & Phase II Permits Take Effect*
- **June 30, 2015** — *Phase I's* Must Implement LID Requirements
- **Dec. 31, 2016** — *Most Western Washington Phase II's* Must Implement LID Requirements
- **Dec. 31, 2017** — *Cowlitz County, Kelso, Longview & Centralia* Must Implement LID Requirements
- **Dec. 31, 2018** — *Aberdeen* Must Implement LID Requirements

## CATCHING RAIN: Understanding Stormwater Management & the Development Process — Guidance for Real Estate Professionals

3

The land development process is often long and challenging. Real estate professionals often serve an important role explaining the requirements involved and helping their clients through this process. This fact sheet provides an overview of how low impact development (LID) stormwater management techniques fit into the development process in Washington.

☑ Read through all seven fact sheets and share appropriate ones with your clients, property managers, and maintenance personnel!

**Look for the other helpful fact sheets in this series:**

1. Low Impact Development
2. LID Stormwater Regulations
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### Plan LID

The first step of any development process is creating the initial concept. Advising your clients to incorporate LID Best Management Practices (BMPs)—such as retaining native vegetation and reducing impervious surfaces—during this first step can often prevent unnecessary activities, save money, and increase profit margins.

Beginning in 2015, many local jurisdictions, covered by a Municipal Stormwater Permit, will strive to make LID the preferred and commonly-used approach to site development.

## CATCHING RAIN: Construction Sequencing for Rain Gardens

7

Identifying the best order for building a rain garden—and where it fits into the schedule of a larger construction project—will save time, money, and construction headaches. It will also ensure that other impacts to the site are minimized, rain garden plants have the best start, and future maintenance problems are avoided. (See the Rain Garden Handbook for Western Washington, our video, and other resources at: http://raingarden.wsu.edu/. For complex sites, see the *LID Technical Guidance Manual for Puget Sound*, 2012.) Here are important tips from experienced rain garden builders.

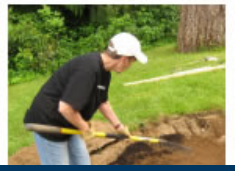
**Look for the other helpful fact sheets in this series:**

1. Low Impact Development
2. LID Stormwater Regulations
3. LID Development Process
4. Pavement Maintenance
5. Rain Garden Maintenance
6. Rain Garden Construction Checklist
7. ✔ Rain Garden Construction Sequencing

### Before You Build

- Meet with all concerned parties to be sure you and your team understand the entire construction project.
- Develop erosion-control and sediment-control strategies, such as tarps, silt fences, compost socks, or compost berms.
- Find out what other onsite stormwater management practices are planned, such as pervious pavements or pavers.
- If pervious pavements are in place near your work site, you must ensure that your activities will not add sediment or place excessive pressure on the pavements during construction. Identify appropriate strategies with the contractor or site manager.
- Keep other contractors' equipment off the future site of the rain garden by using temporary fencing and signs.
- Avoid impacting other parts of the site—keep equipment off existing soils and root zones of mature vegetation.
- Identify and clearly mark staging areas for materials and equipment, and locations for storing or reusing excess soils.
- Keep control measures in place until construction is complete.
- Review checklists and plans with your whole project team.

Newly installed pervious pavement must be protected prior to constructing an adjacent rain garden to prevent soils from clogging the pavement. *Photo: Erica Cattman*



