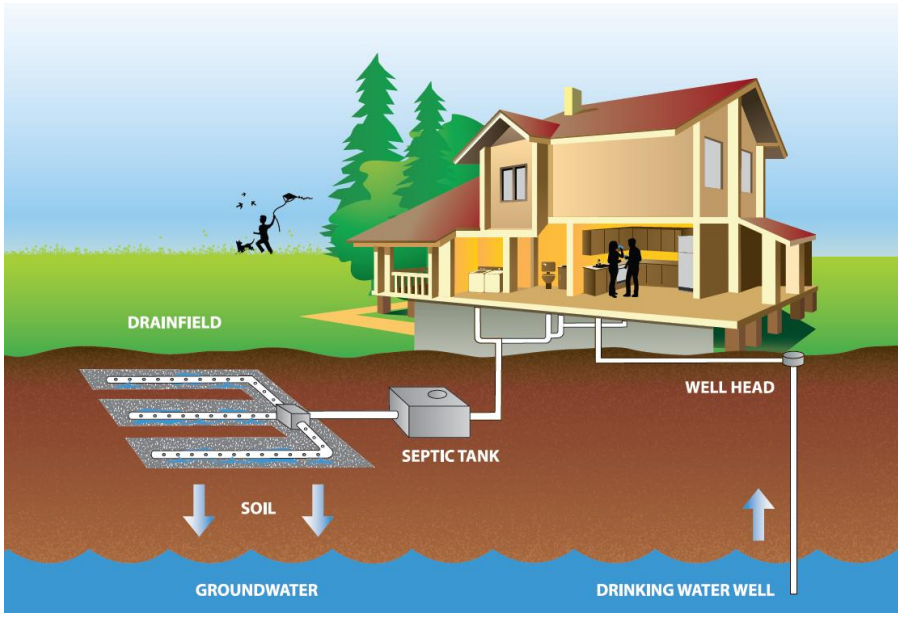
Final Report: Snohomish County Septic System Program

Date Submitted: November 10, 2011

Prepared by:

Snohomish County Surface Water Management

Contributor: Snohomish Health District



Centennial Clean Water Fund Grant Number G0600297

Final Report: Snohomish County Septic System Program

Date Submitted: November 10, 2011

Prepared by:

Stef Frenzl, Communication Specialist

Snohomish County Surface Water Management

Contributor:

Brad Ball, Environmental Health Specialist

Snohomish Health District*

Cover page septic system image created by Azure Summers graphic design with staff from Thurston County, Pierce County & Snohomish County, with funding from Washington Department of Health and Washington Department of Ecology. Citizens of Thurston and Pierce Counties participated in focus groups to guide the design process.

*The views represented herein do not necessarily represent the views of Snohomish Health District.

TABLE OF CONTENTS

Final Report: Snohomish County Septic System Program

Date Submitted: November 10, 2011

PROJECT BACKGROUND

Source identification studies using DNA ribotyping of bacteria found in Snohomish County streams consistently show the presence of bacteria from human sources. Methods used in these studies do not allow quantification of the sources, but the consistent presence of bacteria from human waste in multiple watersheds appears to indicate that failing septic systems may be a probable source.

While this challenge is certainly not unique to Snohomish County – indeed, this is a nationwide concern – it needs to be addressed at a local scale.

In response to these needs, Snohomish County Surface Water Management (SWM) applied for and received a Centennial Clean Water Fund grant from the Department of Ecology (Ecology), Grant No. G0600297, to develop a model project to address onsite septic system (OSS) related water quality problems. The long-term goal of this program is to improve water quality by encouraging septic system users to adopt a suite of best management practices (BMPs) related to the care and maintenance of septic systems. These best management practices are intended to increase the average life expectancy of septic systems, therefore reducing the overall rate of system failure and preventing water contamination from failing systems.

As a central part of this project, SWM developed and tested a multi-modal public involvement and education strategy with the goal of assessing the effectiveness of each outreach approach to better inform the development of a county-wide outreach program. The various approaches SWM developed, delivered and tested included 1) a direct mail campaign, 2) landowner workshops, 3) OSS care web pages, and 4) “house calls” from Snohomish Health District (SHD) sanitarians to inspect properties and talk one-on-one with landowners about their septic systems. SWM also took initial steps to develop an approach working in collaboration with OSS professionals (pumpers, installers and designers) to conduct outreach to their clients, and assessed the viability of this approach.

SWM worked in collaboration with Snohomish Health District (SHD), which maintains jurisdictional authority and maintains OSS records throughout Snohomish County, to implement this project.

This report includes a thorough account of the Snohomish County Septic System Program's goals, target audience, desired behaviors, strategy and activities. The report also includes a thoughtful discussion about each strategy's effectiveness and includes recommendations for the development of a county-wide septic system program.

PUBLIC INVOLVEMENT & EDUCATION PLAN ACTIVITIES

SWM coordinated with SHD and Ecology to develop a Snohomish County Septic System Program Public Involvement and Education (PIE) Plan (*Attachment 1.0*). The plan was completed and approved by Ecology in April 2010. The plan guided SWM's research, material development, outreach strategies, coordination and education of other agencies, and program evaluation. The following seven activities identified in the plan include:

Activity 1: Background & Formative Research
Activity 2: Communications Development

- Identify Target Audience
- Identify Desired Behaviors
- Develop Goals
- Develop Outreach Strategies & Social Marketing Mix

Activity 3: Outreach Approach 1: Mail Campaign
Activity 4: Outreach Approach 2: Sanitary Surveys
Activity 5: Evaluate Viability of Septic Service Providers and Pumpers as Information Vectors
Activity 6: Program Information Dissemination
Activity 7: Program Evaluation

This report includes a detailed description of the actions conducted by SWM, SHD and project partners for each above-mentioned activity.

Tasks within the PIE Plan were developed within the framework of the SWM-designed Public Involvement Continuum shown in *Figure 1*. The continuum models the progression of individuals from the point of citizen awareness and public investment to the point where sustained BMP implementation and a public return on investment is realized. This framework

indicates that an individual will not move from the "information" stage to "Citizens Apply BMPs" stage directly. An individual must progressively move, step by step, from the bottom of the pyramid to the top of the pyramid in order to achieve long-term sustained, independent action.

SWM's ultimate goal is to identify which outreach strategies result in behavior change. Figure 1 shows the necessary steps required to accomplish behavior change (sustained independent actions).

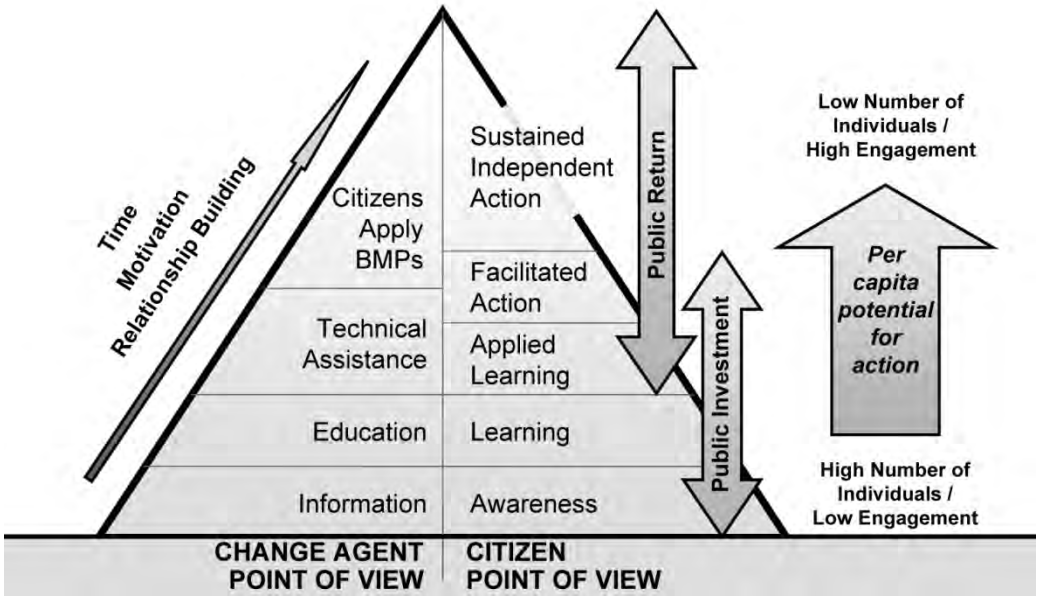


Figure 1: Public Involvement Continuum.

ACTIVITY 1. FORMATIVE RESEARCH

SNOHOMISH COUNTY OSS SITUATION ASSESSMENT

Our first step in developing this outreach program involved conducting a situation assessment. We conducted an analysis of the 2009 DAVE database and Snohomish County GIS data to determine the approximate number, type, and age of septic systems in Snohomish County.

Based on our analysis, approximately 78,500 septic systems exist in Snohomish County. Of those, 82.4% are simple gravity systems, which require the least complex set of best

management practices. 10.7% are low pressure distribution systems, which require more complex care practices than gravity systems. And 6.9% of the total number of County septic systems are some variety of "alternative" system, including those with pre-treatment components, and/or drip disposal, and/or are a proprietary system of some kind. The "alternative" systems are associated with the most complex best management practices, are the most expensive to maintain, and are the most likely to encounter problems.

We also grouped the total number of Snohomish County septic systems by age, shown in the data later in this section. The most notable finding in the system age data is that 54.4% of Snohomish County septic systems are presumed to be over 30 years old. This includes the systems whose type and age are unknown, which the Snohomish County Health District presumes to be gravity systems installed prior to 1968. We will include this notable finding in outreach materials and presentations targeting homeowners through our outreach modes when appropriate (for example, presenting this information at workshops). However, according to the Snohomish Health District sanitarians with over 30 years of septic-related field experience, the older OSSs within Snohomish County are mostly gravity systems, and if managed properly, these systems can function properly for much longer than 30 years. Additionally, it is common knowledge among long-term septic system owners that OSSs can function properly for more than 30 years if managed properly. If we provide information that contradicts their personal experience, our efforts will likely be discredited and effectiveness diminished.

Septic operation and maintenance BMPs do not differ among old and new septic systems. Our program will provide the essential information that homeowners with old septic systems need to ensure that their system is functioning properly and/or determine that their OSS needs repair or replacement. This information includes routine inspections (at least every three years for gravity systems), pumping when needed, and proper household practices.

Additionally, according to our focus group findings when testing messages for this program, owners with OSSs have a strong negative reaction to "scare tactics," such as inferring OSS owners may need a new system because their system is 30 years old. Using informative messages with a positive tone will be essential to maximize our program's success.

----------Remainder of page left blank unintentionally----------

Approximate number of septic systems in Snohomish County 78,577

Septic Systems by General System Type	**# of Systems**	**% of Total**
Simple Gravity (no pre-treatment)*	64,742	82.4
Simple Low Pressure Distribution (no pre-treatment)	8,423	10.7
Alternative Systems (includes pre-treatment, drip, proprietary)	5,412	6.9

**Includes systems whose type is unknown which SHD presumes to be gravity systems installed prior to 1968*

Septic Systems by Installation Year	**# of Systems**	**% of Total**
0-10 years old, installed 2009-1999	10,206	13.0
11-20 years old, installed 1998-1989	13,166	16.8
21-30 years old, installed 1988-1979	10,878	13.8
31-40 years old, installed 1978-1969	9,580	12.2
41+ years old, installed on or before 1968*	34,747	42.2

**Includes systems whose age is unknown which SHD presumes to be gravity systems installed prior to 1968.*

IDENTIFY TARGET AUDIENCE

The target audience of this program is Snohomish County homeowners in suburban and rural areas who own functioning septic systems.

Several subsets of this audience have been identified and the program may choose to approach these audiences in targeted ways. Unique subsets of this audience include:

- **Rural septic system homeowners.**
  Homeowners with septic systems in rural areas are a primary audience in this program because it is highly unlikely that their homes will connect to sanitary sewer. Therefore, they are representative of a long-term septic system community.

- **Suburban septic system homeowners.**
  Homeowners with septic systems in suburban areas are less likely than those in urban areas to connect to sanitary sewer in the future, and therefore, they are a potentially long-term audience for our messaging. We chose to conduct outreach in multiple suburban areas and will differentiate the results from our outreach in rural areas. Suburban and rural communities may have different motivators underlying their decisions about septic systems and we hope to tease those out.
- **Potential subsets of these two groups include:**
  - **OSS Homeowners who partially perform our list of OSS Best Management Practices**

    Many OSS homeowners may already perform a subset of our list of preferred Best Management Practices (BMPs), and as a result, they are likely to adopt additional BMPs if they see value in making additional changes in their behavior.
  - **OSS Homeowners who perform virtually all of our preferred OSS BMPs**
    Although these individuals already perform the BMPs, outreach can help reinforce our preferred behaviors (to prevent misinformation from altering their behaviors), and serve as a reminder/prompt for them to routinely inspect their septic system.
  - **Homeowners who are new to septic systems.**
    New homeowners who have a septic system for the first time may be prime candidates for information about this new part of their homecare practices.
  - **Households with children.**
    All members of a household contribute in some way to septic system care, especially in regard to what is poured down drains and how water is used. We may consider targeting households with children to help parents communicate important household care techniques.
  - **Owners of higher-maintenance and proprietary systems.**
    High maintenance systems are less common, but they are often found in areas with poor soils and high water tables, require more upkeep, and could have more potential for failure. We may consider targeting owners of these systems.

TARGET AUDIENCES CONSIDERED BUT NOT SELECTED

- **Urban septic system owners.**
  We will not target urban septic system owners because the majority resides in urban growth areas that are slated for annexation in the next two to ten years. Therefore these areas are anticipated to be connected to sanitary sewer in the next two to ten years. The urban audience is likely to have different concerns and motivators. Because we are piloting what will become a long-term program, we do not want this short-term audience to sway the input into our outreach materials. Also, Snohomish County can

only provide services in areas of unincorporated County; a large portion of the unsewered urban growth areas are slated for annexation before the end date of this grant.

- **Owners of failing septic systems.** Although all owners of identified failing systems will be assisted by the Snohomish Health District using standard protocol, which includes requiring repairs, we will not specifically target this smaller subset of the septic system-owning population for several reasons.

  First, we intend to create an outreach campaign targeted to promoting specific actions. The actions related to the repair of failing systems are completely different from those related to preventative care and maintenance. Therefore a program focused on repair of failing systems would require a completely different set of tools and techniques and would justify a separate program unto itself.

  Second, our research has indicated that homeowners are fearful of involving regulators in the care of their septic system and it is unlikely that they will work with us to initiate a repair unless they were already planning to. Therefore, we believe that we make can make more of an impact by promoting preventative care and maintenance.

  Finally, we are not able to offer financial incentives to assist with the substantial cost of a repair, an essential component of a program designed to repair failing systems.

  Even though detection and elimination of failing septic systems is not the main focus of this effort, owners of failing systems will certainly be assisted by the Snohomish Health District using standard protocol if they are identified.

- Renters with septic systems. This program will not target renters with septic systems. Some renters may receive our materials and be motivated by the household practices sections, and sanitary surveys may occur on rental properties, but it is our belief that the owner of the property will most likely be responsible for the long-term care of the septic tank and drainfield. Targeting residents living on rental properties would likely involve an entirely different outreach strategy in order to be effective, as motivators and barriers to implementing the BMPs are likely to be entirely different. In order to determine these, additional market research with this target audience would need to be performed, which is outside the scope of the existing grant contract. Grant funding was not included to address more than the primary target audiences.

ACTIVITY 1.1 REVIEW OF EXISTING PROGRAMS

Snohomish County reviewed 40 existing septic system outreach materials, programs and/or evaluation tools throughout the region and nation to identify approaches and techniques to help inform the development of the Snohomish County Septic System Program. Please see *Attachment 1.1* for specific information identified about each program.

Our research did not identify an outreach program that could be used as a model to adequately address the specific and comprehensive needs for Snohomish County; however, we were able to identify a variety of outreach modes and messages that we used to test among our target audience during program development.

ACTIVITY 1.2 PUBLIC OPINION RESEARCH

Activity 1.2 included the following goals:

1) Identify existing OSS homeowners' attitudes, beliefs and behaviors associated with OSS care.
2) Identify OSS homeowners' barriers & costs associated with adopting OSS best management practices.
3) Identify OSS homeowners' benefits associated with adopting OSS best management practices.
4) Identify OSS homeowners' competing behaviors or organizations that support or promote "undesirable" behaviors.
5) Identify effective themes and messages to best address barriers, costs and competing behaviors associated with adopting OSS best management practices.
6) Identify effective themes and messages to best promote benefits associated with adopting OSS best management practices.
7) Identify most effective messengers to promote OSS best management practices.

All goals were achieved and described in further detail below.

INTERACTIVE PUBLIC OPINION POLLING FORUM

We conducted an interactive polling forum of fifty Snohomish County homeowners with septic systems from rural and suburban areas. The purpose of this forum was to better understand how people rate themselves in the care of their septic system, what best management

practices they use, what myths and misconceptions are held, and what would motivate them to better care for their system. We used the polling forum to refine a questionnaire to be used in a statistically valid telephone survey. Please see the Public Opinion Polling Forum Final Report (*Attachment 1.2a*) for a more detailed description.

Key findings included:

Attitudes, Beliefs & Behaviors

- Snohomish County septic owners tend to rate themselves as exceptionally high in their knowledge and care of septic systems (10 out of 10) - and for the most part, they knew quite a bit about their septic systems – but when further pressed, some septic owners indicated substantial gaps in knowledge or care practices. This indicates that septic owners' inflated perception of their own knowledge could be a potential barrier.
- We did not observe any major differences in the responses of suburban vs. rural participants.

Barriers & Costs

- Some best management practices are confusing to homeowners including: use of garbage disposal, use of additives, what items can and cannot go down the drain.
- The Snohomish Health District was viewed as helpful only for general information; Public Works even less helpful.
- 1 in 4 thought concerns about potential harm from septic systems are just "scare tactics."

PUBLIC OPINION TELEPHONE SURVEY

We conducted a statistically valid public opinion telephone survey of four hundred Snohomish County homeowners with septic systems from rural and suburban areas. We asked questions designed to understand how people rate themselves in the care of their septic system, what best management practices they use, what myths and misconceptions are held, and what will motivate them to better care for their system. Please see the Public Opinion Telephone Survey Final Report (*Attachment 1.2b*) for a more detailed description.

Key findings included:

Attitudes, Beliefs & Behaviors

- As in the polling forum, Snohomish County septic owners tend to rate themselves high in their knowledge and care of septic systems. However, when further pressed, many septic owners indicated gaps in knowledge or care practices.

- We did not observe any major differences in the responses of suburban vs. rural respondents.

Barriers & Costs

- Most would not contact the Health District if they had a problem with their system or if they needed information. Some respondents were confused about the Health District's relationship to septic systems.

Benefits

- Each of the possible reasons for maintaining a septic system were termed "critical" by a majority, including safe families and pets, working drains, avoiding cost and hassle, not having trouble with the Health District or County, and keeping neighbors from complaining.

PUBLIC OPINION FOCUS GROUPS- 2009

We conducted two focus groups of Snohomish County homeowners to test sample mailpieces, rate potential taglines and website URLs, and to evaluate the clarity and feasibility of recommended best management practices. One group included rural septic system homeowners, the other group included suburban septic system homeowners. Please see the Public Opinion Focus Groups Final Report (*Attachment 1.2c*) for a more detailed description.

Key findings included:

Attitudes, Beliefs & Behaviors

- Septic owners would like to see straightforward, no-nonsense information about their septic systems.
- Short, direct taglines are preferred.
- Septic owners dislike scare tactics and extreme statements. They also did not appreciate humorous messages.
- Septic owners are unlikely to request a "Septic House Call" unless the reply card clearly indicates what is "in it for them." They are highly fearful of reprisal from regulatory staff.
- The program should avoid the use of the word "sanitarian."
- Suburban septic system owners are concerned about being forced to connect to sanitary sewer.

Benefits

- Key motivators include responsibility, financial savings, and health.

PUBLIC OPINION FOCUS GROUPS- 2011

In 2010, SWM learned of an independent effort led by Thurston County Health Department (TCHD) and Tacoma-Pierce Health Department (TPHD) who intended to develop messages, materials and a septic system O&M brand to encourage an increase in collaboration and to improve outreach efforts among health jurisdictions throughout the Puget Sound region. TCHD and TPHD received grant funding from Washington Department of Health to implement the effort, and invited SWM to assist in the development of regional messages, materials and branding. SWM was invited to test and refine the messages and images that SWM used on the direct mail pieces at four focus groups. See *Attachment 1.2d* for more information.

Key findings from the 2011 focus groups included:

- The following tag lines tested well and will be promoted for regional use:
    - Septic system care depends on you.
    - Don't let your septic system drain your wallet.
    - Protect your investment.
    - Extend the life of your septic system.
    - Septic systems impact water quality.
    - Properly maintained and monitored systems have longer operating lives.
    - Maintain your septic system to save money.

- Six different themes, images and messages were tested on six different mailers. SWM gained a number of insights that assisted with making improvements to the mailers (see *Attachments 3.1b- 3.1g* and Activity 3.1 in this report for more details).

- No single message appeals to all citizens. A successful education and outreach campaign needs to be built upon a variety aligned messages and motivators, including saving money, protecting family health, and protecting the environment and water quality.

- A logo was developed and tested to promote a regional brand.

- An image of a house and septic system was developed, tested with focus groups and refined for regional use.

- Participants overwhelmingly agree that direct mail pieces are the preferred method for sending septic care information to the public. Free workshops in public spaces also ranked high as an effective approach for educating the public.

ACTIVITY 1.3 PARTNERING WITH PROFESSIONAL SERVICE PROVIDERS TO PROVIDE OUTREACH TO CLIENTS

Activity 1.3 included the following goals:

1) Review existing list of OSS service providers to understand the scope of the professional industry in Snohomish County.
2) Conduct a rapid ethnographic assessment to understand existing attitudes, beliefs and behaviors of OSS service providers in Snohomish County regarding BMPs and outreach to clients.
3) Conduct an OSS operation & maintenance outreach survey to understand if service providers are willing to participate in distributing outreach materials to their clients, and which strategies are likely to align most effectively with their businesses.

All goals were achieved and described in further detail below.

REVIEW OF SEPTIC SYSTEM SERVICE PROVIDERS

We reviewed the Snohomish Health District's lists of certified and licensed septic system service providers to identify potential communication vectors. These included:

- 64 certified septic system pumpers
- 117 certified septic system installers
- 25 licensed septic system designers

RAPID ETHNOGRAPHIC ASSESSMENT

Partnering with Edmonds Community College, we conducted a rapid ethnographic assessment of septic system industry professionals including five designers, nine installers, and eleven pumpers. Each participant was interviewed for approximately two hours to discuss what service providers think homeowners can do to better care for their systems; what common mistakes are made by regulators, service providers, and homeowners; and what messages and outreach materials service providers would be willing to share with homeowners. Please see the Rapid Ethnographic Assessment Final Report (*Attachment 1.3a*) for a more detailed description.

Key findings include:

- Service providers (including designers, installers, and pumpers) believe that homeowners need more information about specific needs, structure and function of their septic systems.
- Service providers also gave input on common mistakes septic system users make in regard to their system care.
- Service providers expressed a strong willingness to participate with the Health District in educating homeowners.
- Service providers expressed gratitude in being involved in the study and in the fact that the Health District is taking a collaborative approach toward septic system care.

PROFESSIONAL SERVICE PROVIDER OPERATION & MAINTENANCE OUTREACH SURVEY

SWM collaborated with the SHD Septic Issues Committee (SIC) to survey operation and maintenance providers to determine their existing level of involvement with operation and maintenance outreach with their clients, and their attitudes and needs about increasing the level of outreach they provide to their clients. An informal, 2-page written survey (statistical analyses not performed) was conducted among Snohomish County certified operation and maintenance professionals on December 8, 2010 at the SIC semi-annual workshop. Thirty respondents including septic system pumpers, installers, designers, inspectors and business owners provided responses.

SWM developed a report summarizing key findings (*Attachment 1.3b*). Survey results suggest that OSS professionals see a benefit to distributing O&M educational information to their clients, and that service providers are likely to improve the frequency that professionals distribute educational information to their clients if facilitated by SHD. Service providers would be more likely to provide O&M information if it's "pre-packaged" and available online to download. Service providers prefer to use an 8.5" x 11" fact sheet to include with the invoice to the client; however, doorknob hangers and brochures would also be used by pumpers and inspectors. Based on follow-up conversations, businesses are probably even more likely to use outreach materials if they can insert their logo before they go to print.

Because working to develop specific outreach strategies in collaboration with the septic service providers was not initially identified as a high priority in the PIE Plan, deliverables were dependent on available funds not needed by other outreach strategies. This approach targets septic system owners who already contact service providers, which is only one segment of our overall target audience. This approach would not likely have much influence over individuals

who are not likely to ever contact a septic professional for an inspection or septic tank pump-out. However, based on recent conversations with Snohomish Health District, this approach is highly likely to be utilized by SHD beyond the scope of this grant if the materials are developed because it would be relatively easy and inexpensive for SHD to implement and manage over time.

ACTIVITY 1.4 SNOHOMISH COUNTY & SNOHOMISH HEALTH DISTRICT DISCUSSIONS

SWM and SHD met regularly throughout the project development, implementation and evaluation phases to ensure all efforts are well-coordinated. Both agencies plan to utilize the materials and lessons learned from this pilot study to launch a strategic outreach effort in priority areas throughout Snohomish County, and as a result, agency communication and program coordination and was an important factor enabling future successes. Although program staff changed multiple times during the course of this project, SWM and SHD were able to maintain a strong level of communication and coordination throughout the project.

ACTIVITY 2. COMMUNICATIONS DEVELOPMENT

IDENTIFY DESIRED BEHAVIORS

Activity 2 included the following goal:

> Develop a palette of clear, understandable and realistic OSS operation and maintenance practices to enable OSS owners to properly care for their septic system.

This goal was achieved and described in further detail below.

BEST MANAGEMENT PRACTICES (BMPS)

Snohomish County, in cooperation with the Snohomish Health District, has identified the following best management practices. The following activities will best ensure a properly functioning septic system:

HOUSEHOLD PRACTICES

Keep solids, toxics, oils and greases out of the drain

The following items add to the sludge and/or scum layers of the septic tank, could potentially clog the drainfield, and/or could poison the beneficial organisms that reside in the septic tank.

- × Fats, oils, greases
- × Harsh chemicals or cleaners, liquid drain de-cloggers, excessive bleach, paint thinner
- × Floss, condoms, hair, feminine products, kitty litter
- × Bath oils, excessive soaps
- × Old, unused medications
- × Kitchen scraps (also avoid garbage disposal use), coffee grind
- × Powdered detergent (use liquid instead)
- × Baby wipes, tissue, paper towels, excessive toilet paper

Reduce and control water usage

The following activities help regulate the amount of water that enters the septic tank at one time, allowing for proper settling of sludge and scum layers, and preventing drainfield clogging. These activities also help reduce the overall load on the system.

- ✓ Space laundry throughout the week
- ✓ Fix leaking sinks and toilets
- ✓ Use front-load washers, low-flow toilets and showerheads
- × Don't drain hot tubs into septic tank or onto the drainfield

SEPTIC TANK CARE

Perform tank pumping and maintenance

Sludge and scum layers in the septic tank build up over time. They must eventually be pumped out to ensure a properly functioning system. Failure to do so will result in drainfield clogging and system failure.

- ✓ Have a state-licensed or Health District-certified service provider inspect your tank at least every 3 years, depending on your system type. Visit [our website] for details.
- ✓ Have your system pumped approximately every 3 years based on your inspector's recommendation.
- ✓ Clean outlet screen yearly (if your tank has one)
- ✓ Keep inspection and maintenance records
- × Additives to "boost function" are not recommended

DRAINFIELD CARE

Protect your drainfield and reserve areas

The ground covering a septic system drainfield should be exposed to the air and should not be covered by any structures. Deep-rooted plants can invade the drainfield components and destroy them. Irrigation systems can prevent a drainfield from properly treating waste.

- ✗ No structures, parking, live-stock, roof drainage, runoff
- ✓ Keep irrigation and sprinkler systems away from drainfield
- ✓ Plant only grass or shallow-rooted plants

Regularly inspect your drainfield

It is important to regularly check a drainfield for potential signs of failure.

- ✓ Check for odors, wet spots, or surfacing sewage
- ✓ If your drainfield has monitoring ports, check them every couple of weeks. Note: if the ports continually contain water there may be a problem

BMPS CONSIDERED BUT NOT EXPLICITLY RECOMMENDED

Durability of Toilet Paper

Some septic system programs recommend the use of toilet paper that is *less* durable since it breaks down more easily in a septic tank. Other programs recommend the use of *more* durable toilet paper because it *doesn't* break down as easily in the septic tank and therefore is less likely to enter the drainfield and contribute materials like cellulose and lignin that persist and can clog drainfield pores.

The Health District does not take a stance on what type of toilet paper septic system users should purchase. Instead, the Health District feels that reducing amount of toilet paper is more important than the type of paper used.

Septic Tank Risers

The Snohomish Health District has chosen not to adopt the recommendation of septic system risers intended to ease access to the septic tank. Risers can pose a hazard to children if not properly secured. The Health District does not explicitly discourage the use of risers but also does not want to promote a potentially dangerous practice to homeowners.

DEVELOP PROGRAMMATIC GOALS

1) Develop a set of recommendations to guide future OSS public involvement and education efforts in Snohomish County based on findings from the Snohomish County Septic System pilot program.

A list of recommendations to guide future efforts is included later on in this report.

DEVELOP OUTREACH STRATEGIES & SOCIAL MARKETING MIX

Developing, implementing and evaluating various outreach modes for the purpose of informing a county-wide outreach program is an ambitious effort. Unlike many social marketing programs that are designed to change only one or a few behaviors among a targeted audience, the Snohomish County Septic System Program faced the challenge of encouraging our target audience to change twenty-two behaviors associated with OSS care and maintenance. SWM strived to simplify and compile the list to make it easier for our target audience to remember the preferred behaviors; however, based on the academic literature that informs the social marketing field, the more behaviors we include in our outreach program, the more likely we are to fail in our effort to persuade our target audience to adopt our preferred behaviors. As a result, SWM decided to test the effectiveness of a variety of outreach modes (direct mail, website, workshops, house calls) in addition to testing two outreach approaches to better understand the strengths and limitations on an individual property and across a targeted landscape of approximately 200+ residences.

Outreach Approach 1: Initially contact residents in four geographically separate focus areas via a direct mail campaign. The direct mail campaign was aimed to build awareness, learning and facilitate behavior change by providing access to information through the following outreach modes:

1) Septic system care workshops
2) Puget Sound Starts Here septic system web pages (advertised on mailers)
3) Septic system "house call" surveys conducted by SHD sanitarians. House call surveys were conducted only when invited by the landowner (the mailers provided an option to register for a house call).
4) Septic care BMP information on the mailers themselves.

Outreach Approach 2: Proactively conduct sanitary surveys at two geographically separate targeted focus areas from those residences participating in outreach approach 1. Sanitary surveys in Outreach Approach 2 would be conducted on each property without invitation from a landowner in the Fobes Hill and Church Creek areas. Survey notification letters were mailed to property owners within the Fobes Hill and Church Creek areas inviting homeowners to ask questions, provide suggestions, or voice concerns. In some cases homeowners chose not to participate with the sanitary surveys. SHD proceeded with conducting sanitary surveys for all targeted properties unless specific instruction was conveyed by the property owner(s) stating they wished not to participate.

Both outreach approaches included the following similar steps:

Step 1: Identify "hot spot" areas and select focus areas
Step 2: develop outreach strategies and protocols,
Step 3: project planning- develop homeowner correspondence, databases & recording forms,
Step 4: implement outreach approaches 1 and 2
Step 5: evaluate the effectiveness of outreach approach 1 and 2.

Each step is described in more detail below.

STEP 1: IDENTIFY 'HOT SPOT' AREAS & SELECT FOCUS AREAS

Snohomish County performed an in-depth analysis using Geographic Information Systems (GIS) data to identify areas within Snohomish County that would be best suited to benefit from Sanitary Surveys in the Stillaguamish watershed and Snohomish watershed.

Snohomish County Surface Water Management (SWM) staff obtained the Snohomish Health District's DAVE records in November 2006 and combined with Snohomish County parcel data to produce the first GIS based dataset for septic system locations throughout the county. SWM obtained an updated data of the DAVE records in 2009, and updated the GIS data set.
SWM created a detailed and step-by-step process outlining how to integrate parcel data with the DAVE data. The intended audience for this document is a GIS analyst. Please see *Attachment 2.0a* for the detailed protocols for creating septic data by parcel.

SWM reviewed the GIS dataset for overall accuracy prior to finalizing the GIS dataset; however, both SWM and SHD acknowledge that the data is not completely accurate due to limitations to the original parcel data from the Snohomish County Assessor's Office and DAVE data. The Assessor's Office keeps records of each parcel for appraisal purposes to determine assessments. The appraisers physically visit each parcel once in a six year cycle and collect

information. Part of that information is determining if a parcel is on sewer or septic. Usually that determination is made from the street and observing whether sewer features are present. Another way the appraisers determine if sewer is present is using sewer line GIS data collected from all the sewer providers in the County.

In both cases, it is possible that the appraisers could make an incorrect assumption that a parcel is connected to a sewer treatment system. They do not have the staff to definitively determine this information for each parcel. The DAVE data are also not completely correct since records prior to the 1980s were not always accurate. In addition, when septic parcels switch over to sewer, the Health District is not notified, and as a result, the DAVE database is not updated to reflect that the parcel is no longer using an onsite septic system.

