Puget Sound Septic Financing Assessment

Local Septic Management Program Needs Assessment

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Washington State Department of Health

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1. Executive Summary

The *Local Septic Management Program Needs Assessment* presents findings on the current expenditures and estimated funding needs associated with local septic management programs. This document is one of three technical analyses regarding funding for septic management in the Puget Sound region. A separate needs assessment estimates the amount of funding needed to capitalize and sustain a regional loan program to repair and replace septic systems. The third technical document evaluates potential sources and mechanisms to fund the two programs.

Overview

Puget Sound's sewage infrastructure includes a vast array of small, decentralized on-site sewage systems (OSS)[1]. This infrastructure totals over 600,000 septic systems in the region's twelve counties. The state on-site sewage rule, chapter 246-272A WAC, places responsibility for the proper use and care of these systems on their owners. Among other operation and maintenance (O&M) requirements, owners are expected to inspect simple systems with gravity drainfields at least every three years and all other types of systems at least annually. Advanced systems requiring more careful O&M are gradually becoming the region's norm. These complex systems often use devices to enhance aerobic treatment and may use filters to screen solids and pumps to pressurize and distribute the septic tank effluent more evenly over the drainfield to promote better soil treatment.

Complementing the owner's responsibilities, the state rule directs local health jurisdictions (LHJs) to develop and implement septic management plans to help ensure the requirements are met, with heightened requirements in the Puget Sound region.

In 2006 the state legislature passed legislation (enacted as chapter 70.118A RCW) requiring Puget Sound LHJs to take further action in their septic management plans to designate Marine Recovery Areas (MRAs) in places where existing OSS are adversely affecting marine water quality. The LHJs have been implementing their septic management plans since 2008 to help ensure OSS are inventoried, inspected, and properly maintained (see RCW 70.118A.050).

The current regulatory framework allows for a large amount of flexibility and variability in the services provided in each county. This variability encompasses the nature and type of services provided as well as the cost to provide those services. For example, some LHJs have chosen to implement less comprehensive programs either because funding did not exist for additional services, or because the LHJ believed that a less comprehensive program was adequate for their local conditions. A reason for variation in local costs and needs is the extent of MRAs in each county; counties that designated large MRAs have increased needs because the programmatic requirements within MRAs are much greater.

Counties have received funding from a variety of sources to fund current programs, ranging from state and federal grant funds to local fees. These funding sources are not necessarily sustainable. For example, grant funds have specific end dates and many existing programs and services will not continue without a renewal of these grants or alternative, comparable funding. Some local funding sources are

[1] The terms "on-site sewage system", "OSS" and "septic system" are synonymous and are used interchangeably.

also at risk of being diminished or discontinued. Therefore, current funding and expenditures cannot automatically assumed to be available in the future.

Methodology

The methodology consisted of 1) estimating costs based on current service levels and projected future needs as reported by LHJ staff and 2) estimating costs associated with providing a standard or foundational set of services across all counties. Both approaches developed a range of costs. The current services approach analyzed data provided directly by the LHJ septic management program staff about the funding needed to deliver the management programs as defined by each LHJ's management plan. Because there is high variability among local plans, there was also high variability in the amount of funding needed.

The foundational services approach evaluated the funding needed to implement a consistent set of services across the region. The project team developed a list of "foundational services," and estimated the associated cost to provide these services across the region. The differences between the two approaches are summarized in Table 1.

Table 1. Approaches to Assess Regional Need

Assessment	Data	Scope	Characteristics
Current Services Approach	▪ Individual LHJ programs ▪ Provided by LHJs	▪ Cost to implement local management plans	▪ Variable by jurisdiction ▪ May face constraints in resources, political will, etc.
Foundational Services Approach	▪ Representative LHJ ▪ Based on foundational services scaled to a representative level	▪ Cost to implement foundational services	▪ Representative ▪ Sufficiently funded, and no implementation constraints

Current Services Approach

To prepare this component of the needs assessment, the project team first surveyed and compiled information provided by LHJs in each of the twelve Puget Sound counties. All data used in the analysis were self-reported by LHJs, including estimates where hard data did not exist. Each LHJ provided detailed information on current expenditures and revenue sources, identified the number of known and assumed septic systems in their county, and estimated additional financial needs. The core questions asked of the LHJs were:

- What does it cost to implement your current program?
- What would it cost to both fully implement your management plan and comply with state requirements and targets?

Local programs share some common elements but are each uniquely designed and implemented. State requirements were written to allow local flexibility in tailoring requirements to local conditions. This

results in a wide array of programs, and also a wide range of costs and estimated future needs. The project team estimated the regional needs based on these ranges.

Foundational Services Approach

To prepare this component of the needs assessment, the project team convened a panel of OSS professionals that included members of the Advisory Committee, the Steering Committee, and the Washington Department of Health. The project team facilitated a panel discussion to:

- Identify and describe "foundational" services for septic system management
- Provide general cost information for foundational services in a representative LHJ

The term "foundational services" was adopted during this panel discussion. This term indicates those basic service elements that are needed in every Puget Sound county. Foundational services would be implemented throughout the region, but there would be still be some flexibility and variability in the how each LHJ implements these services.

The project team considered a hypothetical, representative LHJ as a conceptual tool for estimating the cost per septic system of implementing septic management program foundational services. These foundational services included:

- Document OSS
- Educate Homeowners
- Manage Inspection and Repair Requirements
- Survey OSS and Monitor Water Quality to Identify Problem Systems
- Update Management Plans

Findings

Current Services Approach

Table 2 presents key findings from the current services approach. As reported by the LHJs, approximately $14.3 million is needed for the region as a whole, or about $23 per septic system. Current expenditures of $6.5 million represent slightly less than half (46%) of total identified need. Figure 1 and Figure 2 graphically present current expenditures and needs in total dollars and per individual OSS.

Table 2. Total Annual Need by County, Reported 2013

County	Current Annual Expenditures	Additional Annual Need	Total Annual Need (Current Exp. and Add. Need)	Total Septic Systems	Total Annual Need/Total Septic Systems
Clallam	$144,000	$576,000	$720,000	20,007	$35.99
Island	$431,336	$862,671	$1,294,007	34,117	$37.93
Jefferson	$249,377	$174,565	$423,942	13,500	$31.40
King	$438,485	$1,542,700	$1,981,185	157,500	$12.58
Kitsap	$369,190	$632,500	$1,001,690	54,000	$18.55
Mason	$257,025	$146,930	$403,955	25,735	$15.70
Pierce	$1,940,709	$374,435	$2,315,144	110,028	$21.04
San Juan	$203,375	$134,500	$337,875	8,600	$39.29
Skagit	$420,800	$428,300	$849,100	13,500	$62.90
Snohomish	$276,200	$1,402,000	$1,678,200	78,000	$21.52
Thurston	$1,256,435	$1,479,524	$2,735,958	70,000	$39.09
Whatcom	$513,250	$0	$513,250	27,564	$18.62
TOTAL	**$6,500,181 46% of total**	**$7,754,124 54% of total**	**$14,254,305 total need**	**612,551 total OSS**	**$23.27**

Figure 1. O&M Program Current Annual Expenditures and Additional Annual Need by County, 2013

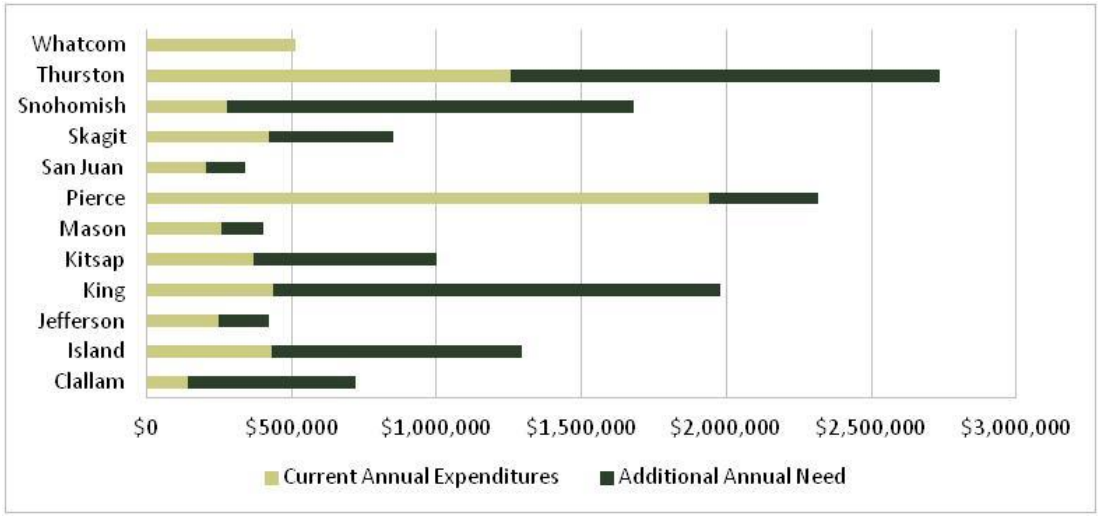
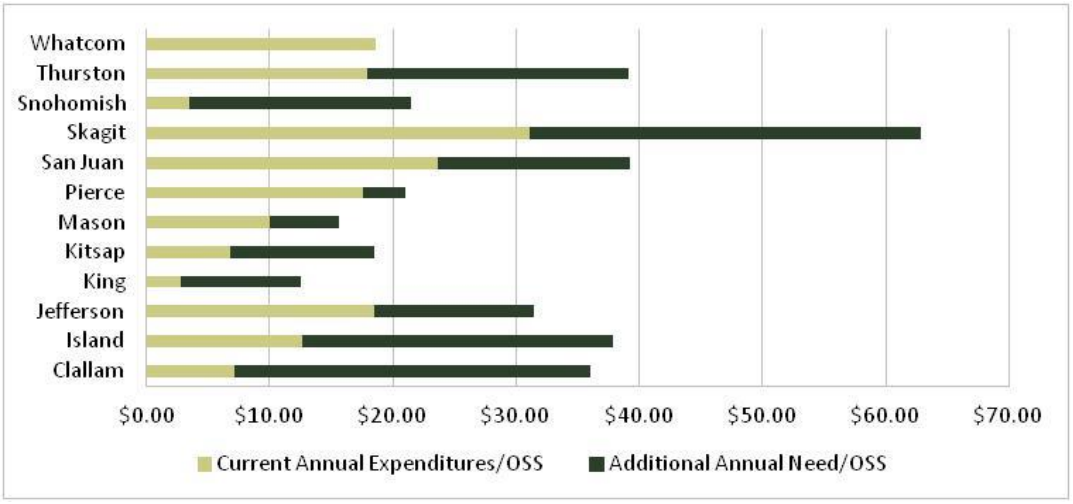


Figure 2. O&M Program Current Annual Expenditures and Additional Annual Need per OSS, 2013



Foundational Services Approach

The project team relied on program experts to identify a range of options for providing each service, as well as cost estimates for implementation. With respect to the wide range of service level options and their associated cost estimates, the project team highlighted a middle value that estimates the cost that the representative county would need in order to provide an adequate level of each service.

Table 3 presents the estimated value of each foundational service and its percentage of the total annual region-wide estimated need. As shown in Table 3, managing inspection and repair requirements represents nearly half of the estimated region-wide need. Water quality monitoring represents nearly a quarter of the estimated need. Together, these foundational services represent over 75% of the total estimated need assessed through this approach.

Table 3. Estimated Annual Region-wide Need by Foundational Service

Foundational Service	Estimated Region-Wide Need	Percentage of Estimated Region-Wide Need
Document OSS	$4.44 million	18%
Educate Homeowners	$1.8 million	7%
Manage Inspection and Repair Requirements	$10.7 million	44%
Survey OSS and Monitor Water Quality to Identify Problem Systems	$5.4 million	22%
Update Management Plans	$0.2 million	1%
Overhead	$1.7 million	7%
Total	**$24.4 million**	**100%**

Note: Totals may not add due to rounding. The foundational services approach estimates that septic management programs need nearly $40 per OSS or $24.4 million region-wide each year to provide effective, consistent services. Current spending is about $6.5 million, or 27% of the estimated need.

2. Introduction

The Washington Department of Health is leading a priority project of the Puget Sound Action Agenda to better protect public health and water quality for shellfish harvesting and other important uses. The project addresses sustainable funding for the repair and replacement of failed or malfunctioning on-site sewage systems (OSS) and for local health jurisdiction (LHJ) septic management programs. The Department of Health contracted with a consulting team led by Sound Resolutions with support from Cascadia Consulting, BERK Consulting, Foster Pepper, and independent consultant Terry Hull, to conduct the project's technical analyses and to facilitate policy recommendations and direction from the project's Advisory Committee.

Regulatory Framework of Puget Sound Septic Management Programs

Puget Sound's sewage infrastructure includes a vast array of small, decentralized on-site sewage systems (OSS) on dispersed properties. This infrastructure totals over 600,000 septic systems in the region's twelve counties.

The state on-site sewage rule, chapter 246-272A WAC, places responsibility for the proper use and care of these systems on their owners. Among other operation and maintenance (O&M) requirements, owners are required to inspect simple systems with gravity drainfields at least every three years and all other types of systems at least annually. Advanced systems requiring more careful O&M are gradually becoming the region's norm.

Complementing the owner's responsibilities, the state rule requires local health jurisdictions (LHJs) to develop and implement septic management plans to help ensure the work gets done, with heightened requirements in the Puget Sound region. The rule places the following O&M program requirements on the twelve Puget Sound county LHJs:

- Progressively inventory all systems.
- Identify high-risk areas and designate Marine Recovery Areas (MRAs).
- Develop and tailor O&M requirements to these areas.
- Facilitate education of owners on their O&M responsibilities for all types of systems.
- Remind and encourage system owners to inspect their systems.
- Maintain records of O&M activities.
- Find failing systems in identified high-risk areas and enforce system owner requirements.
- Assure coordination with local comprehensive plans.
- Assess the capacity of the LHJ to adequately fund the program.

The state rule, adopted in 2005, represented a very tall order for the county LHJs and for the 600,000+ system owners to develop and carry out effective O&M programs. In 2006, the state legislature passed legislation (enacted as chapter 70.118A RCW) requiring Puget Sound county LHJs to take further action in their septic management plans to designate Marine Recovery Areas (MRAs) in places where existing on-site sewage systems are adversely affecting marine water quality. The LHJs adopted management plans in 2007-08 and subsequently designated many MRAs and other sensitive areas where they engage directly with system owners to help ensure people are educated and the systems are inventoried, inspected, and properly maintained (see RCW 70.118A.050).

Septic Management Program Content and Requirements

The OSS laws determine the minimum content of the Puget Sound septic management programs but they do not establish common performance standards. Exceptions to this are the minimum OSS inspection frequencies and the MRA requirements to inventory, inspect, and fix all systems.

In 2010, the Department of Health combined these requirements to establish a Puget Sound OSS performance measure. In 2011, the Puget Sound Partnership's Leadership Council adopted the measure and added a numeric target. Specifically, the adopted measure calls on Puget Sound LHJs to inventory all OSS in MRAs and other designated areas, ensure a 95 percent compliance rate with the inspection requirement (defined as having an up-to-date inspection) within those areas by 2020, and fix all failures. The measure was subsequently adopted for use in the Governor's performance management system, currently known as *Results Washington*. LHJs started reporting on the measure in 2011 and it now covers nearly 70,000 systems.

To prepare this needs assessment, the project team surveyed and compiled information provided by LHJs in each of the twelve Puget Sound counties. Each LHJ provided detailed information on current expenditures and revenue sources, identified the number of known and assumed OSS in their county, and estimated additional financial needs. The core questions asked of the LHJs were:

- What does it cost to implement your current program?
- What would it cost to both fully implement your management plan and comply with state requirements and targets?

The local septic management programs share common program elements, such as data/records management, notification and reporting systems, education, training and certification, compliance and enforcement, and administration. However, the local septic management programs are all uniquely designed and implemented. State requirements were written to accommodate existing programs and to allow local flexibility in tailoring requirements to local conditions.

The differences in the design, coverage, and implementation success of the local O&M programs is attributable to many factors, including funding levels, preferred business practices, political support, community buy-in, property access and enforcement, water resources (e.g., shellfish growing areas), and the number and distribution of on-site septic systems within MRAs.

Purpose of the Septic Management Program Needs Assessment

This document presents information on the estimated cost and funding needs of the region's septic management programs. This assessment is one of three technical analyses regarding funding for septic management in the Puget Sound region. A separate needs assessment estimates the amount of funding needed to capitalize and sustain a regional loan program to repair and replace septic systems. The third technical document evaluates potential sources and mechanisms to fund the two programs.

Policy direction to conduct this project comes from the Puget Sound Partnership's Action Agenda. Project funding comes from EPA Pathogen Grant Funds administered by the Department of Health for Puget Sound recovery. The overall objective of this work is to strengthen the region's on-site sewage

infrastructure and to establish adequate and sustainable sources of funding for the infrastructure and program implementation.

Among other initiatives of the Action Agenda, the Department of Health is also leading a related adaptive management project to describe and compare elements of the local septic management programs to help identify and learn from some of the region's successes and best practices. Information gathered and analyzed in this needs assessment will help inform this related work.

3. Current Services Approach: Study Methodology

The methodology for this approach was comprised of three primary tasks: 1) a literature review of local management plans and other relevant documents, 2) data collection and interviews with LHJ staff to obtain information on program activities, expenditures, and estimated funding needs, and 3) compiling, verifying, and analyzing results.

Literature Review

Before contacting the LHJs, the consulting team reviewed multiple relevant documents to develop the context. These documents included:

- Washington Administrative Code 246-272A (2005)
- Revised Code of Washington 70.118A (2006)
- Each of the septic management plans for the twelve Puget Sound counties (2007-08 and updates when applicable)
- *On-Site Sewage System Management Plan Guidance*, Department of Health (2006)
- *Marine Recovery Area Guidance: Supplemental to the On-Site Sewage System Management Plan Guidance*, the Department of Health (2006)
- *Puget Sound Action Agenda NTA Regional Project: On-Site Sewage System O&M Program Best Practices,* the Department of Health (2013)
- *Funding the Clallam County On-Site Septic System Management Plan, Clallam County* (2011)

The literature review provided baseline information on LHJs' OSS management requirements, plans, and programs. This research also informed the development of a survey form and interview guide to use to obtain information from LHJ staff.

Data Collection and Interviews

The core research for the current services approach involved surveying staff from the twelve county LHJs in the Puget Sound region to obtain both quantitative and qualitative information. While much of the collected data represent countywide program figures, the consulting team requested additional data specific to the MRAs and other areas of the county which are served by an enhanced level of management. For the purposes of this report, MRAs plus other areas receiving enhanced management will be referred to as *designated areas*. LHJ staff were asked to provide data on the number of known and assumed septic systems countywide, the number of systems in designated areas, current program activities and service offerings, current program revenues and expenditures, and best estimates of additional funding needed to meet state requirements and implement existing plans. Subsequently, staff were interviewed by phone to further discuss current activities, challenges, needs, and issues faced. All twelve Puget Sound counties submitted the requested data and participated in the interviews, conducted in the fall of 2013. A copy of the interview guide can be found in Appendix 3.

Table 4. Interview Participants by County

County	Interviewee(s)
Clallam	Andy Brastad
Island	Jill Wood
Jefferson	Jared Keefer, Linda Atkins
King	Darrel Rodgers, Terri Jenkins-McLean
Kitsap	Keith Grellner
Mason	Debbie Riley, Cindy Waite
Pierce	Gary Porter, Steve Marek, and Brad Harp
San Juan	Mark Tompkins
Skagit	Corinne Story
Snohomish	Kevin Plemel, Randy Darst
Thurston	Art Starry
Whatcom	John Wolpers, Kyle Dodd

Data Collection

With guidance from the Steering Committee, the consulting team developed an Excel spreadsheet that was distributed to each jurisdiction to streamline the collection of quantitative data. This form, found in Appendix 3, was designed to obtain information on all program activities and metrics relevant to the O&M of on-site septic systems, specifically:

- **Revenues—**the amount and source of program funding, including federal and state grants, fees, and other local fund revenues. For each source, counties were asked to specify totals, the funder (e.g. the Department of Health, federal government, or OSS owner), how the money was used, and the term or timeframe for the funding source (e.g. annual/ongoing or beginning and end dates for grants).
- **Current expenditures and staffing—**current FTEs assigned to the program (number of, name and/or position), detail on activities undertaken by each staff member, staffing costs, and annual operating expenses (such as printing, consulting, vehicle mileage costs, etc.).
- **Additional funding needs—**an estimate of funding needed over and above current expenditures to fully implement the septic management plan and meet regulatory standards. Staff were asked to estimate the additional resources needed for the following activities:
  - Countywide (based on the OSS rule and Department of Health guidance)
    - Inventory all systems.
    - Regularly notify system owners of inspection requirements.
    - Educate system owners.
  - Within designated areas (based on MRA statute and Puget Sound performance measure)
    - Maintain current records.

  - Fix all failures.
  - Ensure a 95% compliance rate with inspection requirements by 2020.
- **Anticipated one-time costs**—for the O&M program
- **Current program components, activities, and service offerings**—with detail requested on the extent of the activities listed below, including whether they are being undertaken throughout the county or only in designated areas:
  - Actively seek out unknown septic systems.
  - Actively seek out septic systems in need of repair/replacement.
  - Maintain an electronic database and submit reports.
  - Have in place a process to identify and create new MRAs or other designated areas.
  - Accept owner-performed inspection reports to satisfy inspection requirements.
  - Send reminders to homeowners when an inspection is needed.
  - Have the capacity and systems to ensure that inspections are completed if the reminder is not heeded.
  - Have the capacity and systems to ensure that septic systems are repaired or replaced when needed.
  - Offer educational classes to septic system owners.
  - Offer educational classes to septic system industry professionals.
  - Require that systems are inspected prior to property sales.
- **Septic System Inventory—**countywide and designated area-specific data (when available) on the number of: known septic systems, assumed septic systems, gravity-flow septic systems, mechanical (pump/pressure) septic systems, non-gravity/mechanical septic systems, septic systems within urban growth boundaries, residential septic systems, commercial septic systems, and non-residential/commercial septic systems. None of the counties were able to provide all of these data at a reasonable level of effort; however, all were able provide their best estimate of known and assumed septic systems countywide and within MRAs and designated area(s).
- **Loan Program—**information on the loan program, if any, available to septic system owners, with data requested on: the title of the program, the funder and funding mechanism, whether or not low-interest loans are offered, whether loans are secured by a lien on the property, whether loans are available countywide or just within MRAs, maximum/minimum loan amounts, payback terms, restrictions on the use of loan funds, and loan eligibility criteria. This information was mainly used to inform the property owner loan program needs assessment.

Interviews

The interviews provided the basis for clarifying the data provided on the Excel spreadsheet as well as discussing more broadly the issues, needs, concerns, and approaches of the LHJs to carry out their program responsibilities. Special care was taken to ensure that final project revenue, expenditure, and funding-need data were specifically used for O&M program duties, as opposed to standard permitting functions, property owner loan program funds and staffing, and Pollution Identification and Correction (PIC) program tasks. LHJ staff provided significant guidance in this process, clarifying which revenues and costs pertain to O&M program duties.

Compilation, Verification, and Analysis

The consulting team devoted considerable resources to compiling and verifying the data provided by the LHJs. This proved to be an iterative process: the consulting team compiled the data and then followed up with each LHJ to ensure the accuracy of their information and to make revisions as needed. In some cases this process occurred multiple times. Preliminary results were then reviewed by the Steering Committee. Their comments and corrections were incorporated into the results and findings presented below.

Study Limitations

The process of conducting this needs assessment, including compiling and verifying the information provided by LHJs, identified some limitations associated with the methodology. All data are self-reported and, in many instances, the data requested were not readily available and so needed to be estimated by the LHJs.

LHJ staff provided their initial best estimates of the additional resources needed to implement their plans and meet state requirements. These should be considered qualitative estimates with a wide range of uncertainty, since the LHJs were not asked to submit detailed budget analyses. LHJs also provided best estimates of the number of assumed OSS in their county. In addition, it became clear from the interviews that the LHJs have different perspectives of what it means to fully implement their plans and comply with state law. The different interpretations of what standards apply to these programs make it difficult to compare needs and funding requests across counties, and suggest the need for better definition of program requirements and standards. The local septic management programs also differ significantly in their overall design and scope, services offered, and geographic coverage.

With these caveats, the results and findings presented below provide: 1) the LHJ's best estimates of the number of septic systems in the Puget Sound Region, 2) total revenues and expenditures for septic management programs in the region and by county, 3) a calculation of per-OSS expenditures for the region as a whole, and 4) a compilation of the LHJs' initial estimates of additional funding needed to better implement their programs. These data can be used to determine the total regional funding needs for septic management program implementation.

4. Current Services Approach: Findings and Discussion

Regional Septic System Inventory

The current services approach identified approximately 340,000 septic systems in the Puget Sound region that have been inventoried by county authorities, presented in Table 5 as known septic systems. LHJs estimate that over 272,000 additional septic systems, or 44% of the total, are probably in use throughout the region but have not yet been formally located and recorded in county electronic databases.

The number of septic systems currently located in designated areas varies dramatically by county from a low of zero in Snohomish County to a high of about 16,400 in Mason County. Across all twelve counties, approximately 612,000 septic systems are known or assumed to exist, with about 68,000 of these—11% of the total—reported to be in designated areas. Table 5 summarizes these data.

Table 5. Septic Systems by County, 2013

County	Known Septic Systems	Assumed Septic Systems (% of Total)	Total Septic Systems	Known and Assumed Systems within Designated Areas (% of Total)
Clallam	18,002	2,005 (10%)	20,007	11,956 (60%)
Island	28,414	5,703 (17%)	34,117	787 (2%)
Jefferson	10,647[a]	2,853 (21%)	13,500	3,188 (24%)
King	47,913	109,587 (70%)	157,500[b]	258 (0.16%)
Kitsap	23,507[c]	30,493 (56%)	54,000	6,674 (12%)
Mason	25,735	0 (0%)	25,735	16,371 (64%)
Pierce	58,888	51,140 (46%)	110,028	7,704 (7%)
San Juan	8,269	331 (4%)	8,600	208 (2%)
Skagit		13,500[d] (100%)	13,500	6,487 (48%)
Snohomish	54,000	24,000 (31%)	78,000	0 (0%)
Thurston	39,083	30,917 (44%)	70,000	10,800 (15%)
Whatcom	25,775	1,789 (6%)	27,564	3,817 (14%)
TOTAL	**340,233**	**272,318 (44%)**	**612,551**	**68,250 (11%)**

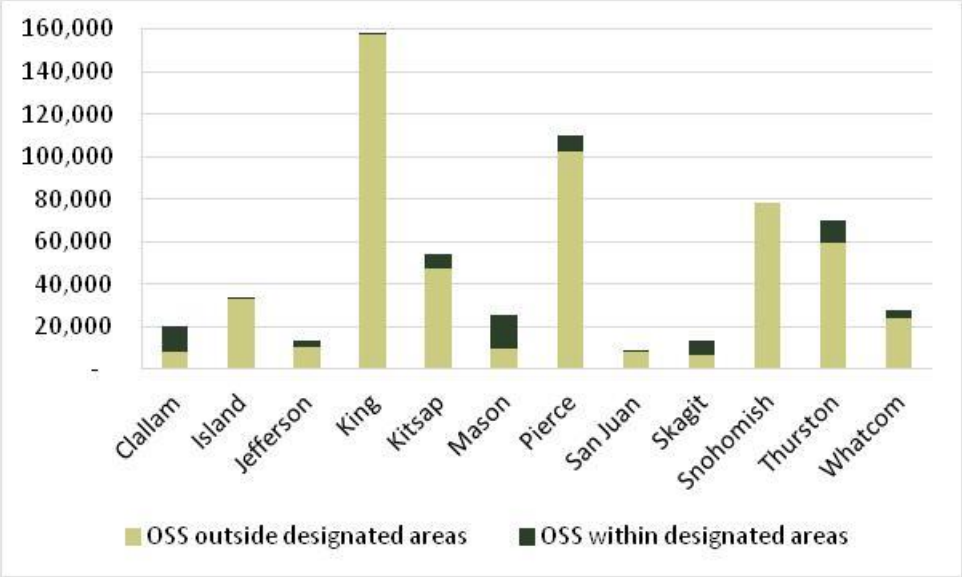
a. Jefferson County quoted a range of 10,647-12,196; the low estimate is reported for known OSS.
b. King County quoted a range of 115,000-200,000; the midpoint is reported.
c. Kitsap said that this figure represents OSS systems that have been proofed, verified, and updated electronically in the database from hardcopy files.
d. Skagit County quoted a range of 13,000-14,000; the midpoint is reported. At the time of the interview, Skagit County was switching databases and could not produce a reliable count for known septic systems.

Interviews with LHJ staff suggest that two primary factors account for the large variance in the number and size of MRAs that have been designated and the number of septic systems located in those areas:

- **The geography, infrastructure, and population distribution of each county**. In some counties, like Jefferson and Clallam, rural populations and dwelling units with their associated septic systems are concentrated along shorelines, leading to a high percentage of systems in designated areas, particularly where shellfish are harvested. In other counties, like King and Snohomish, a large percentage of the rural population with septic systems resides in upland areas away from shorelines.
- **How each county government interprets the laws and guidelines regarding which shorelines and communities should be included in an MRA or other designated area.** While all counties rely on state law (chapter 246-272A WAC and chapter 70.118A RCW) as the basis for making their designations, each county has developed their own approach to fulfilling this responsibility. For example:
  - Thurston County's approach is to prioritize areas and designate and implement MRAs as resources allow. Once the programs are fully implemented in those areas and the needs have been addressed, the county LHJ plans to designate additional MRAs and address the needs therein. Thurston's approach, therefore, is to set priorities and designate MRAs accordingly based on public health need and resources available, rather than solely on physical conditions.
  - In Kitsap County, the objective has been to declassify MRAs. Kitsap program managers seek to avoid and reduce MRA designations, as they view these as an indication of substandard conditions.
  - In Snohomish County, the strategy has been to treat all septic system owners equally, both due to public frustration regarding geography-based differences in service and because the portion of the county adjacent to Puget Sound is primarily urban or tribal land. Therefore, no part of the county been designated as an MRA.

Figure 3 presents septic systems within designated areas as compared to those outside of designated areas for each county. These proportions, when considered alongside expenditure and revenue data to be presented shortly, offer insight into the differences among counties and the challenges in financing the local septic management programs.

Figure 3. Total (Known and Assumed) OSS by Location, 2013



Current Septic Program Activities

LHJ staff were asked to describe the activities they are currently undertaking to implement their management plans and address OSS needs in their counties. A brief summary of each jurisdiction's efforts is provided in Appendix 1. Key activities include:

- **Developing and maintaining an electronic database of septic systems.** All twelve Puget Sound LHJs report that they maintain an electronic database of septic systems. Databases vary in how complete they are (e.g., what percent of the total known and assumed systems is included) and in their functionality. Examples of varied functionality include the number of data fields each county maintains, the ability to perform specialized queries and produce customized reports, and GIS capabilities that allow for spatial queries. The databases are not integrated regionally.
- **Creating a comprehensive inventory of all septic systems; identifying and recording all "unknown" septic systems.** Most LHJs (nine of the twelve) report that they actively seek to identify and record all previously unknown septic systems located throughout their county. The others report that they are focused primarily on locating unknown septic systems within designated areas.
- **Notification and reporting**. A couple LHJs send reminders to *all* septic system owners countywide when an inspection is needed. However, the majority send reminders only to selected system owners, based on geographic boundaries or system type. The type of notification differs by county, with some delivering postcards to all households while others mail letters. Two counties reported having insufficient funds to send either letters or postcards. However, one of those two includes the reminder in a program newsletter, sent annually to all septic system owners and quarterly to those within designated areas. All counties prepare reports for the Department of Health on a regular basis, including inspection compliance data.
- **Monitoring compliance with inspection requirements**. Six of the twelve counties report that they have strategies to encourage compliance with inspection requirements for all systems countywide. Of the remaining six counties, three have strategies to ensure inspection for certain systems,

determined by geographic boundaries or system type, while three reported significant limitations to monitoring inspection compliance.

- **Ensuring repair/replacement when needed**. All but one of the counties report that it is feasible to ensure that septic systems are repaired or replaced when needed. Importantly, the definition of a septic system needing repair varies by county, making it difficult to compare this activity across counties. The most common definition offered by LHJs is when sewage is noticeably ponding or seeping from the septic system.
- **Educating septic system owners**. Two thirds of the LHJs report offering educational classes for septic system owners countywide. One county offered classes only within designated areas. The other LHJs reported that they lacked adequate funding to offer any type of classes for homeowners. Septic system classes include certification classes to enable septic system owners to perform their own inspections, as well as general informational classes for owners, often referred to as *Septics 101*. Other common educational offerings for septic system owners include written materials and online information.
- **Managing education of septic system industry professionals**. Seven of the twelve county LHJs report facilitating educational services for industry professionals in their county, covering a range of topics relevant to the septic system industry.

Many of these activities throughout the Puget Sound region are funded through temporary grant funds, and it is not clear which of these activities would continue if grant funds were to be curtailed in the future.

Current Expenditures

Table 6 presents the current annual expenditures on septic system management as reported by LHJs in the fall of 2013. Totals for each county are provided as well as the expenditures per known septic systems and per total septic systems (known plus assumed). Expenditures per known septic systems are important, because current program services are primarily focused on these systems. Meanwhile, the estimate of expenditures per total septic systems offers insights into the counties' additional funding needs.

As Table 6 reveals, counties report spending an average of over $19 per known septic system, with a low of $5.11 to a high of $32.96 per known OSS. Total current annual expenditures across the region are just over $6.5 million. At the high end of the range, Pierce County reports spending $1.94 million, or $32.96 per known septic system. At the other end of the scale, Clallam County spends $144,000, or $8.00 per known septic system. Across all septic systems—known and assumed—an average of $10.61 is currently spent. It is important to note that a significant portion of current expenditures come from grants which are not sustainable or predictable.

Table 6. Current Annual Expenditures by County, 2013

County	Current Annual Expenditures	Known Septic Systems	Current Annual Expenditures/Known Septic Systems only	Total Septic Systems	Current Annual Expenditures/Total Septic Systems
Clallam	$144,000	18,002	$8.00	20,007	$7.20
Island	$431,336	28,414	$15.18	34,117	$12.64
Jefferson	$249,377	10,647	$23.42	13,500	$18.47
King	$438,485	47,913	$9.15	157,500	$2.78
Kitsap	$369,190	23,507	$15.71	54,000	$6.84
Mason	$257,025	25,735	$9.99	25,735	$9.99
Pierce	$1,940,709	58,888	$32.96	110,028	$17.64
San Juan	$203,375	8,269	$24.59	8,600	$23.65
Skagit	$420,800			13,500	$31.17
Snohomish	$276,200	54,000	$5.11	78,000	$3.54
Thurston	$1,256,435	39,083	$32.15	70,000	$17.95
Whatcom	$513,250	25,775	$19.91	27,564	$18.62
TOTAL	**$6,500,181**	**340,233**	**(average) $19.11**	**612,551**	**(average) $10.61**

Discussions with LHJ staff revealed a variety of possible program constraints and other explanations for the wide variation in expenditures by county:

- **Lack of sustainable funding**. Every LHJ noted that a successful program requires predictable, certain funding over time. When program managers are uncertain if they will have adequate funds from one year to the next, they refrain from hiring staff and carrying out programs or developing future plans. They report that the future is just too unpredictable to build viable programs. Several counties have secured dependable, ongoing revenue streams through utility-based funding or an annual O&M septic management fee assessed as a component of property taxes. Other counties rely on less predictable revenue streams, such as state or federal grants and service-based fees, which fluctuate from month to month, and year to year.
- **Lack of county-level political support**. Some LHJs report experiencing resistance from the public, prosecuting attorneys, county commissioners, or other elected officials to enforcing compliance with inspection requirements or the repair or replacement of failing systems when needed. Also, in some counties there is a lack of political support to develop local, sustainable funding sources or to develop and implement comprehensive septic management programs.
- **Varying program design and service levels**. The design of programs and services varies widely from county to county. Key differences include:
  - The level of homeowner notification: frequency of inspection reminders, targeting of inspection reminders vs. blanket reminders
  - Educational offerings: availability of classes, online and hard-copy educational materials, target audience by geography vs. septic system type vs. industry professionals-only

- Monitoring and compliance procedures: level of follow-up when inspection requirement reminders are not heeded; varies by geographic boundary and/or septic system type
- Repair enforcement: promptness and level of enforcement for septic systems in need of repair
- The level of effort to identify and record unknown systems: proactive identification vs. updating records only when a septic system owner applies for a permit; varies by geographic boundary

Other notable but less frequently reported factors affecting the level of expenditures include staffing limitations, lack of satellite office space, and septic system management as a low priority when competing with other county programs.

Additional Funding Needs

Table 7 summarizes the additional funding LHJs report they need to meet WAC 246-272-0015 and chapter 70.118A RCW requirements and to fully implement their local septic system management plans. The table presents annual funding needs and anticipated one-time investments. An estimated additional $7.75 million is required annually, with $523,000 needed for the one-time investments. Across all septic systems known or assumed to exist in the region, the additional annual need per septic system amounts to $12.66.

Table 7. Additional Need by County, Reported 2013

County	Additional Annual Need	One-time Anticipated Investments	Total Septic Systems	Additional Annual Need/Total Septic Systems
Clallam	$576,000	$0	20,007	$28.79
Island	$862,671	$0	34,117	$25.29
Jefferson	$174,565	$400,000	13,500	$12.93
King	$1,542,700	$60,000	157,500	$9.79
Kitsap	$632,500	$0	54,000	$11.71
Mason	$146,930	$0	25,735	$5.71
Pierce	$374,435	$0	110,028	$3.40
San Juan	$134,500	$0	8,600	$15.64
Skagit	$428,300	$0	13,500	$31.73
Snohomish	$1,402,000	$0	78,000	$17.97
Thurston	$1,479,524	$63,193	70,000	$21.14
Whatcom	$0	$0	27,564	$0.00
TOTAL	**$7,754,124**	**$523,193**	**612,551**	**(average) $12.66**

The key needs that require additional funding are listed below, in order of the frequency with which they were mentioned by LHJs:

- **Homeowner notification**. Seven of the twelve county LHJs identified improved homeowner notification as a key need in order to meet state requirements and fully implement county management plans. These improvements included more frequent notification (such as notifications targeted at owners of OSS overdue for an inspection versus an annual notification of requirements sent to all owners), a change in the type of notification (such as personal letters versus generic postcards or newsletters), or expansion of the geographic boundary or types of systems to which notifications are sent.
- **Inspection compliance monitoring**. Half of the LHJs reported that they would like to improve their ability to monitor and follow-up on inspection compliance. This ability is a function of available staff resources and the functionality of the databases in each county.
- **Septic system owner education.** Six of the twelve LHJs reported that they would like to improve the educational components of their septic management program. Educational offerings include classes, online resources, and hard-copy educational materials.
- **Enforcement and follow-up on septic system repairs.** Nearly half of the LHJs expressed interest in improving the enforcement procedures for septic system repairs. For some, this improvement is focused on enforcing repairs to systems where sewage surfaces. Those counties that are already confident of their program's ability to address failing systems in a timely manner are seeking to improve their ability to follow-up on minor repairs that may help prevent more severe problems in subsequent years.

Other funding needs identified by the LHJs include database upgrades, geographic expansion of designated areas, providing designated area level services to other parts of the county, improved ability to respond to complaints, additional water quality monitoring, and sewer conversion assistance. Some LHJs reported that funding was needed across the board to improve program performance, including additional staff resources.

Total Funding Needs

Table 8 presents the total annual funding needed to fully implement each county's septic management program and meet state requirements, as reported by the LHJs. This table sums the current annual expenditures presented in Table 6 and the additional annual funding needs from Table 7. One-time investments are excluded.

Table 8. Total Annual Need by County, Reported 2013

County	Current Annual Expenditures	Additional Annual Need	Total Annual Need (Current Exp. and Add. Need)	Total Septic Systems	Total Annual Need/Total Septic Systems
Clallam	$144,000	$576,000	$720,000	20,007	$35.99
Island	$431,336	$862,671	$1,294,007	34,117	$37.93
Jefferson	$249,377	$174,565	$423,942	13,500	$31.40
King	$438,485	$1,542,700	$1,981,185	157,500	$12.58
Kitsap	$369,190	$632,500	$1,001,690	54,000	$18.55
Mason	$257,025	$146,930	$403,955	25,735	$15.70
Pierce	$1,940,709	$374,435	$2,315,144	110,028	$21.04
San Juan	$203,375	$134,500	$337,875	8,600	$39.29
Skagit	$420,800	$428,300	$849,100	13,500	$62.90
Snohomish	$276,200	$1,402,000	$1,678,200	78,000	$21.52
Thurston	$1,256,435	$1,479,524	$2,735,958	70,000	$39.09
Whatcom	$513,250	$0	$513,250	27,564	$18.62
TOTAL	**$6,500,181 46% of total**	**$7,754,124 54% of total**	**$14,254,305 total need**	**612,551 total OSS**	**(average) $23.27**

The table shows that, as reported by the LHJs, a total of $14.2 million is needed for the region as a whole, or approximately $23 per septic system. Current expenditures of $6.5 million represent slightly less than one half (46%) of total estimated need, suggesting that, from the perspective of LHJs, significantly more capital is needed to implement their plans and comply with state requirements and targets.

Figures 4 through 6 provide additional graphic representation of the current expenditure levels and additional funding needs of the different counties. Figure 4 reveals that, in absolute dollar terms, Thurston, Pierce, and King have the highest total annual need, with King, Thurston, and Snohomish requiring the most additional funding to achieve their program goals. San Juan, Mason, and Jefferson currently spend the least and have the lowest total annual needs, with totals well under $500,000 annually. Average current annual expenditures by county are approximately $540,000 while average additional annual need is $646,000 for a total of $1.19 million in aggregate total annual need per county.

Figure 4. O&M Program Current Annual Expenditures and Additional Annual Need by County, 2013

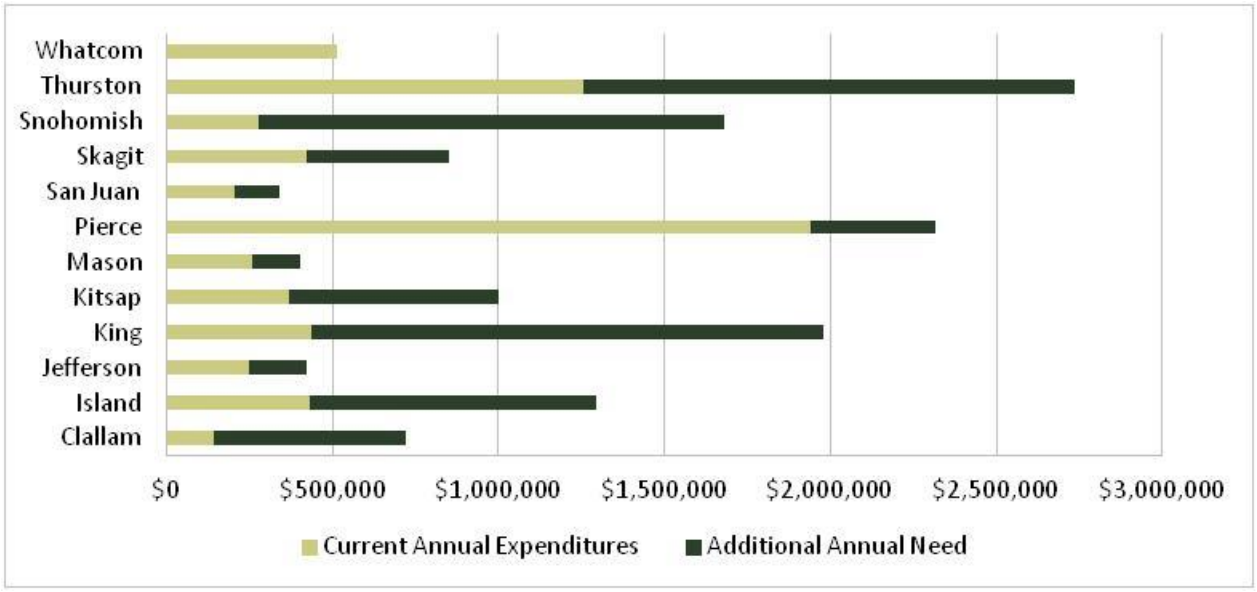
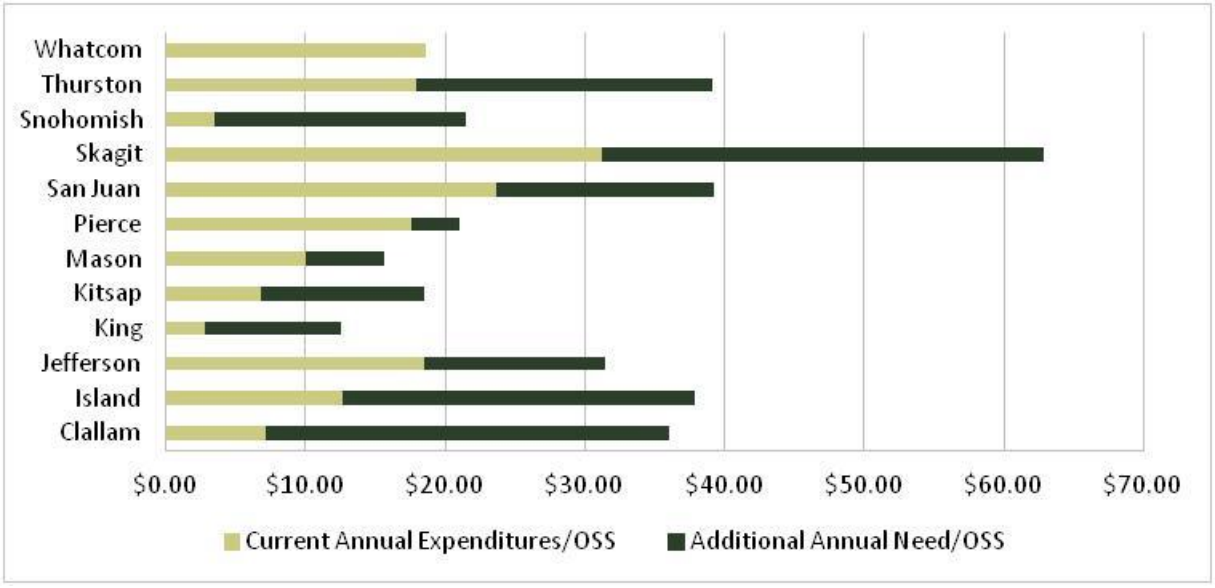


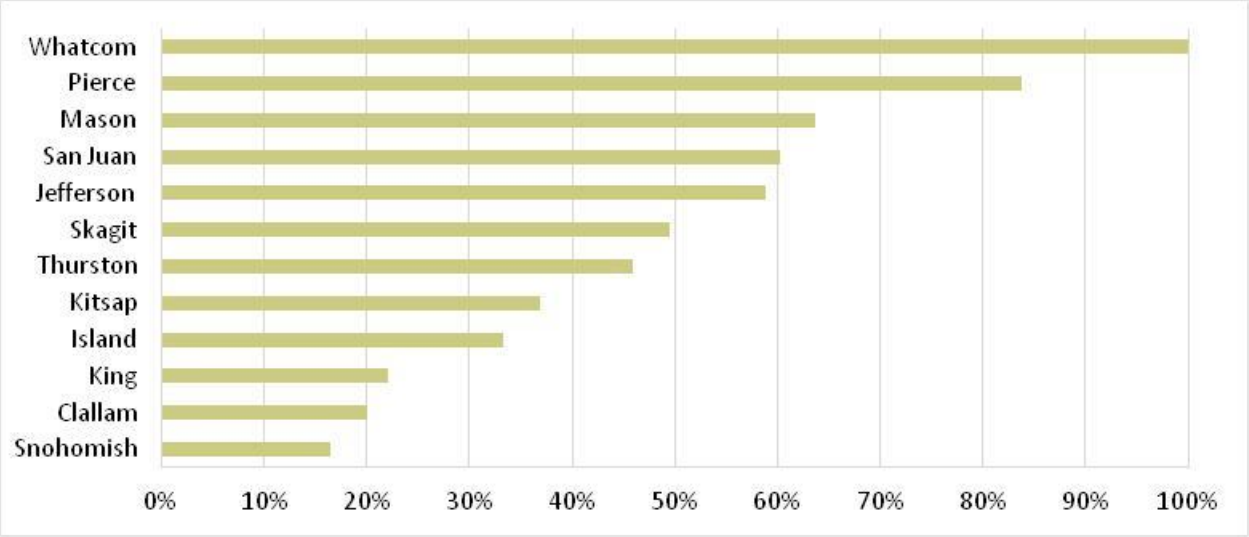
Figure 5 normalizes these results across counties by the total number of septic systems estimated to exist. The average total annual need per septic system across all counties and systems is just over $23 per system. At over $60 per OSS, Skagit County is the highest, followed by Thurston, San Juan, and Island counties. In terms of additional annual need per septic system, again Skagit reported the greatest need, followed by Clallam, Island and Thurston counties.

Figure 5. O&M Program Current Annual Expenditures and Additional Annual Need per OSS, 2013



Finally, Figure 6 depicts the percent of current annual expenditures relative to total annual need reported by LHJ staff. The graph shows clearly that Whatcom, Pierce, Mason, and San Juan are meeting between 60-100% of their needs with available funds, while King, Clallam, and Snohomish have the greatest gap in percentage terms between current expenditures and total need.

Figure 6. Percent of Total Annual Need Currently Being Met with Existing Expenditures, 2013



Current Sources of Revenue

Puget Sound septic management programs are funded by a variety of sources. The five primary sources are:

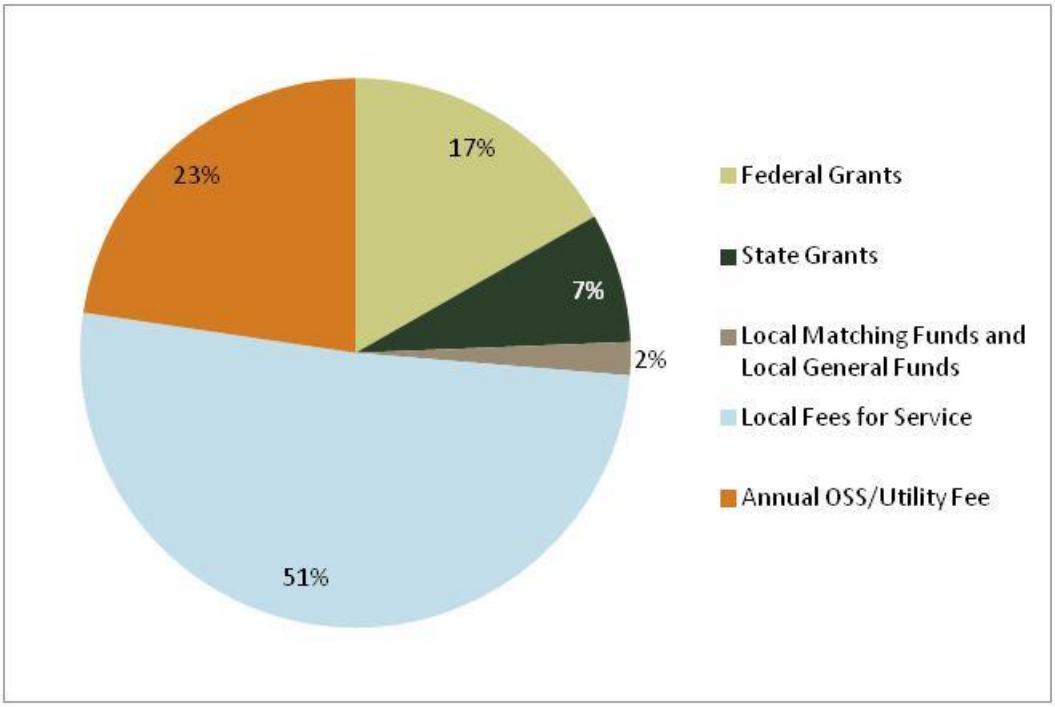
- **Federal Grants**: The Environmental Protection Agency provides funding for OSS programs, primarily through the National Estuary Program.
- **State Grants**: Washington State funding sources include the Centennial Clean Water Grant Program, the General Fund, and state pass-through grants administered by the Department of Health, such as ALEA (Aquatic Lands Enhancement Account) funds.
- **Local Matching Funds and Local General Funds**: This category includes revenue from county General Funds and local matches of state and federal grants.
- **Local Fees for Service**: This category includes any charges to septic system owners or professionals for O&M program services. Examples include repair and installation permits, and fees for reporting, program inspections, design review, certification, and applications.
- **Annual OSS/Utility Fees**: This category includes any fees which are assessed on an annual basis from county residents, such as through utility district fees or collection of an OSS fee via property tax statements.

Figure 7 presents septic program annual revenues by source for the region as a whole, as reported by LHJs in 2013. This chart shows that approximately 75% of current funding comes from local fees with the remainder in the form of grants coming from state and federal programs and the state General Fund.

This figure supports the concern reported by LHJs regarding uncertain funding. With 26% of funding from grant sources—subject to sequesters at the federal level and tight state spending caps—and another 51% coming from fees for service, which are highly variable, the stability and predictability of septic management program funding can be considered low. Considering that current funding only

covers 46% of total annual need (see Table 6), septic management programs face a large gap between program needs and available revenues.

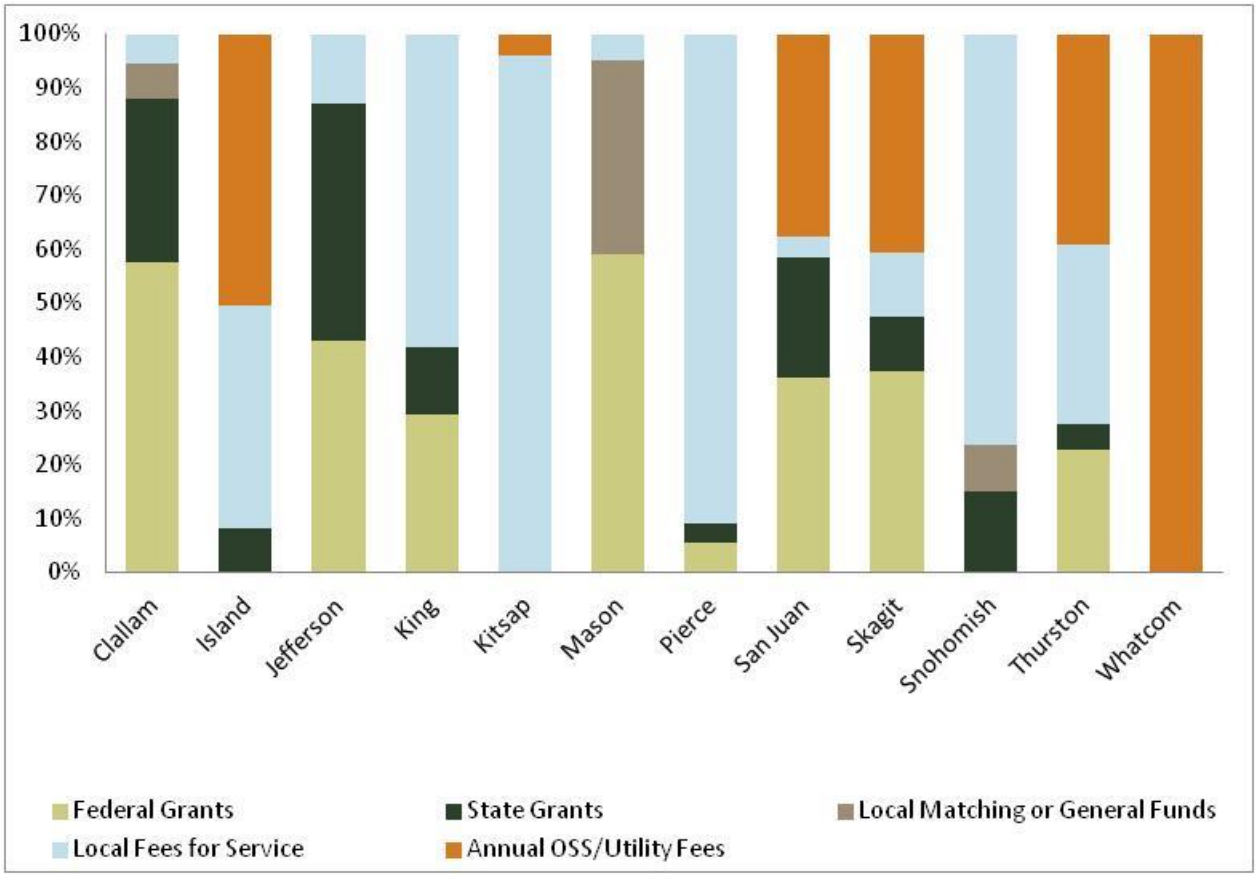
Figure 7. Puget Sound Regional Annual O&M Program Revenue by Source, 2013



While Figure 7 provides insight into regional totals, revenue streams vary greatly from one county to the next, as depicted in Figure 8. This chart reveals that for one-third of the counties at least half of program funding comes from grants (Clallam, Jefferson, Mason, and San Juan). For further details on each county's revenue streams, see Appendix 1.

It is important to note the distinction between *temporary* funds (grants) versus *ongoing* funds (fees for service and/or annual fees). Temporary funds, representing 26% of total annual revenue for local OSS management programs, cannot be counted on from year to year, while ongoing fees provide a more reliable source of funding. That being said, while the LHJs reported these data in the fall of 2013, some LHJs reported that some local fees in place at the time of the interviews may be in the process of being phased out as a revenue source for the septic management program.

Figure 8. Current O&M Program Revenue by Source and County, 2013



The project team conducted numerous analyses to determine if there were any correlations among the key variables associated with program revenues and expenditures (e.g. the LHJ-reported annual revenue by source, current annual expenditures, additional annual need, and geographically defined septic system estimates). Though none of the analyses revealed a strong correlation between one figure and another, the process proved worthwhile in demonstrating the deep complexity of the issue at hand. It supports the initial conclusion that there is no one primary variable that drives the budget of all of the region's programs, but rather that the programs and spending levels in each county LHJ have been developed in response to local conditions, needs, and interests.

5. Foundational Services Approach: Study Methodology

Structure

The structure for this approach was an iterative process, composed of project team estimates reviewed by a panel of OSS professionals that included members of the Advisory Committee, the Steering Committee, and the Department of Health. The project team facilitated a panel discussion to:

- Identify and describe "foundational" services for septic system management
- Provide general cost information for foundational services in a representative LHJ

The term "foundational services" was adopted during this panel discussion. This term indicates those core services that an adequate LHJ program would provide. Foundational services would be implemented throughout the region, but there would be still be some flexibility and variability in the manner each county implements these services.

Unlike the current services approach, this process considered a hypothetical, representative county that is assumed to have:

- Typical geography
- Sufficient funding
- Full implementation of foundational services using middle cost values
- The average number of known and unknown OSS
- Typical costs for materials and FTEs

The foundational services cover many of the requirements outlined in state code and include additional components that provide adequate protection of water quality and public health.[2] These foundational services include:

- Document OSS
- Educate Homeowners
- Manage Inspection and Repair Requirements
- Survey OSS and Monitor Water Quality to Identify Problem Systems
- Update Management Plans

This approach did not include LHJ activities or services beyond these foundational services. For example, while some LHJs currently provide homeowner incentives to encourage septic system management and maintenance, these incentives were considered optional additions to the foundational services and therefore not included in this assessment. While some jurisdictions may provide services beyond the foundational level, this approach assumed the estimated cost of implementing the foundational level. For each foundational service, summaries and cost estimates are provided separately for the activities

[2] Per WAC 246-272A-0015 (9a), "Local boards of health may adopt and enforce local rules and regulations governing on-site sewage systems when local regulations are: (a) Consistent with, and at least as stringent as, this chapter."

that meet regulatory requirements and the additional components that provide adequate protection of water quality and public health.

The project team recognized that variation in the real-world implementation of the foundational services is necessary and even desirable given the inherent differences in existing infrastructure and LHJ geography, such as dramatically different numbers of septic systems in Marine Recovery Areas (MRAs). In reality, many of the details around these foundational services will be worked out locally and in accordance with local management plans. The Department of Health can provide technical assistance and regulatory oversight to help facilitate regional continuity and local accountability.

Variation in service levels for each activity is reflected in the narratives for each foundational service and the cost ranges provided. However, these variations are not due to jurisdictional difference, but rather differences between activities that meet the foundational services standard. For example, the representative LHJ may use a variety of methods to survey areas to identify failing septic systems, such as dye testing, sanitary surveys, or PIC programs. Any or all of these activities could constitute a foundational service, but are associated with very different levels of effort and cost. Given the possible variation within each foundational service, a middle value is presented. This middle value represents the project team's best estimate of reasonable expense for a representative LHJ.

Overriding assumptions across the foundational services include:

- The average full-time employee (FTE) cost of LHJ employees across position types and levels is $100,000, or approximately $67 per hour.
- The typical FTE cost of a professional attorney is $200,000.
- FTE costs are:
  - The average salary, benefits, and indirect costs for employees across jurisdictions
  - Used to convert employee time into costs for the representative LHJ
- The number of OSS in the representative LHJ is 51,000. This number is:
  - The average number of OSS (total OSS in the Puget Sound region divided by twelve counties)
  - Used to convert any costs at the representative-LHJ level to an average per-OSS cost
- Activities are assumed to occur throughout the representative LHJ as resources allow.

The descriptions, assumptions, and cost estimates of the foundational services are covered in Section 6, Foundational Services Approach: Findings and Discussion.

Integration of Current Requirements

State law places responsibility for the proper use and care of septic systems on system owners, which include operation and maintenance (O&M) requirements and inspection requirements. Complementing the owner's responsibilities, state law also requires local health jurisdictions (LHJs) to develop and implement septic management plans to help ensure the work gets done, with heightened requirements

in the Puget Sound region and in Marine Recovery Areas. There are nine program requirements for the twelve Puget Sound counties:

1. Progressively inventory all systems.
2. Identify high-risk areas and designate MRAs.
3. Develop and tailor O&M requirements to these areas.
4. Facilitate education of owners on their O&M responsibilities for all types of systems.
5. Remind and encourage system owners to inspect their systems.
6. Maintain records of O&M activities.
7. Find failing systems and enforce system owner requirements.
8. Assure coordination with local comprehensive plans.
9. Assess the capacity of the LHJ to adequately fund the program.

The foundational services approach (like the current services approach) responds to the ninth requirement. The LHJ and its partners accomplish the other eight requirements through ongoing efforts. Table 9 illustrates the relationship between the existing regulatory requirements and the foundational services.

Table 9. Ongoing Regulatory Requirements and their Corresponding Foundational Services

Regulatory Requirement	Foundational Service
1. Progressively inventory all systems	Document OSS
2. Identify high-risk areas and designate MRAs	Update Management Plans; Water Quality Monitoring
3. Develop and tailor O&M requirements to these areas	Update Management Plans
4. Facilitate education of owners on their O&M responsibilities for all types of systems	Educate Homeowners
5. Remind and encourage system owners to inspect their systems	Educate Homeowners; Manage Inspection and Repair Requirements
6. Maintain records of O&M activities	Manage Inspection and Repair Requirements
7. Find failures and enforce system owner requirements	Manage Inspection and Repair Requirements; Water Quality Monitoring
8. Assure coordination with local comprehensive plans	Update Management Plans

6. Foundational Services Approach: Findings and Discussion

This section describes the foundational services, considers cost drivers, and provides cost estimate ranges for each service and the suite of foundational services.

Document OSS

The initial documentation of septic systems is a core service that allows LHJs to implement the other foundational services, including septic system owner education and management of inspection requirements. State code currently requires LHJs to "progressively develop and maintain an inventory of all known septic systems in operation within the jurisdiction."[3] This foundational service assumes LHJs will document all septic systems over a five year period.

In order to initially document septic systems, LHJs must develop and enhance databases, maintain database staff, pay fees for proprietary software if necessary, and identify unknown OSS—including recording their type and status. Across the twelve counties, approximately one third of the systems are currently undocumented.[4] The process and cost of identifying these unknown OSS can vary. For many systems, documenting OSS requires minimal effort as systems become known to LHJs through the process of submitting reports, such as time-of-sale inspections and pumpers' reports. Relying solely on property sales and transfers means some OSS will not be inventoried for several years, if ever. Other OSS are identified through Geographic Information Systems exercises that require moderate effort per system. However, the identification of some OSS requires significant effort, including a site visit. A large portion of this service's costs are related to the one-time expense of identifying unknown OSS and assuring this work is done within five years. Once all OSS are documented, the freed-up funds could be used to enhance other foundational services.

[3] WAC 246-272A-0015 (1)(a).

[4] For the purposes of this assessment, all known OSS are assumed to be documented within the LHJ's database.

Table 10. Document OSS

	Regulatory Requirements (Baseline Cost)	Additional Features (Incremental Costs)
Summary	Regulatory Requirement(s): 1—Progressively document OSS	N/A
Cost Estimate Ranges	$0.20-$16.10/OSS/year	N/A
Assumptions for Cost Estimate Range that differ from Middle Value	Low end: Database is already developed; assumes no undocumented OSS. High end: Database development will cost $400,000; assumes 23,000 undocumented OSS.	
Middle Cost Value	$7.30/OSS/year	N/A
Assumptions for Middle Value	Documentation will occur over 5 years. Database development will cost $200,000. 10,000 unknown OSS. 65% of unknown OSS will require minimal effort to document and take 0.5 hours per record. 25% of unknown OSS will require moderate effort to document and take 3 hours per record. 10% of unknown OSS will require significant effort to document and take 10 hours per record.	
Total Cost (Middle Values)	**$7.30/OSS/year**	

Educate Homeowners

Education helps homeowners comply with state requirements and proactively maintain their OSS. Educational efforts can take many forms, including personal notification of inspection requirements, regularly updated information on websites, classes on OSS monitoring and maintenance requirements, and workshops to train system owners how to conduct self-inspections. Regional variation of educational efforts is especially important given differences in local communication practices and local needs. LHJs also collaborate on some regional activities and materials and try to share successful methods and approaches.

Educational efforts can be scaled based on available resources, but the quality of education generally increases with more funding. For example, an in-person training will cost more—but will be more effective—than an online class. The table below presents estimates for a basic investment in education, where estimates are expected cover FTE costs and operational expenses, such as printing and mailing inspection-related materials.

Table 11. Educate Homeowners

	Regulatory Requirements (Baseline Cost)	Additional Features (Incremental Costs)
Summary	Regulatory Requirement(s): 4—Educate owners on their responsibilities 5—Encourage inspections and enforce repairs	N/A
Cost Estimate Range	$1.00-$9.80/OSS/year	N/A
Assumptions for Cost Estimate Range	Low end: $50,000/year/LHJ. High end: $500,000/year/LHJ.	N/A
Middle Cost Value	$2.90/OSS/year	N/A
Assumptions for Middle Value	$150,000/year/LHJ.	
Total Cost (Middle Values)	**$2.90/OSS/year**	

Manage Inspection and Repair Requirements

Managing inspection and repair requirements allows LHJs to prioritize resources across their jurisdiction while ensuring that identified threats to water quality are remedied. The LHJ's role of managing inspection and repair requirements is guided by numerous provisions, including WAC 246-272A-0015 (1) (c), which directs LHJs to "identify operation, maintenance, and monitoring requirements commensurate with risks posed by OSS within the geographic areas identified in (b) of this subsection [priority areas]." Examples of related activities include updating records for known OSS (except for documenting unknown OSS through inspection records, as that is already included in the "Document OSS" service), reviewing professional O&M providers' reports for inconsistencies or deficiencies, working with professionals if problems are identified, and occasionally conducting quality assurance inspections. Time-of-sale inspections are an especially helpful management tool as are the following incremental activities:

- Requiring inspections when building permits indicate potential impacts on OSS
- Providing technical assistance to homeowners
- Certifying OSS professionals

These management elements require staff labor. This analysis also includes labor costs for legal counsel for advice and work on enforcement actions. Efforts to strengthen the management programs may result in more enforcement work and added program costs or decrease over time as management programs are better established.

Table 12. Manage Inspection and Repair Requirements

	Regulatory Requirements (Baseline Cost)	Additional Features (Incremental Costs)
Summary	Regulatory Requirement(s): 6—Maintain records 7—Enforce requirements	Require inspection when changes or expansions may affect OSS. Provide technical assistance. Certify OSS professionals.
Cost Estimate Range	$1.40-$29.80/OSS/year	$1.00-$4.70/OSS/year
Assumptions for Cost Estimate Range that differ from Middle Value	Low End: Time of sale costs are recovered through fees; 0.5 FTE for OSS failure inspections; 0.1 FTE for technical assistance; 0.25 FTE for certifying OSS professionals; 0.1 FTE for building permit inspections; 0.1 FTE of an attorney. High End: Time of sale costs are $240/inspection; 2 FTE for OSS failure inspections; 1 FTE for technical assistance; 1 FTE for certifying OSS professionals; 0.4 FTE for building permit inspections; 0.5 FTE of an attorney.	
Middle Cost Value	$14.90/OSS/year	$2.50/OSS/year
Assumptions for Middle Value	10 percent of homes with OSS are sold each year, triggering time of sale inspections. Time of sale inspections cost $120/inspection. 1 FTE to manage inspections requirements where OSS failure is expected based on reports. Technical assistance includes phone assistance to help with permit application process, which requires 0.5 FTE. The certification of OSS professionals will require 0.5 FTE. An additional 0.25 FTE will be needed due to the increase in inspection requirements related to building permits indicating potential OSS impact. Enforcement will require 0.25 FTE of an attorney.	
Total Cost (Middle Values)	**$17.40/OSS/year**	

Survey OSS and Monitor Water Quality to Identify Problem Systems

Actively surveying areas where septic systems are present enables LHJs to identify systems that may be contributing to water quality problems. While the activities in the service described above (Management of Inspection and Repair Requirements) are sufficient to meet state code, OSS surveys and water monitoring efforts may greatly improve the protection of water quality and public health by targeting areas that are either high risk or have known water quality problems. Therefore, OSS survey strategies are included as a foundational service.

The representative LHJ is assumed to develop an approach—or use a combination of tools—to monitor water quality and identify problem OSS, choosing from:

- Shoreline surveys and other water quality monitoring methods, where chemical, physical, and biological data are processed to determine water quality at specific geographic locations.
- Periodic dye testing, in which dye is added to OSS and traced to discharge points to identify problem systems impacting water quality.
- PIC programs, which are comprehensive programs that may include water quality monitoring, impact monitoring, and parcel-by-parcel field investigations and sampling.

These programs require FTEs, equipment, and lab fees if applicable.

Table 13. Monitor Water Quality to Identify Problem Systems

	Regulatory Requirements (Baseline Cost)	**Additional Features** (Incremental Costs)
Summary	Regulatory Requirement(s): 2—Identify high-risk areas 7—Find failures	Establish water quality monitoring or survey programs.
Cost Estimate Ranges	N/A	$3.90-$49.00/OSS/year
Assumptions for Cost Estimate Range	Low end: $200,000 for surveys and water quality monitoring. High end: $2,500,000 for a comprehensive PIC program, which included surveys and water quality monitoring.	
Middle Cost Value	N/A	$8.80/OSS/year
Assumptions for Middle Value	$450,000 for surveys and water quality monitoring.	
Total Cost (Middle Values)	**$8.80/OSS/year**	

Update Management Plans

Each county has an OSS management plan that identifies local high-risk areas for prioritization, and structures the implementation of operation and maintenance requirements for OSS for each individual county. While not currently required by state code, updating management plans every five years will allow continued coordination with local comprehensive plans and will facilitate the incorporation of new information or expanded requirements, such as water monitoring activities, inspection requirements associated with building permits, or the certification of OSS professionals. Updating the plan on a 5-year basis will allow LHJs to leverage adaptive management principles that support effective program implementation. The representative LHJ will also establish an annual prioritization process as part of the management plan. This process would produce a written strategy each year to allocate available resources among foundational services and identify geographic areas for priority attention. It would also provide structure for tasks that are rotated or phased-in over time. Updating management plans and

writing annual prioritization documents will require additional labor costs on a five-year and annual basis, respectively.

Table 14. Update Management Plans

	Regulatory Requirements (Baseline Cost)	Additional Features (Incremental Costs)
Summary	Regulatory Requirement(s): 2—Designate high-risk areas 3—Tailor O&M requirements 8—Coordinate with local comprehensive plans	
Cost Estimate Ranges	N/A	$0.40-0.90/OSS/year
Assumptions for Cost Estimate Range	Low end: 0.5 FTE for update; 0.1 FTE for annual prioritization. High end: 1 FTE for update; 0.25 FTE for annual prioritization.	
Middle Cost Value	N/A	$0.60/OSS/year
Assumptions for Middle Value	The management plan update requires 0.75 FTE over 5 years. The annual prioritization process requires 0.15 FTE annually.	
Total Cost (Middle Values)	**$0.60/OSS/year**	

Total Expense

The administration of foundational LHJ services involves overhead and other miscellaneous expenses. Based on the data provided by LHJs, the average cost of overhead is $124,000 annually. Additionally, if the funding is collected by county treasurers, a fee of up to one percent—or $20,000—may be imposed annually. Table 15 presents the calculations for all foundational services, including the average cost of overhead and the collection fee. The estimated cost per OSS is nearly $40 per year.

Table 15. Total Expense

	Regulatory Requirements (Baseline Cost)	Additional Features (Incremental Costs)
Cost Estimate Range	$2.70-$67.50/OSS/year	$5.30-$54.60/OSS/year
Middle Cost Value	$27.80/OSS/year	$12.00/OSS/year
Total Expense (Middle Values)	**$39.80/OSS/year**	

Given that the representative LHJ has 51,000 OSS, or the regional average, the total estimated cost for the representative LHJ is approximately $2.0 million. If all regional LHJs spend the same amount as the representative LHJ, the estimated region-wide cost is approximately $24.4 million, or twelve times the amount of representative LHJ.

Estimated Region-Wide Need

Table 16 presents the middle value of each foundational service and its percentage of the total annual region-wide need estimated by this approach.

Table 16. Estimated Annual Region-wide Need by Foundational Service (Middle Values)

Foundational Service	Estimated Region-Wide Need	Percentage of Estimated Region-Wide Need
Document OSS	$4.4 million	18%
Educate Homeowners	$1.8 million	7%
Manage Inspection and Repair Requirements	$10.7 million	44%
Survey OSS and Survey OSS and Monitor Water Quality to Identify Problem Systems	$5.4 million	22%
Update Management Plans	$0.2 million	1%
Overhead	$1.7 million	7%
Total	$24.4 million	100%

Note: Totals may not add due to rounding.

As shown in Table 16, managing inspection and repair requirements represents nearly half of the estimated region-wide need. Water quality monitoring represents nearly a quarter of the estimated need. Together, these foundational services represent over three-fourths of the total estimated need presented in this approach.

7. Findings

A primary goal of OSS management in Puget Sound is to ensure that septic systems remain an effective, affordable, and environmentally responsible option for sewage management, particularly in rural areas. This needs assessment provides a basis for understanding the current expenditures and financial needs of LHJs in implementing programs to attain this goal.

The current services approach reveals a wide range of OSS management costs and needs, primarily due to the variation in local programs and plans. Based on the analysis of LHJ current services and spending, the estimated total annual need for the region is approximately $14.3 million, or roughly $23 per septic system. This methodology did not evaluate the costs of providing consistent, adequate programs throughout the region. Therefore the Advisory Committee requested a supplemental analysis.

The foundational services approach presents an estimate of regional annual costs for providing a consistent set of foundational services throughout the Puget Sound region. The specific services were developed with the input of the Advisory Committee and other experts. The foundational services approach estimates that septic management programs need roughly $40 per OSS or $24.4 million region-wide each year to provide effective, consistent services. According to the LHJs, the local septic management programs are currently spending about $6.5 million, or 27% of the estimated need.

The project team concluded that the estimated cost to implement the foundational services was more indicative of the true need than the current services analysis. Based on the foundational services assessment, funding of $24.4 million dollars per year should be identified for local septic management programs.

Clallam County

Population: 71,863

20,007 Septic Systems

18,002 Known Septic Systems

11,956 (60%) in Designated Areas

Dungeness Watershed and Strait of Juan de Fuca (Marine Recovery Area)

Environmental Health Director

Andy Brastad

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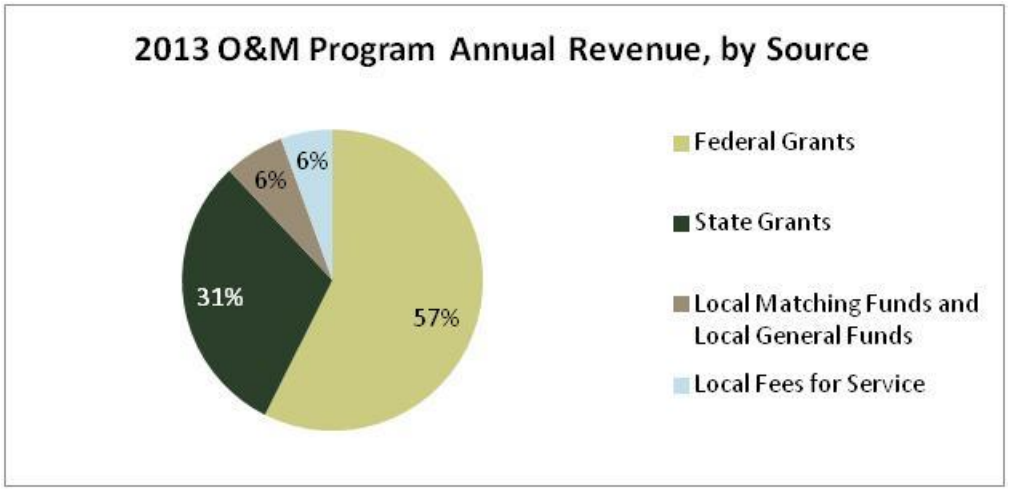
Septic Management Program

Clallam County, located on the northern edge of the Olympic Peninsula, has extensive shoreline along Puget Sound, the Strait of Juan de Fuca, and the Pacific Ocean. The Clallam County OSS Management Plan, adopted in 2007, established most of the eastern portion of the county as an MRA, encompassing roughly 60% of the county's estimated total septic systems. Given the large percentage of septic systems within the MRA, therefore subject to MRA requirements, Clallam County's management approach has been to focus services within the MRA. Revenue uncertainty and political support have both significantly constrained the Clallam County septic management program. The following revenue, spending, and need estimates are specific to the management of septic system operation and maintenance in Clallam County, as required by the WAC 246-272A and chapter 70.118A RCW.

2013 Reported O&M Program Revenues[5]

Title	Funder	Category	$
National Estuary Program Grants	Environmental Protection Agency	Federal Grant	$82,736
Centennial Clean Water Grant	WA Dept. of Ecology	State Grant	$28,000
State General Fund and ALEA	WA State General Fund and DNR	State Grant	$16,000
County Grant Match (Centennial)	County Funds	Local Matching Fund	$9,333
Septic Permit Charge	Public	Local Fee for Service	$8,000
Total			**$144,070**

[5] As reported by Clallam County. For grants whose period exceeded 12 months, the project team derived the annual figure.



Overview of Current Program Services

Septic system inventory and database management:

- Data tracking and online report submission are supported by Online RME.
- 466 assumed systems remain to be officially documented within the MRA.

Education:

- The Homeowner Inspection Certification Program includes online and in-person classes, offered countywide.
- Countywide "Septic 101" informational workshops are held as funding allows.
- Brochures and informational pages available on Public Health and Social Services website.
- Routine educational newsletters are sent quarterly to owners within the MRA and annually countywide.
- The O&M Professional Certification Program provides certification and oversight of industry professionals. Meetings are held to discuss septic system-related issues in the county.

Inspection:

- Inspection reminders are sent to all types of OSS in the MRA and large, complex, or food service systems countywide.
- No inspection reporting enforcement policies in place at this time.
- A septic system inspection is required at the time of property sale.
- The most recent reported inspection compliance rate is 20% within the MRA.

Failure investigation and repair:

- As of December 2013, 6 failures, one of which was located in the MRA, were not fixed within 18 months. Enforcement policies were recently approved and implementation strategies are being developed.

Financial Assistance:

- Incentives available for MRA and countywide septic system owners.

2013 Reported Current O&M Program Expenditures

Staff, includes: Staff for countywide and MRA septic management	$117,000
Expenses, includes: Database costs, incentives, educational materials, lab supplies, vehicles	$27,000
Total	**$144,000**

Estimated Additional Annual O&M Program Funding Needs[6]

Staff, includes: Additional staff for countywide and MRA septic management	$468,000
Expenses, includes: Additional database costs, incentives, educational materials, lab supplies, vehicles	$108,000
Total	**$576,000**

Total Annual Estimated O&M Program Needs (current & additional)

Total County Need	$720,000
Average Cost per OSS Countywide	$35.99

Program Needs

Clallam County estimates an ongoing annual program need is **$720,000** (this includes current spending plus additional need, detailed above). Additional revenues would be used to fund:

1. Enforcement of regulations to ensure that 100% of reported septic system failures are repaired and that all complaints are investigated
2. Implementation of an efficient inspection reminder program
3. Establishment of process with reliable support for reaching and maintaining inspection compliance standards
4. Improved oversight of O&M professionals and homeowners to ensure inspections are performed adequately
5. Improved delivery of O&M program services

[6] As reported by Clallam County.

Island County

Population: 79,177

34,117 Septic Systems

28,414 Known Septic Systems

787 (2%) in Designated Areas

Penn Cove Watershed (Sensitive Area)

Southern Holmes Harbor (Sensitive Area)

Environmental Health Director

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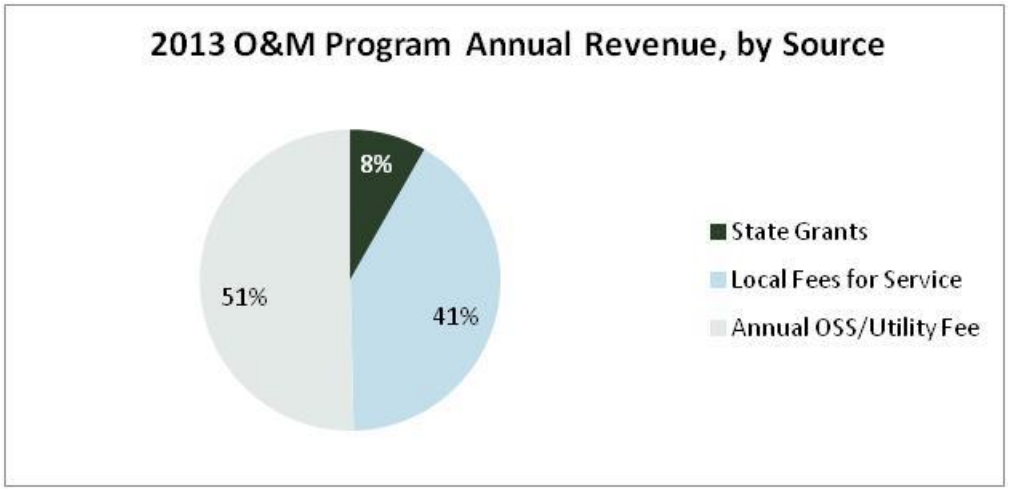
Septic Management Program

Island County rests in the middle of Puget Sound, making for a proportionally extensive shoreline. While no portion of the county matched the criteria of a Marine Recovery Area, the Island County OSS Management Plan of 2007 established two Sensitive Areas on Whidbey Island. Within these Sensitive Areas, septic system inspections are required to be performed by a septic system operations and maintenance professional. Uncertainty of funding has been of concern for Island County. In particular, the Clean Water Utility District, which accounts for roughly half of current program revenue, is assessed on a regular basis. The following revenue, spending, and need estimates are specific to the management of septic system operation and maintenance in Island County, as required by the chapter 246-272A WAC and chapter 70.118A RCW.

2013 Reported O&M Program Revenues[7]

Title	Funder	Category	$
State General Fund and ALEA	WA State General Fund & DNR	State Grant	$36,067
Install, Repair, & Inspection Charges	Public	Local Fee for Service	$181,000
Clean Water Utility Fees	Public	Annual OSS/Utility Fee	$220,480
Total			**$437,547**

[7] As reported by Island County. For grant sources whose period exceeded 12 months, the project team derived the annual figure.



Overview of Current Program Services

Septic system inventory and database management:

- Data tracking and online report submission are supported by Online RME.
- 10 assumed systems remain to be officially documented within the Southern Holmes Harbor (Sensitive Area).

Education:

- The Homeowner Inspection Certification Program includes online and in-person classes, offered county-wide. This service is staff-intensive.
- Countywide "Septic 101" informational workshops are held as funding allows.
- Brochures and informational pages are available on the Public Health and Social Services website.
- The O&M Professional Certification Program certifies and provides oversight of industry professionals. Meetings of certified professionals are held to discuss septic system-related issues in the county.

Inspection:

- Inspection reminders sent to all types of OSS within pollution, identification, and control areas as well as large, complex, or food service systems countywide.
- Septic system inspections are required upon sale of the property.
- No inspection reporting enforcement policies are in place at this time. Island County is no longer able to support inspection compliance efforts in the Holmes Harbor Sensitive Area.
- The most recent reported inspection compliance rate is 54% within the Southern Holmes Harbor Sensitive Area. Previous efforts had 96% inspection compliance in this area; the decrease is due to program focus shifting to a different watershed.

Failure investigation and repair:

- As of December 2013, at least 13 failures countywide were not fixed within 18 months. The number of known failures is increasing rapidly due to OSS investigation efforts. However, due to staff workloads and the time-intensive nature of enforcement activities, the program's ability to investigate is limited.

Financial Assistance:

- Financial assistance is available, including an OSS repair loan program that includes sewer conversion assistance.
- Incentives are not currently available for septic system owners, but are expected to be available soon.

2013 Reported Current O&M Program Expenditures

Staff, includes: Staff for countywide and MRA septic management	$253,436
Expenses, includes: Office/field supplies, travel, educational consultants, communication, advertising, and more	$177,900
Total	**$431,336**

Estimated Additional Annual O&M Program Funding Needs[8]

Staff, includes: additional staff for countywide and MRA septic management	$506,871
Expenses, includes: Office/field supplies, travel, educational consultants, communication, advertising, and more	$355,800
Total	**$862,671**

Total Annual Estimated O&M Program Needs (current & additional)

Total County Need	$1,294,007
Average Cost per OSS Countywide	$37.93

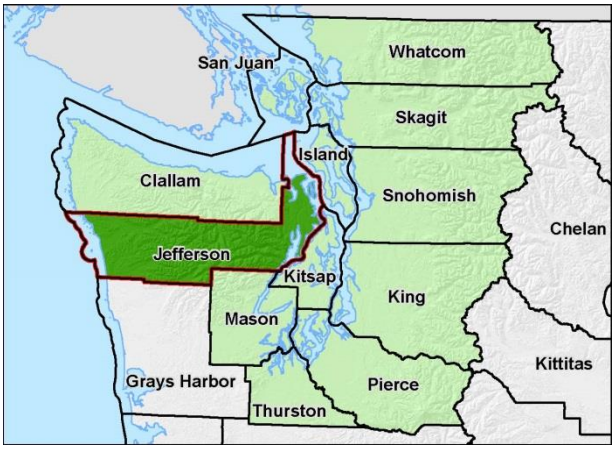
Program Needs

Island County estimates an ongoing annual program need of approximately **$1.3 million**. Additional revenues would be used to fund:

1. Evaluation of data to determine areas with increased risk of public health issues and pollution from OSS.
2. Increased educational efforts, monitoring, and tracking to achieve a high rate of compliance with inspection requirements. With increased education, county program managers hope to achieve high compliance rates countywide. Previously the county achieved a 96% compliance rate in one of its sensitive areas through extensive outreach and education.
3. Enforcement of regulations to ensure that 100% of reported septic system failures are repaired and that all complaints are investigated.
4. Implementation of an efficient inspection reminder program.
5. Addressing existing infrastructure limitations. (Island County has only one septic processing facility which can get overloaded if everyone decides to pump their tanks at the same time.)
6. Improved oversight of O&M professionals and system owners to ensure that inspections are performed adequately
7. Improved delivery of O&M program services.

[8] As reported by Island County.

Puget Sound Septic Management Programs



Jefferson County

Population: 29,854

13,500 Septic Systems

10,647 Known Septic Systems

3,188 (24%) in Designated Areas

Hood Canal Watershed (Marine Recovery Area)

Environmental Health & Water Quality Director
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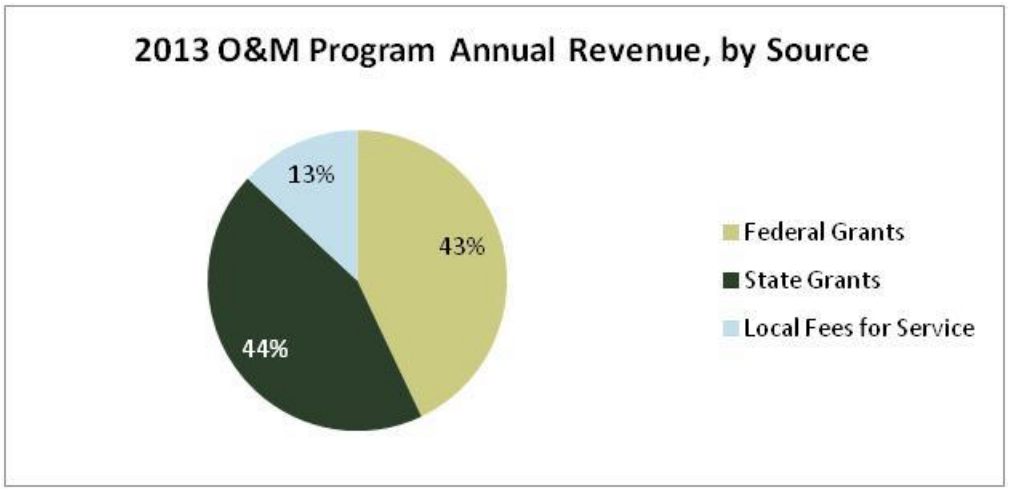
Septic Management Program

The eastern portion of Jefferson County has extensive shoreline along Puget Sound, as well as a significant portion of the population. In addition, Jefferson County borders the Pacific Ocean to the west. While the Hood Canal watershed is the only official Marine Recovery Area established in the 2007 Jefferson County On-Site Sewage System Management Plan, program managers report that much of eastern Jefferson County is served by the enhanced program. Uncertainty of funding is a primary concern for Jefferson County, as 88% of the program's reported revenue is based on grants. The following revenue, spending, and need estimates are specific to the management of septic system operation and maintenance in Jefferson County, as required by the chapter 246-272A WAC and chapter 70.118A RCW.

2013 Reported O&M Program Revenues[9]

Title	Funder	Category	$
EPA Clean Water Grant	Environmental Protection Agency	Federal Grant	$92,209
State General Fund and ALEA	WA State General Fund and DNR	State Grant	$40,000
State Grant Match (EPA Clean Water)	WA Dept. of Health	State Grant	$54,286
O&M Report Charge	Public	Local Fee for Service	$28,000
Total			**$214,494**

[9] As reported by Jefferson County. For grant sources whose period exceeded 12 months, the project team derived the annual figure.



Overview of Current Program Services

Septic system inventory and database management:

- Data tracking and online report submission are supported by Online RME.
- 807 assumed systems remain to be officially documented within the MRA.

Education:

- The Homeowner Inspection Certification Program is pending database and website improvements. Once implemented, Jefferson County will have online and in-person classes, offered countywide.
- Countywide "Septic 101" informational workshops are held as funding allows.
- Brochures and informational pages are available on the Public Health and Social Services website.
- Routine educational newsletters sent to septic system owners within the MRA.
- The O&M Professional Certification Program certifies and provides oversight of industry professionals. Meetings of certified professionals are held to discuss septic system-related issues in the county.

Inspection:

- Inspection reminders are sent to specified areas within the MRA for all types of OSS and countywide for large, complex, or food service systems.
- No inspection reporting enforcement policies are in place at this time.
- A septic system inspection is required at the time of property sale.
- The most recent reported inspection compliance rate is 1% within the MRA.

Failure investigation and repair:

- As of December 2013, the Jefferson County database was unable to track the number of failures not fixed within 18 months.
- Repair enforcement is conducted countywide, with priority focus given to OSS within the MRA or within 200 feet of the shoreline.

Financial Assistance:

- Incentives are available for MRA septic system owners.

2013 Reported Current O&M Program Expenditures

Staff, includes: Staff for septic management, enhanced program in eastern Jefferson County	$201,324
Expenses, includes: Office/field supplies, professional services (database, lab, web design), communication, advertising, and more	$48,053
Total	**$249,377**

Estimated Additional Annual O&M Program Funding Needs[10]

Staff, includes: Additional staff for septic management, enhanced program in eastern Jefferson County	$127,565
Expenses, includes: Annual database administrator (contracted), annual database fees	$47,000
Total	**$174,565**

Total Annual Estimated O&M Program Needs (current & additional)

Total County Need	$423,942
Average Cost per OSS Countywide	$31.40

Program Needs

Jefferson County estimates an ongoing annual program need of approximately **$424,000** (this includes current spending plus additional need, detailed above). Additional revenues would be used to fund:

1. Enforcement of regulations to ensure that 100% of reported septic system failures are repaired and that all complaints are investigated
2. Implementation of an efficient inspection reminder program
3. Establishment of process with reliable support for reaching and maintaining inspection compliance standards
4. Improved oversight of O&M professionals and system owners to ensure inspections are performed adequately
5. Improved delivery of O&M program services

[10] As reported by Jefferson County.

Puget Sound Septic Management Programs

King County

Population: 2,007,440

157,500 Septic Systems

47,913 Known Septic Systems

258 (0.16%) in Designated Areas

Quartermaster Harbor/East Passage (Marine Recovery Area)

Environmental Health Services Division Director
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206-263-8476

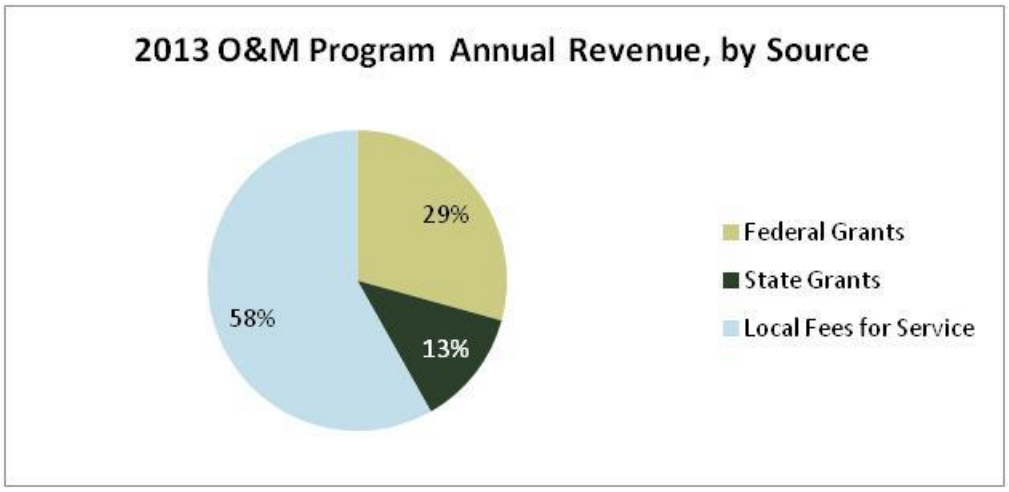
Septic Management Program

King County has a significantly larger population than most Puget Sound counties, and a limited shoreline in proportion to the estimated number of septic systems. The 2007 King County On-Site Septic System Management Plan designated one marine recovery area on Vashon-Maury Island. This MRA is the focus of the program's services at this time, given a variety of constraints. Program managers report uncertainty of funding, lack of space for new employees, absence of satellite offices needed to manage the large area, and limited political support for the septic program as primary constraints. According to program managers, officials and prosecutors are apprehensive about enacting enforcement and the program tends to get push-back from residents of Vashon-Maury Island. The following revenue, spending, and need estimates are specific to the management of septic system operation and maintenance in King County, as required by the chapter 246-272A WAC and chapter 70.118A RCW.

2013 Reported O&M Program Revenues[11]

Title	Funder	Category	$
National Estuary Program Grants	Environmental Protection Agency	Federal Grant	$124,461
State General Fund and ALEA	WA State General Fund and DNR	State Grant	$53,333
Permit, Certification, and Design Review Charges	Public	Local Fee for Service	$247,000
Total			**$424,794**

[11] As reported by King County. For grant sources whose period exceeded 12 months, the project team derived the annual figure.



Overview of Current Program Services

Septic system inventory and database management:

- Data tracking and online report submission are supported by Online RME.
- Database does not fully support program needs. Additional investment is needed for the database to be usable countywide.
- 24 assumed systems remain to be officially documented within the MRA.

Education:

- MRA "Septic 101" informational workshops are held as funding allows.
- Brochures and informational pages are available on Public Health and Social Services website
- The program holds occasional meetings with industry professionals to discuss septic system-related issues in the county. Limited staffing resources are available to manage the professional certification program.

Inspection:

- Routine inspection reminders sent to septic system owners within the MRA and to owners of large, complex, or food service systems countywide.
- Inspection enforcement policies were recently approved for all types of OSS, so the program is in the early stages of inspection enforcement implementation.
- A septic system inspection is required at the time of property sale.
- The most recent reported inspection compliance rate is 87% within the MRA

Failure investigation and repair:

- As of December 2013, the LHJ representatives were not confident in the accuracy of their data, resulting in an unknown number of failures not fixed countywide within 18 months. 1 failure in the MRA was unresolved.
- Enforcement of failure repair and complaint investigations is challenging due to staff shortages.

Financial Assistance:

- Incentives and sewer conversion assistance are available for MRA septic system owners.

2013 Reported Current O&M Program Expenditures

Staff, includes: Staff for septic management within MRA	$340,760
Expenses, includes: Office supplies, travel, communications, lab analysis, and more	$97,725
Total	**$438,485**

Estimated Additional Annual O&M Program Funding Needs[12]

Staff, includes: Additional staff for septic management within MRA and countywide	$1,469,700
Expenses, includes: Trainings and focus groups, increased educational and notification services, travel, lab supplies, and more	$73,000
Total	**$1,542,700**

Total Annual Estimated O&M Program Needs (current & additional)

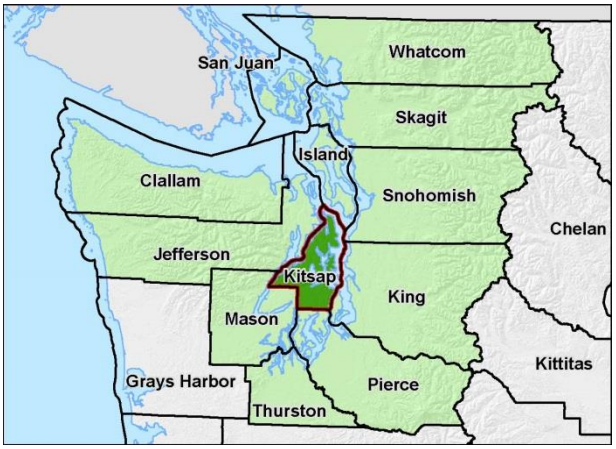
Total County Need	$1,981,185
Average Cost per OSS Countywide	$12.58

Program Needs

King County estimates an ongoing annual program need of approximately **$2 million** (this includes current spending plus additional need, detailed above). Additional revenues would be used to fund:

1. Enforcement of regulations to ensure that 100% of reported septic system failures are repaired and that all complaints are investigated
2. Implementation of an efficient inspection reminder program
3. Establishment of process with reliable support for reaching and maintaining inspection compliance standards
4. Improved oversight of O&M professionals and system owners to ensure inspections are performed adequately
5. Improved delivery of O&M program services
6. Environmental analysis to determine areas where OSS are failing
7. Improved delivery of O&M program services within the MRA
8. Initiation of O&M program service delivery countywide

[12] As reported by King County.



Kitsap County

Population: 254,991

54,000 Septic Systems

23,507[13] Known Septic Systems

6,674 (12%) in Designated Areas

Burley Lagoon Watershed (Marine Recovery Area)

Liberty Bay Watershed (Marine Recovery Area)

Environmental Health Director

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360-337-5284

Septic Management Program

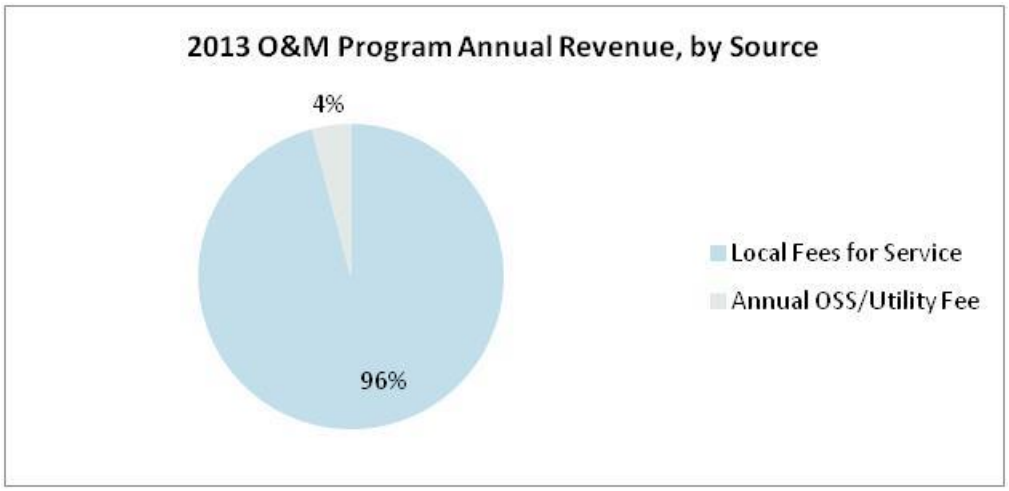
Located in the middle of Puget Sound, Kitsap County has significant shoreline and watersheds that drain to the sound directly. Kitsap is particularly unique among the counties as they were already 15 years into their septic management program when the chapter 246-272A WAC and chapter 70.118A RCW came into effect. Kitsap's 2007 management plan designated two Marine Recovery Areas, Burley Lagoon and Liberty Bay. Program managers are hopeful that Liberty Bay may be declassified from MRA status in the next few years, as they have been focusing grant efforts on the area. Burley Lagoon has been notorious for the opening and closing of its shellfish harvest and reclassifications since the early 1980s. It is currently stabilized, but is too variable to be declassified. The MRAs were prioritized for the identification of unknown septic systems, but otherwise the whole county is managed in a consistent manner. Program managers report uncertainty of funding as the greatest constraint of the program. The following revenue, spending, and need estimates are specific to the management of septic system operation and maintenance in Kitsap County, as required by the chapter 246-272A WAC and chapter 70.118A RCW.

2013 Reported O&M Program Revenues[14]

Title	Funder	Category	$
O&M Report Charge	Public	Local Fee for Service	$360,000
Surface and Stormwater Management Utility Fees	Public	Annual OSS/Utility Fee	$15,500
Total			**$375,500**

[13] Pending update from Kitsap County. O&M program staff report that they have many more known systems, but are unable to access the accurate count as they are in the middle of updating the database.

[14] As reported by Kitsap County. For grant sources whose period exceeded 12 months, the project team derived the annual figure.



Overview of Current Program Services

Septic system inventory and database management:

- Data tracking and online report submission are supported by Online RME.
- The inventory of septic systems within the MRA is complete.

Education:

- Informational workshops are available for septic system owners.
- Brochures and informational pages are available on Public Health and Social Services website.
- The O&M Professional Certification Program includes meetings with industry professionals to discuss septic system-related issues in the county.

Inspection:

- Inspection enforcement policies are in place at this time countywide for all proprietary/advanced (not gravity systems) septic systems.
- The most recent reported inspection compliance rate is 62% within the MRA.
- Routine inspection reminders are sent to owners of proprietary/advanced septic systems within the MRA as well as owners of large, complex, or food service systems countywide.
- A septic system inspection is required at the time of property sale.

Failure investigation and repair:

- As of December 2013, 21 failures have not been fixed within 18 months.
- Enforcement policies are in place, though funding issues are reported as a major constraint.
- Program staff investigates 100% of reported complaints.
- Collaboration with the Kitsap County Pollution Identification and Correction (PIC) program contributes to the identification of failures.

Financial Assistance:

- Incentives and sewer conversion assistance are available for MRA septic system owners.

2013 Reported Current O&M Program Expenditures

Staff, includes: Staff for septic management within MRA and countywide	$225,700
Expenses, includes: Office supplies, travel, indirect costs, and overhead	$143,490
Total	**$369,190**

Estimated Additional Annual O&M Program Funding Needs[15]

Staff, includes Additional staff for septic management within MRA and countywide	$416,000
Expenses, includes: Additional office supplies, travel, indirect costs, and overhead	$216,500
Total	**$632,500**

Total Annual Estimated O&M Program Needs (current & additional)

Total County Need	$1,001,690
Average Cost per OSS Countywide	$18.55

Program Needs

Kitsap County estimates an ongoing annual program need of approximately **$1 million** (this includes current spending plus additional need, detailed above). Additional revenues would be used to fund:

1. Establishment of septic system management countywide
2. Implementation of an efficient inspection reminder program
3. Expansion of educational offerings
4. Additional sewer conversion assistance
5. Regional water quality monitoring to evaluate the effectiveness of the program

[15] As reported by Kitsap County.

Mason County

Population: 60,832

25,735 Septic Systems

25,735 Known Septic Systems

16,371 (64%) in Designated Areas

Hood Canal (Marine Recovery Area)
Oakland Bay (Marine Recovery Area)
Totten Little Skookum (Sensitive Area)

Environmental Health Director
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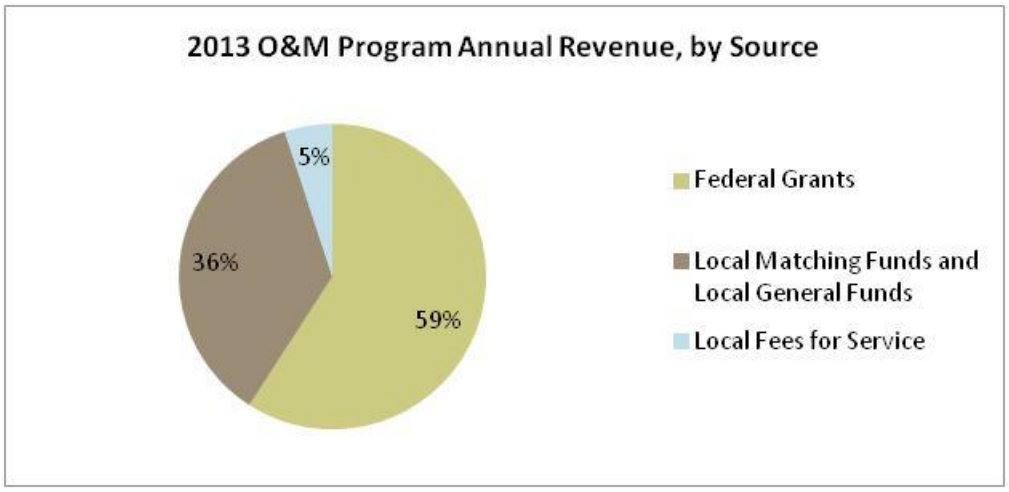
Septic Management Program

Mason County is located in the southwest portion of the Puget Sound region. The county has significant shoreline on the sound itself as well as inland lakes. Mason County designated two marine recovery areas and one sensitive area in the 2007 septic management plan. Septic systems countywide are managed in an equitable manner, though septic system owners in the MRAs and sensitive areas receive more mailings throughout the year. Program managers reported that the program struggles with program staffing due to uncertainty of funding. The continual education of elected officials has been crucial in maintaining political support for the septic system program. The following revenue, spending, and need estimates are specific to the management of septic system operation and maintenance in Mason County, as required by the chapter 246-272A WAC and chapter 70.118A RCW.

2013 Reported O&M Program Revenues[16]

Title	Funder	Category	$
National Estuary Program Grant	Environmental Protection Agency	Federal Grant	$152,000
County General Fund	County	Local General Fund	$92,025
O&M Report Charge	Public	Local Fee for Service	$13,000
Total			**$257,025**

[16] As reported by Mason County. For grant sources whose period exceeded 12 months, the project team derived the annual figure.



Overview of Current Program Services

Septic system inventory and database management:

- Data tracking and online report submission are supported by Carmody.
- 0 septic systems remain to be officially documented within the MRAs and Sensitive Area.

Education:

- Countywide "Septic 101" informational workshops are available as funding allows.
- Brochures and informational pages are available on Public Health and Social Services website.
- The O&M Professional Certification Program certifies, provides oversight, and meets with industry professionals to discuss septic system-related issues in the county.

Inspection:

- Routine inspection reminders are mailed to all types of OSS using USPS Every Door Direct Mail service within the MRA. Countywide inspection reminders are sent to large, complex, or food service septic systems.
- No inspection enforcement policies are in place at this time.
- A septic system inspection is required at the time of property sale.
- The most recent reported inspection compliance rate is 38% within the MRA.

Failure investigation and repair:

- As of December 2013, 0 failures have not been fixed within 18 months.

Financial Assistance:

- Incentives are available for MRA septic system owners as funding allows.

2013 Reported Current O&M Program Expenditures

Staff, includes: Staff for septic management within MRA and countywide	$172,600
Expenses, includes: Mailings, database fees, education expenditures, overhead	$84,425
Total	**$257,025**

Estimated Additional Annual O&M Program Funding Needs[17]

Staff, includes: Additional staff for septic management within MRA and countywide	$115,100
Expenses, includes: Additional mailings and overhead	$31,830
Total	**$146,930**

Total Annual Estimated O&M Program Needs (current & additional)

Total County Need	$403,955
Average Cost per OSS Countywide	$15.70

Program Needs

Mason County estimates an ongoing annual program need of approximately **$400,000** (this includes current spending plus additional need, detailed above). Additional revenues would be used to fund:

1. Enforcement of regulations to ensure that 100% of reported septic system failures are repaired and that all complaints are investigated
2. Implementation of an efficient inspection reminder program
3. Improvement of water quality monitoring in MRAs and other Sensitive Areas
4. Establishment of process with reliable support for reaching and maintaining inspection compliance standards
5. Improved oversight of O&M professionals and system owners to ensure inspections are performed adequately
6. Improved delivery of O&M program services.
7. Improved water quality for shellfish harvest, recreation, and to prevent disease

[17] As reported by Mason County.

Pierce County

Population: 811,681

110,028 Septic Systems

58,888 Known Septic Systems

7704 (7%) in Designated Areas

Key Peninsula (Marine Recovery Area)

Program Manager, Environmental Health Division
Steve Marek
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253-798-2955

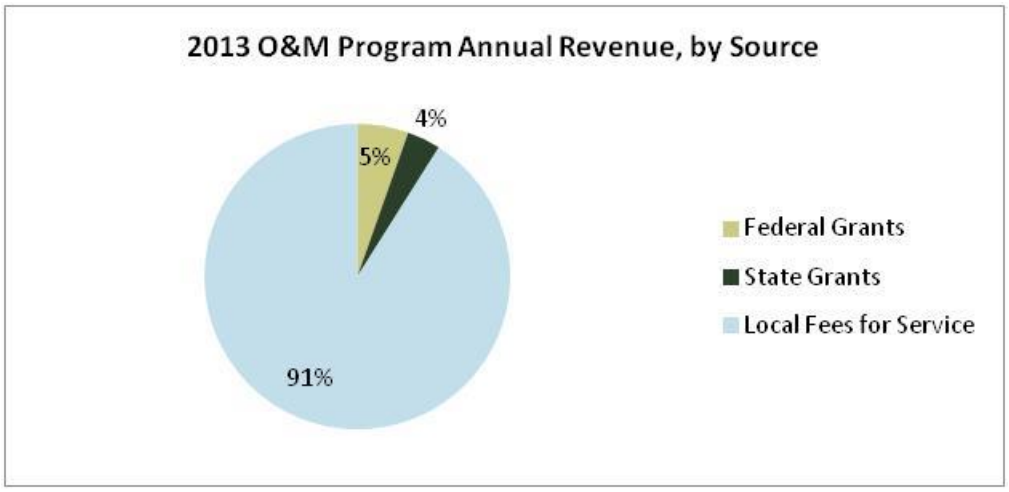
Septic Management Program

Pierce County, located toward the southern end of Puget Sound, is home to the waterfront city of Tacoma as well as a handful of islands and peninsulas to the south of Kitsap County. Key Peninsula was designated as the only marine recovery area in the county in the 2007 septic management plan. Spanaway Lake, Gig Harbor, and some of the islands may be considered for MRA classification in the future, but program managers are focusing first on program implementation in the current MRA. Direct mailings, ads, and educational events are all currently focused on Key Peninsula at this time. The only reported program constraint at this time is adequate funding. Program managers are interested in expanding the focus of their efforts beyond the MRA, regardless of further classifications, but the process is anticipated to be slow under the current funding conditions. The following revenue, spending, and need estimates are specific to the management of septic system operation and maintenance in Pierce County, as required by the chapter 246-272A WAC and chapter 70.118A RCW.

2013 Reported O&M Program Revenues[18]

Title	Funder	Category	$
National Estuary Program Grants	Environmental Protection Agency	Federal Grant	$96,397
Shellfish Grant	Environmental Protection Agency	Federal Grant	$8,462
Centennial Clean Water Grant	WA Dept. of Ecology	State Grant	$1,250
State General Fund and ALEA	WA State General Fund and DNR	State Grant	$67,667
Application Charge	Public	Local Fee for Service	$314,235
O&M Reporting Charge	Public	Local Fee for Service	$1,336,318
Certification Charge	Public	Local Fee for Service	$116,380
Total			**$1,940,708**

[18] As reported by Pierce County. For grant sources whose period exceeded 12 months, the project team derived the annual figure.



Overview of Current Program Services

Septic system inventory and database management:

- Data tracking and online report submission are supported by Online RME.
- 1736 assumed systems remain to be officially documented within the MRA.

Education:

- Brochures and informational pages are available on Public Health and Social Services website.
- The O&M Professional Certification Program includes meetings with industry professionals to discuss septic system-related issues in the county.

Inspection:

- The most recent reported inspection compliance rate is 23% within the MRA.
- Routine inspection reminders sent to propriety/advanced OSS (not gravity systems) within the MRA as well as large, complex, or food service septic systems countywide.
- Septic system inspections are required upon sale of the property.
- Inspection enforcement policies are in place at this time, but are not used extensively.

Failure investigation and repair:

- As of December 2013, 90 failures were not fixed within 18 months. 8 failures in the MRA not fixed within 18 months.
- Enforcement policies are in place, though funding issues are a major constraint.

Financial Assistance:

- Incentives and sewer conversion assistance are available for MRA septic system owners.

2013 Reported Current O&M Program Expenditures

Staff, includes: Staff for septic management within MRA	$905,888
Expenses, includes: Office supplies/equipment, professional and support services, code enforcement staff, printing, mailings, O&M incentives	$1,034,821
Total	**$1,940,709**

Estimated Additional Annual O&M Program Funding Needs[19]

Staff, includes: Additional staff for septic management within MRA and countywide	$274,435
Expenses, includes: Additional printing, mailings, and incentives	$100,000
Total	**$374,435**

Total Annual Estimated O&M Program Needs (current & additional)

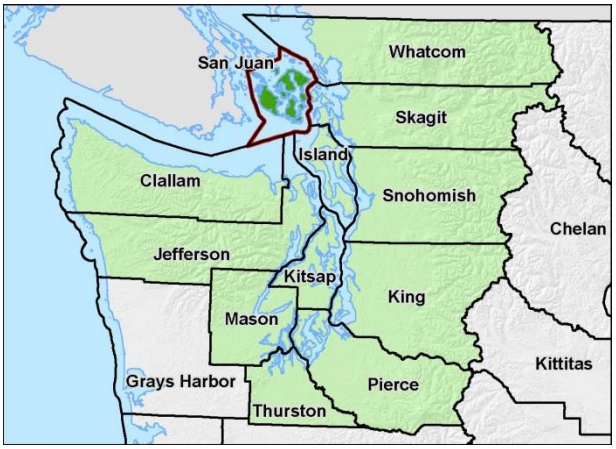
Total County Need	$2,315,144
Average Cost per OSS Countywide	$21.04

Program Needs

Pierce County estimates an ongoing annual program need of approximately **$2.3 million** (this includes current spending plus additional need, detailed above). Additional revenues would be used to fund:

1. Enforcement of regulations to ensure that 100% of reported septic system failures are repaired and that all complaints are investigated
2. Implementation of an efficient inspection reminder program
3. Establishment of process with reliable support for reaching and maintaining inspection compliance standards
4. Improved oversight of O&M professionals and system owners to ensure inspections are performed adequately
5. Improved delivery of O&M program services

[19] As reported by Pierce County.



San Juan County

Population: 15,824

8,600 Septic Systems

8,269 Known Septic Systems

208 (2%) in Designated Areas

Westcott Bay – San Juan Island (Sensitive Area)
Eastsound - Ship Bay – Orcas Island (Sensitive Area)
Buck Bay – Orcas Island (Sensitive Area)
Shoal Bay – Lopez Island (Sensitive Area)
Mackaye Harbor – Lopez Island (Sensitive Area)
Hunter Bay – Lopez Island (Sensitive Area)
Mud Bay – Lopez Island (Sensitive Area)

Environmental Health Manager
Mark Tompkins
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360-370-7517

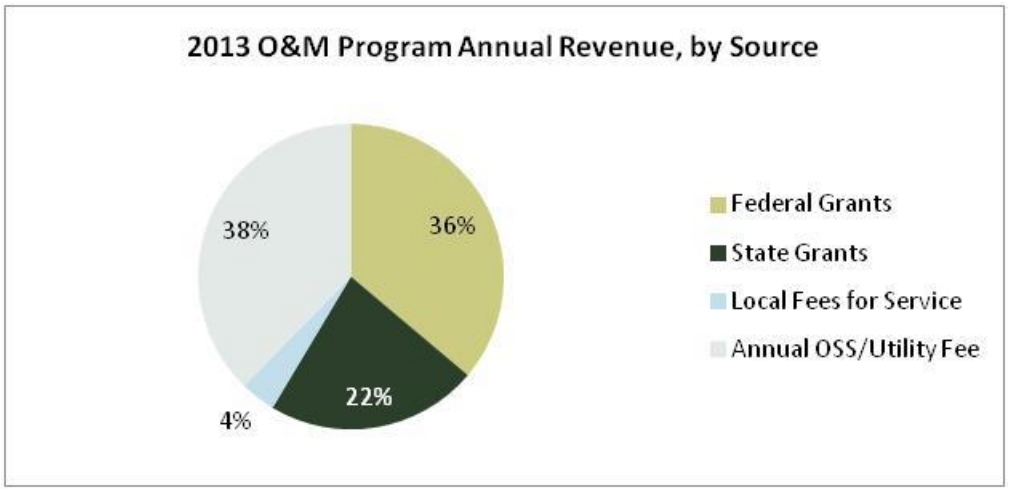
Septic Management Program

San Juan County consists of multiple islands in northern Puget Sound, the largest of which are San Juan Island, Lopez Island, and Orcas Island. Seven sensitive areas, listed above, were designated by the San Juan County Board of Health in the 2007 as part of the adoption of the On-site Sewage System Operation and Maintenance program plan. The program has taken an active role in identifying unknown septic systems within the sensitive areas. Beyond septic system identification efforts, the San Juan O&M program serves all septic systems equally throughout the county. The following revenue, spending, and need estimates are specific to the management of septic system operation and maintenance in San Juan County, as required by the chapter 246-272A WAC and chapter 70.118A RCW.

2013 Reported O&M Program Revenues[20]

Title	Funder	Category	$
National Estuary Program Grant	Environmental Protection Agency	Federal Grant	$72,000
State General Fund and ALEA	WA State General Fund and DNR	State Grant	$44,667
Repair Design Application Fee	Public	Local Fee for Service	$7,500
O&M Program Charge on Tax Statement	Public	Annual OSS/Utility Fee	$75,000
Total			**$199,167**

[20] As reported by San Juan County. For grant sources whose period exceeded 12 months, the project team derived the annual figure.



Overview of Current Program Services

Septic system inventory and database management:

- Data tracking and online report submission are supported by a county database. Oversight and management of the database is performed by program staff.
- 14 assumed systems remain to be officially documented within in sensitive areas.

Education:

- Homeowner Inspection Classes and Certification Program is led by county staff and offered countywide.
- Brochures, educational videos and informational pages are available on the Health & Community Services website.
- The O&M Professional Certification Program certifies, provides oversight, and meets with industry professionals to discuss septic system-related issues in the county.

Inspection:

- Inspection reminders are sent to all OSS in the county.
- Inspection enforcement policies were recently approved, and program staff is now working on developing a system for implementation.
- Septic system inspections are required upon sale of the property.
- The most recent reported inspection compliance rate is 48% within sensitive areas.

Failure investigation and repair:

- As of December 2013, 5 failures were not fixed within 18 months. 0 failures in sensitive areas were not fixed within 18 months.
- Enforcement policies are in place, though homeowner financing issues are a major constraint.

Financial Assistance:

- Financial resource assistance is available, including the OSS repair loan program.
- Incentives are not currently available for septic system owners, but San Juan County is developing an incentive program for sensitive areas.

2013 Reported Current O&M Program Expenditures

Staff, includes: Staff for septic management countywide	$193,875
Expenses, includes: Supplies, travel, rental, training	$9,500
Total	**$203,375**

Estimated Additional Annual O&M Program Funding Needs[21]

Staff, includes: Additional staff for septic management countywide	$130,000
Expenses, includes: Additional supplies and travel	$4,500
Total	**$134,500**

Total Annual Estimated O&M Program Needs (current & additional)

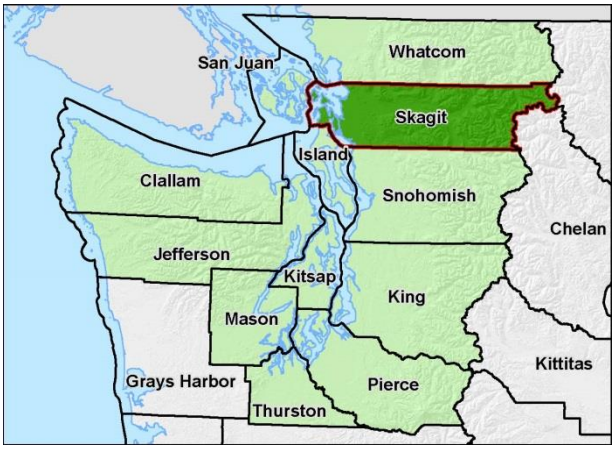
Total County Need	$337,875
Average Cost per OSS Countywide	$39.29

Program Needs

San Juan County estimates an ongoing annual program need of approximately **$340,000**. Additional revenues would be used to fund:

1. Enforcement of regulations to ensure that 100% of reported septic system failures are repaired and that all complaints are investigated
2. Implementation of an efficient inspection reminder program and follow-up on inspection compliance. This would include a process for reaching and maintaining inspection compliance standards
3. Improved quality assurance/quality control activities of O&M professionals and system owners to ensure inspections are performed adequately
4. Improved delivery of O&M program services
5. Development of a program for following up on deficiencies identified in inspection reports
6. Ensuring compliance with inspection requirements and maintenance component upgrades at the time of sale

[21] As reported by San Juan County.



Skagit County

Population: 118,222

13,000-14,000 Septic Systems

Known Septic System reported to be currently unreliable

6487 (48% of 13,500) in Designated Areas

Samish Island and Samish Bay (Marine Recovery Areas)
Yokeko, Dewey Beach, and Quiet Cove (Marine Recovery Areas)
Similk Bay and Similk Beach Community (Marine Recovery Areas)
Padilla Bay and Bay View rural Village (Marine Recovery Areas)
Guemes Island (Marine Recovery Areas)
Colony Creek (Marine Recovery Areas)
Lower Samish Basin (Marine Recovery Areas)
Upper Samish River, Thomas Creek, and Nookachams Creek Basins (Sensitive Areas)

Environmental Public Health Manager
Corinne Story
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360-336-9380

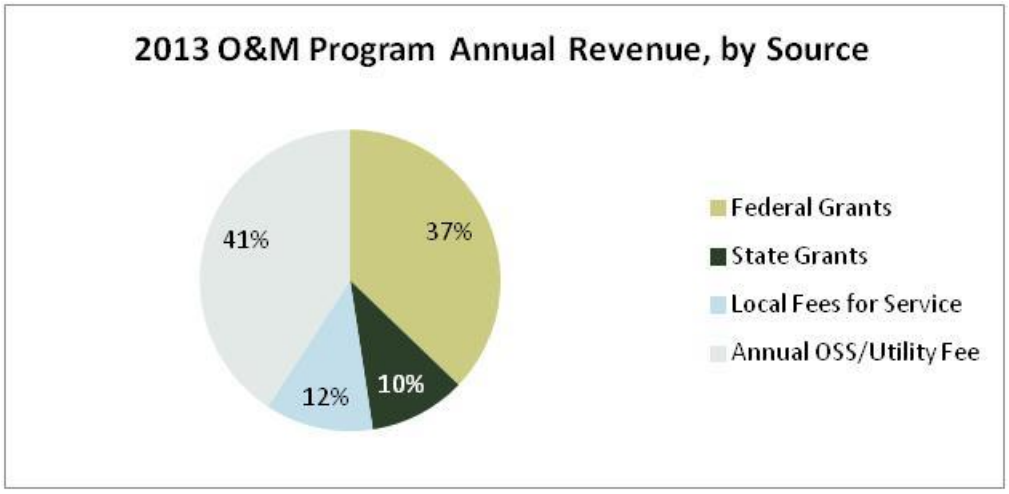
Septic Management Program

Skagit County's shoreline follows along on the northwest edge of Puget Sound, and Skagit River runs from the middle of the county toward the coast. Ten regions were designated as marine recovery areas in the original septic management plan in 2007, and two MRAs were added in 2012 (Colony Creek and Lower Samish Basin). There are three additional sensitive areas, designated as such due to the high density of septic systems and low water quality. Program services are equitable throughout the county, regardless of such designations, due to funding constraints. Program managers reported inadequate funding and restricted hiring, due in part to uncertain funding, as the two principle constraints on the program. The following revenue, spending, and need estimates are specific to the management of septic system operation and maintenance in Skagit County, as required by the chapter 246-272A WAC and chapter 70.118A RCW.