### Timing is Everything

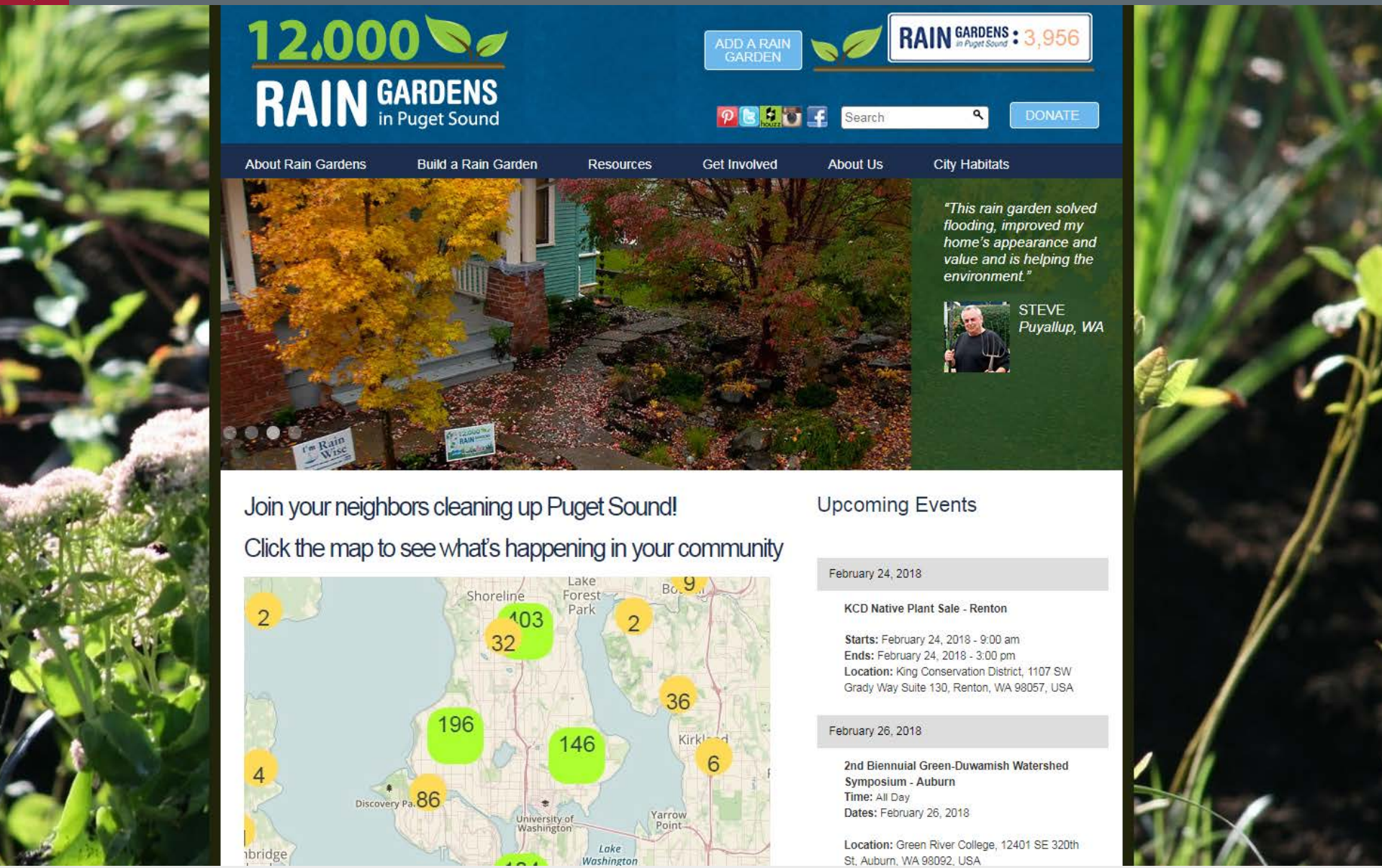
- The best time for excavation and mixing rain garden soils is during the dry months. To prevent soil compaction, avoid working when it's wet.
- If the rain garden will be constructed adjacent to a paved area, final soils work and planting must be done after paving to prevent damage to the plants and soils from paving contractors.
- Major excavation and most soils work can be done prior to paving, if necessary, with fine-tuning by hand to follow paving.
- Combining rain garden excavation with other excavation activities such as utilities often makes sense on a large project and reduces impacts from equipment. In these cases, sequence the soils work to occur in one section at a time. Fine-tuning the soils by hand can be completed later.
- Install plants in late summer or early fall to reduce irrigation needs later.

