Steele Creek Pilot Project Summary
Non-Regulatory Subdivision of State Government

About KCD
Steele Creek Watershed
Shellfish Closure

The Project Area
Kitsap County Map
Distribution of 71 Practices

Steele Creek Watershed
Most practices lie within the 40” to 50” annual rainfall.

A rainfall of 45” annually will be used to calculate amount of runoff treated (3.75 feet per year).
Water Quality Testing Sites  

GSS Practice Sites
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Freshwater Standard-Part 1</th>
<th>Freshwater Standard-Part 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Escherichia coli (E. Coli) Bacteria</td>
<td>&lt;=126 colonies/100 mL (geomean)</td>
<td>&lt;10% of all samples &gt;406 colonies/100mL</td>
</tr>
</tbody>
</table>

U.S. EPA criterion (U.S. EPA 1986A)
New BMP’s Added to Watershed:
62

Green Stormwater Solutions-47
Complex Underground Outlets-15

Detention Pond Enhancements:
9

Total Practices Installed
71

In addition, 40 Rain Barrels were Distributed

Steele Creek Summary
Existing Partnerships

KCD already had a strong Clean Water Kitsap (CWK) Green Infrastructure Program in place

- CWK supports the planning and education piece that the Terry Husseman Account (THA-Ecology) Low Impact Development (LID) and Washington State Conservation Commission (WSCC) Shellfish Grants could not cover
- KCD administration and accounting systems were already in place.

Kitsap Health Department

- Supplied the Water Quality Summaries
- Referred Clients

Washington State University Extension

- Professional Workshop & Outreach
Clean Water Kitsap • funding • referrals • outreach materials
Health Department • monitoring • referrals • shell fish closure area
Washington State Conservation Commission • Funding
Department of Ecology • Funding
WSU Extension • outreach materials • Referrals

Partnership Organizations
Inventory of Watershed

Planning and Estimating
• Analysis of Existing Stormwater Systems
• Evidence of runoff flow patterns
• Potential High Pollution Generators
• List of Potential Project Sites

Education and Awareness
• Targeted Mailing
• Walk About-Discussions with Business owners
• Residential Advocates-Neighborhood Green Street

Dig Day
• Excavation, Technical Assistance, Timeliness

KCD’s Role
<table>
<thead>
<tr>
<th>Summary Details</th>
<th>Steele Creek Watershed</th>
<th>Percent of Total</th>
<th>Green Street Sipes Ln.</th>
<th>Percent of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Area SQ FT</td>
<td>188 Million SQ FT</td>
<td>100%</td>
<td>637,052 SQ FT</td>
<td>3.4%</td>
</tr>
<tr>
<td>Number of Parcels</td>
<td>562</td>
<td>100%</td>
<td>21</td>
<td>3.7%</td>
</tr>
<tr>
<td>Feet of Stream</td>
<td>65,155 FT</td>
<td></td>
<td>300 FT</td>
<td>0.46%</td>
</tr>
<tr>
<td>Total Road FT*</td>
<td>302,870 FT</td>
<td></td>
<td>1616 FT</td>
<td>0.5%</td>
</tr>
<tr>
<td>Road, Roof, Driveway SQ FT**</td>
<td>10.6 Million SQ FT</td>
<td>5.6%</td>
<td>134,584 SQ FT</td>
<td>1.3%</td>
</tr>
<tr>
<td>Summary Details</td>
<td>Steele Creek Watershed</td>
<td>Percent of Total</td>
<td>Green Street Sipes Ln.</td>
<td>Percent of Total</td>
</tr>
<tr>
<td>-----------------------</td>
<td>------------------------</td>
<td>------------------</td>
<td>------------------------</td>
<td>------------------</td>
</tr>
<tr>
<td># GSS Parcels</td>
<td>31</td>
<td>5.5%</td>
<td>5</td>
<td>23%</td>
</tr>
<tr>
<td># Practices</td>
<td>71</td>
<td>100%</td>
<td>8</td>
<td>11.3%</td>
</tr>
<tr>
<td>Grant Period #Practices</td>
<td>43*</td>
<td>100%</td>
<td>8</td>
<td>18.6%</td>
</tr>
<tr>
<td>As-built Area of Practice</td>
<td>39,452 SQ FT</td>
<td>0.21%</td>
<td>3,383 SQ FT</td>
<td>8.6%</td>
</tr>
<tr>
<td>Grant Period As-built Area of Practice</td>
<td>36,837 SQ FT</td>
<td>0.20%</td>
<td>3,383 SQ FT</td>
<td>9.2%</td>
</tr>
<tr>
<td>Summary Details</td>
<td>Steele Creek Watershed</td>
<td>Percent of Total</td>
<td>Green Street Sipes Ln.</td>
<td>Percent of Total</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>------------------------</td>
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<td>------------------</td>
</tr>
<tr>
<td>Impervious Area Treatment</td>
<td>81,921 SQ FT</td>
<td>0.44%</td>
<td>8,806 SQ FT</td>
<td>10.7%</td>
</tr>
<tr>
<td>Grant Period Impervious Area Treatment</td>
<td>67,694 SQ FT</td>
<td>0.36%</td>
<td>8,806 SQ FT</td>
<td>13%</td>
</tr>
<tr>
<td>Impervious in Gallons*</td>
<td>2.3 Million Gallons</td>
<td>0.0004%</td>
<td>247,008 Gallons</td>
<td>10.7%</td>
</tr>
<tr>
<td>Grant Period Impervious in Gallons*</td>
<td>1.9 Million Gallons</td>
<td>0.0004%</td>
<td>247,008 Gallons</td>
<td>13%</td>
</tr>
<tr>
<td>Summary Details</td>
<td>Funds</td>
<td>Percent of Total</td>
<td>Grant Period</td>
<td>AVE.</td>
</tr>
<tr>
<td>-----------------------</td>
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</tr>
<tr>
<td>THA*</td>
<td>$35,120.00</td>
<td>32%</td>
<td>Cost/Project</td>
<td>$2,581</td>
</tr>
<tr>
<td>Matching CWK/KCD*</td>
<td>$19,319.00</td>
<td>17.4%</td>
<td>Cost/Practice SQFT</td>
<td>$3.01</td>
</tr>
<tr>
<td>WSCC*</td>
<td>$50,000.00</td>
<td>45%</td>
<td>Cost/Treatment Area SQFT</td>
<td>$1.64</td>
</tr>
<tr>
<td>WSCC (TA)</td>
<td>$6,550.00</td>
<td>5.9%</td>
<td>Cost/Gallon Treated Run off</td>
<td>$0.06</td>
</tr>
<tr>
<td>Totals</td>
<td>$110,989.00</td>
<td>100%</td>
<td>Landowner Reimbursement</td>
<td>$1,612</td>
</tr>
</tbody>
</table>