Given existing time constraints, these data have not been reviewed parcel by parcel, but by using the two datasets mentioned above SWM and SHD are confident that the data are a good estimation of which parcels are septic.

SWM established a positive working relationship with the Health District and proactively schedules annual updates of the DAVE data for SWM to use when updating the septic GIS files.

The analysis strategy and criteria for identification of the target areas was completed, and described in more detail under Section E. and Section F in this final report.
SWM and SHD identified and assessed many criteria to determine where the hot spots for failures were likely to exist within the county. SWM GIS staff performed a variety of analyses to identify potential hot spot areas. The parameters included in the analysis are included under Section F. of this report.

Following the analysis, SWM determined that septic system failures do not readily correlate with other criteria. As a result, SWM could not identify geographic hot spot locations where septic systems failures are more likely to occur within the county. Please see *Attachment 2.0b* for maps showing a variety of the analyses performed.

The various criteria included in our analyses were limited to the GIS data sets available to the county and those appropriate to use for analyses. The criteria included:

1. Year septic installed. Many parcels did not have this information, and SWM used year structure built if it was missing.
2. SWM Drainage complaints, 1988 to present (Nov 07)
3. Density of septic systems

4. Hydric soils
5. Septic types
6. Suspected and confirmed septic failure locations from SWM Water Quality database
7. Proximity to watercourses
8. SHD locations of reported complaints
9. Parcel size
10. Prioritize locations outside Urban Growth Area
11. Ease/ability to access to align with water quality monitoring
12. Potential similarity to other Snohomish County regions using Values Attitudes and Lifestyles (VALS) data

In addition to the criteria described above, SWM staff also used identification of hot spot areas outside the Urban Growth Area to avoid the potential for annexation during the scope of the pilot project, in addition to the ability to access specific areas to conduct water quality monitoring for implementation of Grant Task 6: Monitoring. SWM planned to perform water quality monitoring in some focus areas as well, and as a result, how easily a site could be monitored factored into its selection.

SWM staff visited each potential focus area site to further refine its priority score. Following site visits and consultation with Washington Department of Ecology staff, SWM selected the four focus areas identified below. A map of the focus area locations is shown on *Figure 1* on the following page.

<u>Stillaguamish Watershed:</u>

- Church Creek

<u>Snohomish Watershed</u>

- Fobes Hill
- Getchell Hill
- Maltby

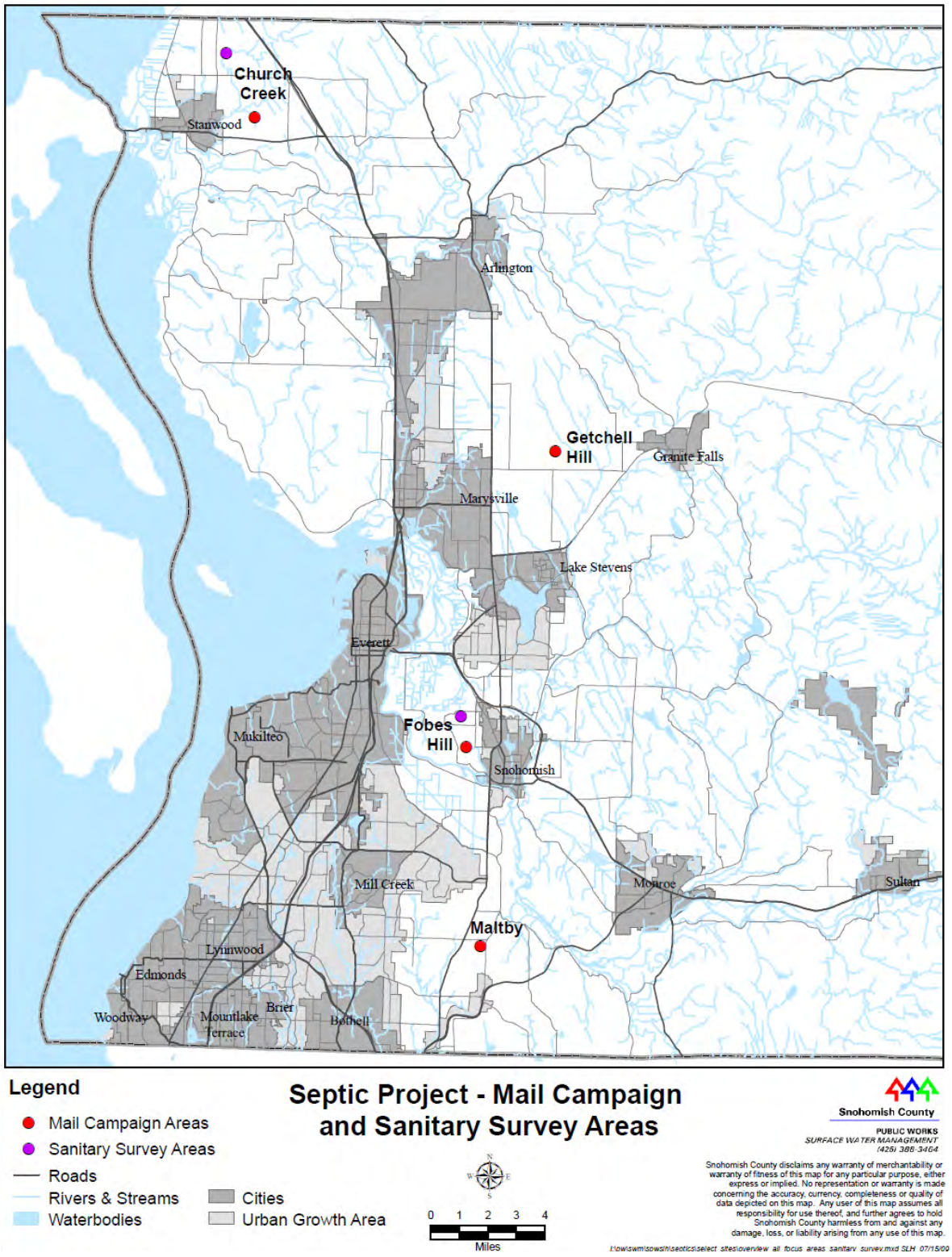


Figure 2: Mail Campaign and Sanitary Survey focus area locations

Outreach Approach 1: Mail Campaign Focus Areas:

Outreach efforts were targeted directly to 214 residences in Maltby, 226 residences in Fobes Hill, 227 residences in Getchell Hill, and 219 residences in Church Creek.

Outreach Approach 2: Sanitary Survey Focus Areas:

Outreach efforts in Outreach Approach 2 targeted different residents than those targeted in Outreach Approach 1 (Figure 2). 281 residences were targeted in Fobes Hill, and 211 residences were targeted in Church Creek.

Maltby

Maltby is located south of the City of Snohomish and the Snohomish River floodplain, and east of Hwy 9. Maltby sits between the City of Snohomish, City of Bothell and the City of Woodinville. It is comprised of single family homes ranging in value, size and age. Most properties are large lots. The town of Maltby is a community hub. Maltby is a bedroom community- many people commute elsewhere to work. Maltby is a part of the Snohomish River watershed.

Fobes Hill

Fobes Hill is located east of the City of Everett, WA and is approximately bounded by Ebey Slough to the north, the Snohomish River to the south and west, and Bickford Avenue to the east. It is comprised of single family homes ranging in value, size and age. Most properties are on large lots. Fobes Hill is a bedroom community- many people commute elsewhere to work. Fobes Hill does not have a community hub. Fobes Hill is a part of the Snohomish River watershed.

Getchell Hill

Getchell Hill is a rural area in Snohomish County located east of Marysville and west of Granite Falls. The Getchell Hill Neighborhood is outlined by 88th St, Highway 9, Highway 528 (64th Street), Grove Street and Munson Creek. It is comprised of single family homes with interspersed manufactured housing; these homes range in value and size. Most are on large lots. Specific neighborhoods include (a) Bayview Ridge, (b) Centennial Trails, (c) Tuscany, (d) Sunset Ridge, (e) Copper Creek, (f) Berrywoods, (g) Uplands at Northpointe, (h) Northpointe Summit, (i) Rock Creek and (j) Whiskey Ridge. A new school, Getchell High School, is currently under construction. Getchell Hill is a part of the Snohomish River watershed.

Getchell Hill is zoned for single family homes, with one multi-family designation, two community business designations, and one recreation designation. *Cedarcrest Golf Course* is located in this area, and there are several parks.

Church Creek

The Church Creek area is located north of Stanwood, WA and is bordered roughly by the Snohomish-Skagit County line to the north, 300th ST NW to the south, Interstate 5 to the east, and 76th Avenue NW and Lake Ketchum to the west. Church Creek is a part of the Stillaguamish River watershed.

Stanwood is the northernmost city in Snohomish County. Stanwood serves Camano Island and holds the Stanwood-Camano Fair every August; this is a community-oriented town with an abundance of activities, artists, and a focus on water. Many of the residential development in Church Creek appear to be new or constructed within the past 20 years. Newer developments have smaller sized lot sizes. At least one elementary school, the Senior Center, and High School are all located within walking distance of the actual creek.

Church Creek drains into the Stillaguamish Watershed. The creek is well connected to the community and identified in the names of residential developments, such as Church Creek Estates, established 1992.

Church Creek appears to be an active and engaged community, with residents walking, bicycling, or enjoying the outdoors. The Senior Center doubles as a Community Center with an abundance of activity and serves to host many local meetings/ events. Stanwood is interconnected with communities of Camano Island, Conway, and Silvana.

Although all of these areas are likely characterized as rural residential, Church Creek and Getchell Hill are perhaps considered more rural due to larger lot sizes, greater farming activities, and less areas of more densely developed housing. Additionally, geographically, Church Creek and Getchell Hill are farther away from the highly-developed southern portion of Snohomish County. Maltby and Fobes Hill are geographically close to the City of Woodinville and Cities of Everett and Snohomish, respectively, and as a result, residences in these areas are less likely to consider themselves as rural as Church Creek and Getchell Hill.

STEP 2: DEVELOP OUTREACH MODE STRATEGIES & PROTOCOLS

Strategy

SHD developed a strategy that enabled SHD and SWM to determine the effectiveness of the two outreach approaches described above by comparing and contrasting each approach's effectiveness when conducting sanitary surveys and educating landowners at two different scales:

1) At the individual property scale, and

2) Across a landscape of 200+ homes.

Sanitary survey protocols for Outreach Approach 1 and Outreach Approach 2 are further described in Activity 3.3 and Activity 4 of this report.

STEP 3: PROJECT PLANNING

Project planning is described in detail for each outreach approach later in this report.

STEP 4: IMPLEMENT OUTREACH APPROACHES 1 & 2

Outreach Approaches 1 and 2 are described below.

OUTREACH APPROACH 1: DIRECT MAIL & WORKSHOP CAMPAIGN

Mailer Program Sanitary Surveys- By Invitation from Landowner

SWM distributed a series of three educational mailers to targeted residences, and included various themes and OSS operation and maintenance information (*Attachments 3.1b-3.1g*).

Mailers were sent to 219 residences in Church Creek, 226 residences in Fobes Hill, 227 residences in Getchell Hill and 214 residences in Maltby. Mailers were delivered to each residence approximately 2 weeks apart, beginning in mid-April 2011 and ending in mid-May 2011. Mailers 1 and 2 provided an option for the landowner to invite a SHD Environmental Health Specialist to their property to answer questions and perform an inspection by tearing off a reply card attached to each mailer and returning it postage paid, or by contacting SHD via telephone or email.

SHD responded within one week after receiving each invitation by contacting by phone to schedule sanitary surveys. Most sanitary survey protocols were followed as described in

Section 3.3 and Section 4 below; however, there were two key differences. Since SHD was specifically invited onto the property by the homeowner, safety was not considered to be an issue so only one staff member conducted the survey, and staff therefore was able to spend more time with the property owner. Information on septic best management practices asked by staff was noted informally on a *SHD Workshop Follow-Up Visit Tracking Form* (*Attachment 3.2o*).

Septic Care Workshop Participant Sanitary Surveys- By Invitation from Landowner

SWM coordinated a series of six septic care workshops to landowners in Snohomish County in September, October and November 2010.

The purpose of these workshops was to educate residents on basic septic system care, and to better understand the effectiveness of this approach when targeting a narrow audience. Septic care workshops were held at five different sites on six occasions. Elaborate mailers, door hangers, reminder postcards, and posters were utilized to reach 886 residents in the four focus groups. After testing the effectiveness of this outreach strategy with the targeted and narrow target audience (and receiving low workshop registration numbers), SWM sent an additional postcard mailer to 8,000 residents throughout Snohomish County to increase workshop attendance.

In total, 152 landowners attended the workshops. Every participant received a packet with a variety of septic care educational materials, and at the workshops, either SWM staff or Snohomish County Septic Issues Committee members (an advisory group of industry professionals to SHD) encouraged workshop participants to invite a SHD Environmental Health Specialist to their property to conduct a sanitary survey and answer questions.

SWM delivered the names and addresses of workshops participants who registered for a free site visit to SHD staff, and SHD contacted each workshop participant via phone calls and follow-up letters to schedule a site visit.

SHD contacted workshop registrants to schedule inspections in December 2010, up to two months after a workshop participant registered. Initially all residents were contacted by phone to schedule an appointment. If SHD did not receive a response after a couple of weeks, a reminder letter (*Attachment 3.2n*) was mailed to the property owner.

Sanitary survey protocols were followed as described in Section 3.3 and 4 below with the previous noted exception that only one staff member conducted these surveys. Activities performed during this septic care inspection included the following:

- SHD provided a copy of the septic system as-built drawing to the landowner
- SHD reviewed pertinent information on file with the landowner
- SHD helped identify the specific location of various components of the OSS, including a reserve area
- SHD answered all questions and/or concerns

OUTREACH APPROACH 2: TARGETED SANITARY SURVEYS

A detailed explanation of Outreach Approach 2 is provided in Activity 4 of this report. Below is a brief summary to help provide context to the reader.

Notify Homeowners & Conduct Sanitary Surveys

Property owners within these two targeted areas- Fobes Hill and Church Creek- received a notification letter (*Attachment 4.0a*) from SHD explaining the primary goals of the proactive sanitary survey and inviting homeowners to ask questions, provide suggestions, or voice concerns.

Sanitary surveys were mostly completed at Fobes Hill prior to conducting sanitary surveys at Church Creek. Although the administrative effort was similar for both the Fobes Hill and Church Creek survey areas, some of the protocols implemented while conducting sanitary surveys evolved, and as a consequence, SHD revised procedures over the course of the project to maximize efficiency, safety and effectiveness**.**

Send Landowner a Follow-Up Letter with Educational Materials

With Outreach Approach 2, SHD immediately followed each completed and partial sanitary survey by mailing an informational follow-up letter (*Attachment 4.0d*) with specific comments pertaining to their property's OSS and a plethora of informational brochures related to septic care and water conservation, and a copy of the OSS as-built drawing. Two informational letters could be generated from our database depending on whether SHD had record of an onsite septic system as-built drawing.

Educational materials identified in Activity 2.2 were distributed to OSS homeowners as deemed appropriate following sanitary surveys.

STEP 5: PROGRAM EVALUATION

SHD and SWM coordinated to evaluate a variety of components of the program.

- OSS sanitary survey tracking forms were completed and included in the SHD database to provide information for evaluation.
- Sanitary Survey Questionnaire form was developed and used by SHD staff to record behavioral information of residents who were present during the sanitary survey.
- Mail Campaign- mailer tear off reply cards were recorded to calculate the number and percentage of invitations for sanitary surveys. SHD did not receive emails or phone calls for invitations.
- Septic Care Workshop Participant Registration- number of mailers, workshop participants, immediate post workshop evaluations, number of registrants who signed up for sanitary surveys, number of registrants who followed through with the surveys.
- Number of septic care kits (including water saving devices, a sink strainer, and a toilet leak dye testing kit) distributed to landowners in Church Creek.
- SWM partnered with Western Washington University to conduct a telephone survey to aid in evaluating the sanitary surveys, mailers and workshops ability to educate landowners about their property's OSS location, in addition to the landowner's change in specific OSS best management practices as a result of these outreach approaches.

ACTIVITY 2.1 SEPTIC SYSTEM PROGRAM WEBSITE

The goals for Activity 2.1 include:

1) Develop user-friendly and interactive OSS web pages to promote OSS best management practices.
2) Evaluate the effectiveness of OSS web pages at influencing our targeted audience's OSS care behaviors among residents in our targeted focus areas.

These goals were achieved and described in further detail below.

WEBSITE STRATEGY

A well-designed website is absolutely essential for the septic system website to be successful. A website offers a venue to clearly describe complex, system-specific septic system care practices in detail.

Initially, SWM planned to work in cooperation with SHD to reorganize SHD's existing web content into a picture-rich, clearly organized website with the end user in mind. SWM also planned to improve existing content and develop new content for the website where needed.

Unfortunately, when SWM began working with the SHD website coordinator, SWM learned that our initial vision to make improvements to the SHD website was not possible because our vision was not consistent with the SHD website's overall format, layout and strategy.

As a result, SWM decided to look for a different web platform that would accomplish the same goals as originally intended. SWM staff met with STormwater Outreach for Regional Municipalities (STORM), a regional collaborative of Phase 1 and Phase 2 Nonpoint Pollution Detection and Elimination System (NPDES) permittees collaborating on a regional outreach campaign called *Puget Sound Starts Here* (*PSSH*), and proposed to develop septic system outreach web pages on the *PSSH* website. The *PSSH* website is highly interactive, user-friendly and has the capability of linking to multiple health jurisdictions to promote septic system care to a region-wide audience. Additionally, the PSSH campaign has a significant advertising budget and purchases advertisements on television, radio, internet, mass transit, and other communication channels. As a result, creating septic care web pages on the PSSH website has the potential to increase region-wide readership to maximize its effectiveness while maintaining relevant for Snohomish County citizens.

STORM accepted SWMs proposal to add septic outreach web pages to the *PSSH* website, and SWM established a contract with Frause, a Seattle-based communications firm that coordinates all *PSSH* advertising. SWM also obtained approval from the Environmental Health Director Board to develop web pages with the intention of creating a one-stop website location where all Puget Sound health jurisdictions will link to the PSSH web pages to promote septic system Best Management Practices. SWM requested professional review of the website copy from a number of health jurisdictions throughout the Puget Sound region, in addition to comments from the Snohomish Health District Septic Issues Committee, and integrated comments as appropriate into the final copy version.

WEBSITE DESIGN

SWM initially reviewed over 8 different health jurisdiction websites throughout the Puget Sound region to obtain design and copy ideas for the *PSSH* web pages. SWM worked in collaboration with Frause to develop a site map, to refine web page content and copy. SWM also coordinated with Frause to create an interactive web page with a house and septic system graphic that allows the web viewer to hover the mouse cursor over a certain portion of a house

and learn Best Management Practices associated with household activities that occur in each room. SWM obtained approval to link to other online resources, including brochures and videos, and developed fact sheets and other helpful materials that are now available for download.

Each page includes an associated image, helpful content, links to downloadable forms, brochures and/or videos. The website has the following site map structure.

- What is a Septic System?
  - Types of Septic Systems
  - Signs of Septic System Failure
- How It Works
- System Maintenance
  - Interactive House: Do's and Don'ts
  - Hire a Certified Professional
  - Inspection, Pumping & Repair
  - Drainfield Landscaping
- FAQs
- In Your Local Area

The website was launched in January 2011. The URL to the main PSSH septic web pages is www.pugetsoundstartshere.org/septic. SWM also purchased CMS access to allow SWM to make changes and updates to the web pages whenever necessary. Additionally, SWM established Google Analytics to allow for web viewer tracking to aid in measuring effectiveness of web page use and to record the number of viewers who visited the site as a result from the targeted direct mail campaign.

SWM has been in communication with Washington Department of Health to discuss long-term maintenance of the website.

WEBSITE RESULTS & EFFECTIVENESS

Results

Professional-Looking Web Pages

Contracting with Frause offered a significant advantage because it enabled us to work with a number of communications professionals to develop a simple and effective site map, review copy and ensure we are targeting our messages effectively. Additionally, Frause has capabilities

with their web software that neither Snohomish County nor Snohomish Health District have, which enabled the website to be significantly more interactive.

Website Copy

The Puget Sound Starts Here web pages are formatted in a manner that limits horizontal space across a computer monitor. As a result, we were limited with how much information a web viewer can read on the screen without having to scroll down the page.

Photos and Images

To keep costs down, we were limited to only one photo per web page, and photos needed to be fairly small in size. As a result, images seem "distant" and non-engaging compared to other websites.

Access to the Septic Web Pages from the *PSSH* Main Page

STORM and Puget Sound Partnership collectively manage the *PSSH* web pages. The primary goal of the PSSH website is to promote BMPs that support clean surface waters. For the first several years, the PSSH campaign is working to primarily promote only three topics: pet waste disposal, car washing and yard care. Currently, the main PSSH main page does not have any reference to septic systems, and the septic system pages are so buried and difficult to access that very few people are likely to find the pages. As a result, current readership of the PSSH pages is likely to be minimal until this problem is remedied. SWM has had conversations with Washington Department of Health (DOH), which is considering using the copy we developed for the PSSH website and developing web pages on the DOH website as well. DOH has been playing an active role in promoting strategic septic care BMP outreach throughout the Puget Sound region, and is a natural fit to host a similar website to avoid the above-mentioned issues with the PSSH web pages. However, maintaining the PSSH web pages could also be advantageous due to the high level of advertising to the site, though advertising is not likely to promote septic system care.

Effectiveness

Web Page Google Analytics

SWM delivered direct mail pieces to our targeted residences on April 12, April 26 and May 12, 2011. Google Analytics is a web page monitoring tool that provides helpful tracking data on a daily basis. The following information is reported on Google Analytics between April 12 and June 30, 2011.

- Total number of distinct visitors: 100
- Total number of visits: 115
- Total page views: 237
- Average pages per visit: 2.15
- Bounce Rate (a high number indicates low relevance to audience): 56.52%
- Average Time on Site: 2 min, 24sec.
- Percent New Visitors: 78.38%
- Percent Return Visitors: 21.62%

Website hits did not significantly increase following each mailer. The maximum number of hits per day was 6 hits on May 6, 2011, and as a result, an even number of visits occurred over the course of the mailer program, averaging approximately 2 hits per day.

Web Viewer Statistics

The average time viewers remained on the website was 2 minutes, 24 seconds, and the average pages viewed per visit was 2.15. Listed below are statistics specific to each web page in order of greatest to fewest hits:

Table 1: Website Viewer Statistics

Web Page	Page Views	Unique Page Views	Avg. Time on Page	Bounce Rate
Do's and Don't's	39	14	22 sec	23.15%
FAQs	12	10	1min 27sec	100%
Types of Systems	9	7	1min 30 sec	0%
Drainfield Landscaping	8	8	1min 2 sec	67%
Hiring a Pro	8	7	1min 14 sec	0%
Signs of Failure	8	7	1min 14sec	0%
In Your Local Area	7	6	5min 4sec	0%
Inspection & Pumping	6	6	2min 45sec	0%
Maintenance	6	5	46 sec	100%

The average time on page exceeds one minute per page except for the Do's and Don't's page, and Maintenance page. This suggests that the Do's and Don't's page, albeit interactive, could be improved. For example, make the text in the pop-up bubbles larger and better spaced to make it easier to read. The Maintenance page could be improved by limiting the amount of text on the page, and minimizing the need to scroll down the page to view the rest of the page.

Effectiveness of Using Mailers to Advertise the Website

It is unlikely that a targeted resident who received our mailer and chose to type in the PSSH septic web page URL to search the website would bounce off the main page without viewing a second page, considering the average time spent on the main page is only 22 seconds. As a result, it is likely that approximately 56 of the web visitors found the septic system pages from the PSSH main page, and not because they received a mailer (based on the bounce back rate).

Therefore, we estimate that approximately 44 visitors (of the 886 who received mailers, equaling 4.9%) visited the site as a result of receiving the mailers.

Although there are no set guidelines for return rates from mailers, industry standards for direct mail response rates suggest that a "good" response rate is approximately 2% per mailer. Our combined response rate from three mailers equaled 4.9%, which would likely be considered an average response when dividing responses across three mailers. Because our goal is to maximize the number of homeowners we educate on septic system care BMPs, we can estimate that only 4.9% of our targeted residences are likely to visit the website and significantly heighten their level of knowledge of septic system care when using the three mailer approach.

SWM also conducted a post-outreach program telephone survey, and included the following question to better understand the potential impact of the mailers and website:

"As a result of these mailers, have you visited one or more websites to learn more about your septic system and/or how to care for it?"

One (1) respondent answered the question with "yes," and 35 respondents answered the question "no." The response rate based on the telephone survey data is approximately 2.5%, yielding a slightly lower response compared to the Google Analytics data.

These effectiveness monitoring data indicate that the mailers, in their current form, are only average at influencing a septic owner to visit the septic care website. Interestingly, when focus group members were asked if they would visit the website based on the mailer format and design, a significant majority of focus group participants stated that they would likely go to a website. However, the individuals who participated in the focus group were self-selected, and as a result, focus group participants were probably more likely to proactively visit a website compared to the average homeowner. 2011 focus group findings suggest that simplifying Mailer 2, which promoted the website and having the OSS inspected, would potentially create a significant increase in traffic to the website if the mailer peaked a reader's interest with a

helpful fact and then directed them to the website, without including additional information about pumping (which would be included in a separate mailer in the series).

WEBSITE RECOMMENDATIONS

Based on the evaluation above, SWM recommends the following actions to improve web page viewership and use. Activities below are beyond the scope of the grant requirements:

1) Display the web URL on mailers more aggressively and prominently.
2) Divide the information in Mailer 1 into two mailers to simplify:

   Mailer 1.a- focus on learning about the septic system and how to care for it. Promote the web URL much more aggressively and prominently on the mailer and highlight website information that is related to learning about the system (types, do's and don'ts, how it works, etc).

   Mailer 1b- focus on hiring a professional for inspection and maintenance. Promote the web URL more aggressively and prominently on the mailer, and highlight website information that is related to professional O&M.

3) Improve visibility and access to the PSSH Septic Pages from the Main PSSH web page.
4) Develop a sister website on the Washington Dept of Health website with similar site map and copy, but with a format that would allow for more horizontal space to be used and more images and photographs.
5) Continue to track website use using Google Analytics to make additional improvements over time.

ACTIVITY 2.2 FACT SHEET & BROCHURES

The goal of Activity 2.2 include:

1. Provide fact sheets and brochures about proper septic system care via technical assistance visits, sanitary surveys, workshops, and online as pdfs.

SWM developed three fact sheets and/or helpful forms to augment the existing educational material.

- 8.5" x 11" Do's and Don'ts fact sheet (*Attachment 2.2a*), which includes a comprehensive list of BMPs for the home, the septic tank and drainfield. SWM tested the fact sheet at focus groups, and received very positive feedback, as well as additional recommendations, which were included in the final artwork.
- Septic System House Call Checklist (*Attachment 2.2b*)- Snohomish County- an easy-to-use checklist to improve understanding of higher-risk and lower-risk practices.
- Questions for Pumpers Form (*Attachment 2.2c*) - a list of questions to ask professional pumpers to aid in choosing a pumper.

SWM also made use of existing brochures or fact sheets. In addition to the above-mentioned facts sheet and forms, SWM distributed the following brochures and fact sheets as appropriate during (or after) technical assistance visits, sanitary surveys, workshops, and made all accessible via free download at the PSSH website:

- The Truth about Septic System Additives- Kitsap County
- Washington Dept of Health Brochures-
    - Understanding & Caring for your Gravity Septic System,
    - Understanding & Caring for your Sand Filter Septic System
    - Understanding & Caring for your Mound Septic System
    - Understanding & Caring for your Pressure Distribution Septic System
- Drainfield Landscaping- WSU
- Landscaping Your Septic System- UW SeaGrant
- Homeowner's Guide to Onsite Septic Systems- Kitsap County
- Pumping Your Septic Tank- UW SeaGrant
- Septic System House Call Checklist- Snohomish County
- Stick Test Brochure- Thurston County
- Link to Septic 101 video- Island County

ACTIVITY 2.3 PROMOTIONAL ITEMS & INCENTIVES

The goals of Activity 2.3 included:

1. Obtain and disseminate promotional items to encourage adoption of preferred best management practices among targeted audience

2. Consider and better understand the use of incentives to attend the septic care workshops
3. Use and test for effective promotional items to encourage responses to direct mail pieces

These goals were achieved and described in further detail below.

The preference for no-nonsense outreach materials expressed in our focus groups suggested that SWM should distribute useful items directly related to septic system care, rather than promotional items that could be construed as wasteful or silly.

The following list of potential incentives SWM were considered, in addition to information about whether and why these items were, or were not, used in our outreach program:

Table 2: Promotional Items SWM Considered

Promotional Item Description	Was Item Used?	Additional Information
Sink/bathtub drain strainers	Yes	The City of Everett recently conducted a sink strainer evaluation and determined that Progressive, Inc. stainless steel sink strainers were most preferred by residents. SWM purchased stainless steel (silver) and white painted Progressive sink strainers to distribute at workshops, mailers, and sanitary surveys. Silver colored strainers were 2x more popular than the white strainers.
Plumbing snake	No	Expense of plumbing snakes was cost prohibitive.
Washing machine lint traps	No	Not determined to be amongst the highest priority- less likely to be used by target audience and likely to have a minimal impact on septic system function.
Toilet leak dye strips	Yes	Inexpensive, easy to distribute and seen as useful by target audience. We purchased strips instead of tablets- they are safer for children.
Laminated fact sheets	No	Non-laminated 8.5” x 11” fact sheets as described in Activity 2.2 were distributed
Refrigerator magnets	No	Likely to be used initially by target audience for do’s and don’ts, but was not determined to be among the highest priority compared to other items

Table 2: Promotional Items SWM Considered (Continued)

Table 2: Promotional Items SWM Considered	Table 2: Promotional Items SWM Considered	Table 2: Promotional Items SWM Considered
Septic System Care Kit	Yes	Septic care kits were developed by augmenting an Energy Kit, which was donated by Snohomish Public Utility District. Kit components included water saving showerhead, 2 sink aerators, a fluorescent light bulb, sink strainer, toilet leak dye strips. Kits were distributed at workshops, sanitary surveys and as mailer promotional items.
Pumper voucher or rebate	No	Investigated and not pursued. A very thoughtful rebate pilot program in Thurston County was deemed ineffective, and the voucher program was determined not to be cost effective due to significant time and program management requirements to ensure all professional service companies have an opportunity to equally participate in the program.
Shower timer	No	Item not likely to have a high level of use by target audience.

Among the promotional items, the septic System Care Kit was the most popular among our target audience, as it is a $25 value and seen as relevant to our outreach program. SWM was fortunate to partner with Snohomish Public Utility District (PUD), which provides free Energy Kits to all its customers (all unincorporated Snohomish County residents are customers of the PUD). This partnership enables SWM to keep its program costs low while distributing a meaningful promotional item. Snohomish Health District Environmental Health Specialists who distributed kits routinely received enthusiastic praise from our targeted residents for providing the kits.

ACTIVITY 3. OUTREACH APPROACH 1: MAIL CAMPAIGN

We selected six focus areas to test our outreach methods. In four of six focus areas (Maltby, Fobes Hill, Getchell Hill and Church Creek), SWM and SHD piloted an approach based on a direct mail campaign. The mail campaign was used to connect residents to the website, workshops, and sanitarian technical assistance visits.

ACTIVITY 3.1 DIRECT MAIL CAMPAIGN

The Goals of Activity 3.1 included:

1. Identify themes, images and messages that have the highest likelihood at promoting mailer readership.
2. Evaluate the effectiveness of a direct mail campaign at connecting residents to OSS learning venues including an OSS website, OSS homeowner workshop and OSS house calls.
3. Evaluate the effectiveness of a direct mail campaign at influencing our targeted audience's OSS care behaviors.
4. Evaluate the effectiveness of a direct mail campaign at providing promotional items to aid in OSS care, including a sink strainer and septic care kit.
5. Evaluate the effectiveness of a direct mail campaign as a strategy to solicit and conduct septic system house calls.

All goals were successfully accomplished and described in more detail in the following sections.

DIRECT MAIL STRATEGY & RESULTS

Direct mail is considered among the least expensive outreach modes to effectively reach and communicate with an audience comprised of tens-of-thousands of people.

SWM developed a variety of mailer themes, messages, tag lines and images to test with focus groups based on the results from the interactive polling forum and telephone surveys. The original intent for the direct mail pieces described in the PIE Plan was to use the direct mail pieces to connect residents to an appropriate venue to learn the best management practices (website, workshops and a SHD "septic system house call") due to the complex nature of the behaviors our program promotes, and not necessarily to include the full suite of best management practices on the mail pieces directly. However, responses from focus groups

conducted in 2009 and 2011 indicate that including specific activities on the mailers is likely to be the most effective means for communicating with our target audience if the mailers are designed to effectively align with OSS owners' motivators and address their barriers to action. In fact, the 2011 focus group findings suggest that direct mailers are the most preferred method of receiving information on septic system BMPs.

Initially, SWM planned to conduct only two focus groups in 2009 to test messages, images and tag lines which would inform the development of the mailer series. However, in 2011, SWM was invited to partner with a separate public opinion research program lead by Tacoma-Pierce Health Department and Thurston County Health Department and test newly created mailers in 2011. The 2011 focus groups provided additional insights on how to refine messages and images, and most effectively convey septic care information and encourage OSS owners to adopt OSS Best Management Practices directly through the mail pieces, visit the *PSSH* website, contact SHD for a septic system house call, and return the reply card for an educational packet, a sink strainer and a septic system care kit.