http://www.wastormwatercenter.org/

# Stewardship Partners Collaboration


- Brought $300,000 to assist us in building our capacity also do outreach as part of the 12,000 Rain Gardens Campaign over 3 years (2012-2015)
- Enabled us to:
  - Provide training for Master Gardeners
  - Provide seed funds for demonstration rain gardens in each county
  - Provide a series of trainings for landscape professionals

# Stewardship Partners Collaboration



# Stewardship Partners Collaboration

# Public Workshops

**Over 300 Local Workshops and Presentations reaching over 6000 people**

## Rain Garden Workshop & Work Party

**Workshop:** May 11, 6-8:30 p.m.
Marina Room, Point Hudson

**Work Party:** Wed May 13, 10 a.m.-1 p.m. & 1-4 p.m.
Point Hudson

Register for free by calling **360.379.5610 ext 200**

### Rain Gardens

A rain garden is a beautiful landscape feature that allows you to control your drainage safely while also protecting local waterways and Puget Sound from polluted runoff!

* Each participant will recieve detailed information about installing a rain garden, as well as a free full color handbook and beautiful poster.

### Learn how to

- Help protect local waterways & Puget Sound
- Prevent storm drainage from harming your home
- Design and build a "rain garden" in your yard
- Choose the right plants for your landscape & lifestyle
- Determine how you'll need to excavate and how much compost you'll need to order
- How to reduce your costs
- How to maintain your garden for function, long-term beauty, & attracting birds!

### Primary Instructor

The workshop will be led by **Erica Guttman** of WSU Extension, who has been researching, designing, and installing rain gardens for over 12 years, and has been a hands-on environmental educator for over 30 years.

Jefferson County

# Rain Garden Mentors

- **Rain Garden Mentor Volunteers meet with homeowners at their site:**
  - **Provide guidance to help in the decision-making and planning processes. Also help to determine the necessity of a rain garden and siting issues.**
  - **Explain how rain gardens work and how the combination of proper soil amendments and plant selection improve rain garden function, aesthetic and health.**
  - **Assist with measurements and explain how to route water from impervious surfaces like roof tops and driveways into a rain garden.**
  - **Rain Garden Mentors are available to help answer questions throughout the rain garden planning and installation process,**
  - **Table at home shows and other public events.**