**Summary of Overall Costs**

Cost/Project: $2,581
Cost/Practice SQFT: $3.01
Cost/Treatment Area SQFT: $1.64
Cost/Gallon Treated Run off: $0.06
Landowner Reimbursement: $1,612
Green Stormwater Solution (GSS) Technologies Installed

*not including 17 Complex Underground Outlets
Percent Distribution

- Rain Gardens: 41%
- Permeable Pavers: 38%
- Landscape Modification: 19%
- Soaker Trench: 2%
Area of Practice & Impervious Area Treated
<table>
<thead>
<tr>
<th>Practice Area to Impervious Area Treated</th>
<th>Rain Garden Average Area Practice/Area of Impervious</th>
<th>Permeable Paver Average Area Practice/Area of Impervious</th>
<th>Landscape Average Area Practice/Area of Impervious</th>
<th>Soaker Trench Average Area Practice/Area of Impervious</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10.5%</td>
<td>29.5%</td>
<td>91.7%</td>
<td>11.5%</td>
</tr>
</tbody>
</table>
Permeable Pavers:
Total Practice Size
- 8047 SQFT
Total Impervious Area
- 27,274 SQFT

Rain Garden/Bioretention:
Total Practice Size
- 1592 SQFT
Total Impervious Area
- 11,322 SQFT

Landscape Modification:
Total Practice Size
- 25,698 SQFT
Total Impervious Area
- 29,098 SQFT

Soaker Trench:
Total Practice Size
- 95 SQFT
Total Impervious Area
- 820 SQFT

Rain Barrel:
Total Practice Size
- 40 * 55 gallons
- 2200 gallons

All GSS Practices Combined
As-built Size
36,837 SQFT
Impervious Area Treated
67,964 SQFT

Average Precipitation
45" per year

1,906,390 Gallons
Runoff
Receiving Treatment

Grant Period All GSS:
Approximate Area of Watershed
188,194,570 SQFT

Installed BMP’s
Treatment Area
67,964 SQ FT

0.36 Percent of Watershed has been treated by Additional BMP’s With CWK, WSCC & THA Funds
ratio 1:275

Percentage of Watershed Receiving Treatment With CWK, THA, WSCC Funds
40 Rain Barrels

17 Underground Outlets

Additional BMP’s Installed
• Start with a trained crew in LID
• Work with a core group of Contractors
• Use Economies of Scale to purchase materials
• Know your audience
  • *Listen to clients-Note needs, concerns & barriers*
• Remove barriers such as providing standard drawings, scheduling excavation, offering Technical Assistance, & Reducing Costs
• Provide Incentives
  • *100% Reimbursement of cost receipts*
• Database: Collect information-for administration, reporting and evaluating program.

**Recommendations**
“OVERALL MARINE WATER TREND
Two of the three Port Orchard / Burke Bay marine stations show a significant improving trend.”

2014 Annual Water Quality Report Kitsap Health Department
Interlocal agreement with City of Poulsbo


http://kitsapcd.org/

Teresa Brooks: Rain Garden Program Manager
T-brooks@conservewa.net

Resources: