Lake Whatcom Homeowner Incentive Program

Retrofits on a Watershed Scale

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Ingrid Enschede, Whatcom County
Homeowner Incentive Program (HIP)

• Provides technical assistance and financial reimbursements to install water quality improvements

• Voluntary and non-regulatory

• Best Management Practices (BMPs) selected to reduce phosphorus inputs

• Joint City-County program
Why?

1950

2008

City Limits

Lake Whatcom Watershed
Why?

NUTRIENTS

Lake Whatcom Watershed
Total Phosphorus and Bacteria
Total Maximum Daily Loads

Volume 2: Water Quality Improvement Report
and Implementation Strategy

November 2014 (revised February 2016)
Publication No. 13-10-012
Lake Whatcom Watershed TMDL

- Approved April 2016
- Requires 87% phosphorus reduction
- Only 76% of watershed drains to MS4
- Best end-of-pipe treatment ~85%, at great expense, still ineffective: 76%*85% = 65%
- Can’t meet water quality improvements with end-of-pipe treatment alone: 65%<87%
HIP Pilot (HIP 1.0)

Building A Program From Scratch
HIP Pilot (HIP 1.0)

- Washington State Dept. Ecology Grant ($500k)
- ~1,300 eligible properties
- 16 BMPs offered
- Limited reimbursement
- City-County staff supported
Cumulative HIP Progress, 2011-2016

- **Phosphorus Reduction**
  - 26 pounds per year

- **Flow Reduction**
  - 8 million gallons per year

$850,000+
Reimbursed for purchases of goods and services from local businesses

Site Visits Conducted
Projects Completed
BMPs Installed
Evolving from a pilot to a full-scale program

Audience Research (1 year, $60,000)

- Surveys (Third-party research)
- Focus groups (Third-party research)
- Staff experience / lessons learned
- Business interviews
- Technical Advisory Teams
- Outreach Advisory Team
Common Barriers

• Site Suitability – No space for retrofits
• Project Acceptance – BMPs interfere with use
• Cost – Home budgets are tight
• Permitting Complexity – And you need a permit!
• Construction Complexity – Some projects are not DIY
• Distrust of Government – No open invite to regulators
• Messaging – Fear of unknowns / “the catch”
Lessons Learned (Pilot)

• Cost is #1 concern, but knowledge was #1 benefit

• Fear of unknown can’t be overcome with pretty pictures and government promises

• If contractor doesn’t “get it”, they may undermine good will
HIP 2.0
Revised, Expanded, Improved
Evolving from a pilot to a full-scale program

Professional Sector Assistance
(2 years, $100,000)

☑ Branding and Logo Development
☑ Landscape Design Examples
☑ Standard Details and Specifications
☑ Professional Certification Course
☑ Vendor/Supplier Directory
☑ Website
Criteria for Program Changes

Proposed Modification for HIP 2

Acceptable • Homeowner

Feasible • Government

Effective • Lake Whatcom
Major Program Changes
Expand Program Area

Doubled program area
~1,300 to 2,600 eligible properties
2-Tier Program

Focus resources on priority properties with largest impact
2-Tier Program

DIY Native Landscaping Program for properties with less impact
Improved Incentive

• $1.30/square foot improved

• No maximum high impact priority properties
  – Materials and professional services reimbursable

• $6,000 maximum DIY native landscaping projects
  – Materials only reimbursable
Shoreline Property Example

Total improved area  $13,000 + 1,500 = 14,500 \text{ ft}^2$
$14,500 \text{ ft}^2 \times \$1.30/\text{ft}^2 = \$18,850$ reimbursement
New Non-Regulatory Face

- Whatcom Conservation District HIP Coordinator
- Single point of contact for both City and County
- Supported by research findings on “trusted messenger”
- Additional technical assistance
New Outreach Tools
Branding

Graphic design contract
• Logo
• Font
• Colors
Improving your shoreline with native landscaping

- **benefits**
  - add value to your landscape
  - control runoff
  - receive financial reimbursement
  - receive technical assistance
  - protect Lake Whatcom

**maintain view & beach**
Improving landscaping can enhance your beach and view to and from the lake.

**detergeese**
A native plant only has to be 30 inches high to deter geese, so you can still have your shoreline, view and access.

**add color**
Native plants are more diverse than turf and usually have more color.

**low maintenance**
You can have a beautiful yard and enjoy it too! Landscaping with native plants allows more time to enjoy your garden with less work.

**Thinking about landscaping part of your shoreline?**
HIP reimburses up to $3.20 per square foot of property that is converted from phosphorus-containing lawn to native landscaping! You can choose the aesthetic native plant gutter for your property, continue to enjoy your shoreline, and help protect Lake Whatcom all at the same time.

When you live along the shoreline, there isn't much room to absorb runoff from roofs, driveways, and lawns before it seeps into the lake. Creating a landscaped area with a thick mulch layer and native plants reduces the amount of phosphorus in runoff by more than 80%.

Installing a Lake Whatcom rain garden

- **benefits**
  - improve your landscape
  - control runoff
  - receive financial reimbursement
  - receive technical assistance
  - protect Lake Whatcom

**enhance your yard**
Enhance curb appeal while removing nutrient pollution from our community's drinking water supply.

**create a sanctuary**
Take a step away from your busy life into a relaxing garden retreat. Birds and butterflies will join you there.

**reduce maintenance**
Landscaping with native plants allows more time to enjoy your garden with less work.

Want to create beautiful gardens that filter pollution from your property? Rain gardens add excitement to your landscape, help control runoff, and improve the quality of water draining from your property into Lake Whatcom. HIP-certified designers can help you craft your rain garden location, size, and plant composition while incorporating your preferences for the overall landscape.

HIP reimburses up to $3.30 per square foot of property that filters phosphorus-containing runoff from roofs and driveways with native landscaping. Low maintenance rain gardens give you more time to enjoy your yard, attract beneficial pollinators, and help protect Lake Whatcom all at the same time.
Custom Landscape Designs

Landscape Architect contract

[Diagram of a landscape design plan with plant species and legend]
www.lakewhatcomHIP.org

Website development contract

IMPROVE YOUR PROPERTY
PROTECT LAKE WHATCOM
Get Reimbursed

Enter Your Street Address

Check Your Address

Enter your address to see if you qualify.
Website Features

• Address look up to direct homeowners to specific BMPs and assistance for their property
• BMP outreach sheets
• Site-specific landscape designs
• DIY landscaping workshop sign up
• Site visit sign up and calendar tool
• Resources for HIP-certified professionals
www.lakewhatcomHIP.org
New Design/Technical Tools
New Design/Technical Tools
New Design/Technical Tools

Design Guidance and Permitting Requirements
Media Filter Drain (MFD)

DESCRIPTION
An underground drainage facility, consisting of specially-mixed media (MFD) used to treat runoff from hard surfaces and lawns and landscaped areas. Configurations are slightly different depending on how runoff enters the facility (via pipe or shelf flow). This facility does have an underdrain and requires either a controlled bypass structure or a robust overflow to function properly.

METHOD OF PHOSPHORUS REDUCTION
Treatment via media (MFD). Runoff entering the facility passes through the media, where perlite, 10 cm³, and granular provide physical, chemical, and biological treatment for total and dissolved phosphorus.

APPROVED HIP VARIATIONS
- "Parking MFD" topped with gravel or spaced pavers with gaps (see HIP Standard Detail for Permeable Surfacing)
- "Sidewalk MFD" topped with gravel or spaced pavers with gaps (see HIP Standard Detail for Permeable Surfacing)
- "Parking Spot MFD" topped with permeable waterproofing pavers or another licensed permeable paving system. This design requires a review of proposed surfacing before approval.

Homeowner Incentive Program (HIP) 2.0
BMP - Material Specifications

City of Bellingham
November 2016

Note: This design methodology is applicable for HIP winners only. These methods may not be suitable for use on HIP projects or HIP recipients. This guide has not been evaluated for compliance with regulations which require professional engineering.
New Design/Technical Tools

Geotechnical Research and Soil Studies ($150k)

- 2011 – 150 Hand Augured Borings
- 2014 – 100 Hand Augured Borings
- Since 2012 – 30 Small Scale Pilot Infiltration Tests (PITs)
- 2016 – 8 new PITs and 30 new HA Borings

CEC, %Organics, Restrictive Layers, Depth to Groundwater, Long Term IR
Designer/Contractor Certification

• Training and Testing of Professionals

• NOT a guarantee of workmanship or costs

• NOT an assumption of liability

• Certificate of Completion – with Conditions!
Easement & Maintenance Requirement

Me: Homeowners are required to grant a permanent easement that runs with the title!
You: (Gasp)

Me: Homeowners are required to complete annual self-inspection and simple maintenance actions
You: (Yea, right)

Me: We are committed to help make the process pain-free and are working on long-term solutions
You: (I’ll believe it when I see it)
Streamlined Permitting

Project Summary

Address: ____________________________ Parcel: ____________________________
Owner Name: ______________________ Phone: ______________________ Email: ______________________
HIP Staff: ______________________ Phone: ______________________ Email: ______________________
Designer: ______________________ Phone: ______________________ Email: ______________________

Short Description: ____________________________

Check boxes below to characterize the project:

<table>
<thead>
<tr>
<th>Best Management Practices</th>
<th>Complementary BMPs</th>
<th>Stormwater Calculations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Native Landscaping</td>
<td>Permeable Paving</td>
<td>Noxie (Landscaping Only)</td>
</tr>
<tr>
<td>Infiltration Trench</td>
<td>Graywater Harvesting</td>
<td>HPI Standard Calculations</td>
</tr>
<tr>
<td>Media Filter Drain</td>
<td>Invasive Species Removal</td>
<td>WWEM Modeling</td>
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<tr>
<td>Dispersion</td>
<td>Sand Filter</td>
<td>MGS Flood Modeling</td>
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<tr>
<td>Lake Whatcom Rain Garden</td>
<td>Other</td>
<td>Other</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Measurement</th>
<th>Number</th>
<th>Notes</th>
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</thead>
<tbody>
<tr>
<td>Total Developed Buy Area</td>
<td>ft²</td>
<td></td>
</tr>
<tr>
<td>Area Landscaped by Project</td>
<td>ft²</td>
<td></td>
</tr>
<tr>
<td>Area Infiltrated by Project</td>
<td>ft²</td>
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<tr>
<td>Area Dispersed by Project</td>
<td>ft²</td>
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<tr>
<td>New or Replaced Lawn</td>
<td>ft²</td>
<td></td>
</tr>
<tr>
<td>New or Replaced Hard Surface</td>
<td>ft²</td>
<td></td>
</tr>
<tr>
<td>Amount of Soil Excavated</td>
<td>ft³</td>
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</tbody>
</table>

Stormwater Pollution Prevention Plan (SWPPP)

Describe all elements below that apply to your project. Refer to the current edition of the Stormwater Management Manual for Western Washington for drainage project instructions. If you are only completing a landscaping project, describe elements below that you will implement during the winter work season.

Elements of the SWPPP

Element 1 – Mark Clearing Limits:

Element 2 – Establish Stabilized Construction Access:

Element 3 – Control Flow Rates:

HIP Projects are not intended to increase flow rates or stormwater discharge volumes by any amount. Therefore, no flow controls are necessary during construction. If point discharges are created during construction, they will be mitigated by proper installation of sediment controls and will be disconnected at the completion of the project.

Element 4 – Install Sediment Controls:

Element 5 – Stabilize Soils:

All disturbed, exposed, stockpiled, or uncovered soil materials will be covered using an approved material (durable tarp, mulch, straw, etc.) during all rain events occurring during construction. Unworked soils that will be left exposed for more than 48 hours will be covered at the end of the last working day prior to the 48-hour duration. All disturbed soils will be covered completely between October 1 and May 30.

Element 6 – Protect Slopes:
Lessons Learned (HIP 2.0)

• **Lots** of staff time (2-3+ FTE for 1.5-2 years)

• **$160,000** in professional services
  – Finding the right balance between in-house and professional services

• Different jurisdictions = different permitting rules
  – Shorelines and critical areas...

• Project Management

• Coordination, coordination, coordination
Lessons Learned (HIP 2.0)

• **Turnover hurts!** Years of meetings with staff no longer involved in project

• **$150,000** in geotechnical explorations
  – Requiring expensive on-site testing not economical either...

• Baseline knowledge of residents key to participation
  – 400 homes sold to new owner each year (8%)

• Coordination, coordination, coordination
Some Ground Rules RE: Questions

We are not:

1. Lawyers
2. Tax Advisors
3. Tax Lawyers
4. Engineers
5. Engineering Lawyers
6. Elected Officials
7. Elected Lawyers

We are public works staff and would be happy to address your public works and planning questions. Otherwise, we would be happy to pass your question on to the right person, please email us!
For More Information

www.lakewhatcomHIP.org

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