# Training for Landscape Professionals

Kitsap County
Washington State University Extension

## 2011- 2017 Professional Rain Garden Workshop Attendees

Clean Water Kitsap
Partners in Stormwater Solutions

| First Name | Last Name | Organization | City | Phone | Email | Attended | Website |
|---|---|---|---|---|---|---|---|
| Employees | (2) | Windy Point Services Inc. | Bremerton | 360-613-5516 | windypoint@integrity.com | day 1 & 2 | www.windypointservices.com |
| Peggy | Bakalarski | Kitsap County DCD | Port Orchard | 360-337-3076 | tdilling@co.kitsap.wa.us | day 1 & 2 | http://www.kitsapgov.com/dcd/ |
| Colby | Bayley | GroundWorks Landscaping | Everett | 425-347-6556 | colbybayley@hopewrks.org | day 1 & 2 | www.housinghope.org |
| Matthew | Berberich | MB Horticulture | Pt. Townsend | 856-745-5363 | mattberb@yahoo.com | day 1 & 2 | mattprogardening.com |
| Margaret | Betteley | Olympic Organics | Kingston | 360-638-0117 | Margaret@olympicorganics.net | day 1 & 2 | www.olympicorganics.net |
| Vance | Blasdell | Kitsap County Parks | Silverdale | 360-613-9560 | ipeterson@co.kitsap.wa.us | day 1 & 2 | |
| Colby | Brand | Northwest Construction & Landscape LLC | Bremerton | 360-697-3215 | info@northwestcl.com | day 1 & 2 | www.northwestcl.com |
| Riley | Brazil | Quality Landscapes | Port Hadlock | 360-385-6663 | qualitylandscapes@cablespeed.com | day 1 & 2 | |
| Peter | Broderick | Kaleidoscope Inc | Seattle | 206-533-1122 | zibby@kaleidoscopeinc.net | day 1 & 2 | www.kaleidoscopeinc.net |
| Jami | Burke | Corliss Resources | Tacoma | 253-343-8169 | jburke@corlissresources.com | day 1 & 2 | |
| Josh | Burns | Total Lawn Care of Olympia | Olympia | 360-628-2794 | joshburns@totallawncareolympia.com | day 1 & 2 | www.totallawncareolympia.com |
| Greg | Busch | GB Underground | Bremerton | 360-731-3164 | greg3164@comcast.net | day 1 & 2 | |
| Pam | Busek | Abba Excavating, LLC | Wauna | 253-851-4067 | pamross@centurylink.net | day 1 & 2 | |
| Aaron | Clark | Stewardship Partners | Seattle | 206-292-9875 | ac@stewardshippartners.org | day 1 & 2 | www.12000raingardens.org |
| Franklin | Clark | A+ Onsite | Silverdale | 360-830-4765 | aplusonsite@live.com | day 1 & 2 | www.aplusonsite.net |
| Kathy | Cloninger | Permits To Go, LLC | Silverdale | 360-613-9560 | kcloni9999@msn.com | day 1 & 2 | |
| Doug | Cockburn | Landscapes by Cockburn | Sequim | 360-681-0132 | cockburndoug@gmail.com | day 1 & 2 | |
| Lee | Derror | | Tracyton | 360-271-4838 | lderror2@yahoo.com | day 1 & 2 | |
| Jean Marie | Dekoster | Valley Nursery Inc. | Poulsbo | 360-908-7315 | | day 1 & 2 | www.valleynurseryinc.com |

**84 Total Participants 2011-2017 in Kitsap County**

# Stormwater Stewards

**SESSION 1**
Green Stormwater Infrastructure Background | Water Resources Overview | Environmental Health | Introduction to Sustainable Landscaping | Program Overview
Thursday, May 8th 6-9pm

**SESSION 2**
Healthy Lawns Class
Thursday, May 15th 6-9pm

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**SESSION 3**
Rain Gardens & Bioretention—rain garden siting sizing, and volume calculations | Site Assessment | Alternatives to Rain Gardens | Challenges of Marine Shorelines
Thursday, May 22rd 6-9pm

**SESSION 4**
Plants Part I: Native & Water-wise Plants for Rain Gardens, Green Roofs & Sustainable PNW Landscapes
Thursday, May 29th 6-9pm

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**SESSION 5**
Plants Part II:Working with Water-wise Plants: Design Your Practice Installation
Thursday, June 5th 6-9pm

**SESSION 6**
Rooftops, Pervious Pavements, & Foundations
Thursday, June 12th 6-9pm

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**SESSION 7**
Communications With Clients
Thursday, June 19th 6-9pm

**SESSION 8**
Putting it All Together: Site Assessment Practice & Program Logistics
Thursday, June 26th 6-9pm

# Stormwater Stewards

## Collaborative Learning


# Stormwater Stewards

## SITE ASSESSMENT EVALUATION FORM

### CLIENT INFORMATION

NAME:

ADDRESS:

DATE:

### STEWARDS INFORMATION

ROLE:

ADDITIONAL STEWARDS/ROLES:

DURATION:

### CLIENT GOALS

1.

2.

3.

### INITIAL PROPERTY TOUR

NOTES:

### SKETCH OF PROPERTY

### LEGEND

| | | | | |
|---|---|---|---|---|
| S= SEPTIC TANK | DF= DRAIN FIELD | S= SLOPE | R= RAISED BEDS | RW= RETAINING WALL |
| E= ENTERTAINMENT | P= PONDING | F= FENCE | D=DRIVEWAY | DS= DOWNSPOUTS |
| G= GARAGE | SH= SHED | V= VEGETATION | PL= PROPERTY LINE | PA= PARKING AREA |

SWS SITE

## SITE ASSESSMENT EVALUATION FORM

### LID OPPORTUNITIES

### YOUR RECOMMENDATIONS

1.

