Clallam County Stormwater Public Outreach Plan

DRAFT
June 9, 2011
Acknowledgements

Clallam County Stormwater Work Group members, as follows, provided invaluable input to this outreach plan.

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This project was funded by the U.S. Environmental Protection Agency West Coast Estuaries Initiative. This grant has provided funding to Clallam County and the Jamestown S’Klallam Tribe to work with stakeholders in the community to ascertain their concerns, to develop a comprehensive stormwater management plan and associated ordinances, and to develop this Stormwater Public Outreach Plan. The funding also supported stormwater monitoring and land use-land cover modeling to assess the impacts of stormwater to the County’s aquatic resources.
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1. Introduction and goals

Stormwater runoff occurs when rain (or snowmelt) flows off of land instead of percolating into the soil. In a native forest or prairie landscape, only a small amount of water flows over the land. Increased clearing, grading, construction, and other human development increase the amount of stormwater runoff, even during small rain showers. This can change the timing and volume of stream flow and increase flooding, among other impacts. Human development also adds pollutants to land surfaces, such as sediment, manure, or oils. Stormwater runoff can pick up these materials and carry them into nearby streams, rivers, and ocean waters.

Stormwater is considered a “non-point source” problem, as the pollution stems from many dispersed locations and activities, rather than from a single source. Increased stormwater runoff in a logged forest can transport large volumes of sediment to streams. Water flowing across and off farms and lawns may travel over manure and fertilized areas, transporting fecal coliform and nutrients to streams and contributing to shellfish harvest restrictions. Residents who direct water running off their roofs and driveways into roadside ditches can exacerbate flooding, contribute to road failure problems, and increase downgradient property damage.

Stormwater runoff is expected to become a larger issue in Clallam County if recent patterns of development continue—converting forests and other natural areas to residences, roads, and businesses. By developing a stormwater management program, the County hopes to protect the region’s invaluable water resources and natural environment before impacts such as flooding and habitat damage worsen.

Clallam County’s Stormwater Plan includes regulatory changes, but in order for Clallam County’s stormwater strategy and plan to succeed it must be supported by education and outreach to help County residents and businesses adopt behaviors that improve stormwater management.

The County sought input to shape the stormwater program from a wide range of individuals on the Clallam County Stormwater Work Group, who represented major interests in the county. Through a series of eleven meetings, the Clallam County Stormwater Work Group considered technical and policy options for stormwater management. They made recommendations for each topic following the guiding principles that each property owner manages stormwater on his or her own property and that additional development does not increase stormwater runoff in the County. Their recommendations are presented in the Clallam County Comprehensive Stormwater Management Plan (2011). Recommendations specific to public outreach are described in the box below.
The Clallam County Stormwater Work Group recommends that the County develop and implement a public outreach plan to help change public attitudes and behavior with respect to stormwater management. Recommended goals for this outreach include the following:

- Residents understand the basic concepts of stormwater and the general impact of their actions.
- Residents are aware that roadside ditches are for conveying road runoff and not designed to handle residential stormwater.
- Homeowner/builders understand and comply with stormwater management requirements.
- Residents use natural yard care practices that limit stormwater contamination.
- Pet owners clean up after their pet to limit stormwater contamination.
- Livestock owners store manure in ways that limit stormwater contamination.
- Businesses properly operate and maintain their stormwater facilities.
2. Prior and Related Efforts

Public outreach campaigns benefit strongly from building on prior, related efforts by using existing outreach materials and lessons learned, partnering with campaigns and organizations with related programs, and incrementally improving the awareness and behaviors of target audiences.

Prior and related efforts in Clallam County include the following.

- Clallam County developed a Water Conservation Social Marketing Strategy in 2009.
- Clallam County and its partners have arranged and/or sponsored Low Impact Development (LID) and Land Development workshops and Certified Erosion and Sediment Control Lead training.
- The County works with the Puget Sound Partnership on the Puget Sound Starts Here educational campaign, developing posters and other educational materials.
- The County disseminates brochures on drainage requirements, as well as on a number of water resource management topics, including the Critical Areas Ordinance, How to Develop a Lot in the County, protection of the Dungeness Watershed, Protecting Water Quality in and around the Home, and septic system inspection requirements.
- Clallam Conservation District and WSU Extension assist landowners in reducing stormwater volumes and pollution, through programs such as natural landscaping courses and working with livestock owners.
- The Makah Nation has worked with a consultant on outreach tools for stormwater management, with a particular focus on Low Impact Development (LID), funded by Environmental Protection Agency (EPA).
- Organizations such as Streamkeepers of Clallam County and Olympic Baywatchers conduct monitoring and other volunteer assistance to inform and promote water management.
- County and Jamestown S’Klallam Tribe have developed a brochure entitled “Clean Water is Everybody’s Business” that describes the need for homeowners to manage their stormwater.
- The County plans to offer Homeowner Operations and Maintenance and Stormwater 101 workshops in the summer and fall of 2011.
- The County participates in Streamfest and the Dungeness River Festival.
- Workshops sponsored by Puget Sound Partnership on LID, forest conversion, stormwater utility, and the 2005 Ecology manual occurred in the fall of 2010 and winter of 2011.
- The League of Women Voters also collaborates with Clallam County on outreach or conducts its own outreach on specific stormwater-related topics.
3. Approach

This stormwater outreach plan is intended to provide Clallam County with effective, achievable strategies to accomplish the Stormwater Work Group’s goals. The outreach plan seeks to start residents and businesses on a progression from awareness of stormwater; to adopting targeted behaviors that improve stormwater management; to encouraging others to join them in making changes.