Described below are the key findings

2009 FOCUS GROUP RESULTS & KEY FINDINGS

SWM conducted two focus groups in June 2009 to further SWM's understanding of motivators and barriers to performing preferred actions, test whether the identified Best Management Practices were considered realistic and possible to adopt, in addition to testing messages and images on draft mail pieces. The section below highlights the key findings from the 2009 Public Opinion Focus Group Final Report (*Attachment 1.2c*) as they pertain to OSS outreach mailers.

Motivators

- Owner responsibility
- Saving money
- Protecting family and personal health
- Preventing plumbing backups
- Protecting your local stream

Barriers to Performing Preferred Actions

<u>Perform Tank Pumping & Maintenance</u>

- Cost of having a professional inspect the OSS and/or pump the tank(s).
- Differences in inspection frequency among OSS type

- Differences in inspection requirements among health jurisdictions causes uncertainty and confusion (landowners hear from friends in other counties that they have different requirements)
- Belief that they only need to pump when the OSS fails, or that they never need to pump.

Keep Solids, Toxins, Oils and Grease Out Of the Drain

- Uncertainty about where to dispose of items
- Competing (and inaccurate) information about using septic additives and/or other perceived "OSS aids" such as brewer's yeast, a head of raw cabbage, etc.
- Some sink strainers have wires that can poke fingers

Use Water Wisely

- Spacing loads of laundry throughout the week- some OSS owners like to clean laundry only on weekends all at once and won't likely change unless an obvious failure occurs.
- Low flow toilets- perception that low flow toilets don't work as well. Many OSS owners have heard that low flow toilets can require multiple flushes to send human waste down the drain, and are not likely to purchase them.
- Difficulty and initial expense of installing low-flow shower heads, aerators, etc.

Regularly Inspect Your Drainfield

- Many people don't know how to inspect their drainfield, what to look for, etc.
- Some people don't know where it is located or how it works, and so uncertainty exists among OSS owners if they are inspecting the drainfield effectively.

Effective Tag lines

Short and direct tag lines are likely to be most effective. The following tag lines were rated as most likely to resonate with our audience effectively:

- Septic system care depends on you
- Extend the life of your septic system
- Septic system care is up to you
- Don't let your septic system drain your wallet
- Protect your investment

Themes, Messages and Images

The following mailer themes, messages and images were initially tested with two focus groups in 2009. *Attachment 3.1a* includes each mailer SWM tested.

Mailer 1:

Theme: Protect your family and pets health
Message: Your family. Your Septic System. Get the Connection?
Images: 1. Family sitting on lawn; 2. Toilet and house

Mailer 2:

Theme: Protect Your Septic System's Health/ Protect family health
Message: Is your septic system healthy? Has it had a check up recently?
Your septic system's under there, are you sure it's working?
Images: Doctor with a stethoscope over a drainfield
Girls lying on the lawn above a drainfield

Mailer 3:

Theme: Protect your investment/ Protect family health
Message: You've got a big investment out there!
Your family. Your septic system. Get the connection?
Images: House and backyard lawn
Boy and dog on lawn

Mailer 4:

Theme: Protect family's health
Message: Septic system care is up to you./ Drainfield rodeo
Images: Mom and son on lawn
Boy riding a saddle on a lawn

Results from the 2009 focus groups indicated that none of these mailers would compel our target audience to open the mailer or act upon the information provided in the mailer. Many people agreed that they would trash all of the mailers without even opening them. However, there were two images within the mailers that focus group participants suggested would be effective if improved, such as the image of the girls on the lawn and the concept of a doctor checking on a drainfield. As a result, SWM needed to "go back to the drawing board" and develop new mailers using the additional feedback on motivators, barriers and tag lines.

2011 FOCUS GROUP RESULTS & MAIL REPLY CARD FINDINGS

SWM developed six new mailers using the findings from the 2009 focus groups and tested them, in addition to tag lines and logos at four additional focus groups in April and May 2011. SWM chose not to pursue the concept of a doctor checking up on the septic system due to the inability to create a professional-looking graphic within our budget.

Effective tag lines:

- Septic system care depends on you
- Don't let your septic system drain your wallet
- Protect your investment
- Extend the life of your septic system

Moderately effective tag lines:

- Septic systems impact water quality
- Properly maintained and monitored systems have longer operating lives
- Maintain your septic system to save money.

Ineffective Tag lines

- Inspect now and avoid any untimely delays during future building projects
- Complete your inspection now to assure your system is working properly
- It's the law

The 2011 focus groups provided additional feedback that aided SWM in making further refinements of the mailers. Listed below are findings from the 2011 focus groups and data collected from postage-paid tear-off reply postcards that included an incentive (sink strainer, septic care kit, etc). Tear-off reply cards help gauge readership.

Mailer 1 *(Attachment 3.1b)*
Theme: Septic system care workshop advertisement
Images & Messages:
Outside Panel:
Image- Money going down the drain
Message- Don't let your septic system drain your wallet

Inside Panels:

Image- graphic of a gravity septic system connected to a house

Message- Protect your investment

Calls to action (summarized):

- Register for and attend a septic system care workshop

Feedback from Focus Groups:

- The outside panel looks too much like an advertisement and not from SHD. Many people would probably trash it without even opening it thinking it was "junk mail."
- Revise to use a different image on the outside of the mailer, and make the SHD logo very large and easily visible on both outside panels- this is important to ensure that readers don't mistake the mailer as an advertisement from a septic system company.
- The septic system graphic on the inside of the mailer was very effective
- Providing two dates to attend is essential to maximize workshop attendance
- The artwork looks unnecessarily "too fancy" or "too gimmicky" for a workshop advertisement
- Easy to register

Reply Card Results:

Maltby: 5 reply cards returned from 214 delivered (response rate: 2.3%)
Getchell Hill: 5 reply cards returned from 227 delivered (response rate: 2.2%)
Fobes Hill: 11 reply cards returned from 413 delivered (response rate: 2.6%)
Church Creek: 7 reply cards returned from 219 delivered (response rate: 3.2%)

Mailer 2a *(Attachment 3.1c)*

Theme: Simple steps to extend your system's life:

1) Learn about your septic system and its needs
2) Schedule routine inspections and/or pumping at least every 3 years

Images & Messages:

Outside Panel:

- Image- septic pumper pumping a septic tank
- Message-Are you receiving unbiased septic advice? (preventing getting taken advantage of by a professional pumper was identified as being common among septic care workshop participants)

Inside Panels:

- Image- graphic of a gravity septic system connected to a house
- Messages- Protect Your Investment, Prevent Costly Repairs

Calls to Action (summarized):

1) Learn about YOUR septic system's needs
    - Visit the PSSH septic web pages and learn about everyday tips about how to care for your septic system
    - Visit the SHD as-built web page and learn about your property's septic system
    - Invite a technician from SHD to visit your property and answer questions
2) Have a certified professional inspect your system at least every three years

Incentives to Return the Tear-Off Reply Card:

1) Invite a technician from SHD to visit your property and answer questions for FREE
2) Septic System Care information Packet

Feedback from Focus Group Participants:

- Mixed response to the septic pumper image on the outside panel, though mostly positive. Many felt this image was very compelling, and others felt the image caused the mailer to look like an advertisement from a septic system pumping business.
- Virtually all participants said that they would likely open the mailer and look inside
- The graphic of the OSS and house tested very positive
- The overall look and feel of the mailer tested very positive
- This mailer tried to convey too much information. Even though the information was narrowed down from "three simple steps" to "two simple steps" and calls to action were simplified over the course of the focus groups, participants felt that there is too much text and too many calls to action for one mailer. Respondents could not repeat the calls to action even as they looked at the mailer because there was too much information. Recommendations for the future would be to separate the calls to action into two separate mailers:
    1) Learn about YOUR septic system and its needs
    2) Have a certified professional inspect your system every three years.

Reply Card Results:

Maltby: 1 reply card returned from 214 delivered (response rate: 0.05%)
Getchell Hill: 2 reply cards returned from 227 delivered (response rate: 0.09%)

----------Remainder of page left blank intentionally----------

Mailer 2b *(Attachment 3.1d)*

[Note: The inside image and calls to action of mailer 2b are the same as Mailer 2a. The external panel and motivating messages comprise the differences between the two mailers. Mailer 2a and 2b were tested in focus groups and mailed to different geographic focus areas to test effectiveness.]

Theme: Simple steps to extend your system's life:

1) Learn about your septic system and its needs
2) Schedule routine inspections and/or pumping at least every 3 years

Images & Messages:

Outside Panel:

- Image- girls laying on the lawn and looking at the camera while smiling
- Message- Your drainfield is inches below the surface…make sure it's working properly

Inside Panels:

- Image- graphic of a gravity septic system connected to a house
- Messages- Protect Your Family's Health & Drinking Water

Calls to Action (summarized):

3) Learn about YOUR septic system's needs
    - Visit the PSSH septic web pages and learn about everyday tips about how to care for your septic system
    - Visit the SHD as-built web page and learn about your property's septic system
    - Invite a technician from SHD to visit your property and answer questions
4) Have a certified professional inspect your system at least every three years

Incentives to Return the Tear-Off Reply Card:

- Invite a technician from SHD to visit your property and answer questions for FREE
- Septic System Care information Packet

Feedback from Focus Group Participants:

- Outside image of girls lying on lawn had mixed results, mostly negative (overall negative for 3 out of 4 focus groups). Several participants felt offended that the image "uses my kids to get me to do something." Other negative feedback came from participants who don't have children around the house, or don't have children who play near their drainfield because their drainfield is not under the lawn, and as a result, the image doesn't call to them.
- Most people said that they would likely throw this mailer in the trash without reading it because they don't resonate with the outside image.

- Some participants didn't understand the health connection between a drainfield being "inches" below the surface and girls playing in the yard.
- Some participants disagreed with the message's factual statement and exclaimed, "my drainfield is several feet below the surface! This is a scare tactic, plain and simple!"
- Comments about inside of mailer content were similar to Mailer 2a.

Reply Card Results:

- Church Creek: 4 reply cards returned from 219 delivered (response rate: 1.8%)
- Fobes Hill: 4 reply cards returned from 226 delivered (response rate: 1.8%)

Mailer 3 (*Attachment 3.1e*)

Theme: Keep solids, toxins, greases and oils out of the drain.

1) Trash these items
2) Save your money (don't buy these items)
3) Take to a return center

Images & Messages:

Outside Panel:

- Image- "Septic system expert" smiling at reader
- Message- Do experts really recommend using any of these to keep your septic system healthy? (a. brewer's yeast, b. raw meat, c. septic additives, d. a head of raw cabbage) [note- SWM learned at septic care workshops that homeowners feel a strong lack of understanding about using "additives", and this is a strong motivator]

Inside Panels:

- Image- kitchen scraps, paint, medicines, etc with a red "cross out" sign, smiling septic system expert
- Messages-Protect your system from clogged pipes and failure, Protect your investment

Calls to Action (summarized):

- Visit the PSSH septic web pages and learn about everyday tips about how to care for your septic system
- Trash These Items (kitchen scraps, fats, oils, baby wipes, tissues, etc.)
- Save Your Money (don't buy/minimize use of additives, bath oils, de-cloggers)
- Take hazardous materials to a return center

Incentives to Return the Tear-Off Reply Card:

- Invite a technician from SHD to visit your property and answer questions for FREE

- Stainless steel sink strainer

Feedback from Focus Group Participants:

- Outside image was mostly positive. A few negative comments arose among participants, including a comment that the OSS expert looked "creepy" and another comment explaining that they had never heard about using any of those items as "additives" to benefit the septic system (and so they didn't understand the point). The vast majority of participants said that they would open the mailer and look inside.
- Participants had all positive comments about the information on the inside of the mailer. Participants appreciated the positive directives ("do this") in the mailer and said they don't like mailers that tell them "don't do this" without telling them the preferred behavior.
- Each participant noted different items as new information, and all felt like the information was presented in an easy-to-read manner that is simple to understand and act upon.
- The amount of information is not "too exhaustive" for the size, scope and intent of the mailer.

Reply Card Results:

Maltby: 6 reply cards returned from 214 delivered (response rate: 2.8%)
Getchell Hill: 3 reply cards returned from 227 delivered (response rate: 1.3%)
Fobes Hill: 6 reply cards returned from 226 delivered (response rate: 2.8%)
Church Creek: 9 reply cards returned from 219 delivered (response rate: 4.1%)

Mailer 4a (*Attachment 3.1f*)

Theme: Use Water Wisely

Images & Messages:

Outside Panel:

- Image- Mom and girls on a lawn playing with a water hose (replaced the image in 3rd focus group with an image of a girl with a dog laying on a lawn)
- Message- Your lawn is inches above your drainfield. Make sure everything is working properly.

Inside Panels:

- Image- Close-up image of a bathtub pool of water bubbling while its going down the drain
- Messages- Keep your family safe. Use Water Wisely, Using too much water at one time can flood your drainfield, push untreated sewage to the surface and

groundwater, and spread disease, Protect your family's health. Septic system care depends on you.

Calls to Action (summarized):

- Visit the PSSH septic web pages and learn about everyday tips about how to care for your septic system
- Use water wisely (fix leaking sinks and toilets, use water saving devices, space loads of laundry throughout the week, etc.)
- Keep your drainfield dry and protected (inspect your drainfield, direct water from roofs and downspouts away, keep sprinkler systems/irrigation and vehicles/structures/livestock off of drainfield)

Incentives to Return the Tear-Off Reply Card:

- FREE PUD Utility Kit (septic system care kit)

Feedback from Focus Group Participants:

- Outside image was overwhelmingly negative. Participants did not correlate either of the two outside images we tested with the corresponding message. They were confused and frustrated by the lack of clarity. They did not feel the images related to them whatsoever. As a result, the vast majority of participants said they would trash the mailer without opening it.
- Participants could not identify the close-up image of water going down the drain, and it distracted them from reading the text. Participants did not like this image.
- Participants had all positive comments about the information provided on the inside of the mailer. Participants appreciated the positive directives ("do this") in the mailer and said they don't like mailers that tell them "don't do this" without telling them the preferred behavior. All behaviors were understandable; however, another participant noted that they won't likely space loads of laundry throughout the week (similar to the 2009 focus groups).
- Each participant noted different items as new information, and all felt like the information was presented in an easy-to-read manner that is simple to understand and act upon.
- The amount of information is not "too exhaustive" for the size, scope and intent of the mailer.

Reply Card Results:

Maltby: 8 reply cards returned from 214 delivered (response rate: 3.7%)

Getchell Hill: 7 reply cards returned from 227 delivered (response rate: 3.0%)

Mailer 4b (*Attachment 3.1g*)

[Note: The calls to action on mailer 4b are the same as Mailer 4a. The images and motivating messages comprise the differences between the two mailers. Mailer 2a and 2b were each tested in focus groups and mailed to different geographic focus areas to test effectiveness.]

Theme: Use Water Wisely

Images & Messages:

Outside Panel:

- Image- Father & son fishing on a dock and smiling at the reader
- Message- It's great living here. Don't let your septic system spoil it unknowingly.

Inside Panels:

- Image- Image of two boys fishing on a stream, one looking back at the reader.
- Messages- Everything may look okay on the surface, but your septic system could still be polluting a nearby stream.

Calls to Action (summarized):

- Visit the PSSH septic web pages and learn about everyday septic care tips
- Use water wisely (fix leaking sinks and toilets, use water saving devices, space loads of laundry throughout the week, etc.)
- Keep your drainfield dry and protected (inspect your drainfield, direct water from roofs and downspouts away, keep sprinkler systems/irrigation and vehicles/structures/livestock off of drainfield)

Incentives to Return the Tear-Off Reply Card:

- FREE PUD Utility Kit (septic system care kit)

Feedback from Focus Group Participants:

- Image and message on the outside panel tested very positively. Both men and women resonated with the image. Many participants commented positively about the subtlety of the message by using the word "unknowingly," which effectively eliminates the feel of placing blame. Virtually all participants said that they would open the mailer and look inside.
- Image of the two boys fishing and corresponding message on the inside panel also tested very positively. A few participants commented that they didn't believe their septic system can affect a nearby stream or water body because it is located a long distance away (a half-mile away).
- Other comments regarding the calls to action were similar to mailer 4a.

Reply Card Results:

Fobes Hill: 4 reply cards returned from 226 delivered (response rate: 1.8%)

Church Creek: 16 reply cards returned from 219 delivered (response rate: 7.3%)

DIRECT MAIL- DELIVERY SCHEDULE

Mailer Program Sanitary Surveys- By Invitation from Landowner

As a part of the Task 5 mailer program (see Task 5 Report, not included with this report), SWM distributed a series of three mailers to a different group of targeted residences located nearby the Fobes Hill and Church Creek residents who participated in the sanitary survey program. Mailers were sent to 219 residences in Church Creek, 226 residences in Fobes Hill, 227 residences in Getchell Hill and 214 residences in Maltby. Mailers were delivered to each residence approximately 2 weeks apart, beginning in mid-April 2011 and ending in mid-May 2011. The first two mailers provided an option for the landowner to invite an SHD environmental health specialist to their property, answer questions and perform an inspection.

----------Remainder of page left blank intentionally----------

Table 3. Direct Mail Series Strategy

Communication Piece	Description	Church Creek	Getchell Hill	Fobes Hill Snoho-mish	Maltby
Mailer 1	Advertising for workshops and PSSH website with a tear-off reply card to register	Mailed: 9/27/2010	Mailed: 10/11/201	Mailed: 9/17/201	Mailed: 9/17/2010
Mailer 2	2 Simple Steps: 1) Learn about OSS type, location & needs 2) schedule routine inspections	Mailed: 4/12/11	Mailed: 4/12/11	Mailed: 4/12/11	Mailed: 4/12/11
Mailer 3	Don't put solids, toxics, grease and oils down the drain	Mailed: 4/26/11	Mailed: 4/26/11	Mailed: 4/26/11	Mailed: 4/26/11
Mailer 4	Be water wise & protect your drainfield; PUD kit	Mailed: 5/12/11	Mailed: 5/12/11	Mailed: 5/12/11	Mailed: 5/12/11

DIRECT MAIL REPLY CARD RESULTS

Each mailer included a postage-paid tear-off reply card to help provide additional information about the relative effectiveness of each mailer. This section discusses the key findings from the reply card evaluation. See *Attachment 3.1i* for additional information.

The tables on the following pages include results from the tear off reply card evaluation.

Table 4: Reply Card Data Response Overview

Category	# Respondents	% of Total
# of Residences that received reply card mailers	886	n/a
Total number of unique respondents using reply cards	57	6.4%
# of respondents that replied to only one mailer	44	5.0%
# of respondents that replied to two mailers	13	1.5%
# of respondents that replied to three mailers	0	0.0%
# Females Responding	21	37%
# Males Responding	36	63%
# of people who did not respond to any mailers	829	93.6%

----------Remainder of page left blank intentionally----------

Table 5: Reply Card Data Replies by Mailer

Mailer	# Replies to Each Mailer	% of Total
Mailer 2.1a Message: Unbiased septic advice? (Maltby/Getchell Hill)	3	0.7%
Mailer 2.1b Message: inches below the surface (Fobes Hill/Church Creek)	8	1.8%
Mailer 3 Message: Do experts recommend? (Maltby/Getchell Hill)	9	2.0%
Mailer 3 Message: Do experts recommend? (Fobes Hill/Church Creek)	15	3.4%
Mailer 4.1a Message: inches below the surface (Maltby/Getchell Hill)	15	3.4%
Mailer 4.1b Message: don't spoil it unknowingly (Fobes Hill/Church Creek)	20	4.5%

Table 6: Reply Card Data- Replies by Focus Area

	# of Replies to Each Mailer			
Focus Areas	**Mailer 2**	**Mailer 3**	**Mailer 4**	**Total**
Maltby	1	6	8	15
Getchell Hill	2	3	7	12
Fobes Hill	4	6	4	14
Church Creek	4	9	16	29
Color Key	Mailer 2.1a	Mailer 3	Mailer 4.1a	
	Mailer 2.1b		Mailer 4.1b	

Table 7: Reply Card Data: Responses by Incentive

Incentive	# Respondents	Avg/Mailer	% of Total Respondents
Responded to SnoHD site visit	6	3	11%
Responded to Septic Care Info Packet	6	6	11%
Responded to Sink Strainer	22	22	39%
Responded to "Utility Kit"	35	35	61%
Responded to "Have SHD contact me"	1	0.33	2%
Responded BOTH to SnoHD site visit and Info Packet	0	0	0%
Responded BOTH to Site Visit & Sink Strainer	1	1	2%
Responded BOTH to Site Visit & Utility Kit	0	0	0%
Responded BOTH to Sink Strainer & Utility Kit	12	n/a	21%
Responded To 3: Site Visit, Sink Strainer & Utility Kit	0	n/a	0%
Responded To 3: Info Packet, Sink Strainer & Utility Kit	0	n/a	0%
Responded to ALL 4 Promotional Items	0	n/a	0%

Table 8: Reply Card Data: Replies to Septic System House Calls (Sanitary Survey) by focus area.

Focus Area	Total Number Households per focus area	Mailer 2 Reply Cards Requesting a Sanitary Survey	Mailer 3 Reply Cards Requesting a Sanitary Survey
Maltby	214	1	0
Getchell Hill	227	0	0
Fobes Hill	226	2	1
Church Creek	219	2	0

ADDITIONAL DIRECT MAIL THEMES, IMAGES & MESSAGES

The following additional themes, images and messages (*Attachment 3.1h*) were identified as likely to be equally as effective as our most effective themes for placement on the outside panel of a mailer to entice a homeowner to open the mailer during the 2011 focus groups. These ideas were not tested; however, SWM feels that the approaches below would likely be effective based on the formative research conducted throughout this program:

- Theme: Protect Your Family's Health
  Image: A person in kitchen looking at a glass of water
  Message: Are you sure your drinking water is safe?
  Note: This mailer would need to correlate drinking water and septic system care, and provide information on how the landowner can obtain a drinking water well water quality test. Special care would need to be taken to ensure that it is not seen as a scare tactic by the target audience.

- Theme: Prevent a mess in your backyard
  Image: A family standing in the backyard near a failed drainfield. The family looks disgusted, worried and confused. The image must look realistic, and not sensationalized.
  Message: A failed septic system is a mess. You can prevent it.
  Note: Special care would need to be taken to ensure that this approach would not be seen as a scare tactic by the target audience.

SWM partnered with Island County to conduct a photoshoot to obtain the images explained above, and SWM provided WA Department of Health with image files with mock-up copy to show as an example how other health jurisdictions can use the image effectively.

DIRECT MAIL DISCUSSION & EFFECTIVENESS

Direct mail is considered among the least expensive outreach modes to effectively reach and communicate with an audience comprised of tens-of-thousands of people.

SWM was very fortunate to have the opportunity to better understand motivators and barriers, and to test preferred behaviors, messages, images and tag lines at seven focus groups. As a result, SWM was able to make significant refinements to the mailers over the course of the

focus groups. Additionally, SWM was able to identify additional mailer concepts to develop and build upon in the future.

Although the PIE Plan indicated that SWM would send approximately four to eight mailers at least three weeks apart to the same residence, SWM chose to develop six mailers to test, but to only send four mailers to each residence for reasons described in the section *Avoid Perceived Wasteful Spending* below. SWM obtained the information necessary to refine the mailers over time) and finalize a preferred mailer series of three or four mailers for future outreach efforts.

The section below provides:

1) lists of effective and ineffective mailer strategies,
2) a list of potentially effective mailer concepts to inform the development of additional mailers and outreach modes,
3) A discussion on the strengths, limitations and overall effectiveness of using direct mail as an outreach mode to build awareness, increase knowledge, direct OSS owners to helpful websites, and change OSS owner behavior.
4) Return on investment

DIRECT MAIL- STRENGTHS, LIMITATIONS & OVERALL EFFECTIVENESS

SWM developed and conducted a telephone survey in 2011 in collaboration with Western Washington University, Office of Survey Research (WWU survey) to statistically determine the overall effectiveness of the direct mail series among our target audience with the following:

1) Reaching targeted residents
2) Connecting residents to OSS learning venues
   - OSS Website
   - OSS Homeowner Workshops
   - OSS House Calls
3) Influence OSS homeowners' awareness, learning and/or adoption of OSS Best Management Practices
4) Provide promotional items to aid in OSS care, including a sink strainer and septic care kit

For the Evaluation Report of Snohomish County's Septic Care Pilot Program, see *Attachment 7.2a*. SWM also used other monitoring and evaluation methods, including Google Analytics, postage-paid tear off reply cards, number of workshop registrants to aid in evaluating the effectiveness of the direct mailer series, among other methods.

Reaching Targeted Residents

The average respondent remembered receiving 1.29 mailings with a median of one. It is likely that people would not remember the septic system workshop mailer (Mailer 1) in their answer because it was delivered 9 months prior, and so the target number of mailers that people would identify would be 3 mailers. Excluding those who did not remember receiving any mailers, the average number of mailers remembered was 2.2 with a median of 2. Because each mailer included different information regarding septic system care, most residents missed at least a portion of the entire BMP information provided in the mailers.

Of those who recalled receiving mailings, the following responded to the following questions:

Table 9: WWU Survey respondent answers on direct mail readership

When you received the mail pieces, what did you typically do with them?	Always	Sometimes	Never
Read them thoroughly	33%	36%	31%
Glance at them and throw them away	26%	52%	22%
Throw away without really looking at them	29%	42%	29%
Keep them to read later	8%	29%	63%
Give them to someone else	6%	17%	77%
Reply to a promotional item	17%	17%	66%

Independently from this grant, SWM developed and tested a pet waste pilot program that included a mailer series, where SWM sent residents 9 mailers to determine the ideal number of mailers SWM can send regarding a particular topic with repeated messages to optimize readership throughout a population before receiving negative responses from residents. SWM's research indicates that there is relatively little difference in recall between 4 mailers and 9 mailers, and as a result, approximately 4 mailers with similar information seems to be an optimal number of mailers to ensure the maximum reach and greatest return-on-investment of a targeted population. However, the pet waste program only promotes one BMP (scoop the poop, bag it and place it in the trash), which is different from the septic system direct mail approach, where different BMPs were promoted in each mailer. As a result, if our goal is to provide homeowners with the greatest chance that they will obtain information on all BMPs, health jurisdictions have three general options regarding the use of mailers in an outreach program:

1) Maximize reach by sending 3 or 4 slightly different versions of each of 4 mailers, resulting in a total of 12 or 16 mailers to each residence monthly over a year or year-and-a-half period. This option would likely reach a significant majority of residences with a full set of the BMPs while reinforcing behaviors over a longer period of time;

however, this option is likely to be expensive because it would require additional development of mailers, and may also result in negative "push back" from residents who feel sending repeat messaging via direct mail is a poor use of taxpayer resources (even if it is among the most efficient and effective methods to reach a large and diverse audience).

2) Accept partially reaching targeted residents via mailers and augment the outreach program with other outreach methods by sending 1 or 2 versions of each mailer, resulting in most residents receiving at least a portion of the full suite of OSS BMPs.
3) Do not include a mailer program in an outreach strategy and attempt a different strategy altogether.

Based on feedback from the 2011 focus groups, OSS homeowners are less likely to comprehend information in a single mailer when more than one message and/or call to action is included. As a result, synthesizing information from all three mailers into one or two mailers would likely be very ineffective. Additionally, 2011 focus group participants overwhelmingly preferred receiving septic care information by direct mail compared to other options, and as a result, assuming resources are limited, SWM recommends Option 2, where a mailer program is one strategic component using a suite of outreach methods.

Connecting Residents to OSS Learning Venues through Direct Mail

<u>Using mailers to promote the OSS Website</u>

As described in the above section of this report, Website Results and Effectiveness, we estimate that approximately 44 visitors (of the 886 who received mailers, equaling 4.9%) visited the site as a result of receiving the mailers, which can be seen as an "average" response rate based on industry standards.

As a part of the WWU telephone surveys, only one respondent of 35 (2.5%) stated that they had visited one or more websites as a result of the mailer.

These results indicate that the mailers are ineffective at influencing a majority of OSS homeowners to visit the PSSH website. During the 2011 focus groups, we learned how to make improvements to Mailer 2, which primarily promotes learning about OSS care by creating two separate mailers- one that only promotes learning by going to the websites, and another mailer that focuses on hiring a professional. These improvements would likely have a significant impact on the number of OSS homeowners visiting the website; however, even with a sizeable increase in website hits, this effort would still likely yield only a small percentage of our overall

target audience visiting the website. One possible reason for this average response rate may be answered by the 2011 focus group participants, who overwhelmingly stated that they don't prefer to go to the PSSH website to learn about septic system care information compared to getting the information directly on the mailers themselves. Additionally, people are unlikely to go out of their way to visit a website if they have never heard of the website previously.

One approach to improve website hits by our target audience would be to collaborate with STORM and the PSSH campaign to integrate targeted radio commercials and television ads to promote septic system care (the URL would have to be shortened and made "sticky," and challenges as described in the website section would have to be addressed), this would likely result in a significant number of people visiting the website if coupled with mailers.

Using mailers & doorknob hangers to promote the OSS Homeowner Workshops

As described earlier in this activity, the initial advertising strategy for the OSS homeowner workshops included an initial 3-panel mailer, a follow-up postcard and a volunteer-supported effort to place doorknob hangers on households within our targeted focus areas. Although the intention was to reach the audience three times in two different situations (one at the mailbox and one at the front door), this strategy was still ineffective at yielding a sizeable portion of our relatively small target audience.

It is clear that the outreach and advertising strategies that are outlined in the PIE plan are insufficient for motivating residents in our targeted neighborhoods to attend a septic care workshop in Snohomish County. Based on the reasons below, and possibly due to other reasons, we have been unable to generate a significant response to the workshops when targeting such a small, focused geographic area, even when messages are highly tailored to that audience. These reasons need to be addressed in order to yield a significant number of workshop participants when advertising to a small, focused geographic area.

1) There is not a motivator strong enough to influence septic system owners to attend the workshops. Social science research has shown that motivating people to change behavior to prevent a potential problem that could develop over the long-term is among the most challenging areas for the field of behavior change (for example, teenage smoking and addressing climate change). It's possible that two effective approaches to increase the rate of attendance among a targeted population will be to 1) align participation at workshops with a regulatory measure or 2) provide very meaningful incentives for participating (a 100% free inspection by a OSS professional for all

participants). For example, Snohomish Health District does not require OSS owners to submit inspection reports. In contrast, Island County Health Department requires all septic system owners to submit inspection reports annually, and offers free workshops to train residents how to inspect septic system themselves. If residents do not submit inspection forms annually, they will be fined. This approach has shown to be an effective strategy for creating a motivator strong-enough for residents to attend workshops, as most of the workshops held by Island County have high demand, and result in a waiting list.

2) We tested the initial workshop advertisement mailer at the 2011 focus groups (after the workshops concluded), and received feedback that the image on the outside panel of the mailer (money going down the drain) looked "too gimmicky" and "like junk mail." Most focus group participants admitted that they would likely throw the mailer in the trash without even opening it. As a result, if people received the mailer and threw it away without reading it, they only had one or two other chances to become aware of the workshop (a reminder postcard and doorknob hanger).

3) Counties that have had success with achieving a high participation rate at workshops have found that it may take several years of building awareness about the workshops before a high level of attendance is achieved. In Island County, the number of participants increased over the first few years as more homeowners learned about the programs. Of course, this also requires that workshops are held on a consistent basis (quarterly or biannually), and not periodically as funding becomes available every few years in order to increase homeowner attendance.

4) Other activities occurred that were deemed as being a higher priority. The workshops were held during the political election season. It is also possible that some homeowners were unable to attend due to conflicts with other types of activities, especially youth sporting events. SWM has limited data to help us understand if this played a significant factor in workshop participation; however, SWM staff informally asked several selected attendees from each workshop if they knew of any other event at the same time as the workshop, and all responses indicated that there was not a scheduling conflict with a major event.

5) Public Goods Theory & Prisoner's Dilema concepts support the theory that a rational self-interested homeowner is highly likely to not participate in learning about their septic system and caring for their septic system due to the two thoughts below:

- "If everyone else is taking care of their system, then everything is fine, and so why should I bother doing it myself?"
- "Nobody else is caring for their septic systems, and nobody else is going to go to the workshop, why should I do it alone when it won't make any difference?"

6) Additional barriers to attend include weather and darkness. SWM heard from one elderly couple who expressed concern about attending a workshop because the workshop was held in the evening in the fall, and so the likelihood of driving in rain and dark was high. This same couple chose not to attend the workshop at the last minute due to rain. This couple had a schedule conflict with the other date the workshop was offered.

<u>Mailers to promote OSS House Calls</u>

SWM does not recommend utilizing this approach as a component of any program intending to enter onto properties and provide homeowner assistance or inspections.

The mailer series generated only 6 of 886 (0.7%) OSS House Call requests from our target audience. Based on the 2008 telephone survey, and the 2009 and 2011 focus groups, it is clear that many residents do not feel that information in mailers are sufficient to overcome the fear that regulators may find a failure and would require the homeowner to make repairs (some focus group participants even suggested that the Health District would require repairs even if they weren't needed, just to justify their jobs).