2.

3.

### ITEMS TO RESEARCH

1.

2.

3.

### ALL RECOMMENDATIONS

1.

2.

3.

4.

### CHALLENGES OR BARRIERS

### RESOURCES GIVEN TO CLIENT

SWS SITE

## ASSESSMENT EVALUATION FORM

client information

client goals

sketch of property

legend

stewards information

name:

addreSS:

date:

1.

2.

3.

role:

additional StewardS/roleS:

duration:

initial property tour

noteS:

S= Septic tank

df= drain field S= Slope r= raiSed bedS rw= retaining wall

e= entertainment

p= ponding

f= fence

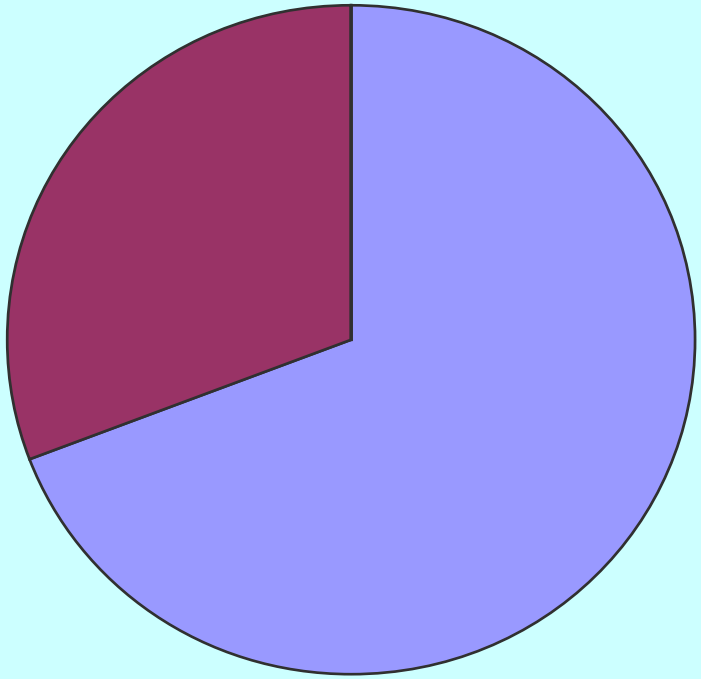
d=driveway dS= downSpoutS

g= garage Sh= Shed v= vegetation pl= property line

pa= parking area

# Stormwater Stewards

**Level of agreement with statement:**
**"Receiving a SWS site assessment increased my knowledge of my landscape and its impact on water resources in my region."**



- Strongly agree = 69%
- Agree = 31%
- Neither agree nor disagree = 0%
- Disagree = 0%
- Strongly disagree = 0%

WASHINGTON STATE UNIVERSITY

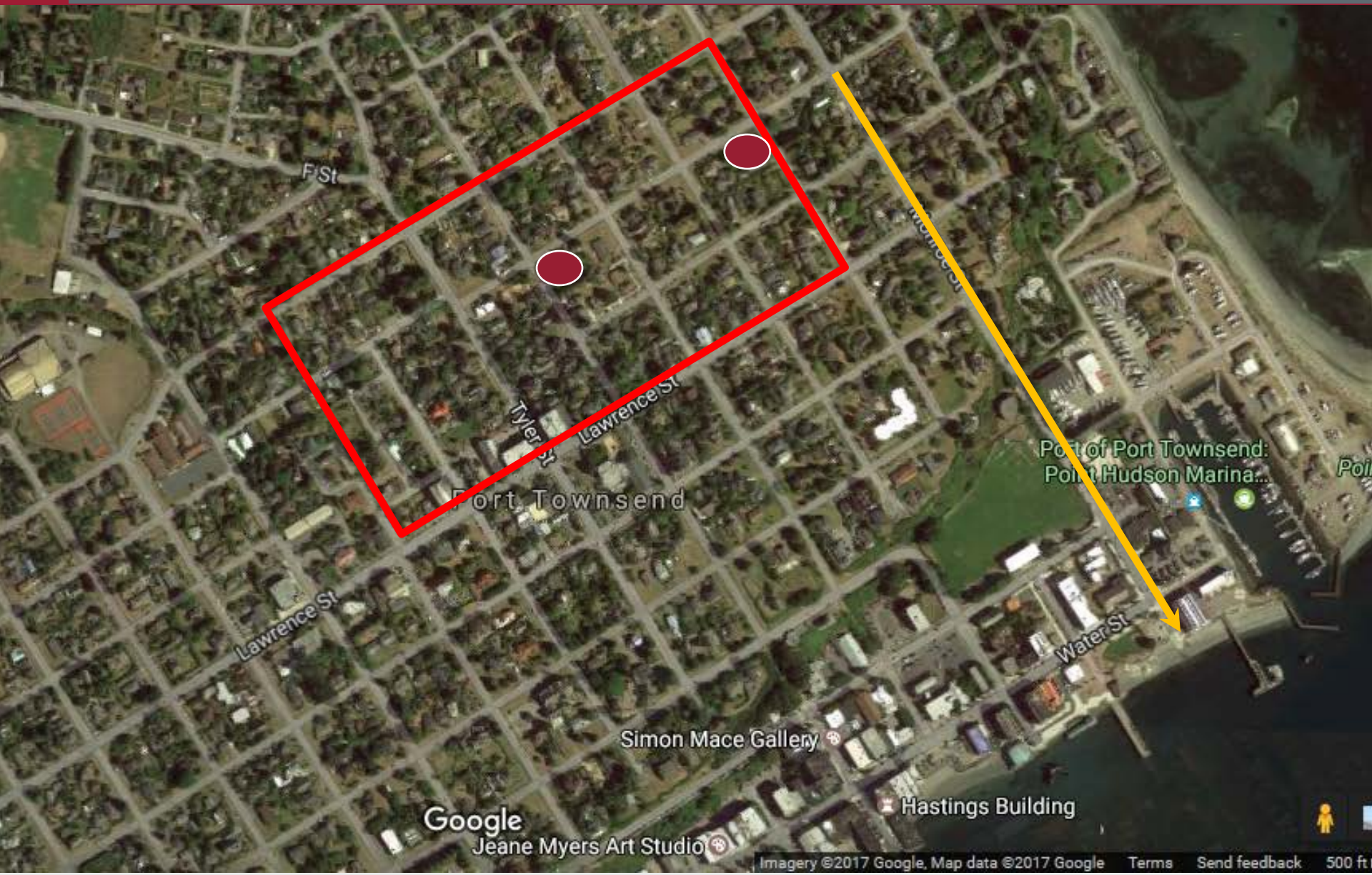
# Addressing Stormwater Issues Through Partnerships

Jefferson County Marine Resources Committee

WASHINGTON STATE UNIVERSITY EXTENSION

City of Port Townsend

# Local Collaborations



# Local Collaborations

# Local Collaborations

# Outreach Display Materials

# Outreach Display Materials

# Bioretention and Rain Garden Protocol Development

**Joy Rodriguez, EIT – City of Puyallup**

**Bob Simmons, Chrys Bertolotto – WSU Extension Stormwater**

**Philomena Kedziorski**

**Erica Guttman – WSU Extension**

**Aaron Clark – Stewardship Partners**

**Ani Jayakaran, PhD PE – WSU, Washington Center**

# Project Purpose

Develop a rain garden and bioretention assessment protocol to evaluate basic functions of rain gardens and bioretention facilities.

- Assess factors influencing their success and failure.
- Protocol is being developed to allow for:
  - Ease of implementation
  - Repeatability across large geographic scales
  - Consistent data from multiple implementers
  - Provide data of scientific and adaptive management value.

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**360.379-5610 x207**
**raingarden.wsu.edu**

WASHINGTON STATE UNIVERSITY
EXTENSION