Figure 1 presents the progression using rain gardens as an example. In the first steps, Clallam County residents must know that stormwater runoff causes problems and that rain gardens are a solution before they will take action to install a rain garden. Next, rain gardens, like many changes, must be maintained and sustained for the stormwater benefits to continue. Ideally, outreach efforts gain further momentum, leading individuals who adopt the change early to tell others about the problem, solution, and benefits of change.

Figure 1. Behavior Change Progression with Rain Garden Example

The progression shown in Figure 1 is repeated for each specific behavior change, with subsequent campaigns build on previous efforts. Comprehensive stormwater outreach programs use a variety of individual, coordinated strategies to achieve specific goals (such as installing and maintaining rain gardens) with a series of campaigns that incrementally move target audiences to more advanced and beneficial stormwater management practices.
The stormwater outreach plan for Clallam County, presented in this document, was developed using the following approach:

1. **Review behaviors and audiences** recommended for targeting by the Stormwater Work Group, prioritizing them using the following criteria:
   a. Expected likelihood of achieving change through education and outreach.
   b. Expected effort required for outreach.

2. **Research barriers and motivations** to changing target behaviors. Sources of information included:
   a. Key informant interviews.
   b. Internet search of programs elsewhere.

3. **Develop outreach strategies** that effectively encourage people to change specific attitudes and behaviors to stormwater management. Proposed strategies go beyond providing information to overcome barriers and provide incentives that motivate the audience to change behaviors. Information alone does not create change. Successful strategies often involve:
   a. Face-to-face communication, which is more effective than television, radio, newspaper, or other printed materials.
   b. Visible incentives rewarding the desired behavior.
   c. Increasing the convenience of doing the right thing by providing tools or systems to overcome barriers.

4. **Develop evaluation strategy** to assess effectiveness of outreach, addressing:
   a. Project outputs.
   b. Reported or observed behavior change.
   c. Measured environmental impact.

5. **Estimate resources required to implement strategies** and identify potential sources of funding.
A. Outreach Framework

The table below presents the audiences and behaviors that the Clallam County Stormwater Work Group recommended the outreach plan target, along with an assessment by Cascadia Consulting Group of the likelihood of changing behavior and the expected efforts required to conduct effective outreach.

<table>
<thead>
<tr>
<th>AUDIENCE</th>
<th>DESIRED BEHAVIOR</th>
<th>LIKELIHOOD OF CHANGE</th>
<th>EFFORT REQUIRED</th>
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| Residents and businesses        | ▪ Understand basic concepts of stormwater, including its source and the major problems it causes.  
                                 | ▪ Be able to describe Clallam County’s stormwater system and their own stormwater management system.  | High likelihood      | Moderate effort |
| Residents                       | ▪ Be aware of the role of County ditches and right-of-way regulations  
                                 | ▪ Keep stormwater ditches clear  
                                 | ▪ Don’t re-direct water to ditches (Keep stormwater on site.)  | Moderate to high likelihood—depends on current knowledge and attitudes; may require regulatory enforcement. | Moderate effort |
| Residents                       | ▪ Apply compost and mulch to improve soil quality and improve infiltration  
                                 | ▪ Avoid pesticides  
                                 | ▪ Reduce the use of fertilizers  | High likelihood      | Moderate effort |
| Residential landscaping companies | ▪ Become trained in and use natural yard care and Low Impact Development (LID) techniques  
                                   | ▪ Promote to customers their natural yard care and LID services  | Moderate likelihood—requires demand from residents for natural yard care; recommend including landscaping companies in residential outreach. | Moderate effort |
| Hobby farmers                   | ▪ Properly store manure on impermeable, bermed surfaces, ideally covered.  
<pre><code>                             | ▪ In winter, keep livestock in heavy use areas.  | High likelihood      | Moderate effort |
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| Applicant homeowners that substantially reduce pervious surfaces and homeowners that live on properties without stormwater controls | - Complete installation of stormwater facilities per County regulations, ideally Low Impact Development (LID)  
- Understand critical maintenance activities  
- Leave as much native vegetation as possible  
- Reduce pervious surfaces | Low likelihood—regulatory and enforcement framework is necessary due to the significant capital investment required and low level of perceived personal benefit. | High effort |
| Business owners | - Properly operate and regularly maintain private stormwater facilities, including parking lot maintenance and catch basin cleaning | Moderate likelihood—depends on current infrastructure, knowledge and attitudes; may require regulatory enforcement. | High effort—County currently does not have a viable way to identify individuals or properties in this target audience. |
4. Outreach Strategies

Effective outreach strategies rely on a detailed understanding of the current knowledge, attitudes, and behaviors of the target audience regarding the desired behavior change. Developing strategies that directly reduce barriers, provide compelling incentives, and use persuasive messages to “sell” the target audience on a behavior change require the same market research used to sell consumer goods. These outreach strategies were developed using information provided by the Stormwater Work Group, key informants that regularly provide education or services to the target audience, and stormwater-related research from jurisdictions elsewhere. Due to the lack of existing information specific to Clallam County, the County should conduct additional research with Clallam County residents, such as a random phone survey, to gather the following information:

- Awareness of Clallam County's stormwater system and impacts, including roadside ditches.
- Prevalence of target behaviors, such as percentage of residents currently using compost.
- Most common barriers to each target behavior, for example, perceived ease of using lawn fertilizers versus compost amendment.
- Attitudes toward stormwater and target behaviors.
- Specific incentives that motivate target audiences.

By gathering this detailed information, Clallam County will ensure that its limited outreach funds are targeted at the behaviors that most need addressing and overcoming the most common barriers by using the most effective messages and incentives.

A. Awareness of Stormwater System and Impacts

Current Situation

It is likely that many residents do not understand the generation, flow, and impacts of stormwater in Clallam County. Although Clallam County has not yet conducted a survey to determine the extent or lack of awareness among residents, studies conducted elsewhere in the Puget Sound region show that most individuals lack specific knowledge of the stormwater system and their contribution to stormwater problems. For example, a survey conducted in 2009 found that about a fifth of residents in unincorporated Pierce County did not know what happened to stormwater.\(^1\) In a 2008 poll, less than half (45 percent) of rural respondents said that neighborhood pollutants significantly contributed to pollution in Puget Sound.\(^2\)

Desired Behaviors

- Residents can describe how stormwater is created and the problems it causes in unincorporated Clallam County; for example:
  - Rain falling on the ground can contribute to water quantity and quality problems, such as flooding and impacts to salmonids and shellfish and drinking water.

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Stormwater running off their property and into roadside ditches is likely to accelerate flooding and road problems.

Resident can describe the stormwater system in Clallam County and their own stormwater management system.

**Barriers**

- View that stormwater is not a real problem in Clallam County because of the rural nature of the county.
- Feeling that residential contributions to stormwater are minor compared to the contributions from logging and agriculture.

**Individual Benefits**

- Understanding how Clallam County’s efforts to prevent stormwater problems are a good use of county funds.
- Learning whom to call for assistance about stormwater.
- Understanding that individual actions can protect water quality and prevent flooding.

**Tactics**

Awareness campaigns center around providing information that is compelling and memorable. Ideally, Clallam County should educate residents about stormwater using multiple outreach tools:

- **Graphic demonstrating the stormwater system.** The county can create an attractive, easy-to-understand graphical representation of the many ways stormwater flows through the stormwater system and the problems it can cause at various stages, such as flooding.
- **Utility bill inserts** with quick facts about stormwater that reflect the key points you want residents to know while offering them services or information. This may include:
  - Land clearing and development can increase stormwater runoff, flooding neighbors and harming salmonids and shellfish. Learn about better drainage techniques such as rainwater catchment and rain gardens by calling (###) ###-#### or visiting the Clallam County website at www.XXXXXXXXX.clallam.net.
  - Roadside ditches prevent flooding from roadway runoff. Never fill in or direct other water to roadside ditches. Call Clallam County Public Works at (###) ###-#### to request ditch maintenance.
  - Rain can wash fertilizer, manure, trash, and oil drips, and other chemicals into local streams and rivers, polluting salmonid and shellfish habitat as well as drinking water. Learn how you can keep our water clean by visiting the Clallam County website at www.XXXXXXXXX.clallam.net.
- **Demonstration sites and with educational signage** showing stormwater management systems and stormwater impacts. The signs should replicate or be based on the graphic demonstrating the stormwater system to provide information continuity. Demonstration elements may include:
  - A well-maintained roadside ditch, a culvert or covered pipe alternative, a filled-in ditch (if it can reliably show flooding). The County could use pictures or video of functioning and non-functioning roadside ditches during storm events for demonstration purposes.
  - Rain gardens or other low impact development measures.
Clallam County Public Outreach Plan – draft

- **Portable display materials** for use at public events, such as the county fair or public meetings, and schools. Display materials should explain stormwater, stormwater problems, Clallam County’s stormwater system, and actions residents and businesses can take, using consistent campaign messages.

- **Articles in local publications**, such as the Peninsula Daily News, Forks Forum, Sequim Gazette, Sequim This Week, and newsletters of local civic or service organizations.

- **Workshops such as Homeowner Operations and Maintenance and Stormwater 101**

**Next Steps for Implementation**

- Test assumptions about knowledge and barriers to change with focus groups if/when possible.
- Design graphic demonstrating stormwater system.
- Develop clear and consistent messages and graphics for use in outreach materials including utility bill inserts, demonstration site signage, and display materials. As appropriate, coordinate messages with existing stormwater messages in use by Port Angeles and the “Puget Sound Starts Here” campaign. As budget allows, test messages with focus groups.
- Create, print, and distribute utility bill inserts.
- Develop demonstration site(s)
  - Select site location, ideally an area that is commonly visited by residents and can show the problems of ditch misuse.
  - Design and install demonstration elements and explanatory signage.
  - Promote site through the Master Gardener’s network, Conservation District, WSU Extension, County website, newspaper and newsletter articles, and school group tours.
  - Make and distribute videos showing functioning and non-functioning roadside ditches during storm events.
- Identify public events and school educational opportunities to use stormwater display materials; design and produce portable display materials.
- Develop stormwater stories (ideally including photographs) to pitch to local publications; contact publication editors.

**Resources to Evaluate**

- Port Angeles Stormwater Utility: [http://www.cityofpa.us/Stormwater.htm](http://www.cityofpa.us/Stormwater.htm)
- Puget Sound Starts Here campaign: [www.pugetsoundstartshere.org](http://www.pugetsoundstartshere.org)
- Kitsap County Surface and Stormwater Management Program: [http://www.kitsapgov.com/sswm/pub_docs.htm](http://www.kitsapgov.com/sswm/pub_docs.htm)
- USEPA Nonpoint Source Toolbox: [http://www.epa.gov/nps/toolbox](http://www.epa.gov/nps/toolbox)

B. Improper Use of Roadside Ditches

**Current Situation**

County staff have observed that residents and businesses frequently block the roadside ditch system by intentionally or unintentionally filling in the ditches adjacent to their property; they also flood the...
ditches by directing excess runoff from their property into the ditch without permission and without proper flow control measures. These cumulative impacts to the drainage system can have a significant effect on the overall function of the system, increasing the effort and expense the County must put into maintaining the system and increasing the potential for private and public property damage.

Desired Behaviors

- Residents and businesses know that roadside ditches are intended to convey only roadway runoff and that individuals are prohibited from directing water to the ditches or filling them in without a permit. Residents know to call the Clallam County Roads Department for ditch maintenance or permits.
- Residents and businesses call the Clallam County Roads Department when they see a roadside ditch that needs maintenance or is getting filled.
- Residents and businesses obtain a permit before performing work on roadside ditches.
- Residents and businesses do not divert stormwater to roadside ditches; instead, residents manage stormwater on their property using strategies included in the Small Project Drainage Manual, and businesses consider if the Small Project Drainage Manual is appropriate or other stormwater management techniques are needed.

Barriers

- Lack of awareness that roadside stormwater ditches are intended to convey roadway runoff only and should not be used or filled in by adjacent property owners.
- Desire for a flat yard that continues to the road uninterrupted.
- Desire to move stormwater off property as easily as possible.
- Disinclination to obtain permits.
- Low chance of detection or penalties for filling in or diverting stormwater to ditches.
- Fear of flooding their own structure/developments.
- View that mosquitoes will increase with any stagnant water.

Benefits

- Being a “good neighbor.”
- Compliance with regulations.
- Easier travel because roads are less likely to flood and Roads Department can use funds for road improvement instead of ditch repair.
- Recognition for residents “doing the right thing.”

Outreach Tactics

Awareness campaigns center around providing information that is compelling and memorable. Ideally, Clallam County should educate residents about stormwater using multiple outreach tools:

- **Stormwater system graphic and signed demonstration site.** Outreach tactics used to increase knowledge of the stormwater system will support this outreach element.
- **Utility bill inserts** with clear messages about stormwater ditches in Clallam County, such as:
  - Roadside ditches prevent flooding from roadway runoff. Call Clallam County Roads Department at (###) ###-#### to request ditch maintenance. Never fill in or direct other water to roadside ditches.
  - Roadside ditches prevent flooding from roadway runoff. With a permit from Clallam County Roads Department, you may be able to replace your ditch with an appropriate culvert. Call (###) ###-#### for more information.

- **Recognition for neighborhoods “doing the right thing,”** such as through a map showing neighborhoods where most residents have clear ditches without non-roadway runoff and problematic neighborhoods where ditch misuse has caused flooding.

- **Penalties for misusing roadside ditch.** Regulatory penalties, such as fines, can be important deterrents that underlie and support more positive outreach messages about roadside ditches.

**Next Steps for Implementation**

- Develop stormwater system graphic (as part of awareness campaign in Outreach Strategy A).
- Develop demonstration site(s)
  - Select site location, ideally an area that is commonly visited by residents and can show the problems of ditch misuse.
  - Design and install demonstration elements and explanatory signage.
  - Promote site such as through County website, newspaper and newsletter articles, and school group tours.
- Develop, print, and distribute utility bill inserts.
  - Develop clear messages and graphics for utility bill inserts; as budget allows, test messages with focus groups.
- With appropriate regulatory authority, develop penalties for roadside ditch misuse and determine appropriate enforcement mechanism.
- Place “No filling of roadside ditch” signs in most egregious areas.
- Involve the North Peninsula Building Association for education and awareness

**Resources to Evaluate**

- Chelan County and the City of Wenatchee plan to jointly develop an intensive outreach campaign around keeping ditches clear, as a result of a major flooding event that occurred in December 2010.

**C. Compost Use, Fertilizer Use, and Pesticide Reduction**

**Current Situation**

A cleared parcel of land with poor soil can increase stormwater runoff and sediment erosion to nearby lakes and rivers; applying compost can improve soil to reduce runoff by increasing infiltration. Fast-release fertilizers, fertilizer overuse, or application during the wrong seasons, and pesticide use contribute to stormwater contamination. Information on compost, fertilizer, and pesticide use among Clallam County residents is not currently available, but research elsewhere suggests that the County could benefit from conducting outreach on these topics.
Desired Behaviors

- Residents apply **compost and mulch** to lawns and gardens to increase their soil’s absorption capacity and reduce contaminated runoff. (Describe additional benefits to compost and mulch such as preventing weed and pest problems, increasing nutrients in soils to build healthier soil, etc.)
- Residents reduce their use of chemical fertilizers, particularly fast-release fertilizers. (Explain why slow-release is better than fast-release fertilizer.)
- If residents apply chemical fertilizers, they choose **slow-release fertilizers** and apply only the amount needed and only in the appropriate seasons.
- Residents reduce **pesticide and fertilizer use** to decrease contaminated runoff. *(Long-term objective)*

Barriers

- Lack of information about the benefits of composting and mulch.
- Desire for aesthetically perfect lawn and yard.
- Perceived lack of time to apply compost or use alternative practices to control weeds and pests.
- Lack of physical ability to apply compost or (if needed) manually control weeds and pests.

Benefits

- Compost and mulch help prevent pest and weed problems.
- Reducing pesticide use protects residents, their children, and their pets from chemical exposure.
- Compost and mulch reduce stormwater runoff and sediment that harms fish in local lakes and rivers.
- Reducing chemical fertilizers, particularly fast-release fertilizers, reduces nutrient contamination and algal blooms in local lakes, rivers, and Puget Sound.
- Practicing natural yard care, including applying compost and reducing pesticide use, can make your yard more attractive and easier to maintain.

Outreach Tactics

Promote compost use and pesticide reduction as part of the “5 Steps to Natural Yard Care,” an outreach strategy developed by King County and successfully used by many jurisdictions around Puget Sound. Using the Natural Yard Care message allows Clallam County to draw on existing resources and materials rather than creating a completely new campaign and to start small with a focus on using compost while allowing for future program growth as resources allow. The five steps to natural yard care are:

- Build healthy soil with **compost and mulch**.
- **Plant right for the site** to reduce the need for fertilizers and pesticides.
- Practice **smart watering** to reduce runoff and landscape with grown healthier plants which need less fertilizers and pesticides.
- **Think twice before using pesticides** to reduce stormwater contamination.
- Practice **natural lawn care** for a healthy lawn that doesn’t contaminate stormwater.

Tactics to promote the five steps to natural yard care include:

- **Develop and distribute informational materials**, including a list of compost suppliers.
  - County webpage with links to additional resources
Mailings to residents
- At appropriate County facilities, such as parks
- At nurseries and garden supply retailers
- Through partnership with Master Gardeners and the Clallam Conservation District

**Partner with nurseries and garden supply retailers** (including big box stores) to:
- Offer rebates or discounts on compost and compost bins.
- Place “shelf talkers” or other in-store advertising for compost and natural yard care products. (Explain “shelf talkers”.)
- Have tabling events with trained staff or volunteers to promote and answer questions about compost use and natural yard care techniques. (Also coordinate with Master Gardeners and the Clallam Conservation District, which may do similar educational events.)

**Partner with local farmers**

**Conduct workshops and events in partnership with the Clallam Conservation District, WSU Extension, Master Gardeners, and City of Port Angeles** to promote compost use and natural yard care practices.
- Ask Master Gardeners to promote compost use as they educate the public about general garden and lawn care.
- Partner to offer natural yard care workshops that are short (1-3 hours) and free or low-cost.
  - The Clallam Conservation District, WSU Extension, Master Gardeners, and City of Port Angeles could offer training expertise.
  - Workshops could be held at County facilities, City of Port Angeles composting facility, or the homes of influential County residents on both sides of the County.

**Offer incentives** to apply compost or use a home composting system:
- Coupons or rebates for compost purchases, such as $5 off a bag of compost or discounted compost bins.
- Use student, youth groups such as the boys Scouts, or other trained volunteers to apply compost for elderly residents or demonstrate natural yard care techniques at residents’ homes.

**Demonstration site with signage at public parks or public facilities.**

**Next steps for implementation**

**Develop Informational materials and website.**
- Obtain permission from appropriate jurisdictions to use and adapt existing Natural Yard Care materials.
- Research, design, and print materials.
- Develop distribution pathways for materials
  - Create Natural Yard Care webpage on County website.
  - Obtain current list of residents for mailing.
  - Choose County facilities to serve as distribution points and demonstration sites with signage.
  - Build relationships with nurseries, garden retailers, Master Gardeners, WSU Extension, and Clallam Conservation District for material distribution.
- **Partner with nurseries and garden supply retailers.**
  - Identify retailers to approach; (Clallam Conservation District may have existing relationships).
  - Determine their interest in participating and coordinate shelf-talker distribution, coupon or rebate redemption, and in-store educational events.
  - Design, print, and distribute shelf-talkers.
  - Determine coupon or rebate terms (value, products included, and other requirements) and redemption method; print and distribute coupons to residents.
  - Design in-store educational events.
    - Coordinate with retailers to choose appropriate dates and locations for educational events and to promote events.
    - Contact Master Gardeners, WSU Extension, and the Clallam Conservation District to discuss opportunities to coordinate.
    - Identify and train staff or volunteers to plan and execute events.
    - Develop event materials, such as displays, hand-outs, and contact information sheets.
    - Conduct follow-up with event attendees, as appropriate and desired, such as answering questions or conducting follow-up evaluation.

- **Partner with local farmers**

- **Partner with the Clallam Conservation District, WSU Extension, Master Gardeners, and composting facilities.**
  - Contact organizations to discuss areas opportunities to partner on natural yard care, particularly around public education and workshops.
  - Determine number, dates, locations, staffing, and promotion of workshop.
  - Develop workshop curriculum, teaching materials, and handouts.
  - Promote workshops in local media, County and partner organization newsletters, and County website.

- **Offer free compost application to residents.**
  - Identify, recruit, and train volunteers such as high school students.
  - Determine eligibility requirements for participating residents.
  - Acquire and manage program materials, such as shovels and rakes for compost application.
  - Promote program through local media, County website, fliers in local nurseries, or mailings to targeted residents.
  - Coordinate volunteers and requests for assistance.

### Resources to Evaluate

- City of Port Angeles—compost sales and guide: [www.cityofpa.us/transferstation.htm](http://www.cityofpa.us/transferstation.htm)
- King County—natural yard care: [http://your.kingcounty.gov/solidwaste/naturalyardcare/index.asp](http://your.kingcounty.gov/solidwaste/naturalyardcare/index.asp)
- Thurston County—natural yard care: [www.co.thurston.wa.us/health/ehcsg/5stepslawn.html](http://www.co.thurston.wa.us/health/ehcsg/5stepslawn.html)
- Seattle Tilth—compost: [http://seattletilth.org/learn/resources-1/compost](http://seattletilth.org/learn/resources-1/compost)
- IPMopedia: [www.ipmopedia.org](http://www.ipmopedia.org)
Pet Waste Management (Section to be included)

D. Manure and Winter Paddock Management

Current situation

Many residents with livestock, particularly hobby farmers new to the area, do not manage pastures and manure in ways that prevent stormwater contamination. Improperly stored manure and muddy winter paddocks that are difficult to clean lead to manure and sediment runoff during storm events. The Clallam Conservation District offers expertise and cost-sharing for manure storage structures and improving heavy use areas. The Conservation District offers workshops and attends local events to promote proper management as resources allow. The Conservation District regularly receives requests for assistance on this issue and offers technical guides on its website to individuals not eligible for onsite assistance.

Desired behavior

- Build and use manure storage systems that prevent stormwater contamination.
  - Ideally, compost manure and properly apply to pastures.
- Build and use heavy use areas for livestock in winter to prevent muddy paddocks.

Barriers to change

- Construction costs
- Lack of technical expertise
- Lack of awareness about the problem or possible solutions (particularly novice farmers)

Benefits of change

- Healthier livestock
- Composting reduces flies, parasite infestations, and overall volume of manure pile
- Composting provides free, nutrient rich fertilizer.
- More productive farm with less mud and contained manure
- Avoid contaminating streams or lakes adjacent to the property

Tactics for change

The Clallam Conservation District is an ideal partner to provide outreach on manure and winter paddock management. The Conservation District has existing programs, expert staff, educational materials, and existing relationships with livestock owners that need assistance on this issue. By partnering with the Conservation District, the County can avoid significant program development costs and use more funds on implementation, including:

- Workshops demonstrating manure storage and heavy use areas as well as their benefits.
  - Workshops are typically held on a farm assisted by the Conservation District, so participants can see the systems used and the benefits for themselves; workshop trainers also use “before” photos to show improvements. Past workshops have been popular and effective. The Conservation District conducted follow-up surveys showing that many participants took action.
On-site technical assistance to livestock owners not eligible for assistance under other Conservation District funding.

While site visits are more costly than providing only informational materials, they are also much more effective. Site-specific assistance is particularly helpful for identifying appropriate locations and systems for manure storage and heavy use areas.

Cost-sharing for construction of manure storage and heavy use areas.

Cost is a significant barrier, particularly for manure storage. While heavy use areas prevent muddy paddocks, farmers do not see a similarly immediate personal benefit from manure storage; however, heavy use areas can be costly to install.

Development and distribution of additional informational materials, as needed.

Promote manure and winter paddock management to livestock owners, particularly those new to farming or to Clallam County. Options include fliers in livestock supply retail shops; articles in the Conservation District newsletter, newsletters of other livestock-related organizations, and local newspapers; and information on the County’s website.

Next steps for implementation

Contact the Clallam Conservation District, WSU Extension, and Backcountry Horsemen of Washington (Peninsula Chapter) to develop partnerships and determine specific outreach activities.

Resources to Evaluate

- Clallam Conservation District: http://clallam.scc.wa.gov
- Backcountry Horsemen of Washington, Peninsula Chapter: http://www.pbchw.org

E. Compliance with Stormwater Management Requirements (Homeowner-builders)

Current situation

Many homeowners that build their own home (homeowner-builders) do not understand or comply with stormwater management regulations or do not use the best stormwater management techniques available. Homeowner-builders may also not understand or comply with other building regulations and may not apply for required permits.

Desired behavior

- Homeowner-builders comply with stormwater management requirements, particularly by following the Small Project Drainage Manual.

Barriers to change

- Costs of construction
- Lack of technical expertise
- Lack of awareness of impacts
- Lack of awareness of alternatives
- Lack of awareness of regulations
Benefits of change

- Compliance with stormwater requirements

Tactics for change

Given the high costs of complying with stormwater management requirements and the low personal benefits to individual homeowner-builders, education and outreach alone are not likely to be effective at increasing compliance. Regulatory enforcement and penalties may be required to create significant change. Education and outreach to support regulatory enforcement include:

- Easy-to-use technical assistance factsheets
- Workshops
- On-site technical assistance

Next steps for implementation

This strategy is not recommended at this time. If the County chooses to pursue this strategy, the first step will be to develop a regulatory enforcement system and penalties for violation.