However, although mailers were ineffective at yielding a high level of invites onto homeowner properties, septic care workshops resulted in a significantly higher number of invites (41%), leading us to conclude that trust is a key element in a homeowner's decision to invite SHD onto their property. Based on our data, even when combined with messages such as "unbiased," "save money" and "we can offer free help," mailers are ineffective at building the level of homeowner trust, and ineffective at adequately answering the question, "what's in it for me?" that's required for a homeowner to invite SHD to make a house call visit.

Using Mailers to improve OSS homeowners' awareness and knowledge of OSS BMPs

The WWU survey indicates that OSS homeowners who received mailers were approximately five times more likely to claim they learned a substantial amount regarding septic system care over the past year than were members of the control group (11.3% vs 2.1%), a statistically

significant difference. Additionally, an additional 24.2% of respondents claimed that they learned some new information about how to care for their septic system compared to 15.8%, which is also a statistically significant difference.

Respondents were also approximately five times more likely to say that they learned a significant amount, and two times more likely to say they learned some new information about how their septic system treats wastewater on their property compared to the control group. These differences are also statistically significant.

It also appears that Snohomish County OSS homeowners may also have learned more from slightly different mailers. As explained above, residents in Church Creek and Fobes Hill received slightly different mailers than residents from Gethell Hill and Maltby as a part of our pilot study. During WWU survey, we compared residents in Church Creek and residents in Maltby to determine if a difference resulted in their self-rated level of knowledge. The survey found that Church Creek residents resulted in a 10% increase in learning a substantial amount, compared to a 6% increase in Maltby (both were statistically significant compared to the control group). As a result, it appears that mailer 2b (outside image of girls laying on the lawn) and/or mailer 4b (outside image of a man and boy fishing) may have been more effective at resulting in knowledge gains compared to mailer 2a (outside image of a OSS pumper) and mailer 4a (outside image of girl and mom playing with a hose).

Although the percentages of overall people who claimed to learn from the mailers appear to be low, these findings are meaningful because OSS homeowners tend to think of themselves as excellent caretakers of their septic systems. For example, 54% of respondents from the pre-outreach Elway public opinion survey rated their level of septic system care as 10 out of 10. As a result, we can infer that even a portion of people who believe that their level of OSS care is extremely high feel that they learned important OSS care information from the mailers.

It is important to be mindful about the meaning of the survey results. The survey asked people to self-rate how much information they learned. We did not actually test people who received mailers to determine if the information they claimed to learn actually increased, or if the information they learned is in fact correct.

In conclusion, we can conclude from the WWU survey that the mailers *appear* to be effective at increasing OSS homeowners' knowledge about how their septic system functions and how to care for septic systems based on perceptions from the OSS homeowners who received mailers. We did not conduct tests to quantify whether knowledge actually increased. Additionally, it seems likely that continuing the mailer program will help residents to better understand their systems and how to care for them.

Using Mailers to improve adoption of OSS Best Management Practices

Mailers, in and of themselves, do not appear to result in behavior change toward preferred OSS BMPs. The WWU survey found no statistically significant difference between OSS homeowners who received mailers and the control group who answered each of the following six questions:

"Compared to a year ago, how likely are you to:

- repair leaky toilets and drains?
- prevent hazardous chemicals from going down the drain?
- use less water?
- spread water use throughout the week?
- search drainfield for odors?
- have a pumper regularly inspect your septic system"?

If the goal of an education and outreach program is to promote adoption of the preferred OSS BMPs, then solely sending mailers as an education program will be highly ineffective. However, mailers can be an important and effective tool for building awareness and learning, which are essential elements that must occur among homeowners prior to behavior change. As a result, mailers could be included and integrated in a multi-faceted strategic education and outreach approach that may result in a significant number of OSS homeowners who adopt BMPs.

Using mailers to provide promotional items to aid in OSS care

Mailers used promo items as incentives to tear off reply cards to measure effectiveness; however, the promo items are also helpful point of contact reminders to follow BMPs.

Table 10: Number of promotional items distributed via contact through a mailer

Promotional Item	**Maltby**	**Fobes Hill**	**Church Creek**	**Getchell Hill**
Mailer 3- sink strainer	5 of 214 (2.3%)	6 of 226 (2.6%)	9 of 219 (4.1%)	2 of 227 (0.1%)
Mailer 4- Septic Care Kit	8 of 214 (3.7%)	4 of 226 (1.7%)	16 of 219 (7.3%)	7 of 227 (3.1%)

Based on these results, using mailers to distribute promotional point-of-contact items that serve as reminders to aid in OSS care is not likely to result in a significant percentage of individuals that request these promotional items. However, based on our pilot study's findings,

if a mailer program targeted 10,000 residents in the Church Creek area, we would likely receive approximately 730 septic care kits requested by homeowners. This could have a significant impact if homeowners followed through and installed the items in the kit (which may require another level of encouragement/involvement).

Promotional items can be helpful point-of-contact reminders; however, they are expensive. As a result, agencies should be careful to maximize their effectiveness when using them. By only providing promotional items to people who have indicated that they plan to use them by submitting a reply card, agencies are likely to have a fairly high return on investment because the chance that the homeowner will use the promotional item is maximized. On the other hand, a low percentage of residences within the targeted area are likely to request a promotional item.

Conversely, a program that directly mailed out promotional items to all targeted residents may have a lower overall return on investment; however, this approach may also result in a greater number of people in a targeted area who use the promotional items if residents find the items useful.

Finding the right balance between the two above-mentioned strategies should depend on the agency's goals, objectives, overall education strategy and budget.

DIRECT MAIL RECOMMENDATIONS- EFFECTIVE & INEFFECTIVE STRATEGIES

Effective Direct Mail Strategies

Provide Direct and No-Nonsense Information

Septic owners want to see direct, straightforward, no-nonsense information about how to care for their septic systems. Septic owners want specific actions listed directly on the mail pieces, in addition to links to websites where they can go for more information. If specific Best Management Practices are not included in the mailers, OSS owners feel frustrated that they have to go to an unknown website that could potentially try and sell them something. By placing BMPs on the mailer, OSS owners feel assured that similar, and more in-depth, information will be provided on the website.

Create Attractive, Colorful, Simple & Effective Outreach Materials

OSS owners need to quickly understand who the messenger is and the calls to action including where, when and why to perform them. Additionally, OSS owners need to understand what's in it for them in a simple, clear, effective and visually appealing format. See *Why Bad Ads*

Happen To Good People by Andy Goodman under the references section for a helpful guide for developing effective advertisements.

Additionally, outreach materials should utilize the target audience's motivators and address the barriers to action.

Quickly Answer the Reader's Question, "What's In It For Me?"

In addition to making sure images and messages resonate with the target audience, use simple catch statements to encourage a landowner to open the mailer. For example, use "FREE (promotional item) inside!" or "FREE helpful tips inside!" Be careful not to over-promise what can be clearly delivered from the mailer. For example, "We offer FREE assistance" can lead to a negative reaction by some OSS owners because the word "assistance" can mean financial assistance, and not just advice (in Snohomish County, it is unlikely that they will receive financial assistance at this time).

Additionally, it is possible to put too much pressure on the reader to respond. Although we recommend using phrases such as "limited time only!," avoid over-use of these types of catch statements, as they tend to be over-used by junk mail, and overuse may cause a sense of resentment among a number of readers.

Place the Snohomish Health District Logo Prominently on Both Exterior Panels

OSS owners respond positively to mailers that show the Snohomish Health District logo very prominently on both exterior panels. OSS owners are significantly more likely to open mailers if they can quickly and easily see that the mailer is from the Snohomish Health District and not from a septic system business. Snohomish Health District is a trusted source of information if presented in a manner that aligns with OSS owners motivators and effectively addresses their barriers to action.

Avoid the Word "Sanitarian"

All outreach materials should avoid the use of the word "sanitarian." OSS owners respond more positively to the word "technician."

Avoid Perceived Wasteful Spending

SWM learned from the 2009 and 2011 focus groups that there is heightened sensitivity among the general public about perceived "wasteful spending" from government agencies. Although 2011 focus groups indicate that direct mail is the preferred method for receiving septic care information, a significant number of Snohomish County residents believe that receiving related

information repeatedly from direct mail pieces is considered wasteful (even though participants from our focus groups acknowledge that repeat messaging increases effectiveness).

SWM learned through a different outreach program that sending repeating direct mail pieces can result in negative "push-back" from mailer recipients. For example, one resident who received mailers from SWM's pet waste disposal outreach program wrote a scathing letter to the editor of the Everett Herald about SWM's wasteful spending on "fancy mailers" to promote water quality. This letter resulted in several additional letters to the editor, and caused Snohomish County's political leaders to scrutinize the program. Unfortunately, this dilemma puts SWM in a catch-22 when developing a mailer series. On one hand, SWM needs to minimize the perception that money is being wasted, and is driven to send a series of mailers, each mailer with different information on activities necessary to protect a septic system. On the other hand, based on our telephone survey results, the average targeted person is likely to miss at least one mailer out of the series, and as a result, most members of our target audience will only receive a portion of the information necessary to effectively manage a household's septic system. As a result, this catch 22 makes it difficult for a mailer series to be comprehensively effective without aligning a mailer series with other outreach methods.

<u>Evaluating Readership- Providing Point-of-Contact Reminders As Incentives</u>

Tear-off reply cards help the program manager test readership of the mailers. A 3% return rate is generally considered a good return rate. Providing point-of-contact reminders such as sink strainers and refrigerator magnets with a website URL for the kitchen, low flow shower heads, 5-minute shower timers and embroidered and framed poems for the bathroom can be helpful and effective reminders for family members and guests to routinely practice the preferred Best Management Practices. For evaluation purposes, it is only necessary to offer an incentive to a subset of a larger mailer if working with a limited budget.

<u>Achieving Behavior Change- Providing Meaningful and Enticing Incentives</u>

According to our post-outreach telephone survey results, direct mail from our pilot program did not result in behavior change. However, our program did not include incentives that are meaningful or highly enticing from the landowners perspective. Other counties have provided meaningful incentives, such as a $100 rebate for people who have an inspection completed or install septic tank risers. A strategy that uses mailers with effective messaging and enticing incentives to promote specific BMPs (such as a $100 rebate) has a high potential to be effective in achieving behavior change; however, we recommend that a thoughtful evaluation program be integrated into this strategy to further test this hypothesis.

Ineffective Direct Mail Strategies

Don't Use Perceived Scare Tactics and Extreme Statements

Septic owners dislike scare tactics and extreme statements that appear to be uncommon or unrealistic. Septic owners have a very strong negative reaction to messages that intend to incite fearful or negative emotions. Negative messages will result in a loss of credibility for the agency sending the mailer.

Don't Use Humorous Messages

Most septic owners do not resonate with humorous messages related to septic systems.

Don't Include Multiple Themes or Too Much Information on a Single Mailer

Providing simple calls to action on each mailer is essential for success. SWM learned from Mailer 2 that providing information for OSS owners to learn about their septic systems and telling them to inspect their OSS at least every three years are two different themes and too much information. As a result, two mailers should be developed to effectively provide this information to the target audience.

Don't Advertise for Septic System House Calls Using Mailers as a Primary Strategy

Septic owners are highly unlikely to request a "Septic House Call" through a mailer. If an option to invite SHD to make a house call is included in the mailer, the reply card needs to clearly indicate the benefits to the landowner. Focus groups indicate that landowners are highly fearful of reprisal from regulators if an OSS failure is identified, and a mailer will not likely sufficiently address a landowner's concerns. As a result, SHD will need to offer a significant incentive (a free inspection comparable to an inspection from a professional service provider, or free tank risers and installation) if this approach is likely to be even nominally effective.

DIRECT MAIL- RETURN ON INVESTMENT

Relative to other means tested, direct mail is the best return on investment for reaching a large and diverse audience, especially once mailers are developed and initial production costs are expended.

We recommend making revisions to the existing mailer series SWM developed by creating a four-or-five part mailer series, where each mailer is sent approximately 3 to 4 weeks apart:

Mailer 1- Theme: learn about your property's septic system and how to care for it

Mailer 2- Theme: contact a professional for routine inspections

Mailer 3- Theme: Items to avoid going down the drain

Mailer 4- Theme: Be water wise (agencies could combine drainfield care information to this mailer for the four-mailer series option)

Mailer 5- Drainfield Care

Using this approach, a return on investment to build awareness among OSS homeowners would be approximately $2.30 per household (a conservative estimate) if sending four mailers bulk mail to 10,000 targeted households, equaling $22,500 for the program plus staff expenses to manage and evaluate the program. This cost per homeowner could be significantly less depending on actual printing costs. This figure assumes $1,000 for additional artwork production costs, $100 for creation of a targeted address list, printing and postage to distribute mailers, and an evaluation of 400 residences to test readership (including promotional items and postage).

However, it is important to remember that mailers are only effective at helping people achieve the learning phase of the public involvement continuum, in addition to effectively reinforcing preferred BMPs among those who already perform such practices. As a result, the mailer series should be seen as a cost effective approach to building awareness and knowledge, but should be integrated into a strategic outreach program that also enables effectiveness in the facilitated action and independent action levels of the public involvement continuum (for example, OSS Homeowner Workshops).

ACTIVITY 3.2 SEPTIC SYSTEM HOMEOWNER WORKSHOPS

The goals for Activity 3.2 include:

1) Develop and implement six septic system homeowner workshops to promote OSS best management practices.
2) Evaluate the effectiveness of increasing advertising intensity to a focused geographic area to increase the percentage of homeowner attendance at the workshop.
3) Evaluate whether a difference in workshop attendance exists when advertisements are solicited by SHD (a regulating agency) or Washington State University (a non-regulatory, educational institution).
4) Evaluate the effectiveness of OSS workshops at influencing our targeted audience's OSS care behaviors.

5) Evaluate the effectiveness of using OSS workshops as a strategy to solicit and conduct septic system house calls.

All goals were successfully accomplished and described in more detail in the following sections.

WORKSHOPS- STRATEGY

Workshops throughout the Puget Sound region have proven to be an effective way to teach complex best management practices and to answer questions for specific septic system types. Many health jurisdictions throughout Puget Sound have over a decade of experience providing septic care workshops to homeowners, and many have very thoughtful and refined workshop programs. As a result, SWM was able to adopt many of the lessons learned from other health jurisdictions while working to answer two additional questions that can help contribute to the region's understanding about how to maximize the effectiveness of septic care workshops:

1) Are septic care workshops effective at facilitating long-term behavior change to promote best management practices?

2) Because many Snohomish County residents are fearful of the Snohomish Health District (a regulator), which type of agency is most effective at reaching homeowners in these situations (regulatory vs. educational)?

Workshop Partners

SWM entered into an Agreement for Services with Washington Sea Grant, a program affiliated with the University of Washington and administered by the National Oceanic and Atmospheric Administration, to present septic care information at the workshops. Teri King, Marine Water Quality Specialist and septic system expert who has given presentations for many years, coordinated with SWM to develop the workshop and present the information at the workshop.

SWM also partnered with Washington State University Extension- Snohomish County (WSU Extension) to better understand the role that the communication messenger (regulator vs. educator) plays in achieving a high level of homeowner attendance. WSU Extension is well-known and respected for providing educational information to Snohomish County residents, and is not seen as a governmental enforcement agency by the general public.

SWM also partnered with the City of Snohomish, which funded an additional workshop.

Workshop Schedule:

SWM provided at least two workshop dates for homeowners in each focus area- one workshop on a Wednesday or Thursday evening, and another workshop on a Saturday morning to

maximize attendance by targeted homeowners. SWM also scheduled workshops on dates that minimized schedule conflicts with local community and sporting events. Additionally, SWM attempted to schedule the workshops for each focus area at least three weeks apart, which would enable people from the first workshop to tell neighbors and friends about the workshop, and hopefully result in higher attendance at the second workshop due to word-of-mouth advertising. Below is the workshop schedule.

Table 11: Workshop Dates & General Locations

	Mon	Tues	Wed	Thurs	Fri	Sat	Sun
Oct					1	2	3
	4	5	6	7	8	9	10
	11	12	13	M 14	15	FH 16	17
	18	19	20	21	22	23	24
	25	26	27	CC 28	29	M 30	31
Nov	1	2	3	4	5	6	7
	8	9	GH 10	FH 11	12	CC 13	14
	15	16	17	18	19	20	21

M- Maltby (sponsored by SHD)
FH- Fobes Hill (sponsored by SHD)
CC- Church Creek (sponsored by WSU Extension- Snohomish County)
GH- Getchell Hill (sponsored by WSU Extension- Snohomish County)

Workshop Strategy

SWM and partners began working together in June 2010 to coordinate the workshops and accomplish the goals identified above. Stef Frenzl, Communication Specialist at SWM, served as the project coordinator for the four workshops held in Maltby and Fobes Hill/Snohomish. These four workshops were advertised using SHD's logo and contact information.

Jacqui Styrna, WSU Extension staff, served as project coordinator for the three workshops in Getchell Hill and Church Creek, which were advertised using WSU Extension's logo and contact information.

Project coordinators managed all logistics for workshops including room rental, coordination with the Septic Issues Committee to station a booth, lights, audio/visual equipment, food, participant attendance/sign-in, ensuring evaluations are completed by participants, meeting take-down.

SWM and WSU Extension coordinated closely to ensure that program variables (including planning, advertising, registration, workshop hosting and implementation, evaluations, audio-visual equipment, etc.) remained as similar and consistent as possible across all seven workshops.

Table 12: Specific Workshop Locations for each Messenger (SHD and WSU Extension)

Messenger: Snohomish Health District	**Messenger: WSU Extension**
Workshop 1: Maltby Thursday, October 14th, 2010, 6:30pm-9:30pm Maltby Community Club 8711- 206th St SE, Snohomish	**Workshop 3: Church Creek** Thursday, October 28, 2010, 6:30pm-9:30pm Stillaguamish Grange Hall 6521 Pioneer Hwy, Stanwood
Workshop 2: Fobes Hill/Snohomish Saturday, October 16, 2010, 9:00am-noon Snohomish Library	**Workshop 5: Getchell Hill** Wednesday, November 10, 2010, 6:30pm-9:30pm Granite Falls Library 815 E. Galena, Granite Falls
Workshop 4: Maltby Saturday, October 30, 2010, 9:00am-noon Maltby Community Club 8711- 206th St, SE, Snohomish	**Workshop 7: Church Creek** Saturday, November 13, 2011, 9:00am-noon Stillaguamish Grange Hall 6521 Pioneer Hwy, Stanwood
Workshop 6: Fobes Hill/Snohomish Thursday, November 11, 2010, 6:30pm-9:30pm Snohomish Fire & Rescue 1525 Avenue, D, Snohomish	

Workshop Content

Workshops consisted of approximately 2 ½ hours of content and approximately ½ hour for participants to ask questions (*Attachment 3.2a* includes a copy of the PowerPoint presentation UW SeaGrant used at the workshops). Workshop content included:

- How septic systems work
- Overview of main types of septic systems

- How to find as-built online
- Septic system best management practices, including:
    - Household practices
    - Septic tank practices
    - Drainfield and reserve area practices
- How to detect a failing system and what to do next
- Hints on hiring pumpers and asking the right questions
- Participants were encouraged to request a "Septic System House Call"

SWM considered offering alternative workshop styles, such as a "septic social" or a "Landscape Your Drainfield Workshop" for one or two of the six workshops; however, this would have limited our ability to better understand the impact that the workshop host has on homeowner attendance, and we chose not to pursue these alternatives.

Workshops included evaluation techniques such as end-of-workshop evaluation forms and a follow-up mail-in evaluation approximately eight months after the workshop.

Workshop Advertising

In the spring of 2010, and independent from activities conducted through this grant contract, SWM conducted two septic workshops in the northern Snohomish County region targeting homeowners who live near lakes. These workshops were helpful in understanding the percentage of homeowners who are likely to register for the workshops. SWM found that direct mail pieces and follow-up post cards alone would be insufficient, as it resulted in only a handful of workshop attendees at each workshop. As a result, during the planning phase of the six workshops conducted under this grant contract, SWM added doorknob hangers, posters and emails to the advertising strategy as an attempt to increase attendance among our targeted audience.

Snohomish County followed the advertising and outreach protocols developed in The PIE Plan to advertise for seven septic care workshops to residents in four focus areas within Snohomish County (Maltby, Fobes Hill, Church Creek and Getchell Hill). Each focus area includes approximately 210 to 230 residents. The advertising strategy included:

- Direct mail advertisement sent approximately 1 month prior to the first workshop
- Doorknob hangers distributed by volunteers and personal invitation if landowner was present- dropped 1-2 weeks prior to the workshop
- Reminder postcard send after the first workshop

- Posters in public spaces and local businesses
- Email announcements to key influencers in each targeted community
- Website Advertisement

The PIE Plan did not include newspaper or radio advertising, as our intention was to test the effectiveness of a targeted advertising strategy that aims to maximize attendance among homeowners who live in a small geographic area. The advertising materials included messages such as "septic care is up to you" and "protect your investment", which scored high during focus group testing. See the following attachments:

- *Attachment 3.2b*- Workshop Advertisement Mailer
- *Attachment 3.2c*- Workshop Advertisement Postcard
- *Attachment 3.2d*- Workshop Doorknob Hangers
- *Attachment 3.2e*- Workshop Advertisement Poster
- *Attachment 3.2f*- Workshop Advertisement SWM and WSU Extension Webpages

Advertising materials provided homeowners the opportunity to register by phone, email or by submitting the tear-off reply card on the mailer. Our advertising strategy included the advertising schedule on the following page.

----------Remainder of page left blank intentionally----------

Table 13: Workshop advertising schedule

Communication Piece	Description	Church Creek	Getchell Hill	Fobes Hill Snohomish	Maltby
Mailer 1	Advertising for workshops and PSSH website with a tear-off reply card to register	Mailed: 9/27/2010	Mailed: 10/11/2010	Mailed: 9/17/2010	Mailed: 9/17/2010
Doorknob Hangers	Advertise 2 weeks prior to workshop #1	Placed: Oct 13	Placed: Oct 27	Placed: Oct 1	Placed: Sept 30
Workshop 1		28-Oct	11-Nov	16-Oct	14-Oct
Reminder Postcard	Reminder for 2nd workshop in each area	Mailed: Oct 29	n/a	Mailed: Oct 27	Mailed: Oct 30
Workshop 2		13-Nov	n/a	10-Nov	30-Oct
Email Ad	To send to key influencers in each area as identified	Sent as identified	Sent as identified	Sent as identified	Sent as identified
Poster	11" x 17" poster- posted in public spaces and local businesses/ Distributed as time allowed	Placed late September	Posted late September	Posted late September	Posted late September

SWM anticipated that partnering with WSU Extension and other volunteers to distribute doorknob hangers would dramatically increase landowner attendance at the workshops, as many landowners are not used to receiving doorknob hangers in these areas because properties are large and widely distributed, and as a result, using doorknob hangers is usually highly inefficient from a traditional marketing perspective. However, because we had volunteer help, SWM felt the strategy was worth pursuing to test its effectiveness at increasing workshop attendance. Additionally, advertising occurred during the 2010 political campaign season, and we anticipated that doorknob hangers would be an effective approach to separate our advertisement from the plethora of mailers delivered to homeowners at this time.

SWM also hoped to provide a meaningful incentive to encourage workshop participation, such as a drawing for a free septic system inspection and/or pumping at each workshop (a $350-$400 value), where all workshop participants could be eligible to win and have a meaningful chance at winning. Washington Department of Ecology did not approve this type of expense as eligible for grant reimbursement, and so SWM began inquiring with local septic pumpers if they would provide discounts to include in a drawing. Unfortunately, due to Snohomish County's requirements to provide all eligible businesses an opportunity to participate, this effort became unfeasible to manage within the timeframe SWM had available. As a result, SWM did not provide a meaningful incentive to attend the workshops.

Workshop Mailer Advertisement Design (Mailer 1)

Description: 2 fold, three panel mailer with a perforated tear-off reply card to register
Theme: Septic system care workshop advertisement
Motivator: Save money
Message: Don't let your septic system drain your wallet
Calls to action: Register for and attend a septic system care workshop
Images:

Outside panel- photo/graphic of money going down the drain
Inside panel- graphic of a gravity septic system connected to a house

Feedback from 2011 Focus Groups (we were able to test the mailer at the focus groups that occurred after the workshops to obtain feedback):

- The outside panel looks too much like an advertisement and not from a government. Many people would probably trash it without even opening it.
- The SHD logo should be very prominent on both sides of the outside of the mailer.
- The septic system graphic in the inside was very effective at getting people to think about the whole septic system, and not just the tank. Consider putting the septic system graphic on the outside of the mailer- it's a better draw than the image of money going down the drain.
- Providing two dates and on weekend mornings and weekday evenings to attend is important and helpful to align with most people's schedules
- The mailer looks unnecessarily "too fancy" for a workshop advertisement
- The mailer format makes it easy to register
- A simple colored cardstock postcard using grayscale printing may be equally effective as the mailer. Make sure to use the septic system graphic to catch people's attention.

WORKSHOP ADVERTISING- RESULTS & EFFECTIVENESS

Advertising Results

The number of each advertising approach distributed is shown in Table :

Table 14: Number of Each Advertising Piece Distributed

Advertising Strategy	# Distributed in Church Creek	# Distributed in Getchell Hill	# Distributed in Fobes Hill & Snohomish	# Distributed in Maltby
Mailer 1	219	227	414	214
Doorknob Hanger	209 (95%)	146 (64%)	384 (92%)	167 (78%)
Reminder Postcard	219	227	414	214
Email	<5	<5	<3	<3
Posters	~30 posted	~30 posted	~10 posted	~10 posted

After SWM sent the initial mailer and delivered doorknob hangers (see *Attachment 3.2h* for doorhanger distribution maps- this effort required 20 volunteers and an estimated number of 73 volunteer hours), SWM did not see a significant increase in the percentage of workshop registrants. In fact, SWM received such a low response in the Maltby focus area (only one homeowner registered for our first workshop) that SWM chose to cancel the workshop. Based on the above-mentioned advertising strategy, workshop registration yielded the following response rates:

Table 15: Response rate by workshop

Response Rate in Church Creek	Response Rate in Getchell Hill	Response Rate in Fobes Hill & Snohomish	Response Rate in Maltby
2%	1%	2%	0%

Once SWM confirmed that the above-mentioned strategy would not yield enough attendance to justify the expense of holding the workshops in early October, SWM expanded the advertising to residents county-wide to increase homeowner attendance. SWM requested a transfer of up to $3,600 from Grant Task 4 to Grant Task 5 to cover additional advertising expenses, including printing, mail prep and distribution (*Attachment 3.2i*) of 3,684 black & white postcard mailers (*Attachment 3.2j*) for 3 workshops in the northern part of Snohomish

County (two workshops in Church Creek, and one in Getchell Hill), and 3,709 mailers advertising two workshops in the southern part of Snohomish County (one near Fobes Hill, and one in Maltby). SWM and WSU Extension also sent press releases (*Attachment 3.2g*) to local newspapers, and distributed advertisement emails to a plethora of SWM, WSU Extension, and partner email distribution lists (Soil Conservation District, non-profit organizations, etc).

This advertising surge resulted in a significant increase in the number of people who registered for the workshop (averaging approximately 30 participants per workshop once the advertising surge took place); however the percentage of attendance compared to the number of mailers distributed still remained very low (~2%). See the next section for more details.

For a more detailed discussion on possible reasons for the low response rate, go to the section, Mailer Strengths, Limitations and Overall Effectiveness.

Workshop Attendance

Each workshop had the following number of participants:

Table 16: Number of participants by workshop

Date	Location	# Attendees
Thu, Oct 14, 2010	Maltby	0 * (cancelled due to 1 registrant)
Sat, Oct 16, 2010	Fobes Hill/Snohomish	14*
Thu, Oct 28, 2010	Church Creek	24
Sat, Oct 30, 2010	Maltby	32
Wed, Nov 10, 2010	Getchell Hill	28
Thu, Nov 11, 2010	Fobes Hill/Snohomish	32
Sat, Nov 13, 2010	Church Creek	28

*These workshops did not benefit from the additional advertising surge.

Table 17: Attendance rates by workshop sponsor

	Workshop Sponsor	Attendance Rate
North County Workshops	WSU Extension	1.9%
South County Workshops	Snohomish Health District	1.8%*

*Fobes Hill/Snohomish Workshop on Oct 16, 2010 did not have expanded mailer advertising.

These findings indicate that there is no significant difference in the homeowner attendance rate between SHD-sponsored workshops compared to WSU Extension-sponsored workshops. This finding is interesting and helpful, considering SWM's market research that indicated that many Snohomish County residents with septic systems have a relatively high level of fear of SHD and

its regulatory role over septic systems. However, SWM also acknowledges that the level of general fear of SHD could potentially be more pronounced in northern Snohomish County compared to southern Snohomish County, and as a result, we cannot determine with certainty that participation rates will remain consistent if SHD serves as the workshop sponsor in the north county at future workshops.

WORKSHOP PRESENTATION- RESULTS & EFFECTIVENESS

Workshop Attendee Demographics

SWM did not record workshop attendee demographics scientifically; however, based on observation at the workshop, SWM estimated that over 75-80% of workshop participants were over 50 years of age, and over 80% were Caucasian.

2010 US Census data indicate that participants attending workshops do not seem to effectively target equally among age ranges and races and ethnicities, and as a result, workshops may not be an effective approach for educating younger families (especially families with children) and minority races and ethnicities without additional advertising that directly targets these groups.

Presentation Format & Style

Workshops consisted of a 2 ½ hour presentation using a PowerPoint presentation (*Attachment 3.2a & Attachment 3.2k),* models and an interactive activity. After several discussions, SWM chose to offer a 2 ½ hour presentation, instead of a shorter presentation, as this length of time allows for more time to enable homeowners to fully understand the material, build trust, and ask specific questions.

Teri King has been presenting septic care information to homeowners for over a decade, and has a clean and efficient delivery style. She effectively engages with men and women of different ages.

Teri began each workshop by asking the attendees what they hoped to learn at the workshop, and recorded each participant's question. Participants were interested in the following topics:

- Inspecting & Pumping
- Using OSS Additives
- Drainfield Care Questions
- The Do's & Don'ts of everyday maintenance and care
- Specific questions about their particular property's OSS situation

Workshop participants were encouraged to ask questions during the presentation, and as a result, participants remained engaged and interactive.

Immediately following a break, SWM staff or SHD Septic Issues Committee members briefly encouraged workshop attendees to register for the following:

5) A free site visit (septic system house call) by a SHD staff. Attendees were assured that SHD was only there to offer help and answer questions, and to help in the event that a failure is found. SWM staff made a strong effort to diminish participants' fears about registering.
6) A free septic care kit (consisting of a sink strainer, low flow shower head, sink aerators, toilet leak dye test strips, and a flashlight), which were provided by Snohomish Public Utility District and SWM. The kits are formally called "energy kits" or "e-kits" and distributed to any resident being served by PUD. SWM obtained enough kits to distribute to workshop participants and augmented them with the sink strainer and toilet leak dye test strips, which were purchased using grant funds.

Initial Post-Workshop Evaluation

Participants completed an evaluation at the end of the workshop. Listed below are the summary findings of all six workshops pertaining to the workshop presentation and information presented at the workshop. For a detailed spreadsheet on tallied responses, *see Attachment 3.2l.*

1) 95% of attendees felt the presentation was "Excellent" or "Very Good" at meeting their needs for information.
2) 96% of attendees felt the presenter & presentation was "Excellent" or "Very Good"
3) Although a minority of people responded that the information presented in the workshop was new information, a majority of attendees felt most of the information presented at the workshop augmented existing knowledge. Based on the responses to #1 above, the majority of attendees felt that the information presented, overall, was what they were looking for to meet their needs.

Table 18: Post-workshop survey responses, knowledge gained

Best Management Practice	% participants stating the information was new	% participants stating the information was "somewhat new"
OSS failure can cause fecal coliform pollution in streams, groundwater, rivers, etc	4%	28%
OSS recharge local groundwater	28%	36%
Septic tank additives are not recommended	40%	35%
Unused medications should not go down drain; can be taken to a medicine return station	30%	32%
Chemicals with Danger or Poison labels should not go down the drain	18%	27%
Using less water will prolong a system's life	22%	55%
A OSS inspection is different than a pumping	30%	32%
Experts recommend having the tank inspected every year, pumped as needed	53%	38%
Drainfield should not be paved, no parking, no livestock, etc.	7%	26%

4) Following the workshop, the vast majority of participants (90%+) either pledged to adopt the below actions or stated that they already performed them.
    - I will use sink strainers to keep solids from going down the drain
    - I will take unwanted medications to a drop off location
    - I will take unwanted hazardous products to the HHW facility in Everett
    - I will learn where my septic tank and drainfield are located
    - I will walk over the drainfield to check for soggy spots
    - I will have my OSS inspected within the next three months, and if needed will have the tanks pumped
    - I will tell my neighbors about this workshop

5) Workshops are highly effective at motivating attendees to invite Snohomish Health District "technicians" to visit their property (70 attendees equaling 46% of all workshop attendees) at the workshop.

6) Workshops are effective at encouraging attendees to register for a septic system care kit (66%) and pledging they will install and use the items provided in the kit (99%).

8-Month Post Workshop Evaluation

The three hour septic system workshop as described above appears to be highly effective at facilitating long-term behavior change among OSS homeowners regarding a number OSS BMPs.

Snohomish County sent mail surveys to all workshop participants in June 2011, 8 months following the workshops, to determine the workshops' impact on long-term behavior change. See *Attachment 3.2m* for the mail survey and results.

SWM developed the mail survey to align with the WWU telephone survey (*Attachment 7.2a*), which enabled SWM to statistically compare questions amongst workshop attendees, OSS homeowners who received mailers and sanitary surveys, and the control group.

Results from the survey indicate that workshop participants are significantly more likely to adopt the following behaviors compared to the control group (results indicate a statistically significant difference):

- Prevent hazardous chemicals from going down the drain (55.3% compared to 33.3% by the control group)
- Use less water over the course of the day (45% compared to 25.5% by the control group)
- Spread out your water use throughout the week (62.5% compared to 21.3% by the control group)
- Walk over your drainfield searching for odors (63.2% compared to 11.8% by the control group)
- Have a pumper inspect your system on a regular schedule (37.8% compared to 10.8% by the control group)
- Prevent kitchen scraps from going down the drain (53.8% compared to 23.4% by the control group)

The mailers and sanitary surveys showed no statistical differences compared to responses by the control group for the questions above. As a result, the workshops are the only outreach method shown to effectively result in long-term behavior change among the outreach strategies we implemented and tested.

Additionally, the workshop resulted in a significant difference in responses to the question, "Have you contacted a professional pumper to inspect and/or pump your septic system?" when compared to respondents who received the mailers (Workshops: 36.8% yes /63.2% no;

compared with Mailers: 14.3% yes /85.7% no). Results also found an increase in responses to compared to those who received sanitary surveys, although the responses were not statistically different at a 95% confidence level.

It is important to be mindful about the meaning of the survey results. The survey asked people to self-rate whether they are more likely, the same or less likely to adopt specific behaviors. We did not perform observational surveys of workshop participants to determine if they were in fact performing BMPs.

In conclusion, we can conclude from the survey that the workshops *appear* to be effective at increasing OSS homeowners' adoption of BMPs. Additionally, it seems likely that continuing to conduct workshops will help OSS homeowners to better understand their systems and how to care for them, although the short-term and mid-term relative impacts on water quality are not likely to significantly improve as a result because such a relatively low number of OSS homeowners attend a workshop compared to the overall number of OSS homeowners. However, if a long-term program was sustained over a number of decades, OSS workshops would have a high likelihood of changing a significant number of OSS homeowners' behaviors, which could result in improvements to water quality if and/or when OSS failures are the cause.

WORKSHOP- STRENGTHS, LIMITATIONS & OVERALL EFFECTIVENESS

Workshop Strengths

Providing septic system care workshops to homeowners provides a number of benefits:

- Workshops are effective at engaging an audience with in-depth and complex information in a manner that maximizes the potential for audience understanding and long-term behavior change compared to other outreach modes
- Three hours is a long time to dedicate toward learning about septic systems. Participants are likely to remember and apply the information they learned at the workshop when being immersed in the topic for this period of time. Although we did not test whether shorter workshops can result in similar long-term behavior change impacts, we believe that a shorter workshop may not result in long-term behavior change, as the in-depth information provided at the workshop appears to be necessary to build the level of trust needed to result in long-term behavior change.
- Approximately 1 failure was identified per workshop- Teri King followed up with each one to make sure that the failure was repaired.
- Workshops are effective at building a longer-term relationship with a percentage of landowners with Snohomish Health District (via septic system house calls).

Workshop Limitations

- Hosting workshops is time consuming and expensive to produce, manage, coordinate, advertise, implement and evaluate.
- Only 1-3% of audience was reached. Most people in today's world are busy and unable (or unwilling) to make time to attend a workshop on septic system care. At a minimum, workshop hosts should schedule the workshops in locations nearby the target audience's homes, and schedule multiple workshops on several dates and times to maximize the chance that interested participants will attend.
- Many people who are more likely to have an OSS failure may be less likely to attend an OSS workshop without a significantly stronger motivator (such as a strong financial disincentive for not attending the workshop). It is possible that even a strong incentive, such as a free inspection/pumping may not be sufficient to encourage many people who are most likely to have OSS problems due to lack of proper care.

Overall Effectiveness

Goal 1: Develop and implement six septic system homeowner workshops to promote OSS best management practices.

In total, SWM and WSU Extension conducted a total of six workshops. SWM originally planned to conduct seven workshops, working in partnership with the City of Snohomish; however, as explained in the section above, SWM cancelled the first workshop scheduled in Maltby due to low registration numbers.

Goal 2: Evaluate the effectiveness of increasing advertising intensity to a focused geographic area to increase the percentage of homeowner attendance at the workshop.

As described above, results from our pilot program suggest that increasing advertising intensity to a focused geographic area does not significantly increase the percentage of homeowner attendance at the workshops without additional motivators that were unavailable to SWM. Examples of the types of motivators that would likely have a significant impact on workshop attendance are listed below; however, each of the below examples may result in significant financial and/or political challenges, and may not be determined as realistic or viable solutions at this time:

- An incentive in the form of a drawing, where the chance of winning a sizeable prize (free OSS inspection and/or pumping) is meaningful (a 1-in-30 chance or less of winning).

- A financial disincentive for not attending the workshop. For example, Island County Health Department requires OSS homeowners in certain areas to inspect their OSS on a routine schedule and submit inspection reports to Island County. If the reports are not submitted, Island County issues the homeowner a fine. Homeowners are given the option to hire a professional to perform the inspection, or attend a 2-workshop series to become certified so they can perform the inspections themselves.
- A threat from an agency such as Washington Department of Ecology that certain landowner rights/privileges would be limited (such as not permitting dwelling expansions) as a result of poorly operating septic systems. The agency could use workshops as an incentive to engage the community, improve environmental conditions and prevent homeowner rights from being limited.

SWM was fortunate to learn during the 2011 focus groups that the outside image/message of the initial mailer (Mailer 1), that was intended to catch our audience's attention, was not effective because many people likely assumed it was "junk mail" and discarded it without reading it. As a result, improvements to the mailer could result in a small increase in the number of participants attending the workshop. However, we also acknowledge that our target audience also received at least one additional mailer (reminder postcard), and most (~75%) also received a doorknob hanger advertisement, and so changes from improvements to the initial mailer will likely increase participation by only several percentage points at best (bringing participation to 5% of the targeted population at best).

Goal 3: Evaluate whether a difference in workshop attendance exists when advertisements are solicited by SHD (a regulating agency) or Washington State University (a non-regulatory, educational institution).

Findings from this pilot study indicate that there is no significant difference in homeowner attendance between SHD-sponsored workshops compared to WSU Extension-sponsored workshops. Results from our pilot study indicate that the "fear of government" is not a barrier among all residents equally. People who are most likely to attend a workshop do not appear to consider the workshop host as an important factor in their decision to attend, as long as the host appears to be an appropriate source of information.

Goal 4: Evaluate the effectiveness of OSS workshops at influencing our targeted audience's OSS care behaviors.

Our WWU survey indicates that the three-hour OSS workshops are an effective approach for influencing participants' long-term OSS care behaviors. Of all the methods we tested, workshops are the only method that resulted in a significant difference in reported behavior change compared to a control group. However, there are several important limitations to the overall effectiveness of this approach when attempting to encourage change among a targeted audience within a specific geographic boundary.

The first limitation is that a very small percentage (2%) of our target audience attended one of the workshops, resulting in 98% of our audience who were not exposed to the information that would more likely result in long-term behavior change. When considering that over 78,000 septic systems exist in Snohomish County, the challenge of reaching even a small fraction of them to achieve visible results in a targeted area seems daunting, if not impossible, without tremendous resources, very meaningful motivators and/or incentives, and consistent workshops over a long period of time to build interest among residents over a course of several years. Additionally, workshops would most likely be effective in coordination with a mailer series; however, because most Snohomish County residents believe they already are excellent "stewards" of their septic system, sending a BMP mailer series to residents which reinforces and clarifies BMPs may cause residents to believe they don't need to attend the workshop because they think they already know all they need to know. As a result, the BMP mailer series could result in lower participation at the workshops, and so SWM recommends to distribute the BMP mailer series after the workshops conclude (so those who don't attend the workshops still benefit from the mailers).

Additionally, targeting landowners in suburban areas may result in a higher attendance rate. SWM has found that higher-density areas will often result in slightly higher attendance percentages for other SWM-related workshops. However, based on SWM's experience, the rate would likely only be 2 or 3 percentage points higher, which is still a very small percentage of the overall target population.

Other health jurisdictions have attempted to provide regular "septic 101" workshops, and have found that it is possible to maintain attendance over time. For example, Island County has implemented a regular workshop series (six workshops per year) for Island County residents starting in 2008, and was able to maintain a consistent level of attendance through mid-2010 (Laxson, personal communication, October 7, 2011). Workshop participation was high (200

people/workshop), though attendance has decreased since mid-2010 due to the issuance of an online workshop. This high level of participation is also due to a very strong motivator, as homeowners with septic systems in Island County are required to inspect septic systems annually, and if they do not submit the necessary paperwork, property owners will receive a fine. Residents have the option of attending a free septic 101 and 201 class, which certifies them to self-inspect their own OSS. This certification enables homeowners to fulfill their legal requirement without needing to pay a professional several hundred dollars a year to inspect their OSS. As of mid-2011, Snohomish County does not have a similar inspection enforcement program, and as a result, the motivator used in Island County (as well as several other counties throughout Puget Sound) is not available for Snohomish County jurisdictions to use as a motivator to encourage participation at a workshop.

Goal 5: Evaluate the effectiveness of using OSS workshops as a strategy to solicit and conduct septic system house calls.

Of the 152 total attendees, 62 registered for a free septic care inspection by a SHD environmental health specialist.

SHD began contacting workshop registrants to schedule inspections in December 2010. Initially all residents were contacted by phone to schedule an appointment. If after a couple of weeks, there was no response, a reminder letter (*Attachment 3.3a*) was mailed to the property owner. Phone calls generated 23 appointments from those registered; while the reminder letter mailed a couple weeks later prompted 5 others to contact SHD and schedule an appointment.

SHD completed all sanitary surveys to workshop participants on April 12, 2011. Of the 62 property owners who registered for the free septic care inspection, 28 residents (~45%) accepted the offer. However, when considering the approximately 9,000 residents potentially reached by the advertising strategy promoting free septic care workshops, only 28 residents (~0.3%) participated in the free inspection by a SHD environmental health specialist.

Unlike the standard sanitary surveys performed under Outreach Approach 2 and as described below, virtually all landowners warmly welcomed SHD staff. Indeed, a good portion of at least a few of these inspections took place at the kitchen table with the offering of a fresh cup of coffee. These inspections lasted well over an hour. At the start of these inspections, homeowners were provided with a copy of their septic system as-built drawing and relevant educational materials pertaining to water conservation and septic system care. All residents spoke very highly of the valuable information they learned from the septic care workshop. The

workshop, in some cases, met participants' need for information so well that eight (~13%) homeowners when initially contacted by way of phone to schedule an appointment stated they were no longer interested in the free septic care inspection because the practical information they learned from the workshop served them well.

SHD staff met many homeowners onsite who asked probing and thoughtful questions related to septic systems (i.e. pumping, landscaping, operation, etc.), and many had inquires about other issues that could possibly have an adverse impact on their onsite septic system. Most of these questions pertained to drainage from roofs and building foundations, as well as ground surface sheet flow and best management practices to satisfactorily dispose of such drainage without adversely compromising their OSS. SHD documented septic care practices of homeowners on a *SHD Workshop Follow-UP Visit Tracking Form* (*Attachment 3.3b*). Because homeowners who attended the workshops voluntarily invited SHD staff to their property, SHD staff was able to freely ask questions and conduct very thorough septic care workshop inspections, and were also able to completely fill out the *SHD Workshop Follow-UP Visiting Tracking Form*. These residents were at ease with SHD's presence and were forthright with responses to our questions. Since these homeowners were left well informed after the septic care sanitary survey, no additional follow-up letter or mailings were sent to the homeowner.

If the goal is to conduct septic system house calls, this approach could feasibly be used on a larger regional scale. Based on mail campaign response rates, only an estimated three to five percent of residents will request participation in the workshops, and among those, approximately 40% will register for Septic House Calls, resulting in manageable staffing needs. However, based on our experience, the workshops themselves are actually more effective at encouraging long-term behavior change than the house calls. Additionally, those individuals registering for a House Call are likely to be highly educated about their septic system (due to the workshop) and are less likely to have problems or a septic system failure. As a result, this strategy is not likely to be very beneficial, especially considering the relatively low return on investment.

----------Remainder of page left blank intentionally----------

WORKSHOP- LESSONS LEARNED & RECOMMENDATIONS

SWM identified the following key lessons learned for conducting septic care workshops.

Workshop Advertising

- Targeting a small geographic area with heightened advertising to increase attendance- This strategy is ineffective without additional motivators that are perceived as meaningful and sizeable among the target audience.
- Direct mail, email advertisements using partner distribution lists and Newspaper PSAs- these strategies are the most effective advertising strategies.
- Advertising Images- Participants in focus groups prefer mailers that look "like it's from the government" and that do not look like "junk mail." However, responses to inexpensive mailers that were sent out to 4,000 residents yielded a lower response rate compared to the color mailers.
- Posters and Door Hangers- these strategies are ineffective with rural septic system owners; additionally they are very time consuming and rely heavily on many volunteers.
- Neighbor-to-Neighbor Advertising- Relying on attendees/neighbors to advertise is ineffective, at least for the short term. 95% of attendees indicated on evaluation form pledges that they would notify their neighbors of the upcoming workshop, yet few attendees noted that they heard from neighbors in follow-up workshops. Based on feedback from Island County Health Department, neighbor-to-neighbor advertising could increase if the workshops were held routinely throughout the course of the year, and from year to year.
- Incentives to Attend a Workshop- Results from other counties have shown that relatively small or moderate-sized incentives, such as $25 coupons toward an OSS inspection, are not perceived by homeowners as a significant or meaningful incentive that will influence whether they attend a workshop. Meaningful and sizeable incentives may help increase homeowner participation at workshops (e.g. each workshop holds a drawing where each participant is eligible to win a free OSS inspection and/or pumping, a value of $350 or $400). However, results from Clallam County suggest that even significant and meaningful cost share programs (50% cost share for OSS inspections for all workshop participants) may not be considered a meaningful incentive by landowners.
- Addressing Fear- SWM included the following text on all advertising "We're here to help. No charge. No inspectors. Just answers." SWM and WSU Extension both heard repeatedly that participants planned to attend specifically because they were assured that there wouldn't be any inspectors at the workshop to "listen in and target" a landowner.

- Workshop Host- Results from our pilot study indicate that the "fear of government" is not a barrier among all residents equally. People who are most likely to attend a workshop do not appear to consider the workshop host as an important factor in their decision to attend, as long as the host appears to be an appropriate source of information.
- Workshop Length- Although three hours sounds like a long workshop to many people, SWM found that this length was appropriate to properly present the information and answer participants' questions. However, to minimize the potential barrier, advertisements could state "workshop: 6:30-9:00pm, and 9:00-9:30pm to answer questions."

Workshop Planning & Logistics

- Workshop Location- finding a workshop location that is nearby, comfortable and familiar to the target audience is helpful in achieving a high level of participation. SWM made an effort to host workshops no more than several miles from the focus areas, and received no feedback that the workshop location was a barrier to homeowner attendance. Based on maps SWM developed to identify workshop participants' addresses compared to the workshop location they attended, most attendees live within 8 driving miles of the workshop location; however, attendees at the Getchell Hill workshop had a much wider distribution compared to the other workshops (*Attachment 3.2n*).
- Workshop Venue- Finding nearby and appropriate venues in rural locations was a challenge. Rooms were checked for good acoustics to minimize sound reverberations (for people who are hard of hearing), spaciousness, comfortable chairs, a good place to erect a large projector screen, appropriate access to A/V equipment (including accessible power outlets), ease of finding the building from the street, ability to provide snacks, and pleasantness of rest rooms.
- Workshop Frequency- Holding routinely scheduled workshops over time may result in higher homeowner attendance over time; however, this may only be effective if a stronger motivator to attend is in place. When planning a series of workshops within a limited time frame, SWM found it helpful to plan workshops with a little amount of time (several days to a week) between the workshops. This time enabled SWM, WSU Extension and UW SeaGrant to make refinements along the way to maximize effectiveness. SWM recommends offering at least two workshops on varied times and dates to maximize attendance.

- Food/Snacks- SWM and WSU Extension heard praise from participants at each workshop for providing light snacks during breaks. If funding is available, SWM recommends providing healthy food (mini-sandwich wraps, cut fruit) that does not make loud noises when being chewed.
- Workshop Season- SWM held workshops in the fall. According to other jurisdictions that hold regularly scheduled OSS workshops, the best months to host workshops are between February and mid-October. In Island County, even summer workshops have resulted in high attendance rates, although without a strong motivator, SWM doesn't recommend holding workshops between late-May through mid-September.
- Coordinating with Partners- SWM and WSU Extension found it very challenging to coordinate all aspects of the workshops. If partners are working together to conduct workshops, planners can increase efficiency by coordinating workshops in unison and have each partner accept responsibilities across all workshops. SWM and WSU Extension scheduled weekly planning meetings to coordinate and plan, and this routine worked well.

Workshop Presentation

- **Presenter-** SWM feels that the presenter is a key factor to facilitate long-term behavior change. A presenter must be clear, concise, friendly, open, have the ability to address questions, have the ability to relate to the audience, and be seen as unbiased when answering questions. SWM chose to hire UW Sea Grant, an unbiased third party, to present at the workshops. Although we did not compare results with a workshop presented by a health department staff member, we suspect that the third-party presenter who can provide unbiased answers to questions played a key role in building sufficient trust to facilitate long-term behavior change. It is possible that a health department staff member could achieve the same result; however, this approach also opens up the possibility of unwanted questions about specific problems and emotional homeowners who choose to use the workshop as an opportunity to place blame. A third party presenter avoids these potential challenges.
- **Presentation Length**- SWM chose to conduct the workshop within a total of three hours, with a 2 ½ hour presentation. We feel this is an effective amount of time to present the information in an effective manner. Workshop participants informally commented to SWM staff that the workshop length was "just the right length of time." Additionally, SWM felt it was helpful to have an assistant in back to help the presenter to keep track of time.

- **Participant Interaction-** Offering an engaging and interactive workshop is very important. Teri King engaged the audience frequently, invited questions throughout the presentation, and included an exercise about toilet paper degradation to encourage people to think about what they're putting down the drain and into their OSS. Interaction enables a participant to absorb the information in a way that's meaningful for them, and we believe this interaction was an essential element leading to the workshops' success at resulting in long-term behavior change for many participants.
- **Septic social-** SWM chose not to hold a septic social because our goal was to maximize the number of participants, and septic socials limit the number of participants to only 15-20 because of heightened challenges of hearing and seeing. Additionally, septic socials are taught outside, and because our workshops were in the fall, the likelihood of rain was high (which would result in an even lower turnout).
- **Providing OSS Manuals to all participants-** We chose not to offer OSS Manuals to all participants at our workshops, primarily because we wanted to limit the sense of overwhelm. Participants already received a packet with a significant amount of information on OSS care. SWM felt that although the manuals would be helpful for those who read them, the chance that the manual would result in fewer people reading other important materials would increase. Based on comments from individuals in our focus groups, we learned that most people are not likely to actually read the OSS manual anyway, as it is a highly detailed and complicated document, and it's not written clearly and concisely with the landowner's needs and reading capabilities in mind. Based on our findings from the WWU post-education survey that found that workshops were effective at resulting in behavior change, SWM feels it is not necessary to provide OSS manuals to everyone, but could offer to provide them to people who request them.

SEPTIC SYSTEM WORKSHOPS- RETURN ON INVESTMENT

SWM's OSS Workshops were effective at encouraging long-term behavior change; however, hosting workshops for OSS homeowners requires a significant investment, especially if the goal is to reach a significant number of residents in a targeted area. Our research suggests that a different, and likely more expensive, advertising approach would be necessary to achieve significant participation among residents in a small, targeted geographic area (several hundred homes compared to several thousand homes). However, each area is likely to be different based on the motivators and incentives offered. For example, homeowners living in Marine Recovery Areas (MRA) may be more likely to attend workshops if they are required to submit records proving they have had their OSS inspected routinely, and if they are allowed to self-

inspect their OSS if they attend a "101" and "201" workshop. Homeowners not living in MRAs do not have similar requirements, and as a result, motivators and incentives to attend a workshop will not likely yield as high of a percentage of attendance among residents living in a targeted area.

Based on our pilot study results, the estimated cost to conduct septic system workshops in Snohomish County targeting OSS homeowners that do not live in an MRA and have relatively little external incentive to attend the workshop, is approximately $123.75 per workshop attendee. Costs are based on anticipated future costs based on the most effective and efficient strategies used during this pilot study, and include the following:

Table 19: Expenditures per 2 workshops

Workshop Expenditures	**Estimated Cost**
Labor- planning, establish contracts, coordinate workshop advertising, coordinate logistics for workshops (RSVPs, room rental, etc.), facilitate at workshops, conduct post-workshop evaluations and follow-up with residents.	$3000
Consultant cost/workshop- present OSS information at the workshops.	$1,500
Advertising- direct mail, fliers and newspaper ads to 4,000 OSS homeowners	$2,000
Room rental	$200
Educational material printing costs	$200
Travel	$30
SUBTOTAL	$6,930
COST PER WORKSHOP ATTENDEE (56 ATTENDEES TOTAL)	$123.75

The above example does not include an expense item for an incentive/motivator to attend the workshop, such as a free inspection. However, this relatively small expense could presumably result in more workshop attendees, and could result in a decrease in the cost per attendee.

Labor expenses to coordinate workshops are likely to decrease when more than one workshop are held within a certain timeframe. Additionally, labor expenses are likely to decrease over time, as efficiencies and refinements can be made to keep costs low.

Additionally, based on conversations with Island County Health Department and Skagit County Health Department, it is possible that OSS homeowner attendance at workshops increases over time if a regular workshop schedule is created for OSS homeowners in a targeted geographic area. As word-of-mouth advertising becomes more prominent from workshop season to

workshop season, greater numbers of people may be interested in attending the workshops over a course of several years, and as a result, return on investment may increase over time.

ACTIVITY 3.3 – OUTREACH APPROACH 1: "SEPTIC SYSTEM HOUSE CALLS"

The purpose of a septic system house call was to help homeowners understand the location of their property's OSS, what type of OSS they have, and how they can properly care for and maintain it. A sanitarian visited the property and spent between 15 to 80 minutes orienting the homeowner on their property's OSS and providing information on best management practices specific to the homeowner's OSS.

OUTREACH APPROACH 1- STRATEGY

In Outreach Approach 1, SHD offered "septic system house calls" (sanitary surveys) to targeted residents via direct mailers and at septic care workshops as described in Activities 3.1 and 3.2 of this report. In Outreach Approach 1, only those residents who received mailers or attended workshops and specifically invited SHD to their property received a house call. This section describes the effectiveness of septic system house calls when advertised through direct mail and workshops.

In Outreach Approach 2, and as described in Activity 4 of this report, SHD also conducted proactive sanitary surveys among targeted homes in Fobes Hill and Church Creek. Residences targeted in Outreach Approach 2 were geographically separate from those residences targeted in Outreach Approach 1. However, SHD followed the exact same protocols while conducting septic system house calls (also known as sanitary surveys) once SHD physically arrived at the property.

The septic system house calls provided the homeowner the following information:

- How to read their septic system as-built
- Where their septic tank, drainfield, and reserve areas are located
- What type of septic system they have
- How their septic system works
- What best management practices they should use (specific to their system type)

  - Household practices
  - Septic tank practices
  - Drainfield and reserve area practices
- Based on a user questionnaire, which practices would be most beneficial to adopt or change to improve the care of their system
- How to detect a failing system and what to do next
- Hints on hiring pumpers and asking the right questions

SWM and SHD worked to ensure consistent messaging, instructions, and reporting from all sanitarians offering technical assistance visits. To assist in this effort SWM and SHD created:

- A septic system user questionnaire and reporting form
- Important talking points
- Consistent fact sheets and brochures

Items for the homeowner. The homeowner was given the following items to keep:

- Septic System As-Built Drawing
- Best management practices fact sheets and brochures, including
  - SWM fact sheet summary of best management practices
  - Landscaping tips- SHD publication
  - Water Conservation- Washington State Department of Health publication

OUTREACH APPROACH 1: RESULTS & EFFECTIVENESS

Mailer Program Sanitary Surveys- By Invitation from Landowner

SWM distributed a series of three mailers to a different group of targeted residences located nearby the Fobes Hill and Church Creek residents who participated in the sanitary survey program. Mailers were sent to 219 residences in Church Creek, 226 residences in Fobes Hill, 227 residences in Getchell Hill and 214 residences in Maltby. Mailers were delivered to each residence approximately 2 weeks apart, beginning in mid-April 2011 and ending in mid-May 2011. The first two mailers provided an option for the landowner to invite a "technician" (Environmental Health Specialist) from SHD to the landowner's property, answer questions and perform an inspection.

The table below shows the number of reply cards returned from each mailer by residents in each focus area.

Table 20: Number of reply cards returned from each mailer per focus area

Focus Area	Total # households per focus area	Total # Mailer 2 reply cards received	Mailer 2 reply cards requesting a house call	Total # Mailer 3 reply cards received	Mailer 3 reply cards requesting a house call
Maltby	214	1	1	6	0
Fobes Hill	226	4	2	6	1
Getchell Hill	227	2	0	3	0
Church Creek	219	4	2	9	0

Septic Care Workshop Participants- Sanitary Survey Inspections

Please see Goal 5 under the Workshop Overall Effectiveness section for a detailed description of sanitary survey inspections performed for individuals who attended a septic care workshop.

Outreach Approach 1: Effectiveness

The majority of landowners (99%) did not invite SHD to visit their property and inspect their septic system after receiving the mailers. Although the messages stating "septic system care is up to you," "get unbiased information," "protect your family's health" tested well during focus groups, these messages simply aren't sufficient to overcome the barriers that prevent a homeowner from inviting SHD to inspect their OSS. Each homeowner may have a different reason for not contacting SHD. The following reasons were identified in our pre-outreach telephone survey, and even though our mailers strived to address each of these concerns to the best of our ability, we still received a very poor response rate:

- They don't believe SHD is the proper entity to contact (23%)
- They are unfamiliar with SHD (15%)
- They would call a plumber/pumping company instead if a problem arose (15%)
- They would call "someone else" if a problem arose (13%)
- They would call SHD only if it posed a serious enough hazard (13%)
- They would handle issue themselves (10%)
- They don't want to involve government (6%)
- They have fear of reprisal/trouble (3%)
- No reason given (23%)

Based on the Snohomish Health District's experience working with OSS homeowners during the septic system house calls and sanitary surveys, most OSS homeowners act in a responsible manner to make repairs to their OSS once they learn that repairs are needed (when SHD is the agency that informs them of the problem), and many are even thankful to SHD for bringing it to their attention. However, our Elway survey indicates that more emphasis on proactive measures is needed before an OSS failure occurs. The Elway Survey indicates that only 44% of individuals are likely to schedule regular maintenance, 36% pump "when needed" (often meaning once a failure has occurred), and 17% have never pumped. Outreach and education materials help to serve to reinforce proper behaviors among these individuals, and possibly to serve as a reminder to perform routine maintenance. However, Landowners who are willing to invite SHD to perform a septic system house call are more likely to be proactive about learning how to maintain their OSS, and as a result, they may be more likely to be educated about their septic system and already performing most of the preferred best management practices, resulting in a diminished overall benefit of the visit compared to landowners who are not as likely to be as proactive about maintaining their septic system.

Our market research findings suggest that a sizeable number of OSS homeowners are not motivated by the fact that Washington State law requires them to routinely inspect their septic systems, unless the law is enforced and a strong penalty could ensue. Currently SHD does not take a forceful approach toward ensuring that landowners are maintaining their septic systems as required by law, and as a result, homeowners may feel that it's up to their own discretion whether they will comply with the law.

Our market research indicates that there are many OSS homeowners who do not think that their OSS needs regular service (pumping) to operate properly. As a result, they often do not include maintenance expenses in their anticipated budget, and they may not be able to afford major OSS repairs, especially during difficult economic times.

Because the financial costs of routine maintenance (inspections and pumping when needed) are significant ($250+), many landowners may choose to forego maintenance if and/or when their budget is limited, and take the risk that their septic system may fail as a result. Some landowners in our focus groups even suggested that they would be content to remain ignorant about the status of their OSS' ability to function properly as long as septic effluent is not backing up into the house or causing an obvious health risk. They stated that they will avoid the need to pay for repairs for as long as possible if they don't deem it as a problem. For a thoughtful discussion and a theoretical rationale about why, from a landowner's perspective, it is not in their best interest to pay for routine maintenance, please see section, *Challenges: Public Goods Theory, Prisoner's Dilemma and Other Challenges* near the end of this report.

Additionally, OSS landowners know that SHD is a regulating agency and does not offer financial assistance. Based on focus group findings, some landowners scoff at the phrase "SHD can offer help" on outreach materials because they believe that they won't receive financial help from SHD if they have an OSS failure, and they believe that they'll receive an expensive fine if their OSS is found to be failing. As a result, our survey suggests that SHD will be among the last agencies a homeowner will call in the event of an OSS problem.

Based on our pilot study's results, it is clear that education and outreach efforts, by themselves, are insufficient in making a meaningful difference to minimize the number of failed septic systems in Snohomish County.

However, there are a variety of possible tools and/or policies that could move us closer to this goal and help education efforts become more effective. One tool includes offering meaningful financial assistance to OSS homeowners in financial need in the form of low-interest loans, cost-share programs or grants to aid in OSS repairs, and advertise that this financial aid is available. One initial example is the partnership developed between Snohomish Health District and SWM to offer a 75% cost share to OSS homeowners in financial hardship who reside in the Stillaguamish Clean Water District through use of the Stillaguamish Clean Water District discretionary fund. However, this program has many limitations, and will only provide assistance to a small portion of the potential OSS' in need of repairs.

Another possible policy would be to replicate the enforcement model that Island County, Skagit County and Whatcom County, Thurston County, Tacoma-Pierce County, Kitsap County and others have been implementing in Marine Recovery Areas. This option includes a "stick" approach that simultaneously nudges homeowners to become more educated about their septic system's needs. Tacoma-Pierce County and Thurston County recently developed a series of notification letters based on focus group testing, to help increase the potential that landowners see benefit to maintaining their septic systems. These letters are included in this report as *Attachment 3.3c*.

A third possible policy would be to allow for the creation of septic districts in priority areas, where a third party (private company or a public utility) would be responsible for routine inspections and maintenance of all septic systems within a defined geographic area. An insurance policy with a required deductable for major repairs could also be in place to encourage landowners to adopt everyday care BMPs (to avoid a "tragedy of the commons" scenario). In this approach, education and outreach efforts would primarily serve to promote everyday care BMPs, as inspections and pumping would be handled with little involvement by the homeowner.

All of these options could help enhance the impact from education and outreach efforts.

Outreach Approach 1- Individual Property Scale

Educating Landowners- This approach can be effective at educating property owners because the landowner is less likely to consider SHD a threat (after all, SHD was invited). As a result, the landowner is more likely to ask detailed and specific questions about their property's OSS , and about OSS care practices.

Because SHD coordinates with the landowner to schedule a visit, the chance that a landowner will be home when SHD visits the property is very high. This ensures SHD does not waste resources by driving to a property but cannot gain access.

Detecting OSS Failures- As stated previously, sanitary surveys conducted using an outreach approach where the landowner invites SHD to the property may not likely be effective at finding major OSS failures because the landowner won't likely invite them for a site visit.

However, landowners who invite SHD to the property are more likely to be willing for SHD to thoroughly inspect the system. These sanitary surveys are likely to be highly effective at identifying potential problems, such as whether the system has been adversely compromised from land grading practices, vehicular parking, etc., and very effective at identifying minor and major OSS failures if they exist.

Outreach Approach 1- Landscape Scale

Educating Landowners- All landowners within the targeted Outreach Approach 1 focus areas received a series of 3 well-crafted mailers that were tested by focus groups and revised to maximize their impact. The mailers provide information on septic system care best management practices, where people can go online to learn more and to access their OSS as-built, in addition to providing an option to invite an Environmental Health Specialist to visit their property. However, the number of people actually going online to educate themselves is low (4.9%), and the number of people inviting SHD to visit the property and have one-on-one conversations about their OSS is significantly reduced compared to Outreach Approach 2.

Although septic care workshops provide excellent information to participating landowners, only 1% of landowners from the targeted focus areas registered for a workshop. As a result, workshops are not an effective approach at educating landowners living within a localized and focused geographic area of 200-300 homes unless a significantly stronger motivator or incentive is used to attend. For example, Island County, Skagit County, Whatcom County, and others in the region require OSS owners in Marine Recovery Areas to conduct annual OSS

inspections, and as an incentive, they offer free or low-cost workshops to train landowners to conduct inspections themselves. This type of program has proved to effectively educate landowners on proper OSS care across a wide landscape well beyond 200-300 homes; however, the program is very expensive to administer and is not likely to garner public or political support in Snohomish County in the near future.

As a result, Outreach Approach 1's effectiveness at the landscape scale is low. In order for an outreach approach similar to Outreach Approach 1 to be successful across a landscape scale, SWM believes that SHD would need to increase awareness of its educational programs by providing consistent educational opportunities over the course of time (years), and could potentially need to provide meaningful assistance and financial aid (e.g. low interest loans, cost-share programs, grants, etc.) to help landowners in financial hardship make repairs to OSS failures. This approach is likely to be highly expensive and potentially politically unfeasible at this time.