Resources to Evaluate

- Client assistance memos from City of Seattle designed to provide user-friendly information on the range of City permitting, land use and code compliance policies and procedures:
  http://www.seattle.gov/dpd/publications/client_assistance_memos_%28CAMs%29

F. Commercial Private Stormwater Facility Maintenance

Current situation

Information on the number, distribution, maintenance, and condition of private stormwater facilities in Clallam County is limited and not currently in a format that allows for easy analysis and tracking. Stormwater plans are on file at the Clallam County Roads Department for land parcels that applied for permits (generally dating back to the mid-1980’s). Plans on file do not necessarily reflect the stormwater facilities constructed on site because permit applicants are not routinely asked for “as-built” plans.

Stormwater plans are not currently mapped in a Geographic Information System (GIS) program, making it difficult to identify properties with stormwater facilities or to analyze overall characteristics such as age and type. Some plans have been electronically scanned, but they are not in a searchable format. Some photographs exist in the Clallam County Department of Community Development files, but the site plan on file may not accurately reflect the photos.

Before Clallam County can conduct outreach on stormwater facilities, it must first create an accurate database and map of existing stormwater facilities by location, type, age, condition, owner and manager, operation and maintenance requirements, and other key factors. Stormwater plans on file provide a starting point but would need to be manually entered into a database and combined with site visits.
Desired behavior

Additional information is required to identify the specific behaviors that this outreach should target. Desired behaviors will depend on the specific types and conditions of stormwater facilities in unincorporated Clallam County.

- Businesses operate and maintain stormwater facilities (catch basins, flow control structures, stormwater treatment systems) in compliance with Clallam County codes. Example maintenance requirements are:
  - Regularly inspect stormwater facilities.
  - Keep stormwater facilities free from contamination.
  - Keep stormwater facilities free from sediment and remove sediment as needed.
  - Ensure all components of stormwater facilities are present and in good repair (such as grates and catch basins).
  - Prevent illicit connections of sanitary sewer drains to stormwater facilities (such as connecting indoor drains to the facility).

Barriers to change

Barriers specific to Clallam County businesses are not known at this time, but barriers may include the following:

- Lack of awareness of stormwater facilities and responsibility for maintaining facilities.
- Lack of technical knowledge around specific actions required.
- Cost of maintenance.
- Time for inspection and maintenance.
- Lack of visible impact on business, unless stormwater facility floods or overflows.
- Inertia.

Benefits to change

- Compliance with codes related to stormwater facilities.
- Reduced stormwater facility overflows or site flooding, in some cases.

Tactics for change

_Tactics assume Clallam County can create a searchable database of private stormwater facilities on commercial properties._

Stormwater facility maintenance can be best addressed through a combination of enforcement and outreach. Stormwater codes requiring specific maintenance activities and listing penalties for non-compliance will be an important motivator. Depending on the number and type of commercial stormwater facilities, outreach tactics could include:

- Informational materials describing facility types and maintenance requirements, distributed as mailings, at the Clallam County Road Department permit counter, and other County facilities as appropriate.
- Site visits to identify needed maintenance and provide technical assistance on inspecting and maintaining facilities (Some of the facilities are proprietary and have unique maintenance).
For catch basins, an opt-out program in which the County arranges for regular cleaning, and bills the property owner of record; or property owners demonstrate the ability to conduct regular maintenance on their own.

Next steps for implementation

This strategy is not recommended at this time. If the County chooses to pursue this strategy, the first step will be to create a searchable database of private stormwater facilities on commercial properties and identify the facilities that are not properly operated or maintained.

Resources to Evaluate

City of Seattle—Stormwater Facility Inspection Program: www.seattle.gov/util/Services/Drainage_&_Sewer/PollutionControl/Inspections/PrivateInspections/index.htm
5. Evaluation Strategies

Outreach and behavior change programs can be assessed using several categories of evaluation measures, which provide different types of information at different levels of cost. The four main categories address process (or activity) metrics, awareness and self-reported behavior change, observed behavior change, and environmental outcomes.

Process (or activity) metrics are the least costly evaluation measures and typically include program tallies such as the number of dollars spent, brochures distributed, or residents contacted. While these metrics are easy to track and useful for program budgeting and accountability, they do not reveal useful information about the impact of an outreach program on changing behavior.

A survey of residents to measure awareness and self-reported behavior change requires additional resources and effort, but it may provide information on whether residents increased their knowledge and changed their behavior to prevent stormwater problems. However, while surveys can indicate the extent to which residents changed their behavior, they are not definitive and may overestimate the prevalence of “good” behaviors and underestimate “bad” behaviors due to the self-reporting bias—that is, some residents may report what they think they should be doing rather than what they are actually doing. Nonetheless, self-reported behavior information is useful and often much less expensive to obtain than objectively observed information.

Observed behavior change information, such as through site visits, provides a more reliable yet more expensive measure of the impact of an outreach program. Objective observation reduces the likelihood of over-reporting the behavior change caused by the program.

The fourth evaluation category addresses the program’s impact on the desired environmental outcomes—such as measuring a decrease in stormwater quantities or contamination through testing water quality in local streams. These metrics provide information on whether progress is being made toward the ultimate goal of the outreach program—environmental improvements—though it can be difficult to assess whether progress is due to the outreach or to other factors, such as the number and industry sector of businesses in the area or capital improvements to the stormwater system.

The following sections describe options for evaluating Clallam County stormwater outreach programs.

A. Awareness of Stormwater System and Impacts

- **Track program activities** in total and per dollar spent, such as:
  - Number of residents reached through the program with informational materials.
- **Conduct random phone survey of residents** to assess understanding of stormwater system and impacts. (This survey can also be used to gather detailed information on the prevalence of other target behaviors and the barriers and motivators to changing them.)
- **Track number of calls to Road Department and Department of Community Development about stormwater management.**
B. Improper Use of Roadside Ditch

- **Track program activities** in total and per dollar spent, such as:
  - Number of residents reached through the program with informational materials.
- **Conduct random phone survey of residents** to assess understanding of roadside ditches and, as possible, improper use.
- **Track number of calls to Public Works Department about roadside ditches**, including requests for permits (proper use) and reports of improper use.

C. Compost Use, Fertilizer Use, and Pesticide Reduction

- **Track program activities** in total and per dollar spent, such as:
  - Number of workshops held and residents reached through workshops.
  - Number of other residents assisted through program, such as with compost coupons, on-site assistance, or informational materials.
- **Conduct follow-up surveys** with program participants to assess changes planned or implemented, satisfaction with program, and suggestions for improvements. Surveys can be conducted by email, postal mail, or phone.
- **Conduct random phone survey of residents** to assess use of the 5 steps to natural yard care.

Pet Waste Management (Section to be included)

D. Manure and Winter Paddock Management

- **Track program activities** in total and per dollar spent, such as:
  - Number of workshops held and residents reached through workshops.
  - Number of properties that receive on-site technical and cost-share assistance.
  - Estimated quantity of manure properly stored and heavy use area constructed.
- **Conduct follow-up surveys** with workshop participants to assess changes planned or implemented, satisfaction with workshop, and suggestions for improvements. Surveys can be conducted by email, postal mail, or phone.

E. Overall Program Evaluation

The ultimate goal of evaluation strategies is to link the outreach campaign directly to improvements in environmental quality. The cost of data collection and the complexity of environmental systems prevent the vast majority of campaign evaluations from making these links, and Clallam County is no exception. At this time we could not identify a cost-effective method to measure the water quality improvement that would result from stormwater outreach efforts.
6. Estimated Resources to Implement Recommended Strategies

The objective of this plan is to help the County develop long-term plans for conducting and maintaining outreach and evaluating and quantifying program effectiveness. These estimates are intended to help Clallam County understand the approximate scale of effort envisioned for each tactic; they should not be used as an actual outreach campaign budget. Actual costs will depend on a wide variety of factors such as Clallam County’s ability to use or modify existing campaign materials, the level of market research conducted to test campaign messages and materials, the scope of site visits and surveys, and businesses’ interest in participating in the program.

Outside funding for stormwater education and outreach appears to be limited for Clallam County at present. Ecology’s largest sources of stormwater funding—Centennial Fund grants and loans, Revolving Fund loans, and Section 319 grants—are being directed to jurisdictions covered by a National Pollutant Discharge Elimination System (NPDES) permit. However, the Puget Sound Partnership is currently offering Targeted Awareness Grants for activities that increase rural residential awareness about stormwater threats to Puget Sound, which could apply to Clallam County’s outreach efforts.

Baseline and Evaluation Research

- $2,000 to $5,000 to track outreach activities and outputs.
- $7,000 to $20,000 to conduct a web or phone survey of residents; one survey can be used to address all recommended outreach strategies.
- $1,000 to $3,000 to conduct follow-up survey of program participants; a different survey would be needed for each strategy (compost use and pesticide reduction, manure and winter paddock management).

Awareness of Stormwater System and Impacts and Improper Use of Roadside Ditches

Costs are estimated jointly because tactics to increase awareness and reduce county roadside ditch misuse overlap.

- $10,000 to $15,000 to develop and research specific outreach messages.
- $5,000 to $10,000 to design printed and electronic outreach materials (excludes printing).
- Resources required to develop a demonstration site are site-specific.
- What about the demo site cost estimate?

Compost Use, Fertilizer Use, and Pesticide Reduction

- $2,000 to $5,000 to adapt informational materials (excludes printing)
- 75 to 100 hours of staff time to develop partnership with nursery and garden supply retailers, create shelf talkers and coordinate incentives.
  - $500 to $2,000 to produce shelf talkers
  - Depends on incentive, possibly $1,000 to $2,000 to produce coupons; we recommend offering a $5 coupon per bag of compost.
- 25 to 30 hours of staff time per natural yard care workshop for coordination, promotion, preparation, and delivery (excludes printing costs for handouts).
- Staff time to administer volunteer program (including recruitment, training, coordination, and promotion) varies significantly by program type. Volunteer programs that use the general public or extensive volunteer engagement and management require more resources than programs that use an existing group of volunteers (such as civic or student groups) or less intensive volunteer engagement (such as only a website or occasional emails).

**Pet Waste Management (Section to be included)**

**Manure and Winter Paddock Management**

The Clallam Conservation District has a developed program that it can implement in pieces, depending on funding availability. We recommend conducting at least three workshops and funding site visits or cost-sharing for at least ten properties, to efficiently use advertising efforts. Approximate estimates costs are:

- $500 to $1,500 per workshop
- $500 to $3,000 per property for technical assistance, depending on site of farm and assistance needs
- Approximate construction costs, of which cost-sharing typically covers 50 to 75%:
  - Heavy use areas: $2 per square foot (500 square feet recommended per horse)
  - Uncovered manure storage for 5 horses: $2,000 to $5,000
  - Covered manure storage for 5 horses: $6,00 to $10,000