Detecting OSS Failures- Outreach Approach 1 is not an effective approach at finding OSS failures because only a small portion of landowners will invite SHD to their property to perform an inspection. As a result, this approach is analogous to sifting for a needle in a haystack (only 2-5% of OSS are likely to be failing), and after sifting through just one or two small sections of the haystack, the search for the needle is stopped, resulting in 90+% of the haystack left untouched.

Understanding OSS Status Across the Landscape- Outreach Approach 1 will not be successful at obtaining a clear understanding of the status of septic systems across a geographically defined and narrow landscape of several hundred homes. Accomplishing this goal is impossible without going from property-to-property to inspect septic systems.

OUTREACH APPROACH 1: LESSONS LEARNED & RECOMMENDATIONS

Outreach Approach 1 attempted to reach a targeted geographic area through educational mailers and workshops to solicit septic system house calls conducted by a SHD Environmental Health Specialist.

Lessons Learned

1. Outreach Approach 1 is highly ineffective at securing OSS House Calls in a targeted geographic area.

2. Workshops are more effective at securing OSS House Calls than mailers, though neither are effective at securing a significant number of OSS House Calls in a small targeted geographic area.

Based on our pilot study, only a small percentage of the total targeted population is likely to attend a workshop (1-2%) without a stronger incentive or motivator to attend. However, among those who do attend, a significant portion of workshop attendees are likely to invite SHD to perform a house call (40% of workshop attendees registered, and of those, 45% had house calls completed). Building trust among landowners is essential for a successful program. A three-hour workshop adequately builds trust, especially if a third-party presenter recommends that homeowners invite SHD staff to perform a house call. Taking measures to follow-up with each homeowner to schedule house call visits in a timely manner is important. Delaying contact beyond several weeks may result in some homeowners deciding not to schedule a visit.

- Although mailers may be effective in educating homeowners on septic care best management practices, mailers alone do not build enough trust to result in a homeowner inviting SHD to conduct a house call. As a result, providing an option on a mailer for a homeowner to invite a "SHD technician" (Environmental Health Specialist) to visit the property and answer questions will yield a very low number of invitations (0-1% of the target population).

- Based on our 2009 telephone survey, commercial companies are a favored source of septic system care information, and a one-time mailer series is not adequate for changing this favored source. According to the 2009 survey, most residents would call a pumper/commercial septic care company (71%) or a friend/neighbor (16%) if they had a question about proper care and maintenance; however, almost 3 in 4 would <u>not</u> call the SHD, and 48% would "definitely not." Only 2% of homeowners stated they would call SHD.

  Possible reasons respondents provided included:

  - They don't believe SHD is the proper entity (23%)
  - They are unfamiliar with SHD (15%)
  - They would call a plumber/pumping company (15%)
  - Would call someone else (13%)
  - Only if serious enough/hazardous (13%)
  - Would handle issue themselves (10%)

  - Don't want to involve government (6%)
  - Fear of reprisal/trouble (3%)
  - No reason given (23%)

- Based on 2009 focus group results, a mailer approach does not adequately address a homeowner's fear that SHD will require the homeowner to fix unknown problems. Multiple focus group participants suggested that SHD will need to guarantee that they won't require a repair to be made before they would invite them onto their property. Because SHD is required to ensure that known OSS failures are repaired, SHD cannot meet this need.

3) House calls are effective at building awareness and educating homeowners, but ineffective at changing behaviors.

Our post-education program telephone survey determined that people who have a septic system house call performed are four times more likely to say they learned a substantial amount about septic system care, and about twice as likely to say they learned a substantial amount about wastewater compared to those who did not have a sanitary survey performed. However, septic system house calls had no significant impact on changing homeowners' behaviors compared to a control group.

Recommendations

House calls can be effective in increasing knowledge of septic system care, which is an essential component to aid in behavior change when integrated with other outreach strategies; however, because septic system house calls are ineffective at changing homeowners' behaviors, SWM does not recommend developing a program with the primary goal of promoting septic system house calls or sanitary surveys.

Conducting septic system house calls is expensive and is not as cost effective as other educational approaches (e.g. mailers). Additionally, SHD is less likely to identify failing septic systems from a mailer approach because people who believe they may have a failed system are unlikely to invite SHD onto their property (they are more likely to contact a pumper to solve the problem). As a result, septic system house calls should be considered a low priority option when developing an integrated education and behavior change program.

ACTIVITY 4. OUTREACH APPROACH 2: SANITARY SURVEYS

Goal 1: To improve homeowner septic system care best management practices by providing homeowners across a landscape of 200-300 homes with educational materials, helpful resources and by facilitating proper care practices.

Goal 2: To help landowners across a landscape of 200-300 homes become more familiar with and evaluate the status of their onsite septic system

Goal 3: To identify failing septic systems and provide technical assistance to complete necessary repairs and ensure proper functionality across a landscape of 200-300 homes.

Goal 4: To determine the current status of onsite septic systems across a landscape of 200-300 homes in each focus area by way of classifying systems as follows:

- Permitted, Known Systems: Properties in this category have an as-built drawing of the onsite septic system on file at SHD.
- Non-permitted, Known Systems: Properties in this category do not have an as-built drawing of the onsite septic system on file at SHD. However, there was a drawing on file delineating an approximate location of the septic system. Information on the septic system location is often submitted to SHD in the form of a construction clearance plot plan from the county or city building department.
- Unknown Systems: Properties in this category are served by an onsite septic system. However, SHD has no record of the location.

All goals were addressed and accomplished as much as possible. Please see the following sections for detailed information regarding each goal.

DEVELOP SANITARY SURVEY STRATEGY

SWM developed outreach strategies for Outreach Approach 1 and Outreach Approach 2. Many of the strategies were developed in tandem, and are described under *Activity 2: Communications Development,* section *Develop Outreach Strategy and Social Marketing Mix* of this report. This section provides more detail about the specific strategies and activities we used to develop the proactive sanitary survey program as a part of Outreach Approach 2.

STEP 1: IDENTIFY FOCUS AREAS TO CONDUCT SANITARY SURVEYS

This step is explained in full detail under *Activity 2: Communications Development,* section *Develop Outreach Strategy and Social Marketing Mix* of this report.

Snohomish County performed an in-depth analysis using Geographic Information Systems (GIS) data to identify areas within Snohomish County that would be best suited to benefit from Sanitary Surveys in the Stillaguamish watershed and Snohomish watershed.

The GIS analysis and selection process identified four primary regions throughout Snohomish County to conduct this pilot study. Within these four primary regions, we identified two targeted focus areas to conduct proactive sanitary surveys.

Outreach Approach 2 Focus Areas:

Outreach efforts were targeted at different, nearby residences than approach 1 focus areas; 281 residences were targeted in Fobes Hill, and 211 residences were targeted in Church Creek.

For more information about these areas, go to the focus area descriptions in Activity 2.

STEP 2: DEVELOP OSS SANITARY SURVEY STRATEGY & PROTOCOLS

Strategy

SHD developed a strategy that enabled SHD and SWM to determine the effectiveness of the two outreach approaches described above by comparing and contrasting each approach's effectiveness when conducting sanitary surveys and educating landowners at two different scales:

1) At the individual property scale, and

2) Across a landscape of 200+ homes.

Sanitary Survey Protocols

All of the sanitary surveys in Fobes Hill and Church Creek were performed by two environmental health specialists within the Water and Wastewater Section at SHD. Due to the likelihood of receiving some unfavorable responses from residents while conducting sanitary surveys, SHD found it prudent to carry out this activity in pairs to provide a higher degree of safety for staff. SHD staff was equipped with tools—posthole diggers, steel probes, and a 100' tape—to occasionally when appropriate verify reserve area, confirm the location of sewage disposal trench, and measure minimum required horizontal setbacks. SHD employed these tools most to sufficiently upgrade the classification of unknown systems to non-permitted, known systems.

Many of the services SHD offers on a daily basis such as onsite construction clearance reviews, requests for service, and operation checks of existing OSS is akin to some of the activities performed during a sanitary survey. Indeed, all such services require conducting a ground level visual inspection of the OSS. Hence, SHD did not reference sanitary survey protocols developed by other agencies or any other related publications. Instead SHD staff relied on years of expertise of performing related activities on a daily basis. By design, SHD developed a basic strategy and straightforward set of protocols for conducting sanitary surveys. SHD staff has over the years cultivated a friendly non-intimidating approach when meeting OSS owners. If individuals felt threatened or uneasy by SHD's presence, SHD would, in essence, fail to achieve the stated goals of providing homeowners with educational materials and helping them evaluate their OSS. Therefore, when performing these surveys staff members minimized the appearance of rattling off a series of questions from a script in a perfunctory manner. Instead, SHD staff reached out to residents in a pleasant, relaxed style to offer genuine help and used their judgment to gauge the comfort level of residents. SHD and SWM acknowledge this approach may have been somewhat unconventional compared to extensive and perhaps rigid protocols implemented by other agencies.

Protocols were mostly similar between the Fobes Hill and Church Creek sanitary survey areas. However, as implemented protocols developed during the Fobes Hill survey, it led to four different procedures during the Church Creek survey which was implemented upon conclusion of the Fobes Hill area. These modifications, as listed further below in this section, pertain to access to property, resident contact tracking, implementation of a standard questionnaire form, and staff safety.

Property owners within these two targeted areas—Fobes Hill and Church Creek-received a notification letter (*Attachment 4.0a*) from SHD explaining the primary goals of the survey and inviting homeowners to ask questions, provide suggestions, or voice concerns.

Once on-site and ready to conduct the sanitary survey, SHD staff would begin the survey by attempting to make contact with the homeowner by knocking on the front door, and if the homeowner was home, personnel would explain the purpose of the visit and request access to the property. If the homeowner was not home, staff would then proceed to enter the property and fully inspect the OSS. SHD would only refrain from conducting the OSS sanitary survey if a safety threat existed, such as violent dogs, or the OSS was not accessible due to a locked gate. During the sanitary survey process, SHD personnel performed ground level visual inspections of the OSS. With the septic system as-built drawing in hand, staff would walk over the OSS and check for odors, spongy areas, and surfacing sewage effluent. SHD staff would also note any activities that could potentially adversely compromise an OSS such vehicular driving/parking,

land grading practices, ground surface and below grade drainage, construction of outbuildings, etc. Due to issues of potential liability, inspections were limited to ground level observations only. SHD staff did not check inspection ports or open lids of the septic tank.

If a resident was present, SHD offered to provide the following information:

- How to read their septic system as-built drawing
- Where their septic tank, drainfield, and reserve areas are located
- What type of septic system they have
- How their septic system works
- What best management practices they should use (household practices, septic tank practices, drainfield & reserve area practices)
- Which practices would be most beneficial to adopt or change to improve overall care
- How to detect a failing septic system
- Hints on hiring pumpers and asking right questions

Over the course of the project, SHD revised protocols to improve efficiencies and safety measures. The following protocols were changed after completing the Fobes Hill surveys:

- During the Fobes Hill sanitary survey, SHD did not mail out a follow-up informational letter and educational materials if access to the property was not possible due to a locked gate, vicious dog, or no trespassing signage. However, during the Church Creek survey an informational letter and associated materials were mailed out even if access to the property was not possible due to locked gates, dogs, or signage.
- Additionally, during the Fobes Hill survey, SHD did not include standard questions to ask landowners when present and available. Pertinent information gathered when speaking with residents was informally written down by staff on the *Church Creek & Fobes Hill Sanitary Survey* form (*Attachment 4.0b*). Before implementing the Church Creek Survey, SWM decided to develop and utilize a standard *SHD Sanitary Survey Questionnaire* form (*Attachment 4.0c*) in attempt to gather information pertaining to "before" and "after" sanitary survey septic care practices.
- SHD staff had an encounter with a very hostile property owner early on during the Church Creek portion of the sanitary surveys that ultimately led to significant changes on how the remainder of the inspections were conducted. SHD decided to not enter upon any property where no trespassing signs were posted. In addition, if no one was home, staff would only inspect an OSS if it could effortlessly be visually observed from the Health District vehicle parked in the driveway.
- SHD staff also provided an additional benefit to residents within the Church Creek survey area by offering Public Utility District Energy Saver Kits (e-kits), compliments of

the Snohomish County Public Utility District (PUD) to residents we met onsite. These PUD e-kits consist of two compact fluorescent light bulbs and a water conservation kit which includes two low flow aerators and shower head. In addition SWM provided sink strainers and toilet test dye strips to distribute to residents. The PUD e-kits, sink strainers, and toilet test dye strips were very well received by residents. SHD staff handed out a total of 44 e-kits to residents we met.

STEP 3: PROJECT PLANNING- DEVELOP HOMEOWNER CORRESPONDENCE, DATABASES & RECORDING FORMS

Prior to conducting these surveys, SHD staff acquired all records for each property and placed a *Church Creek & Fobes Hill Sanitary Survey* form (*Attachment 4.0b*) generated from our database in the respective file.

SHD also developed a tracking database to record data collected from the OSS sanitary surveys. This tracking database could automatically generate two types of follow-up letters that differed depending on whether SHD had record of an OSS as-built drawing or not. Both letters also allowed SHD to state specific comments pertaining to findings observed in the field about each property owner's OSS.

STEP 4: IMPLEMENT OUTREACH APPROACH 2

Sanitary surveys were mostly completed at Fobes Hill prior to conducting sanitary surveys at Church Creek. Although the administrative effort was similar for both the Fobes Hill and Church Creek survey areas, some of the protocols implemented while conducting sanitary surveys evolved, and as a consequence, SHD revised procedures over the course of the project to maximize efficiency, safety and effectiveness (refer to Step 2 above)**.**

With Outreach Approach 2, SHD immediately followed each completed and partial sanitary survey by mailing an informational follow-up letter (*Attachment 4.0d*) with specific comments pertaining to their property's OSS and a plethora of informational brochures related to septic care and water conservation, and a copy of the OSS as-built drawing. Two informational letters could be generated from our database depending on whether SHD had record of an onsite septic system as-built drawing. Some properties do not have record of an OSS on file with SHD, and as a result, SHD tailored the letter specifically to address properties in this situation.

Educational materials were distributed as appropriate, depending on the needs of the homeowner. For a list of outreach materials, see Activity 2.2 of this report.

STEP 5: EVALUATE THE EFFECTIVENESS OF SANITARY SURVEYS

SHD and SWM coordinated to evaluate a variety of components of the program.

- OSS sanitary survey tracking forms were completed and included in the SHD database to provide information for evaluation.
- Sanitary Survey Questionnaire form was developed and used by SHD staff to record behavioral information of residents who were present during the sanitary survey.
- Mail Campaign- mailer tear off reply cards, were recorded to calculate the number and percentage of invitations for sanitary surveys. Telephone calls directly to SHD were not recorded due to the inability of SHD to develop a tracking system that was well-coordinated among various SHD personnel.
- Septic Care Workshop Participant Registration- number of mailers, workshop participants, number of registrants who signed up for sanitary surveys, number of registrants who followed through with the surveys.
- Number of septic care kits (including water saving devices, a sink strainer, and a toilet leak dye testing kit) distributed to landowners in Church Creek.
- SWM partnered with Western Washington University to conduct a telephone survey to aid in evaluating the project's ability to educate landowners about their property's OSS and location, in addition to the landowner's change in specific OSS best management practices as a result of the OSS sanitary survey.

ACTIVITY 4.1 NOTIFICATION LETTER

Sanitary Survey Inspections- Fobes Hill

A survey notification letter was mailed to approximately 281 property owners within the Fobes Hill target area (Attachment 4.0a). The letter included a brief summary of why the survey was being conducted and when the survey would occur. The letter invited the landowner to contact SHD if they had questions, concerns or to schedule an appointment.

From this mailing, SHD received contact from 8 property owners. Homeowners from 6 properties (~2%) stated they did not want to participate with the survey, and 2 owners called to set up an appointment to meet SHD staff onsite for the inspection.

Sanitary Survey Notification Letter- Church Creek

A survey notification letter was mailed to approximately 211 property owners within the Church Creek target area (Attachment 4.0a). The letter included a brief summary of why the

survey was being conducted and when the survey would occur. The letter invited the landowner to contact SHD if they had questions, concerns or to schedule an appointment.

From this mailing, SHD received contact from 20 property owners. Homeowners from 12 properties (~6%) stated they did not want to participate with the survey, and 8 owners called to set up an appointment to meet SHD staff onsite for the inspection. Of the 211 property owners initially contacted for survey, a total 56 properties were not surveyed due to various reasons.

ACTIVITY 4.2 DOOR-TO-DOOR CONTACTS–RESULTS

SANITARY SURVEY INSPECTIONS- FOBES HILL

SHD conducted surveys within the Fobes Hill area from September 2, 2009 to June 10, 2010.

In total, SHD completely inspected 259 OSS and partially surveyed 6 others within the Fobes Hill area (Table 21). SHD staff was either denied access to inspect, or there was a locked gate, vicious dog, or no trespassing sign that prevented satisfactory inspection at approximately 16 properties.

Table 21: Fobes Hill OSS Sanitary Survey- Status of SHD Records

Records Status	Percent of total	Number of properties
Permitted, Known Systems	81%	214
Non-permitted, Known Systems	9%	23
Unknown Systems	10%	28

When SHD began conducting the surveys at the Fobes Hill focus area, staff did not record whether contact was made with the landowner. However, SHD estimates staff made contact with approximately 84 residents or 30% of the properties surveyed. After completing the Fobes Hill surveys, SWM and SHD revised data recording forms to accurately capture the number of residents contacted.

For the completed (259) and partial (6) OSS inspections, an informational follow-up letter was promptly mailed to each of the property owners upon conclusion of the surveys. Landowners were encouraged to contact SHD if they had any additional questions or sought a supplementary inspection for help in designating a septic system reserve area. Of the 265 completed and partial inspections accomplished in the Fobes Hill area, only 1 homeowner contacted SHD for a follow-up inspection. In this particular case, the property owner was primarily concerned about the possibility of excessive root penetration into the onsite sewage disposal trench from nearby trees.

Sewage effluent was observed at 9 properties (~3%) of the 281 properties within the Fobes Hill focus area. On 2 of these properties, the cause of the surfacing sewage effluent was simply a clogged septic tank outlet baffle filter that was not serviced on a regular basis. The other 7 properties involved more extensive issues pertaining to either the treatment component and/or disposal field. SHD provided technical assistance and collaborated with each landowner to ensure that all onsite septic system failures were satisfactorily repaired per the Washington State Board of Health On-Site Sewage System Regulations (WAC 246-272A).

SHD staff found that when landowners become aware that their onsite septic system is malfunctioning or failing, landowners usually take immediate actions to satisfactorily repair the system through proper means (when notified by SHD). On balance, property owners care about the environment and public health and tend to be responsible usually taking prompt action to resolve failing septic systems. This was the case with all but one property owner in the Fobes Hill area, and the eventual issuance of a Health Officer's Order finally compelled the owner to comply and repair the onsite septic system.

A key benefit to conducting sanitary surveys is the ability of SHD to determine and document the current status of OSS within Snohomish County by way of a classification system. This provides a useful inventory of the number of permitted systems, non-permitted systems with documented location, and non-permitted systems with an unknown location of the OSS. As listed previously under Project Goals, the classification system is as follows:

- Permitted, Known Systems: Properties in this category have an as-built drawing of the onsite septic system on file at SHD.
- Non-permitted, Known Systems: Properties in this category do not have an as-built drawing of the onsite septic system on file at SHD. However, there was a drawing on file delineating an approximate location of the septic system. Information on the septic system location is often submitted to SHD in the form of a construction clearance plot plan from the county or city building department.

- Unknown Systems: Properties in this category are served by an onsite septic system. However, SHD has no record of the location.

Some of the septic systems that were Unknown Systems prior to the sanitary survey, were re-classified after the survey to Non-Permitted, Known Systems since information about the system location was verified in the field. This information was documented in the file in the form of a sketch delineating the approximate location of the OSS.

SANITARY SURVEY INSPECTIONS- CHURCH CREEK

As stated previously, there were some developments during the Fobes Hill survey that led to three key procedural changes on how SHD staff performed sanitary surveys within the Church Creek area. These modifications specific to the Church Creek area included the following:

- If it was not possible to access property (locked gate, signage, vicious dog, etc.) SHD would still mail out the informational letter and educational materials. For the Fobes Hill area, no follow-up took place if access was not feasible.
- SHD and SWM decided to track resident contacts on the *Church Creek & Fobes Hill Sanitary Survey* database form.
- A standard *SHD Sanitary Survey Questionnaire* was developed to document "before" and "after" septic care practices.

As conveyed in Step 2 of the Methods section above, SHD staff had an encounter with a very hostile property owner early on during the Church Creek portion of the sanitary surveys that ultimately led to significant changes on how SHD conducted the remainder of the inspections. In this particular situation, the property owner was returning home in his vehicle while SHD staff was just in the process of completing an inspection of the OSS. Despite acknowledging receiving the survey notification letter, the property owner was still very infuriated by SHD staff's presence. Due to safety concerns after that encounter, SHD decided to not enter upon any property where no trespassing signs were posted. In addition, if no one was home, staff would only inspect an OSS if it could be visually observed from the Health District vehicle parked in the driveway. SHD's genuine concern for safety was legitimized months later when SHD staff encountered a property owner with a loaded rifle resting on his shoulder. In this case, staff was given permission to inspect the OSS, but only under the watchful eye of the property owner.

SHD staff also provided an additional benefit to residents within the Church Creek survey area by offering Public Utility District Energy Saver Kits (e-kits), compliments of the Snohomish

County Public Utility District (PUD) to residents we met onsite. These PUD e-kits consist of two compact fluorescent light bulbs and a water conservation kit which includes two low flow aerators and shower head. In addition SWM provided sink strainers and toilet test dye strips to distribute to residents. The PUD e-kits, sink strainers, and toilet test dye strips were very well received by residents. SHD staff handed out a total of 44 e-kits to residents we met.

Survey notification letters were mailed to approximately 211 property owners within the Church Creek survey area. From this mailing, 12 property owners (~6%) chose not to participate and 8 homeowners (~4%) called requesting an appointment to meet SHD staff during the inspection. SHD completely inspected approximately 144 OSS and partially surveyed 11 others within the Church Creek area. In addition, at approximately 56 properties SHD staff was either denied access after we identified ourselves and explained the purpose of our visit, or there were barriers such as locked gates, no trespassing signage, or vicious dogs that prevented satisfactory inspection of the OSS. For Church Creek, properties where access was not feasible due to locked gates, signage, etc. SHD would still mail out the informational letter and brochures. It should be noted that because of SHD's new inspection procedures due to safety concerns during the early portion of the Church Creek surveys, there was often limited access to the property. This lack of access to property may have resulted in the fact that no septic system failures were observed. Unlike the Fobes Hill surveys, if no inspection of the OSS was done in the Church Creek area due to barriers, such was noted in the comment section of the informational letter that was promptly mailed out to these homeowners.

Based on the new procedure of documenting resident contact on our database, SHD now had a more accurate figure that 63 residents (30%) of the 211 properties inspected were greeted by SHD staff onsite. This percentage of resident contacts is the same as the estimated figure of 30% in the Fobes Hill area. Like Fobes Hill, for the completed (144) and partial (11) OSS inspections, an informational follow-up letter with brochures was promptly mailed to each of the property owners within the Church Creek area upon conclusion of the surveys.

Most of the Church Creek surveys were primarily performed from June 2010 till completion on April 29, 2011. Although a *SHD Sanitary Survey Questionnaire* form was developed to capture septic care practices, SHD used this form judiciously. Asking a series of preset questions made some residents feel uncomfortable. Therefore, SHD staff exercised discretion when questioning residents on septic care issues based on perceived comfort levels. As a consequence, SHD was not able to completely fill out the *Sanitary Survey Questionnaire* on a consistent basis.

As determined and documented above for the Fobes Hill area, the 155 (144, 11) completed and partial OSS inspections in the Church Creek area were classified as follows:

Table 22: Church Creek OSS Sanitary Survey- Status of SHD Records

Type of System	Percent of total	Number of properties
Permitted, Known Systems	83%	128
Non-permitted, Known Systems	9%	14
Unknown Systems	8%	13

The Church Creek surveys were completed on April 29, 2011. Of the 155 completed and partial inspections within the Church Creek area, no onsite septic system failures were observed. Perhaps limited access to property due to our newly implemented inspection procedures within the Church Creek area resulted in no observation of OSS failures. As pointed out previously, an informational follow-up letter was promptly mailed to all property owners upon completion of inspection including property where access was denied encouraging residents to contact SHD if they should have any questions, or desired a supplementary inspection to assist them in determining a septic system reserve area. No property owners in the Church Creek area contacted SHD with further questions or to request an additional inspection.

Sanitary Survey Questionnaire

SWM and SHD developed a questionnaire for SHD staff to ask Church Creek homeowners when present during the time of the inspection (Attachment 4.0c). During the development of this questionnaire, SHD informed SWM that they felt uncomfortable asking “formal” questions from a form because it may make homeowners uneasy, and as a result, SWM developed a simple form with questions that are relatively easy for a sanitarian to remember. This way, SHD could ask questions by memory during the sanitary survey, and immediately after the survey once they arrived back at their truck, SHD staff could complete the paper copy on the form. Unfortunately, SHD was not fastidious in asking all, or even most, of the survey questions when interviewing landowners, and as a result, data from the questionnaire are not highly useful. However, the data does indicate several trends worth mentioning (these data have not been

tested for statistical significance, as protocols for collecting data were not consistently followed):

- 31 of 36 (86%) residents surveyed claim not to wash multiple loads of laundry per day
- 100% (n=24) of residents surveyed claim not to put harsh chemicals down the drain
- 37 of 42 (88%) residents surveyed claim not to use their garbage disposal

ACTIVITY 4.3 SANITARIAN TECHNICAL ASSISTANCE VISITS– EVALUATION

Please see the description of sanitarian technical assistance visits in Activity 3.3 under Outreach Approach 1 – Mail Campaign, since the technical assistance visits will be identical for both outreach approaches.

SANITARY SURVEYS- STRENGTHS & LIMITATIONS

Strengths

Sanitary surveys are effective at helping SHD obtain a better "on the ground" assessment of septic systems compared to GIS analysis or other means. SHD is more able to fill in missing gaps in OSS file records when granted access to the property.

Participants receiving sanitary surveys are about four times more likely to claim they learned a substantial amount regarding septic system care over the past year than members of a control group.

Sanitary surveys can be effective at helping to improve the visibility of SHD in local communities.

Limitations

SWM's market research (sanitary surveys, interactive polling forums and focus groups) indicate that many residents fear that SHD (or any enforcement jurisdiction) will find a failure on their property, and as a result, do not like the idea of having SHD visit their property to perform a sanitary survey (or "house call").

Focus groups indicate that many people anticipate the worst case scenario when inviting a SHD staff person to visit the property. Focus groups indicate that some landowners are fearful that SHD will find an unexpected failure on their property, and in the worst case scenario, some landowners fear SHD will force a landowner to repair the problem beyond minimum state requirements, resulting in a $20,000 repair in addition to a sizeable fine. In fact, some landowners in the focus groups are prone to creating conspiracy theories about SHD's motives, suggesting that SHD will force a landowner to make a repair even if there isn't a true problem, all to justify the SHD staff's job during this poor economy. Additionally, OSS landowners who reside near sewer lines fear that SHD will force them to hookup to the sewer line if they are within a relatively short distance, resulting in a $40,000+ expense for some properties. They fear that the sanitary survey is "just the first step" toward a sewer hookup requirement process. It is very unfortunate that these fears appear to be fairly common among rural and suburban residents, especially considering they are highly unfounded. Based on SWM's experience, SHD makes every effort to provide helpful customer service at little or no cost whenever possible, with an end goal of making it as easy and inexpensive as possible for a landowner to repair their OSS. However, it is important for SWM and SHD to acknowledge that misguided perceptions do occur, and to work toward dispelling these misperceptions whenever possible.

Focus groups also indicate that the term "sanitarian" is a phrase that incites a variety of negative feelings and images for OSS owners, and as a result, SWM recommends using a simple term that clearly states the personnel's role. The term "Septic System Technician" tested well in focus groups when developing correspondence with landowners. Although we did not test the title, Environmental Health Specialist, this term may also be suitable to use in correspondence with landowners, although this title may not likely to be as clear from a OSS homeowner's perspective regarding the role and job duties related to septic systems. However, the title "Environmental Health Specialist" also enables consistency, as this is how positions that work with OSS' are titled within SHD.

SANITARY SURVEYS- EFFECTIVENESS OF SANITARY SURVEY METHODS

By design SHD conducted these surveys in an inviting manner by not resorting to a strict agenda when completing survey forms and questionnaires. This flexibility enabled staff to focus more on providing personalized OSS care best management practice education to homeowners based on the perceived interest and comfort levels of folks we met. This worked well. Although most residents when present welcomed our staff onto their property for an inspection of their OSS, some were much more interested in learning about their OSS and how to protect it than others.

If forms and questionnaires are utilized when conducting sanitary surveys, it is best to create such forms and questionnaires as concise as possible. Homeowners may feel uneasy if staff perfunctorily asks numerous questions all at once.

SHD staff noticed that suburban communities appear to be more receptive to sanitary surveys than those in rural areas. Residents in the Church Creek area posted many more "no trespassing" signs compared to the Fobes Hill area, though the number of signs was not counted.

SANITARY SURVEYS- EFFECTIVENESS AT ACCOMPLISHING GOALS

This sanitary survey program aimed to accomplish four goals. The information below provides a description of SHD's experience and insights related to each goal , in addition to an evaluation of the program's ability to accomplish the following objectives. Further in this report, we discuss the strengths and weaknesses of each of the two Outreach Approaches as they pertain to each of the goals below. At the end of this section, we include a summary chart comparing the overall effectiveness of each outreach approach.

Goal 1: To improve homeowner septic system care best management practices by providing homeowners across a landscape of 200-300 homes with educational materials and helpful resources and facilitating proper care practices.

A total of 281 properties were targeted for inspection in Fobes Hill area. Of the 265 completed and partial inspections accomplished (94%) in the Fobes Hill, SHD met with approximately 84 (~30%) residents. During these inspections SHD conducted a ground level visual assessment of the OSS, and answered all questions and/or concerns. Upon conclusion of the 265 inspections on Fobes Hill, SHD immediately mailed out an informational follow-up letter, OSS as-built drawing (if available), and informational brochures pertaining to OSS best management practices and water conservation. Again, an informational follow-up letter, OSS as-built drawing and educational brochures were only mailed out to properties were inspections were completed. If access was prevented due to resident objection to the inspection, locked gates, etc., no follow-up information was mailed out. Overall SHD was very successful at completing Goal 1. Indeed, of the 281 properties targeted for a sanitary survey, SHD completed 265 inspections and mailed these 265 homeowners (94% of properties targeted) the informational follow-up letter, OSS as-built drawing, and brochures, while only 16 homeowners (6%) did not receive this information.

As stated previously, Church Creek surveys were conducted in a different manner than the Fobes Hill surveys due to safety concerns of staff, and newly implemented protocols regarding documenting resident contact, and the use of a standard *SHD Sanitary Survey Questionnaire*. A total of 211 properties were targeted for inspection in the Church Creek area. When residents were met onsite, SHD staff conducted the inspections as described above for Fobes Hill. However, when OSS homeowners were not present, SHD staff would only inspect an OSS if it could readily be visually observed from the driveway. When no trespassing signage, and/or vicious dogs were encountered, SHD would not conduct an inspection of the OSS. Despite lack of access to the property, SHD still mailed out an informational follow-up letter, OSS as-built drawing, and educational materials. The only case where SHD did not mail out an informational follow-up letter and accompanied brochures was for the 12 residents who initially stated they did not want to participate with the sanitary survey upon receiving the initial notification letter and a few others who elected not to take part when encountered during the survey. Of the 211 targeted properties in the Church Creek, SHD had contact with 63 residents (30%) in the Church Creek area. Again, SHD was quite successful with delivering educational materials in the Church Creek area. Of the 211 properties targeted for a sanitary survey, SHD completed 155 inspections (73%). In addition, SHD mailed out an informational follow-up letter, septic system as-built drawing (if available), and educational information pertaining to OSS best management practices and water conservation to the 155 homeowners (73%) where OSS inspections were conducted, and to most of the 56 residents (27%) where surveys were not accomplished due to lack of access to property. Again, the follow-up letter and associated educational materials were not mailed out to the 12 property owners who initially chose not to participate with the survey and a few other folks during the survey process who chose not to partake.

Overall Effectiveness:

- **Outreach Approach 1- Mailer/Workshops: Moderate**
- **Outreach Approach 2- Proactive Sanitary Survey: Moderate**

There are some advantages in performing sanitary surveys of onsite septic systems. These benefits include occasionally meeting residents on their property who are amenable to learning about their septic system and how to care for and protect it. Meeting with these residents and providing them with a copy of the septic system as-built drawing and educational brochures facilitates the education process.

During an inspection, landowners asked questions pertaining to the use of additives in the septic tank, how often a septic tank needs to be pumped, safe landscaping practices, and the location of the OSS . Although most residents were knowledgeable about not using a garbage disposal, and spreading out laundry loads during the week, residents in general were not as

well-informed regarding the regular and excessive use of cleaning supplies, disposal of paint waste, and the implications associated with wasted water from toilet leaks.

Although the Water and Wastewater Section at SHD has developed a very fine working relationship with many players within the OSS industry, there may be some homeowners who have apprehension when considering approaching the Health District in the event of an OSS malfunction or failure. This anxiety is occasionally manifested from erroneous information, unfortunately every now and then propagated by septic system pumpers, or simply by word of mouth from residents speaking inaccurately of very exorbitant OSS repair costs. By conducting sanitary surveys and meeting homeowners, SHD staff were able to help dispel this erroneous belief and convey accurate information about how we process OSS repairs in a straightforward manner. Indeed, SHD repair application fees are exceptionally low compared to other jurisdictions as to minimize the chance that fees become an obstacle for homeowners. Additionally, SHD puts a premium on simplicity when designing OSS repair designs to keep costs as low as possible for the homeowner.

Although SHD was effective at distributing educational information and materials to the target audience, the WWU survey indicates that sanitary surveys are not effective at resulting in behavior change by homeowners. Of the residents included in the sanitary survey and participated in the telephone survey, 42% remembered being contacted by SHD to participate in the sanitary survey. Of those respondents who remembered being contacted by SHD, 70% said the SHD sent a follow up letter providing information regarding their septic system. Of those who remembered receiving a letter, 10% used the information provided to calculate their indoor water use, 30% visited one or more websites to learn more about their septic system, and 20% contacted a professional to inspect and/or pump their septic system.

The WWU survey found that the sanitary survey program, along with the mailer program, were effective at increasing OSS homeowner knowledge, but ineffective at resulting in behavior change. Those in the sanitary survey were about four times as likely to claim that they have learned a substantial amount about how to care for their septic system compared to a control group; however, only 9.1% of those respondents claimed to learn a substantial amount, and so the reach was still quite low. These results are similar to the mailer program, which resulted in five times the number of people claiming they learned a substantial amount (11.3%). Additionally, those in the sanitary survey were about twice as likely to claim they learned a substantial amount regarding wastewater compared to a control group (those who received mailers were approximately four times more likely).

The WWU survey found no statistically significant differences in changes of OSS behavior between sanitary survey group, mailer group and the control group among the following behaviors:

- Repair leaky toilets and drains
- Prevent kitchen scraps from going down the drain
- Prevent hazardous chemicals from going down the drain
- Use less water over the course of the day
- Spread out your water use throughout the week
- Walk over your drainfield searching for odors
- Have a pumper inspect your system on a regular schedule

The fact that residents claim to already be good stewards of their septic systems (over half rated themselves as a 10 out of 10 in septic system care in the Elway survey) may be one reason why the mailers and sanitary surveys did so little to alter behavior. If one perceives that they are doing a good job, then increased knowledge may simply strengthen existing beliefs.

A related reason for the lack of impact on behaviors is the fact that few households actually experience septic problems. Less than 6% of County residents informed the Elway Survey that they experience more than one septic problem per year, and about three-fourths claimed to have never experienced a problem. While unobservable problems with septic systems may exist, the fact that these are unobservable make behavior change difficult to achieve.

At least one other reason may explain why the sanitary survey and mailers had such little impact on behavior. Although a poorly operating septic system can impose costs on neighbors, ultimately a poorly operating system imposes significant costs on the occupants of the home. It is these people who have to live with the effects of a poorly maintained system, and thus these people have the largest incentive to care for their system. Indeed, the Elway report demonstrated that the primary reasons for septic system maintenance were to keep kids, family and pets safe, to ensure that toilets and drains work well, to avoid cost of repairs, to avoid trouble with authorities and to keep neighbors from complaining. With the possible exception of the last item on this list, all represent costs imposed on household of a poorly functioning system. Additionally, if the general experience of households is that their prior methods of septic system maintenance has led them to have general success with their system, then informing individuals of specific septic design plans and methods of improvement may make little difference in actual behavior. After all, it is hard to argue with the (perceived) success of what has been done in the past.

Goal 2: To help landowners across a landscape of 200-300 homes become more familiar with and evaluate the status of their onsite septic system

Overall Effectiveness:

- **Outreach Approach 1- Mailer/Workshops: Low/Moderate**
- **Outreach Approach 2- Proactive Sanitary Survey: Low/Moderate**

When residents were encountered almost all welcomed SHD staff onto their property for an inspection of their OSS. These residents practically never inspected their OSS and often had many questions. Based on conversations with these residents, most do not have a firm understanding of the type of septic system they have (e.g. gravity, pressure distribution, sandfilter, mound, etc.) or its correct location. Indeed, residents could significantly expand their knowledge of their septic system if they simply took the opportunity to examine the as-built drawing and read the educational materials mailed out with the informational follow-up letter. Often when homeowners were present they would accompany us during the inspection process. During a sanitary survey, SHD personnel performed ground level visual inspections of the OSS. With the septic system as-built drawing in hand, staff would walk over the OSS and check for odors, spongy areas, and surfacing sewage effluent. SHD staff would also note any activities that could potentially adversely compromise an OSS such as vehicular driving/parking, land grading practices, ground surface and below grade drainage, construction of outbuildings, etc. When residents were met onsite by staff and receptive to learning, SHD staff were able to effectively educate them about their OSS.

The WWU survey indicates that the sanitary surveys did not result in a significant difference compared to a control group when asked the question, “Over the past year, how much have you learned about your specific design plans of your septic system?” Interestingly, those who received mailers were twice as likely to answer this question with “a significant amount,” although the mailers did not send as-built drawings to landowners, and only a small percentage of those who received mailers claimed to visit a website (where they can obtain the as-built drawing). However, sanitary survey residents who answered “some new information” showed almost a four-fold increase compared to the control group.

In conclusion, based on the results from the WWU survey, the sanitary surveys performed during this pilot project were only moderately effective at helping landowners across a landscape of 200-300 homes become more familiar with and evaluate the status of their onsite septic system.

Goal 3: To identify failing septic systems and provide technical assistance to complete necessary repairs and ensure proper functionality across a landscape of 200-300 homes.

Overall Effectiveness:

- **Outreach Approach 1- Mailer/Workshops: Low**
- **Outreach Approach 2- Proactive Sanitary Survey: Moderate when using final survey protocols for safety**

A sanitary survey inspection across a delineated landscape and individual property scale can be an effective means to detect an OSS failure if the following criteria are met:

- Homeowner, if present and is receptive to the sanitary survey objectives,
- Full access to the OSS is provided,
- Homeowner, if present, honestly answers all questions asked from staff, and
- Documentation is on file pertaining to at least the general location of the OSS.

When these criteria are not met, SHD may not be able to determine if the property's OSS is functioning properly.

SHD staff were not able to access certain properties for a variety of reasons. Often times, SHD staff could not access the property due to locked gates, no trespassing signage, and vicious dogs. Sometimes comprehensive inspections were intentionally limited by staff even if access were granted onto the property to ensure property owners were at ease and did not feel threatened by SHD staff's presence. If a simultaneous goal is to provide education and outreach on OSS BMPs, it is imperative that government agencies do not overreach and pry too much when meeting private property owners while performing these surveys. The agency must build trust and credibility before it will be successful in educating landowners. There were some cases where it was quite evident from the homeowner's facial expression and other non-verbal cues that they felt uncomfortable by some of the questions asked by staff pertaining to household septic care best management practices. SHD staff were respectful and made an effort to ensure homeowners felt at ease during the OSS inspection process. The ability to detect OSS failures was more effective during the Fobes Hill area surveys which were accomplished first. SHD staff was more willing to overlook no trespassing signage, manage dogs on the premises, and perform thorough inspections if residents were not home within the Fobes Hill area. However, after encountering an irate homeowner in the early stages of the Church Creek survey, SHD immediately revised procedures out of concern for the safety of staff. This new approach led to not inspecting properties with no trespassing signage and performing very limited or no inspections if residents were not home. Consequently, the

effectiveness of detecting OSS failures diminished significantly within the Church Creek area, particularly when access to the property was not possible.

In the case of an OSS failure, property owners would immediately be notified of the failure, and with their assistance a prompt repair installation by way of permit would mitigate further detriment to public health and the environment caused by surfacing sewage. Additionally, homeowners may also be notified of conditions and ongoing practices that may adversely affect their OSS.

Goal 4: To determine the current status of onsite septic systems across a landscape of 200-300 homes in each focus area by way of classifying systems as follows:

- **Permitted, Known Systems: Properties in this category have an as-built drawing of the onsite septic system on file at SHD.**
- **Non-permitted, Known Systems: Properties in this category do not have an as-built drawing of the onsite septic system on file at SHD. However, there was a drawing on file delineating an approximate location of the septic system. Information on the septic system location is often submitted to SHD in the form of a construction clearance plot plan from the county or city building department.**
- **Unknown Systems: Properties in this category are served by an onsite septic system. However, SHD has no record of the location.**

Overall Effectiveness:

As stated previously under the Outreach Approach 2 section above, some of the septic systems that were Unknown Systems prior to the sanitary survey, were re-classified after the survey to Non-Permitted, Known Systems since information about the system location was verified in the field. This information was documented in the file in the form of a sketch delineating the approximate location of the OSS.

SHD was unable to re-classify 28 (10%) of the unknown systems at Fobes Hill, and 13 (8%) of the unknown systems at Church Creek.

Additionally, because the finalized protocols result in full inspection of approximately 30% of the septic systems in a defined area, it is impossible to fully characterize the status (functioning properly vs. failing) of all the septic systems in that defined area. Therefore, sanitary surveys are not effective at comprehensively identifying failures within a known geographic area.

Outreach Approach 1: Not Effective

Outreach Approach 2: Low when using final survey protocols for safety

SANITARY SURVEYS- APPROACHES FROM OTHER JURISDICTIONS

There are twelve local public health jurisdictions around Puget Sound, and each take a unique approach to addressing water quality impacts from failing septic systems. Kitsap Public Health District (KPHD) has been working in collaboration with Kitsap County Public Works, Surface and Stormwater Management Program (KC-SSWM) to implement a Pollution Identification & Control (PIC) program since 1996 (Fohn, personal communication, October 13, 2011). KPHD, using KC-SSWM funds, conducts an ongoing water quality trend monitoring program for fecal coliform in streams and marine nearshore areas to identify the highest priority areas to conduct a sanitary survey inspection program. These project areas are usually funded with Ecology grants and matching funds from KCSSWM. Since inception of the program, KPHD has conducted over 6,000 sanitary surveys, and within the past six years, they have achieved voluntary OSS homeowner participation rates of over 90%.

Kitsap County's approach to sanitary surveys is more robust than the piloted approach implemented by SWM and SHD. Kitsap County's program includes a multi-modal public notification program prior to conducting surveys. Their strategy includes door hanger notification letters, and they hold public meetings to target specific neighborhoods. Their public meetings are casual, they present local water quality data indicating trends and likelihood that septic systems are a contributing factor, and they come prepared to answer all conceivable questions (what happens if my system is failing? What if I don't participate in the survey? Will you trespass?).

KCHP's builds trust among the targeted homeowners prior to conducting the sanitary surveys by taking an educational approach and providing sampling data that shows there is a pollution problem in the community. Once trust is built, however, KCHP is able to conduct sanitary surveys in a similar fashion as those SHD conducted for homeowners who attended the Septic Care Workshops (where trust had also already been established). Homeowners find the site visits to be educational and helpful about how to get the most life out of their septic system. The inspector and homeowner may walk the property to identify the tank and drainfield, and the interaction between KCHP and the homeowners are generally very positive . If KCHP identifies a potential pollution source from an OSS, they ask to take water quality samples or conduct a dye test. Because trust has already been developed, approximately 9 out of 10 homeowners voluntarily allow KCHP to conduct a dye test when signs of a failing septic system

are found. KCHP's approach to sanitary surveys is highly effective at identifying water quality problems caused by septic systems at an individual property scale and at a landscape scale. However, this approach is significantly more time consuming and staff-intensive compared to SHD's approach. KC-SSWM secures approximately $700,000 per year to fund the sanitary surveys and complaint response program (funding for both programs is combined), and an additional $200,000 per year to fund water quality trend monitoring.

OUTREACH APPROACH 2- EDUCATING LANDOWNERS & DETECTING OSS FAILURES AT DIFFERENT SCALES

Proactive sanitary surveys are significantly more effective than Outreach Approach 1 at educating a greater number of landowners about best management practices relating to their property's OSS, detecting failures and obtaining information about the status of septic systems across a targeted landscape of 200-300 homes. However, the quality of the educational experience is diminished, the ability to detect failing septic systems is still greatly limited, and the inability to understand the OSS status across a landscape lead us to conclude that this option is also a relatively low return on investment and does not effectively accomplish project goals.

Some landowners appear to be fearful of SHD finding an OSS failure, but most landowners who are home are willing to let SHD inspect the OSS if SHD is already at the property when asking to perform the sanitary survey (it's more difficult to turn down a friendly looking person who says they're there to help).

Despite the notification letter that was mailed to property owners within the two survey areas of Fobes Hill and Church Creek, many did not read the letter and/or convey this information to residents renting their homes. Consequently, many residents were caught by surprise when SHD explained the purpose of the visit. Some residents were rather appalled taxpayer money was being spent on a project they perceived lacked merit particularly during an economic recession. Still at least two homeowners in the Fobes Hill area conveyed that SHD surveyors were merely government bureaucrats snooping on private property in the attempt to manufacture work and generate revenue. Some property owners may be dubious of the genuine intentions of performing sanitary surveys, particularly when officials attempted to directly seek them out for participation when they had absolutely no interest.

Outreach Approach 2- Sanitary Surveys- Property Scale

Educating Landowners- Outreach Approach 2 is more effective at obtaining a greater number of in-person educational opportunities compared to Outreach Approach 1. When the landowner is present and grants SHD access to conduct a sanitary survey (approximately 30% of properties), this approach is somewhat effective at educating landowners about septic care practices and their property's OSS , but is likely less effective than Outreach Approach 1 because the landowners did not explicitly invite SHD onto the property. As a result, the quality of the educational opportunity is likely to be lessened. Some landowners may tend to be more reserved and more anxious for SHD staff to complete the survey and leave the property. Additionally, the landowner may be busy with other daily tasks, and may not have much time for a thorough discussion about their septic system and how to care for it. As a result, SHD has a harder time engaging in deeper conversations with landowners in Outreach Approach 2 compared to landowners in Outreach Approach 1.

Detecting failures- When an Outreach Approach 2 sanitary survey is fully conducted, the survey is likely to be effective at identifying major and minor OSS problems and failures. However, a portion of Outreach Approach 2 sanitary surveys are less likely to be as thorough compared to Outreach Approach 1, as the landowner is usually less engaged in the process, and sometimes, it's clear to SHD that the landowner is uncomfortable of SHD's presence. In these instances, SHD may choose to limit the extent of the sanitary survey to ensure safety and to minimize the chance of a negative confrontation. As a result, only a partial survey is conducted.

Outreach Approach 2-Sanitary Surveys- Landscape Scale

Educating Landowners- Landowners with Outreach Approach 2 do not have the benefit of receiving educational mailers with educational information; however, they do receive a follow-up package that includes the same information as the mailers, in addition to a copy of their as-built drawing and other important information in SHD's records. Although the quality of the one-on-one educational opportunity at the property scale may be lessened, Outreach Approach 2 also has greater potential for neighbors to teach each other about what they have learned during the SHD inspection about their OSS and how to apply best management practices to take care of the system. As a result, education at the landscape scale is likely to be somewhat more effective than Outreach Approach 1 if neighbor-to-neighbor communication (social capital) is high. However, in most rural areas social capital is relatively low, and as a result, education at the landscape scale is likely to remain moderate.

Detecting Failures- As stated earlier, when the landowner is present during the survey and grants SHD access to perform a sanitary survey (this equates to approximately 30% of the total

geographically defined focus area where complete surveys are conducted), this approach is effective in detecting OSS failures. However, this approach is not effective across a landscape, as it is analogous to looking for an unknown number of needles in a haystack, but being prevented from searching through 60% of the haystack. As a result, only 30% of the haystack can be thoroughly looked through to find the needles, and the potential for not finding a sizeable percentage of the needles is high.

Understanding OSS Status Across the Landscape- Outreach Approach 2 is significantly more effective than Outreach Approach 1 at understanding the status of OSSs across a landscape; however, because SHD can only inspect a property after receiving approval, only 30-35% of the properties are inspected. As a result, a comprehensive understanding of the OSS status across a landscape is not possible using the sanitary survey protocols that are needed to ensure SHD staff's safety.

Outreach Approach 2 is more effective than Outreach Approach 1 at accomplishing the project's goals, but still has significant limitations to effectively educating the majority of landowners, finding OSS failures, and comprehensively characterizing the status of septic systems throughout a landscape.

DIFFERENCES IN EFFECTIVENESS AMONG RURAL & SUBURBAN AUDIENCES

Suburban communities appeared to be more receptive to sanitary surveys than those in rural areas. To be sure, upon receiving the initial sanitary survey notification letter, 6 (2%) homeowners in the more suburban Fobes Hill area stated they did not want to participate with survey, while 12 (6%) homeowners in the more rural Church Creek area declined our survey invitation. In addition, there were fewer barriers (i.e. locked gates, no trespassing signage, and vicious dogs) that prevented access to properties in the more suburban area of Fobes Hill when compared to a more rural area like Church Creek. Due to a higher density of homes in a more suburban area like Fobes hill, homeowners may be better acquainted with their neighbors and therefore be able to provide a "watchful eye" over their neighbors property, whereas in a more rural area like Church Creek with sizable property and less density it may be more difficult to know your neighbor as well as provide perceived security from observant neighbors. Hence, that may explain why there were more locked gates, no trespassing signage, and vicious dogs in the Church Creek area than in Fobes Hill. Given more receptive residents and fewer barriers to access the property, SHD staff was more effectively able to complete sanitary surveys in the more suburban area of Fobes Hill.

SANITARY SURVEYS- RETURN ON INVESTMENT

Benefits

Implementing a sanitary survey program has potential to provide a number of benefits for SHD and the landowner.

- Improve homeowner septic system care best practices by providing homeowners with educational materials and helpful resources;
- Help landowners become more familiar with and evaluate the status of their onsite septic system;
- Identify failing onsite septic systems and provide technical assistance to complete necessary repairs and ensure proper functionality, thus resulting in decreased human health risk and improved surface water quality and aquatic habitat;
- Determine the current status of onsite septic systems in each focus area; and
- Increased potential to establish a positive relationship and dispel erroneous information about the Snohomish Health District Wastewater Program and septic care best management practices with and among general public.

However, a sanitary survey program must be effective at establishing trust among OSS homeowners to be highly effective. Additionally, the effort must be well planned, coordinated, implemented and evaluated to maximize the potential of realizing these benefits. However, as explained above, at best a sanitary survey approach only moderately accomplishes the project's stated goals without incorporating additional strategies, motivators and incentives.

Conversely, if a program does not build trust, or is not conducted well, a sanitary survey program has the potential to develop a negative image of the health jurisdiction, resulting in little, or even a negative, impact on a homeowner's level of knowledge and likelihood that they will care for their septic system.

Costs

Planning, coordinating, implementing and evaluating sanitary surveys incur considerable expenses. Planning activities include identifying the survey locations, developing survey strategy and protocols, developing forms, databases and record-keeping files and form letters. Coordination activities include coordinating personnel schedules, revising sampling strategies and protocols as appropriate over time, etc. Implementation activities include driving to the survey site, conducting the surveys, educating landowners, data entry, preparing follow-up correspondence and educational information, and mail postage. Evaluation tasks include

completing tracking forms. At completion of the sanitary surveys including the free septic care workshop inspections, the average number of staff hours per survey was between 2.3 and 3.0 hours to plan, implement and perform follow-up activities for each survey. The average cost per survey was approximately $172/survey (costs range between $155 and $200 depending on travel distance).

Property owners who participated in the free septic care workshop inspections more than likely were in agreement with the sanitary survey project and probably were not suspicious of what they may have considered a noble government program. Although these residents were open to learning about their onsite septic system, one must consider the advertising expense aimed at 9000 residents, only in the end to reach out to 28 property owners (~0.3%) who chose to accept the free septic care workshop inspection offer. If one were to examine an accurate cost/benefit analysis of conducting sanitary surveys, one would likely conclude such activities as not worth the expense given what appears to be little return on investment.

----------Remainder of page left blank intentionally----------

Table 23: Summary: Comparison of Outreach Approaches 1 & 2 - Effectiveness at Accomplishing Project Goals

Outreach Approach	Goal 1: Educate Landowners on OSS Best Care Practices	Goal 2: Educate Landowners on Property's OSS As-Built	Goal 3: Identify Failing OSSs & Facilitate Repairs on Property	Goal 4: Understand OSS status across landscape of 200-300 homes
Performing Sanitary Surveys on Individual Properties When Property Owner Grants Access				
Outreach Approach 1: Advertise via Mailers/Workshop to Conduct Sanitary Surveys	High	High	High	N/A
Outreach Approach 2: Proactive Sanitary Surveys	Moderate/ High	Moderate/High	Moderate/High	N/A
Performing Sanitary Surveys Across a Landscape of 200-300 Homes				
Outreach Approach 1: Advertise via Mailers/Workshop to Conduct Sanitary Surveys	Moderate	Low/Moderate	Low	Low
Outreach Approach 2: Proactive Sanitary Surveys	Moderate	Moderate	Low/Moderate	Low

SANITARY SURVEYS-FUTURE RECOMMENDATIONS

Conducting Sanitary Surveys in the Future

If adequate funding is available in the future, SWM recommends that SHD consider implementing sanitary surveys by following the model Kitsap County has developed. This approach would allow SHD to survey 90%+ of properties in a targeted area (after receiving voluntary approval from homeowners); however, it would require significantly more effort prior to conducting surveys to build a high level of trust with homeowners. This effort may result in long-term behavior change using sanitary surveys, which was not achieved during this pilot study. However, one limitation in Snohomish County compared to Kitsap County toward building a high level of trust is that Snohomish County does not offer a low interest loan program for repairs, and this may serve as a significant barrier. Homeowners will want to know the options available to them if a failure is found, and if the options aren't satisfactory from the homeowner's perspective, SHD will not be able to build enough trust among a community to implement a successful program.

If this approach is financially feasible, SWM recommends that SHD collaborate with KCHP Environmental Health Specialists (and others throughout the region) to learn which communication tactics and styles are found to work most effectively. One approach could include a training effort led by the Washington Department of Health to host a training session at a region-wide septic conference, where "presenters" could model different approaches to the audience (like a short skit), and then have each approach critiqued collaboratively by the audience.

However, SWM acknowledges that the above-mentioned strategy is highly expensive, and may not be realistic or feasible in the current economic and political climate. Based on this pilot study's findings, a more cost effective general education and outreach approach might be most effective by synthesizing the best of the tested approaches described in this report. For example, SHD may conduct a direct mail campaign (a series of mailers) to property owners with onsite septic systems within specifically targeted areas of interest or concern in Snohomish County (e.g. areas with known water quality problems caused by septic systems). To maximize effectiveness, this mailing could include:

1) A pamphlet with revised and synthesized information from the three mailers used in Outreach Approach 1, including information on how to learn more septic care tips online,
2) A copy of the as-built drawing depicting the property's onsite septic system,

3) Invitation to a septic care workshop (with two possible dates to choose from) with meaningful incentives such as a $150 coupon for every workshop participant toward an OSS inspection and a meaningful chance of winning a sizeable grand prize drawing such as a free pumping (a value of approximately $350). These incentives will be required to obtain a moderate level of participation among a target audience – indeed, even these strong incentives may not be sufficient to attract many people among our target audience (septic system owners with a high likelihood of having behaviors that are not consistent with a healthy septic system and/or have a septic system failure) from a small geographic area without a strong financial disincentive such as a potential fee or fine. Currently, these options are not likely to be viable options politically or economically without additional leverage from additional agencies.
4) Meaningful and useful promotional items such as the septic system care kit to encourage people to read the educational materials (the coupon would be advertised on the cover page and could be embedded in the educational materials as a tear out), and a chance to win a free OSS pumping at each workshop to aid in participation and project evaluation,
5) An option to request a free inspection from SHD.

ACTIVITY 5. EVALUATE VIABILITY OF SEPTIC SERVICE PROVIDERS AND PUMPERS AS INFORMATION VECTORS

SWM assessed the potential for developing an outreach approach collaborating with septic service providers and pumpers to help educate homeowners. Our pre-outreach telephone survey revealed that the majority of homeowners prefer to obtain septic system care information from a pumper or commercial septic care company. SWM used information learned from the Rapid Ethnographic Assessment (*Attachment 1.3a*), met informally with the Snohomish Health District's Septic Issues Committee, and performed an informal survey of septic system professionals (*Attachment 1.3b*) to guide the development of such a program. Based on the Septic System Operation & Maintenance Outreach Survey, we learned the following:

- Professional service providers have a front row seat for observing common household mistakes and an insight into possible motivations and barriers to quality care and maintenance of septic systems.

- SHD/SWM does not need to spend significant energy convincing owners of service providers that distributing educational O&M materials to clients can benefit their business.
- Although many pumping companies express a willingness to participate in an education program, developing an actual program that uses pumpers “in the field” as messengers may be challenging. Job turnover is high among pumpers, as compensation rates for pumpers are the lowest in the industry. Additionally, some company’s compensation incentive packages for pumpers may actually encourage deceptive practices (some encourage a practice known in the industry as “up-selling”). Additionally, our rapid ethnographic assessment found that pumpers are not very educated and have the lowest expectations for certification, particularly so in Snohomish County. Business owners and managers with apparently good intentions express frustration over their ability to attract and retain high quality pumpers as employees.
- Most businesses are aware of at least some of the available materials and choose not to distribute them. Of those businesses that distribute materials, 50% develop and distribute their own materials & 28% use SHD materials. Responses to this question indicate that only 25% of respondents distribute educational O&M materials to clients (note: this percentage may not be accurate based on responses to the next survey question below).
- 73% of respondents show some level of involvement/interest in distributing educational materials; however, only 40% distribute materials most of the time or always. Among OSS professionals, designers and business owners are most likely to distribute materials. Pumpers have the most potential to increase distribution frequency, though most businesses could potentially increase distribution frequency if motivators and barriers are adequately addressed.
- Responses indicate that if SHD/SWM were to make it easy/simple for service providers to acquire functional and attractive outreach materials that have vetted O&M information/messages, many service providers would be more likely to distribute them more regularly. Respondents did not identify "it's too expensive to develop and/or print materials" as a barrier.
- Respondents from all occupations prefer the 8.5 x 11" sheet to include with an invoice. Pumpers and installers would likely use all three types of materials depending on their situation. All three types of materials should be developed for service providers to provide to clients based on the appropriate situation.
- Respondents overwhelmingly prefer to download materials/forms from the internet compared to other options; however, all three options (a doorknob hanger, an 8.5” x

11" sheet to accompany an invoice, and a brochure) would likely be used if available. SHD/SWM should make all three options available to maximize use of materials.

Outreach Materials

Survey results indicate that most OSS professionals see benefit and many are interested in distributing simple educational materials to their clients as a part of their regular service. Depending on time and available resources, SWM, the Snohomish Health District and Septic Issues Committee should develop educational materials in the following order to maximize their use among OSS professionals:

1. 8.5 x 11 information sheet that can be attached to the OSS professional's invoice. This information sheet should:
    - include a few basic operation & maintenance best practices,
    - direct the reader to the Puget Sound Starts Here septic web pages,
    - include Snohomish Health District and WDOH logos,
    - provide space for the OSS Professional to paste/stamp their company logo and telephone number.
2. O&M Fact Sheet- SWM can revise the existing green OSS Best Practices Fact Sheet relatively easily to enable OSS businesses to paste/stamp their company logo and distribute to clients. The fact sheet should include:
    - Snohomish Health District OSS logo and telephone hotline
    - Space for OSS businesses to paste/stamp their company logo and telephone number.
3. Doorknob hangers- although the door hanger was not preferred by most providers, OSS pumpers indicated that they would use these when in the field. Doorknob hangers are relatively easy to design and would take less time and energy to develop than entirely new O&M materials specifically designed for OSS professionals to distribute to their clients.
4. O&M brochures and fact sheets- additional research is needed among OSS professional to better determine what specific information would be most useful.

Access to Outreach Materials

Respondents overwhelmingly prefer to download materials/forms from the internet compared to other options; however, all three options would likely be used if available. SHD/SWM should make all three options available to maximize use. Regardless of the option, SHD should provide

regular reminders to OSS professionals that this information is available for use (via email, at SIC workshops, etc.); otherwise, use will likely decline significantly over time.

1. Download education materials from the internet- in order to make the online option viable over time, SHD/SWM would need to make sure that the web page with downloadable forms is easily visible and accessible on the SHD website, as OSS professionals are not likely to remember a unique website URL. If set up correctly, this option would also enable SHD to track use/downloads of the forms by each professional.
2. Pick up printed materials at the SHD office- this option would be easy for SHD to implement, as it would only require that paper copies of all materials would be readily available for pickup at the SHD front desk. This option should be secondary to a website, as most OSS professionals are not likely to specifically drive to the SHD office only to pick up O&M educational materials.
3. Send OSS professionals printed materials upon email/telephone request- this option would require a little effort by SHD staff, but could result in greater use by septic professionals over time. SHD staff could also make proactive telephone calls to businesses to remind them to use O&M outreach materials and provide excellent customer service to make it as easy as possible for businesses to use the materials.

ACTIVITY 5.1 MEET WITH SEPTIC ISSUES COMMITTEE

SWM Staff met with the Snohomish Health District's Septic Issues Committee (SIC), a gathering of septic system industry professionals, to discuss a potential outreach plan. Stef attended over 7 SIC meetings during the timeframe between August 2009 and June 2011. Stef has reported grant activities and findings on an ongoing basis to help inform the SIC's education activities.

ACTIVITY 5.2 DEVELOP SERVICE PROVIDER OUTREACH PLAN IF VIABLE OPTION

Due to limited available personnel, SWM was not able to develop and implement a service provider outreach plan. However, SWM staff does plan to continue to work with the SIC outside the scope of this grant to complete development of priority educational materials for service providers to distribute.

ACTIVITY 5.3 DISTRIBUTE MATERIAL THROUGH SERVICE PROVIDERS

Not applicable. See Activity 5.2 for more information.

ACTIVITY 6. PROGRAM INFORMATION DISSEMINATION

ACTIVITY 6.1 PROVIDE A SEPTIC SYSTEM PROGRAM WEBSITE WITH DOWNLOADABLE RESOURCES FOR AGENCIES AND NGOS WORKING ON SEPTIC SYSTEM MANAGEMENT

This grant directed SWM to develop a website targeted toward other agencies and NGOs to facilitate sharing of products and research produced through this program. SWM has developed a web page on the Snohomish County Surface Water Management page that enables the public to download this report, including attachments. The report can be found by going to www.snoco.org and searching for "septic system report."

SWM learned through conversations with other health jurisdictions that the most appropriate host for an agency website is with Washington Department of Health (WA DOH) because a variety of OSS outreach activities have been taking place over the past few years, and creating a "one stop location" for jurisdictions to go will maximize its use.

SWM is working in collaboration with Washington Department of Health (WA DOH) to develop an agency website to allow easy access by other health jurisdictions to copy and revise our educational materials. The agency website is planned to be completed by WA DOH in early November, 2011, and is planned to have the following URL:

http://www.doh.wa.gov/ehp/ts/ww/WWLHJTools.htm.

The following items are included on the website:

Mailers

Mailer 1- workshop mailer (pdf)
Mailer 1- workshop mailer (InDesign Files)
Mailer 2- Girls/Lawn- Simple Steps mailer (pdf)
Mailer 2- Girls/Lawn- Simple Steps mailer (InDesign Files)
Mailer 2- Pumper-Simple Steps mailer (pdf)

Mailer 2- Pumper-Simple Steps mailer (InDesign Files)
Mailer 3- Expert Recommendations (pdf)
Mailer 3- Expert Recommendations (InDesign Files)
Mailer 4- Boy & Dad Fishing- Water Wise (pdf)
Mailer 4- Boy & Dad Fishing- Water Wise (InDeisgn Files)
Additional Outside Panels

- Man & Woman with failed septic tank?
- Are you sure your drinking water is safe?

Additional Artwork Images

Septic System graphic (developed by SnoCo)
Photoshoot Photos (June 2011)

- Couple standing over a failed septic system (vertical and horizontal if available)
- Septic pumper smiling (vertical and horizontal if available)
- Family in kitchen, woman/man looking at water glass (multiple images; vertical and horizontal if available)

Brochures/Fact Sheets

8.5 x 11" Dos and Don'ts sheet (the green one)
Pumper questions
Septic System Care Checklist

Presentation

Septic Care Workshop 101- PowerPoint (pdf)

Public Opinion Research Reports

Elway- Interactive Polling Report (Nov 18, 2008)
Elway- Baseline Survey (December 2008)
Elway- Focus Group Report (June 23, 2009)
EdCC- Rapid Ethnographic Assessment of Septic Industry in Snohomish County (April 29, 2009)

OSS Program Evaluation Reports

WWU- Evaluation of Snohomish County's Septic Care Pilot Program (June 2011)
Snohomish County- Septic Outreach Pilot Program Summary Report
Snohomish County- Septic Outreach Pilot Program Report

ACTIVITY 6.2 SEPTIC SYSTEM MANAGEMENT REGIONAL PRESENTATION – STORM

SWM was not able to present a summary of the rapid ethnographic assessment and a full presentation on key findings of the Septic System Program within the grant contract date due to scheduling conflicts. Stef Frenzl presented a one-hour presentation (Attachment 6.2) on the pilot study's findings to STormwater Outreach for Regional Municipalities (STORM) in Bellevue, WA on September 22, 2011.

ACTIVITY 6.3 CONFERENCE PRESENTATIONS

SWM was unable to submit abstracts at relevant conferences in 2011 because key elements of the program were not completed until May and June 2011. SWM presented project findings at two gatherings of county health jurisdictions, which included key staff from Whatcom County, Skagit County, Snohomish County, Jefferson County, Clallam County and San Juan County, and Washington Department of Health. Stef provided a detailed, 2-hour verbal report to these jurisdictions on May 5, 2011 in Bellingham, WA.

SWM is also presenting from this pilot program at the Puget Sound Counties Environmental Health Directors On-Site Sewage Systems Local Management Plan Meeting on November 8, 2011, and is also being asked to present at a several additional forums throughout Puget Sound.

ACTIVITY 7. PROGRAM EVALUATION

ACTIVITY 7.1 COLLECT EVALUATION MEASURES THROUGHOUT THE PROGRAM

The PIE plan identified the following measures to compare Outreach Approach 1- Septic System House Calls advertised via mailer and Outreach Approach 2- Sanitary Surveys.

Implementation Measures identified in the PIE Plan for SWM to consider:

- Number of mailers delivered
    - Workshop Advertisement Mailer
    - Mailer 1 (Learn about YOUR system and Inspections)

  - Mailer 2 (Do's and Don'ts)
  - Mailer 3 (Water Wise and Drainfield Care)
- Number of workshops offered
- Number of notification letters delivered
- Number of sanitarian technical assistance visits
  - Outreach Activity 1- House Calls
  - Outreach Activity 2- Proactive Sanitary Surveys

All of the measures listed above, in addition to other measures not mentioned in the PIE plan, were used to evaluate our pilot program. For evaluation details, please see the evaluation sections under each education strategy (workshops, mailers, workshops, sanitary surveys) included in this report.

----------Remainder of page left blank intentionally----------

DATA COMPARISON- OUTREACH APPROACH 1 VS OUTREACH APPROACH 2

Table 24: Outreach Approach 1 & 2- Data Comparison Summary Chart

Focus Area	# Total residences in Focus Area	# / % Residences that sanitary surveys were not performed	# / % Partial OSS sanitary survey conducted	# / % Complete OSS sanitary surveys conducted	# / % OSS Failures Detected & Remedied	# / % Residents present at site visit
Outreach Approach 1: Mail Campaign Sanitary Survey Results						
Maltby	214	205/96%	0 / 0%	9/4%	0/0%_	9/4%
Fobes Hill	226	217/96%	0 / 0%	9/4%	0/0%	9/4%
Getchell Hill	227	225/99%	0 / 0%	2/1%	0/0%	2/1%
Church Creek	219	211/96%	0 / 0%	8/4%	0/0%	8/4%
Outreach Approach 1: Septic Care Workshop Sanitary Survey Results						
Maltby	214	213 / 99.6%	0 / 0%	1 /0.4%	0/0%	1
Fobes Hill	226	225 / 99.6%	0 / 0%	1 / .04%	0/0%	1
Getchell Hill	227	227 / 100%	0 / 0%	0 / 0%	0/0%	0
Church Creek	219	218 / 99.6%	0 / 0%	1 / 0.04%	0/0%	1
Other Areas	7,395	7371 / 99.7%	0 / 0%	24 / 0.03%	6*	24
Outreach Approach 2: Proactive Sanitary Survey Results						
Fobes Hill	281	16/6%	6/2%	259/92%	9/3%	~84/30%
Church Creek	211	56/27%	11/5%	144/68%	0/0%	63/30%

*Note: Six failures were identified at unknown properties through the course of the 6 septic system workshops. Landowners worked with Teri King from UW SeaGrant to contact a professional and repair the system.

DATA COMPARISON- OUTREACH STRATEGIES: RETURN ON INVESTMENT

Table 25: Projected return on investment calculations based on using already-developed protocols and materials.

Outreach Strategy	#/% Residences Contacted*	Cost per Residence	Staff Hours Required per Residence	Level of Influence (Public Involvement Continuum)
Website	**196/ 4.9%**	**$2.50****	**<0.05 hrs**	Awareness
Mailers	**2,400/ 60%**	**$2.30*****	**<0.02 hrs**	Learning/Knowledge
Sanitary Surveys	**NA/ 65%**	**$155-$200**	**~2.3-3.0 hrs**	Learning/Knowledge
Workshops	**56/ 1.4%**	**$123.75**	**~1.1 hrs**	Behavior Change

* #/% Residences Contacted per targeted audience size of 4,000 OSS homeowners

** Website cost per residence based on a $500 budget

*** Mailer cost per residence based on a 4-mailer series

ACTIVITY 7.2 COLLECT POST-PROGRAM MEASURES

SWM contracted with WWU to develop a questionnaire and conduct a post-program telephone survey to evaluate the effectiveness of the septic system outreach program in 1) increasing knowledge of Septic System Best Management Practices, and 2) increasing adoption of Best Management Practices (*Attachment 7.2a*). Results of this survey are discussed throughout Activities 3 and 4 of this report, and programmatic key findings are included in Activity 7.3 below.

ACTIVITY 7.3 ANALYZE MONITORING DATA

Results from the monitoring data are discussed throughout Activities 3 and 4 of this report.

Programmatic key findings from the post-education telephone survey include:

- Mailers & sanitary surveys (*Attachment 7.3a*) are effective at educating people about best management practices (people receiving mailers are 5X more likely to say that they learned a significant amount about septic system BMPs over the last year compared to a control group), but neither the mailers or the sanitary surveys are effective at encouraging people to visit a website (only 2% visited the website after receiving a mailer) and/or adopt additional best management practices (no difference between adoption of BMPS between the treatment and control groups).

- Workshops (*Attachment 7.3b*) appear to effectively result in a statistically significant impact on long-term behavior change. Providing incentives and motivators to attend workshops makes a difference "on the ground." The challenge in Snohomish County is encouraging OSS homeowners to attend a workshop because a meaningful incentive/motivator to attend does not exist. In Clallam County, even a 50% cost share provided to all workshop participants was not seen as a meaningful incentive (only 2% used the cost share program).

- Approximately 14% of people claimed to contact a pumper as a result of the mailers (which is an excellent return…a 3% return would be considered "good"); however, when asked "compared to a year ago, how likely are you to have a pumper regularly inspect your septic system" there was no difference between our treatment and control

groups. This means that the mailer may have served as an effective reminder for people to contact a pumper (for those who would do so anyway).

- People already rate themselves as being "excellent stewards" of their septic systems (even if we have reason to believe that they aren't). It's very difficult (or impossible) to detect change when they rate themselves as a 10 out of 10 with certain practices before we even implemented our outreach program.

- Although we developed messages that strive to address motivators and some of the known barriers, our program was not effective at addressing certain barriers that are needed to encourage behavior change. For example, paying a pumper several hundred dollars to inspect an OSS on a routine basis is a very strong barrier; if our goal is behavior change, our findings show that a stronger motivator/incentive is needed to encourage a sizeable number of landowners to have their OSS inspected more routinely (a meaningful cost/share, grant, fine, etc is required to get people to inspect more routinely). Another alternative is to change the structure in which septic systems are inspected. For example, establishing septic districts to ensure all OSS homeowners in the district have their OSS inspected routinely, providing meaningful incentives to install low-flow water using appliances in all homes with septic systems, etc., would likely result in a higher number of OSS' that are routinely inspected and repaired when needed. SWM acknowledges that changing laws to establish a restructure may be challenging to create politically; however, agencies responsible for OSS oversight do need to acknowledge the limited impact if the status quo remains in place.

OVERALL OSS OUTREACH PROGRAM- DISCUSSION & RECOMMENDATIONS

RECOMMENDED FUTURE OUTREACH STRATEGY: BASED ON PILOT STUDY APPROACHES TESTED

The results from this pilot study provide strong evidence that some outreach activities/strategies are more effective than others at achieving various levels of the Public Involvement Continuum. As explained in the Public Involvement & Education Activities section of this report, an individual must progressively move, step by step, from the bottom of the pyramid to the top of the pyramid in order to achieve long-term sustained, independent action.

As a result, a suite of outreach tools must be used to accomplish these ends, as no outreach tool is effective at helping citizens achieve all of the stages. Figure 3 below describes the basic recommended components of an integrated septic system care outreach program for Snohomish County residents. These outreach programs are likely to be most effectively when priority geographic areas are targeted, and that these areas have known water quality problems that are likely impacted by failing septic systems.

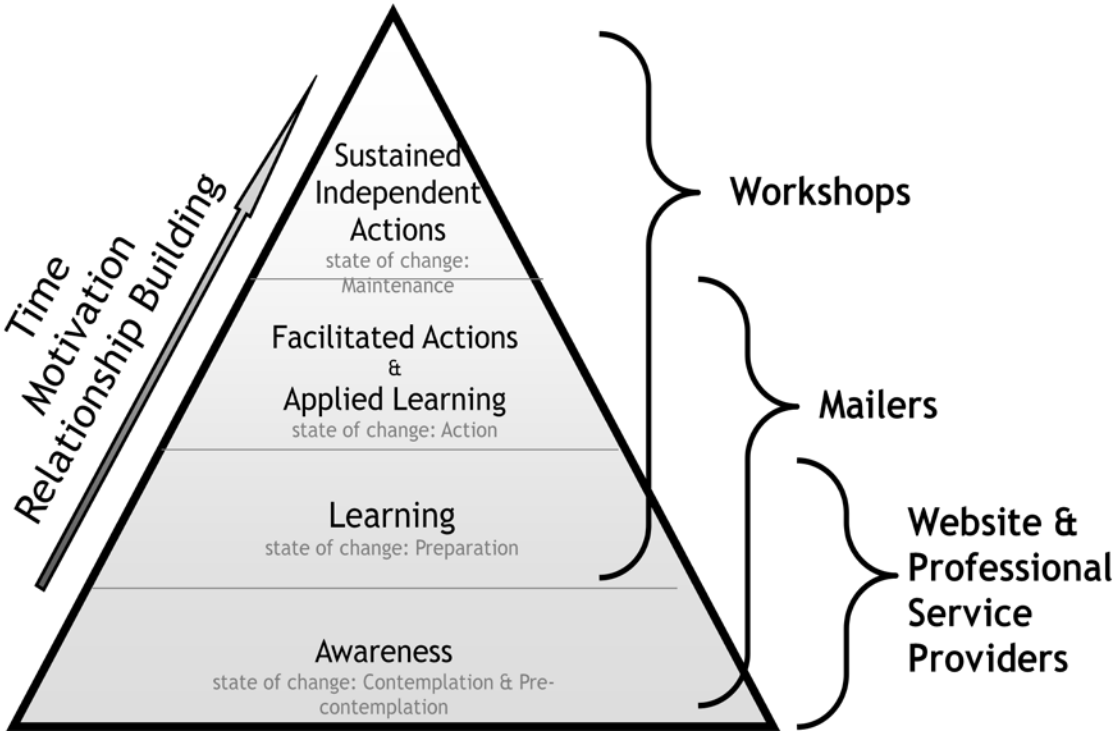


Figure 3: Outreach strategies and their alignment with the Public Involvement Continuum

This integrated strategy includes the following components in further detail:

PSSH Website

Improve PSSH website accessibility as described in the Website Recommendations section of this report. Encourage Puget Sound Partnership and STormwater Outreach for Regional Municipalities (STORM) to prioritize septic system BMPS as a priority for promotion in Puget Sound Starts Here radio and television advertisements.

Mailer Series

Change mailer series to a four-or-five part series as described in the Direct Mail Recommendations sections of this report. Continue using the septic care kit as a promotional item to encourage reply card feedback, and identify other useful point of contact promotional items or promotions that encourage a landowner to hire a professional to inspect their septic system (for example, a sizeable coupon with a minimum savings of 25-35% of the total cost). Although we did not test this strategy during our pilot study, we believe that it has a moderate-to-strong potential to achieve behavior change if messages and incentives are well-aligned with the BMP(s) that are being promoted.

Workshops

Host an ongoing workshop series each spring and/or fall as described in the Workshop Recommendations section of this report. Host 3-hour workshops to targeted areas of 4,000 residences or more, and include a meaningful incentive to maximize workshop participation, such as a drawing for a free pumping for one or two participants at each workshop. Involve septic system service providers in workshop advertising as much as possible. SHD should also target residences in the same geographic area over multiple years, as word-of-mouth about the benefits of the workshop will likely increase participation over time. Obviously, workshops can only involve a limited number of participants (maximum of 70, although our workshops averaged 28 per workshop). As a result, SWM recommends hosting as many workshops as demand allows to promote adoption of our BMPs by as many residents as possible.

Incentives

Each of these strategies should to include meaningful incentives (from the homeowner's perspective) to maximize effectiveness and encourage behavior change. Examples include sizeable coupons on septic system inspections and septic care kits (for mailers). Workshops could include $100 discounts on inspections and riser installation, as included in Skagit County Public Health Department's program. Incentives help answer the homeowner's question, "What's in it for me?" Without thoughtfully addressing this question when developing each strategy, the impact of the overall program will likely be minimal. Additionally, a low-interest loan program to facilitate septic system repairs would also likely help with building trust

Education & Outreach using Septic System Service Providers as Messengers

Pilot and evaluate the effectiveness of using OSS service providers as messengers. Individuals in this group were not this pilot study's target audience; however, this approach is likely to aid

in reinforcing BMPs to the "ready and willing" residents, in addition to those who are "on the fence" about performing certain BMPs.

At this time, SWM does not recommend including sanitary surveys in future outreach efforts in its integrated outreach strategy. Please see the Additional Recommendations section below for further discussion.

WHAT RESULTS CAN WE EXPECT FROM AN OSS OUTREACH PROGRAM USING THESE APPROACHES?

Behavior change programs take time to develop, and even more time for results to become apparent across a landscape. Based on results from other social marketing campaigns, social marketing experts suggest that an appropriate estimate for the first year ranges between 1% to 4% per year, and 15% to 30% a year or two post-intervention, assuming the campaign is a multi-year program targeting the same target audience in the same geographic area (Grizzell, Jim, Social Marketing Listserve, October 16, 2011). Social marketing programs need to be designed to reach and resonate well enough with the target audience so that a year after implementing the campaign 70% to 90% of the target population needs to be able to recall it. Unfortunately, due to the nature of the grant timeline and budget, a multi-year campaign is beyond the scope of this pilot study, and as a result, our knowledge of the long-term impacts from this program remains unknown.

One challenge to this question is that local governments may receive "push back" from segments of the general public if they attempt to run a multi-year campaign seen as unnecessary. Repeated efforts to target the same audience and the same location are viewed by some members of the general public as a waste of taxpayer money. As a result, it is important that efforts are targeted in areas where septic systems are known to cause water quality problems, and political decision-makers support a long-term education campaign (philosophically and financially) prior to launching the campaign to maximize results.

Additionally, it's important to acknowledge that workshops will never reach a sizeable percentage of residents with septic systems in a meaningful timeframe when dealing with huge population sizes (over 80,000 homeowners have septic systems Snohomish County). Without investing in dozens of workshops each year, and without providing extremely appealing incentives to encourage homeowner participation, relying on workshops to achieve long-term behavior change across a landscape scale is unrealistic and unsustainable.

It's also important to acknowledge that there are inherent problems that arise due to the nature of OSS homeowners' current behaviors:

- about 50% of people don't perform routine inspections in non-Marine Recovery Areas, even though it's the law
- among those 50%, many who are likely to have failing systems are unlikely to voluntarily attend a workshop. Even incentives that many would consider "very appealing" are not seen as adequate to address barriers to paying for an O&M inspection (for example, a 50% cost share for inspections in Clallam county was woefully ineffective- 1% used the cost share program).

SWM recognizes and acknowledges the limitations of our education and outreach recommendations. To aid in the ongoing conversation about how to address these limitations, SWM has included a few additional insights about the challenges and possibilities in the following pages. delimma

CHALLENGES: PUBLIC GOODS THEORY, PRISONER'S DILEMMA & OTHER CHALLENGES

A successful outreach program requires that program managers understand the attitudes, beliefs and behaviors of their target audience as much as possible. Two effective means to obtain this information include focus groups and surveys. This pilot program conducted both. However, often times focus groups and surveys cannot paint the whole picture. For example, we heard from over 80% of focus group participants that they would be likely to go to the PSSH website after receiving the mailers; however, only a small fraction of homeowners actually went to the website (4.9%). Often times, people's perceptions about their everyday care practices differ from their actual behaviors. For example, our pre-outreach survey indicated that many people rank their septic care practices as 10 out of 10 (the highest possible score), yet many of those homeowners didn't even know what kind of septic system they had. As a result, it's important to look for other ways to understand our audience as well.

Challenges: Routine Septic System Inspections & Pumping When Needed

R. Mohamed (2009) offers additional insights about why households in the United States do not inspect their septic systems and pump when necessary, and why state-led regulations are necessary. He uses public goods theory and the concept known as the prisoner's dilemma. To summarize his argument, these two concepts conclude that a rational self-interested

homeowner is highly likely to refrain from learning about their septic system and conducting routine inspections and pumping when needed. A homeowner is likely to justify their non-action (to inspect their system) by either of the following rationalizations:

- "If everyone else is inspecting their system and having it pumped as needed, then everything is fine, and so why should I bother doing it myself?"
- "Nobody else is having their septic system inspected routinely, so why should I have mine inspected when it won't make any difference anyway?"

Because all individuals find it in their self-interest to defect their responsibility to inspect their system routinely, cooperation to manage the public good (water quality) breaks down. Additionally, managing public goods is also more difficult when the initial consequences of pollution are minor and dispersed. As a result, Mohamed argues that placing responsibility on the homeowner to inspect and pump their septic system will result in a "tragedy of the commons" in water quality.

Septic system maintenance is recommended only once every 3 years, and much can happen during this period. A household that signaled good intentions at one point may find that 3 years later they cannot afford another round of maintenance. Or the neighbors to whom cooperation was signaled may have left the subdivision, requiring the first neighbor to recommence the process of building trust. Collectively, conditions do not exist such that everyone is in continuous agreement about how to care for common public resources, and instead appeals to households' sense of communal responsibility to protect the environment by maintaining their septic system are misdirected (Mohammed 2009).

However, it is also important to acknowledge that a plethora of social science research has found that people rarely choose their actions based solely on rational decision-making. Factors including stress, a sense of overwhelm, too many options to choose from, and others will often result in people choosing options that benefit a short-term emotional gain over a long-term rational gain. When relating these findings to septic system homeowners, the non-rational factors that influence a homeowners' decision to inspect their septic system (such as overall negative feelings about the economy, but no direct fear of them losing their job) will likely strengthen their likelihood to refrain from inspecting their septic system.

Mohammad argues that if homeowners remain the responsible party for conducting inspections and pumping when needed, regulations (and enforcement of them) remain the only viable option for controlling pollution from septic systems.

Enforcing Septic System Inspections

Many counties, such as Island County, Skagit County, Whatcom County and others, have already strengthened enforcement programs in priority areas. These counties require homeowners living in these priority areas to submit documentation proving that their septic system is inspected every year. Homeowners are provided an option to either have a professional inspect their septic system, or homeowners can become self-certified by taking a septic system 101 (basics of septic systems) and 201 (tank and drainfield inspection) course. Many of these counties are beginning to network, share formative research results and collaborate (Johnson 2011).

In this section, we include a short discussion about two jurisdictions that have developed enforcement programs. From the descriptions below, SWM hopes to convey that enforcement programs can be highly effective, although thoughtful incentives are still necessary to maximize success. Additionally, these programs may also result in other benefits.

<u>Skagit County Public Health Department</u>

The Skagit County Public Health Department (SCPHD) has found that more than one motivator is necessary to reach and influence a large targeted audience to inspect their septic system routinely (Bessett, Personal Communication, October 21, 2011). Homeowners' primary motivator is money, and a second motivator is public health. Both motivators need to be accompanied by useful information.

SCPHD began enforcing their jurisdiction's requirement for full septic system inspections for all MRA and Sensitive Areas in 2011. Homeowners receive notifications in the mail, and are given three notices (over a period of 100 days total) to inspect their system before receiving a fine. If the homeowner does not have their system inspected, SCPHD begins a daily fine of $75 that can build up to $5000.

Homeowners with conventional gravity, pump to gravity, or conventional pressure systems can perform their own qualified O&M inspections if they attend the Septics 101 and 201 classes. This is a financial incentive to take the classes because they don't have to pay a professional hundreds of dollars to inspection their system.

Results from SCPHD's evaluation program suggest that approximately 5-10% of homeowners with septic systems will view information online, from mail or come to educational classes just because it is there and they have the spare time and/or interest. Another 5-10% will view the online/mailed info and come to classes if it will save them money (rebates on inspections and

riser installations in Skagit Co). However, when SCPHD makes a concerted effort to require septic system monitoring and maintenance inspections, people really become interested in taking advantage of rebate and other money-saving programs (another 25% of the targeted audience).

In 2011, SCPHD started offering $100 rebates for professional inspections and riser installations to homeowners who attend the Septics 101 class. SCPHD mmediately saw an increase in workshop participation from 4-10 people attending Septics 101 to 60 attendees registering in advance. According to SCPHD, the new rebate program alone did not bring people in to the classes: the requirement to inspect first got their attention and since they now were required to do the inspection, homeowners were looking to find ways to reduce the cost.

According to SCPHD (Bessett, Personal Communication, October 21, 2011), in order to reach a large audience across a wide geographic area, the following program elements are necessary:

1. A financial incentive, driven first and foremost by the ***requirement*** to perform inspections (that costs a lot of money), and second by rebates that help minimize this cost.
2. Make it easy to attend a class. Skagit County limits the class to 2 hours or less, and hold the class at various times (mornings, afternoons, and weekends), on various days (weekends and weekdays), and in county-wide locations (concentrate classes in the core of the county).

<u>Island County Public Health</u>

Island County Health Department (ICHD) began an enforcement program in 2008, and a significant increase in the number of routine inspections county-wide occurred as a result (Laxson, personal communication, October 7, 2011). Island County received over 2,000 inspection reports between May 2008 and September 2009, which is a notable effort with significant results, especially considering these numbers reflect the first year and a half of the program. Additionally, some interesting insights and benefits have also become apparent:

- Approximately 50% of the septic system reports submitted indicate that minor corrections are needed. It is likely that many of these corrections could not likely be identified via a sanitary survey (as described in Activity 4). These results confirm that septic systems have a high potential to impair water quality in priority areas in Island County, and enforcement is an effective tool to minimize the potential.
- It is possible that self-certified homeowners may not follow inspection protocols, and inspection results could be compromised as a result. However, ICHD found that homeowners who self-inspected their septic systems had a similar percentage of OSS needing corrections compared to professional inspections. However, other jurisdictions

have performed audits of self-inspectors and found that the majority (up to 75%) of self-inspected septic systems were not inspected correctly.

- Most homeowners who attend the workshops and become self-certified still hire professional inspectors to conduct the inspection. In 2009, 3,000 inspections were conducted by professional service providers (among a total of 45 service providers) and 45 inspections were conducted by self-certified homeowners (among a total of 3,000 self certified homeowners).
- Most residents who are initially very skeptical and resentful of the enforcement program become much more accepting of the program after attending the workshops.
- Residents who attend the septic system 101 and 201 courses are more likely to implement everyday BMPs. As a result, homeowners are likely performing better everyday OSS maintenance practices.

<u>The Cost of Enforcement & Long Term Effectiveness & Sustainability</u>

These findings indicate a "multiple win" situation for Island County; however, these programs don't come without a high cost. ICHD is already looking for ways to streamline the process and minimize costs, and has developed an online video version of septic system 101 (homeowners can watch the 20 minute video from home and self certify after passing a test at the end of the video). Additionally, IHD plans to use the septic system 201 video that's currently under development by Clallam County Health Department.

Unfortunately, it's also likely that streamlining these programs could limit their effectiveness. Our pilot study's findings suggest that homeowners who watch a 24-minute video online from home are much less likely to achieve the same level of awareness and understanding about septic systems and proper maintenance compared to homeowners to attend a workshop in person. Results from our pilot study suggest that the several-hour commitment, in addition to the trust that is built between the presenter and the homeowner, are vital toward achieving a high level of knowledge and long-term behavior change. As a result, many of the additional benefits that ICHD's program achieves could be potentially lost by fully converting the education component of the program to online videos.

If the educational value of the enforcement program diminishes, it is possible that public pressure will strengthen to abandon the program over time. As a result, it is prudent to consider whether the enforcement model used by these counties (align enforcement with an education program to allow homeowners to become educated and self-certify) is sustainable for the long-term if grants and other external funding sources that support these programs diminish.

ADDITIONAL CONSIDERATIONS - THINKING BEYOND THE STATUS QUO

Septic System Districts- Improving Routine Inspections at a Landscape Scale

Forming septic system districts is another option that has recently been a part of the greater conversation among septic system permitting jurisdictions. Septic districts could potentially be a long-term, viable solution in high priority areas where water quality is already compromised. In a septic system district, O&M responsibilities would be transferred to a "utility" (a public-private partnership, or a private company who won a bid), and could include a corresponding insurance program for residents who need major repairs. Residents within septic system districts would pay a monthly or annual fee based on the type of their OSS's inspection needs, and fees would be used to inspect septic systems within the district on a routine basis (as needed for each OSS). The utility would manage all aspects of the planning, coordinating, O&M inspections, reporting and repairs if necessary (in conjunction with the insurance plan). When an OSS is found to need repairs, an insurance arm (part of the district fee) could be in place to cover a portion of the repairs. To prevent a tragedy of the commons scenario, public goods theory suggests that there would still need to be a significant incentive for a landowner to improve/maintain everyday care activities under this structure (for example, meaningful decreased fee rates for those who've taken the workshops), as well as a "disincentive" associated with the insurance program (such as only covering a percentage of the repair costs, so people still see a direct financial impact if they have an OSS failure). Theoretically, the program could also include an "opt out option," in which homeowners who took workshops and became self-certified could self-inspect their system and pay a significantly decreased rate.

From a social marketing perspective, a septic system district is an ideal approach to ensure that all septic systems are inspected and maintained. Under the status quo, education and outreach to influence septic system inspections has considerable limits. By reassigning the responsibility from the landowner to the utility, agencies no longer need to address the BMP with the greatest barriers (conduct routine inspections and pump when needed) in their education and outreach programs.

However, there are several significant barriers to forming septic system districts in priority areas as wekk:

- Although some homeowners may desire to have the responsibility transferred to a septic district, many homeowners are likely to prefer to remain the responsible party, especially if routine inspection isn't enforced. If the homeowner is the responsible

party, it prevents an inspector (whether it's private or public) from "snooping" on people's property. Many homeowners in rural areas also strongly value self-reliance, and an effort to remove this responsibility from the homeowner may be seen as a "power grab."

- Keeping "administrative costs" to manage the septic district low
- Monthly or annual fees will be likely viewed as another tax.

Sanitary Surveys

SWM does not recommend continuing to implement sanitary surveys using the protocols and procedures used by SHD during this pilot study. However, if SHD chooses to implement sanitary surveys in the future (beyond the scope of this grant), SWM recommends that SHD model Kitsap County's approach to the extent possible, with a thoughtful effort to build more trust with homeowners prior to conducting the sanitary surveys. This effort may result in achieving long-term behavior change using sanitary surveys, which was not achieved during this pilot study.

SWM also recommends that SHD collaborate with KCHP Environmental Health Specialists (and others throughout the region) to learn which communication tactics and styles are found to work most effectively. One approach could include a training effort led by the Washington Department of Health to host a training session at a region-wide septic conference, where "presenters" could model different approaches to the audience (like a short skit), and then have each approach critiqued collaboratively by the audience.

----------Remainder of page left blank intentionally----------

REFERENCES

Bennett, Claude (2004). *Targeting Outcomes of Programs (TOP): A Hierarchy for Targeting Outcomes and Evaluating Their Achievement.* [Online] Available: http://citnews.unl.edu/TOP/english/index.html

Bessett, Wade, Environmental Health Specialist, Skagit County Public Health Department, Personal Communication, October 21, 2011.

Fohn, Mindy. Water Quality Manger, Kitsap County Public Works, Personal Communication, October 13, 2011.

Goodman, Andy (2002). *Why Bad Ads Happen to Good Causes, and How to Ensure They Won't Happen to Yours*. Santa Monica, CA. Cause Communications.

Grizzell, Jim., Health Education Partners. listserve communication. Georgetown Social Marketing Listserve. October 16, 2011.
Available: owner-SOC- MKTG@georgetown.edu

Johnson, Jennifer and Len Adams (2011). Social Marketing Focus Groups Summary; Results from Thurston County and Pierce County Focus Groups. Grant report to Washington Department of Health. June 2011.

Kotler, Philip, Ned Roberto, and Nancy Lee (2002). *Social Marketing: Improving the Quality of Life*. Thousand Oaks, CA: Sage Publications.

Laxson, Joe. Environmental Health Specialist, Island County Public Health, Personal Communication, October 7, 2011.

McKenzie-Mohr, Doug, and William Smith (1999). *Fostering Sustainable Behavior: An Introduction to Community-Based Social Marketing*. Gabriola Island, B.C.: New Society Publishers.

Mohamed, R (2009). *Why Households in the United States Do Not Maintain Their Septic Systems and Why State-Led Regulations Are Necessary: Explanations From Public Goods Theory*. International Journal of Sustainable Development Planning. Vol 4, No. 2 pp41-55.

Putnam, Robert (2000). *Bowling Alone: The Collapse and Revival of American Community*. New York: Simon & Schuster.

Rogers, Everett (1995). *Diffusion of Innovations.* New York: Free Press.

Sanford, Emily L, Washington State University Extension Mason County, Personal Communication, October 7, 2011.

U.S. Environmental Protection Agency (2004). *National Menu of Best Management Practices for Storm Water Phase II.* U.S. Environmental Protection Agency, [Online] Available: http://cfpub.epa.gov/npdes/ stormwater/menuofbmps/menu.cfm.

U.S. Environmental Protection Agency. February 2002. *Onsite Wastewater Treatment Systems Manual*. Office of Water, Office of Research and Development. Publication number: EPA/625/R-00/008.

Ward, Dave, and Lynda Ransley (2004). *Targeted Education: Translating Information into Restoration*. Proceedings of the 16th annual Society for Ecological Restoration Conference. Victoria, B.C.: Society for Ecological Restoration – International.

ATTACHMENTS

[Note: Attachments to this report have been submitted under separate cover to Washington Department of Ecology and are not included directly in this report due to excessive file sizes. For copies of each attachment, please go to www.snoco.org and search "septic system report," or contact Snohomish County Surface Water Management at 425-388-3464.]

Activity 1: Formative Research

1.0- Snohomish County Septic System Program Public Involvement & Education Plan

1.1- Review of Existing Septic System Outreach Programs

1.2a- Interactive Public Opinion Polling Forum Final Report

1.2b- Public Opinion Telephone Survey Final Report

1.2c- Public Opinion Focus Groups-2009 Final Report

1.2d- Social Marketing Focus Groups Summary-2011 Report

1.3a- A Rapid Ethnographic Assessment of the Septic Industry in Snohomish County

1.3b- Professional Service Provider Operation & Maintenance Outreach Survey Final Report

Activity 2: Communications Development

2.0a- Protocols for Creating the Parcels_Septic data

2.0b- Septic System "Hot Spot" Analysis Maps (11 maps included)

2.0c- Focus Area Analysis Maps

2.2a- Septic System Care Fact Sheet

2.2b- Septic System Care Checklist

2.2c- Choosing a Septic System Pumper Form

Activity 3.1: Outreach Approach 1: Mail Campaign

3.1a- Mailer Artwork Tested at 2009 Focus Groups

3.1b- Mailer 1: Septic Care Workshop Advertisements (Mailers, Postcards, Doorknob Hangers)

3.1c-Mailer 2a: Simple Steps, Outside Image: Pumper

3.1d- Mailer 2b: Simple Steps, Outside Image: Girls on lawn

3.1e- Mailer 3: Solids & Toxins

3.1f- Mailer 4a: Water Use & Drainfield, Outside Image: Girl & Dog

3.1g- Mailer 4b: Water Use & Drainfield, Outside Image: Fishing

3.1h- Additional Mailer Artwork for Outside Panels, Drinking water & Drainfield

3.1i- Mailer Reply Card Evaluation Data

Activity 3.2 Septic System Homeowner Workshops

3.2a- Workshop PowerPoint Presentation

3.2b- Workshop Advertising Mailers (WSU & SHD)

3.2c- Workshop Advertising Reminder Postcard

3.2d- Workshop Advertising Doorknob Hanger

3.2e- Workshop Posters

3.2f- Workshop Announcement Web Pages (Snohomish County & WSU)

3.2g- Workshop Press Releases

3.2h- Workshop Doorknob Hanger Maps

3.2i- Workshop Postcard 2 (to additional residences)

3.2j- Workshop Postcard 2 Maps

3.2k- Workshop Photos

3.2l- Workshop Initial Evaluation

3.2m- Workshop- 8-month survey

3.2n- Workshop Attendees Maps

Activity 3.3 Septic System House Calls

3.3a- Workshop House Call Letter

3.3b- Workshop Follow-Up Visit Form

3.3c- Thurston County Homeowner Letters

Activity 4: Outreach Approach 2: Sanitary Surveys

4.0a- Landowner Survey Notification Letter

4.0b- Church Creek & Fobes Hill Sanitary Survey Form

4.0c- Sanitary Survey Questionnaire

4.0d- Sanitary Survey Follow-Up Letter

Activity 6: Program Information Dissemination

6.2a- Presentation to STORM 9/22/11

Activity 7: Program Evaluation

7.0a- Mailer & Sanitary Survey Evaluation Report

7.0b- Workshop Survey & Results