2013 Reported O&M Program Revenues[22]

Title	Funder	Category	$
National Estuary Program Grant	Environmental Protection Agency	Federal Grant	$124,729
EPA Clean Water Grant	Environmental Protection Agency	Federal Grant	$34,884
State General Fund and ALEA	WA State General Fund and DNR	State Grant	$44,667
Permit Charge	Public	Local Fee for Service	$50,000
Clean Water Program Fee	Public	Annual OSS/Utility Fee	$175,000
Total			**$429,279**

[22] As reported by Skagit County. For grant sources whose period exceeded 12 months, the project team derived the annual figure.



Overview of Current Program Services

Septic system inventory and database management:

- Data tracking and online report submission are supported by Online RME.
- 185 assumed systems remain to be officially documented within the MRAs and Sensitive Areas.

Education:

- The Inspection Certification Workshop is a five hour course which certifies septic system owners within the MRA to conduct their own septic system inspections.
- OSS informational workshops are offered countywide as funding allows
- Brochures and informational pages are available on Public Health and Social Services website.
- The O&M Professional Certification Program includes meetings with industry professionals to discuss septic system-related issues in the county.

Inspection:

- The most recent reported compliance rate is 57% within the MRAs.
- Routine inspection reminders are sent to all OSS owners within the MRAs as well as to owners of large, complex, or food service septic systems countywide.
- Inspection reporting enforcement requirement policies are in place and used effectively in Skagit County.
- A septic system inspection is required at the time of property sale.

Failure investigation and repair:

- As of December 2013, the database was not able to track and report on the number of failures not fixed within 18 months for countywide OSS. There were no unresolved failures in the MRAs.

Financial Assistance:

- Incentives and sewer conversion assistance are available for MRAs septic system owners

2013 Reported Current O&M Program Expenditures

Staff, includes: Staff for septic management countywide	$390,000
Expenses, includes: Printing, ads, supplies, lab testing, vehicles, and tech support	$30,800
Total	**$420,800**

Estimated Additional Annual O&M Program Funding Needs[23]

Staff, includes: Additional staff for septic management countywide	$400,000
Expenses, includes: Additional printing, ads, supplies, vehicles, and tech support	$28,300
Total	**$428,300**

Total Annual Estimated O&M Program Needs (current & additional)

Total County Need	$849,100
Average Cost per OSS Countywide	$62.90

Program Needs

Skagit County estimates an ongoing annual program need of approximately **$850,000** (this includes current spending plus additional need, detailed above). Additional revenues would be used to fund:

1. Enforcement of regulations to ensure that 100% of reported septic system failures are repaired and that all complaints are investigated
2. Database upgrades
3. An expansion of program outreach activities
4. Implementation of an efficient inspection reminder program
5. Establishment of process with reliable support for reaching and maintaining inspection compliance standards
6. Improved oversight of O&M professionals and system owners to ensure inspections are performed adequately
7. Improved delivery of O&M program services.

[23] As reported by Skagit County.

Snohomish County

Population: 733,036

78,000 Total Estimated Septic Systems

54,000 Known Septic Systems

0 (0%) in Designated Area

(None)

Environmental Health Division Director
Randy Darst
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425-339-5250

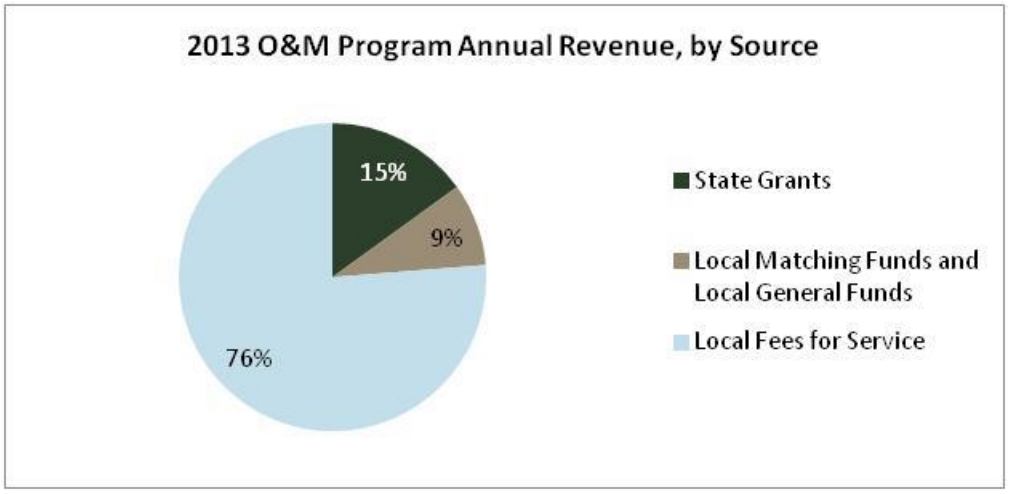
Septic Management Program

Snohomish County has a significant stretch of shoreline along Puget Sound, though this shoreline is adjacent to a unique mix of urban land and tribal-owned land. Given that program managers view neither urban nor tribal lands as appropriate for marine recovery area designation, no such areas were designated in the 2007 septic management plan. The program has instead placed principle focus on preventative techniques, such as improving repair design and lowering the barriers to permit application. Staffing restrictions has been the primary constraint on the Snohomish County O&M program, in addition to funding needs. The following revenue, spending, and need estimates are specific to the management of septic system operation and maintenance in Snohomish County, as required by the chapter 246-272A WAC and chapter 70.118A RCW.

2014 Reported O&M Program Revenues [24]

Title	Funder	Category	$
State General Fund and ALEA	WA State General Fund and DNR	State Grant	$45,000
County General Fund	County	Local General Fund	$26,000
License, Permit, and Service Charges	Public	Local Fee for Service	$228,200
Total			**$299,200**

[24] As reported by Snohomish County. For grant sources whose period exceeded 12 months, the project team derived the annual figure. Snohomish County revenues are based on 2014 projections.



Overview of Current Program Services:

The Snohomish County septic management program requires all existing buildings or structures to which additions, alterations, or improvements are made to be served by an OSS in compliance with current standards. This requirement goes much farther than chapter 246-272A WAC by necessitating system compliance for issuance of virtually any building permit on an existing structure, with strict requirements for the definition of "bedroom" and other protective measured used during system design. These enhanced local requirements can be seen as a fundamental component of the Health District's comprehensive OSS strategy. Applied countywide, enhanced requirements provide assurance that OSS are designed and constructed to consistent high standards.

Septic System Inventory and Database Management

- Data tracking and online report submission are supported by the Snohomish County-owned Drainfield As-Builts Viewed Electronically (DAVE) database.

Education

- Brochures and informational pages are available on Public Health and Social Services website.
- The O&M Professional Certification Program includes meetings with industry professionals to discuss septic system-related issues in the county.

Inspection

- Routine inspection reminders are sent to owners of food service septic systems countywide.
- Inspection reporting enforcement requirement policies in place and effectively used for systems associated with a county permit, such as a food establishment.

Failure Investigation and Repair

- As of December 2013, 0 failures not fixed within 18 months.
- Repair enforcement policies are in place.

Financial Assistance

- Incentives available for system owners in the Stillaguamish Watershed.

2013 Reported Current O&M Program Expenditures

Staff, includes: Staff for septic management countywide	$256,200
Expenses, includes: Supplies and equipment	$20,000
Total	**$276,200**

Estimated Additional Annual O&M Program Funding Needs[25]

Staff, includes: Additional staff for septic management countywide	$1,252,000
Expenses, includes: Additional supplies and equipment	$150,000
Total	**$1,402,000**

Total Annual Estimated O&M Program Needs (current & additional)

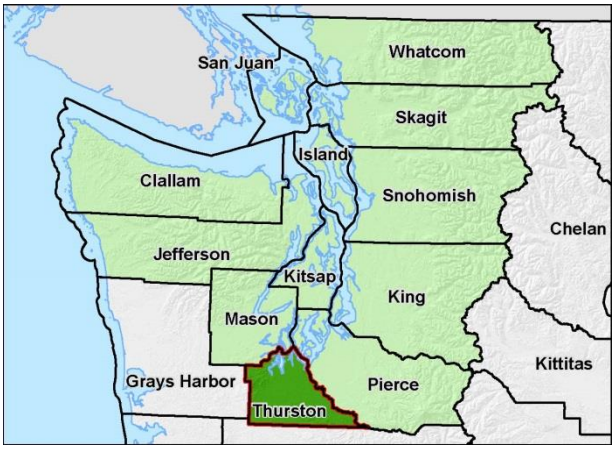
Total County Need	$1,678,200
Average Cost per OSS Countywide	$21.52

Program Needs

Snohomish County estimates an ongoing annual program need of approximately **$1.7 million** (this includes current spending plus additional need, detailed above). Additional revenues would be used to fund:

1. Enforcement of regulations to ensure that 100% of reported septic system failures are repaired and that all complaints are investigated
2. Improvement of enforcement policies and implementation
3. Implementation of an efficient countywide inspection reminder program
4. Expansion of educational offerings
5. Improved data tracking processes
6. Sewer conversion assistance
7. Regional water quality monitoring to evaluate the effectiveness of the program

[25] As reported by Snohomish County.



Thurston County

Population: 258,332

70,000 Total Estimated Septic Systems

39,083 Known Septic Systems

10,800 (15%) in Designated Area[26]

Henderson Inlet Watershed (Marine Recovery Area)

Nisqually Reach Watershed (Marine Recovery Area)

Environmental Health Director
Art Starry
starrya@co.thurston.wa.us

Septic Management Program

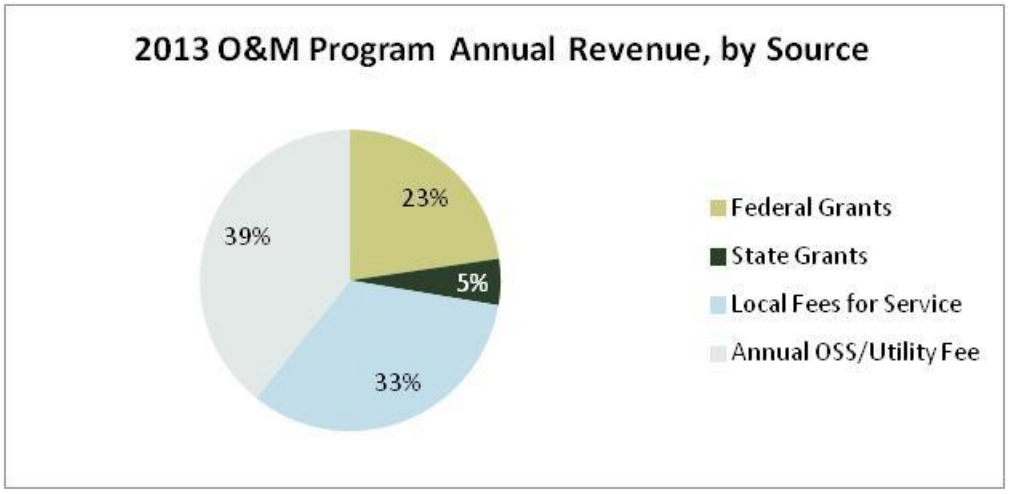
Thurston County, located on the southern end of Puget Sound, has extensive shoreline areas as well as inland lakes and rivers. The Thurston County OSS Management Plan was adopted in 2008, and an updated version is underway. Thurston County's management approach is to create and focus on MRAs and sensitive areas, bring them into compliance, and then evaluate the establishment of further MRAs based on local water quality conditions and available resources. The Environmental Health Director did not report significant political challenges as a current barrier to the management of septic systems in Thurston County. The following revenue, spending, and need estimates are specific to the management of septic system operation and maintenance in Thurston County, as required by the chapter 246-272A WAC and chapter 70.118A RCW.

2014 Reported O&M Program Revenues[27]

Title	Funder	Category	$
National Estuary Program Grants	Environmental Protection Agency	Federal Grant	$308,303
EcoNET Grant	WA State General Fund	State Grant	$22,193
State General Fund and ALEA	WA State General Fund & DNR	State Grant	$45,000
Time of Transfer Report Charge	Public	Local Fee for Service	$225,000
Pump/Maintenance Charge	Public	Local Fee for Service	$85,000
Operational Certificate (3-yr)	Public	Local Fee for Service	$140,000
Thurston Conservation Dist. Funds	Public	Annual OSS/Utility Fee	$60,000
Nisqually MRA Charges	Public	Annual OSS/Utility Fee	$228,000
Henderson MRA Charges	Public	Annual OSS/Utility Fee	$245,000
Total			**$1,358,496**

[26] Thurston County anticipates an increase in the number of OSS within the MRAs due to additional MRAs to be established in the near future.

[27] As reported by Thurston County. For grant sources whose period exceeded 12 months, the project team derived the annual figure. Thurston County revenues are based on 2014 projections.



Overview of Current Program Services:

Septic System Inventory and Database Management

- Data tracking and online report submission is supported by Online RME.
- The inventory of septic systems within the MRAs is complete.

Education

- The program offers 22 Inspection Certification Workshops per year. Each workshop is a five-hour course which certifies owners of septic systems within the MRAs to conduct their own inspections.
- Brochures and informational pages are available on Public Health and Social Services website.
- Septic Sense informational workshops are offered countywide as funding allows.
- The O&M Professional Certification Program includes meetings with industry professionals to discuss septic system-related issues in the county.

Inspection

- Inspections are required for all proprietary products.
- The most recent reported inspection compliance rate is 87% within the MRAs.
- Routine inspection reminders are sent to all OSS owners within the MRA and to owners of large, complex, or food service systems countywide.
- Inspection reporting enforcement requirements policies are in place and effectively used.
- A septic system inspection is required at the time of property sale.

Failure Investigation and Repair

- As of December 2013, 17 failures were not fixed within 18 months countywide, and 9 failures in the MRA not fixed within 18 months.
- Repair enforcement policies are in place, though homeowner funding issues are a major constraint.

Financial Assistance

- Incentives are available for MRA septic system owners.
- Financial assistance for OSS repairs and sewer conversion is available.

2013 Reported Current O&M Program Expenditures

Staff, includes: Staff for countywide and MRA management	$1,121,435
Expenses, includes: GIS consultant, LAB and GIS work, incentives, consultant services, printing, advertising	$135,000
Total	**$1,256,435**

Estimated Additional Annual O&M Program Needs[28]

Staff, includes: Sewer conversion staffing, increased countywide and MRA management	$1,339,524
Expenses, includes: Mailing, printing, software license and upgrades, monitoring and laboratory work	$140,000
Total	**$1,479,524**

Total Annual Estimated O&M Program Needs (current and additional)

Total County Need	$2,735,958
Average Cost per OSS Countywide	$39.09

Program Needs

Thurston County estimates that their ongoing program need is an annual total of approximately **$2.7 million** (this includes current spending plus additional need, detailed above). Additional revenues would be used to fund:

1. Establishment of additional MRAs in Totten, Eld, and Budd, all of which will be managed similarly to the current MRAs
2. Implementation of an efficient countywide inspection reminder and tracking program
3. Expansion of educational offerings
4. Additional sewer conversion assistance
5. Regional water quality monitoring to evaluate the effectiveness of the program
6. Additional resources to assure compliance

[28] As reported by Thurston County.

Whatcom County

Population: 205,262

27,564 Total Estimated Septic Systems

25,775 Known Septic Systems

3817 (14%) in Designated Area

Drayton Harbor Watershed (Marine Recovery Area)

Lake Whatcom Watershed (managed identically to MRA)

Environmental Health Director

John Wolpers

jwolpers@co.whatcom.wa.us

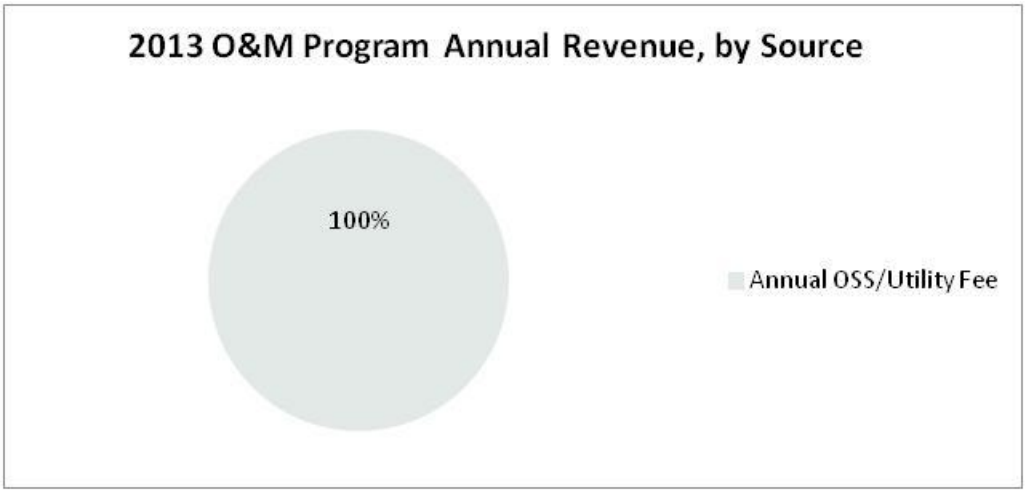
Septic Management Program

Whatcom County is the northernmost county in the Puget Sound region, with extensive shoreline to the west and inland water bodies throughout. One marine recovery area, Drayton Harbor, was classified as such in the 2007 septic management plan, though the watershed that feeds into Lake Whatcom is managed in an identical manner to the official MRA. Program managers did not report any significant constraints for the program at this time. The following revenue, spending, and need estimates are specific to the management of septic system operation and maintenance in Whatcom County, as required by the chapter 246-272A WAC and chapter 70.118A RCW.

2013 Reported O&M Program Revenues[29]

Title	Funder	Category	$
O&M Program Charge on Tax Statement	Public	Annual OSS/Utility Fee	$463,904
Total			$463,904

[29] As reported by Whatcom County. For grant sources whose period exceeded 12 months, the project team derived the annual figure.



Overview of Current Program Services:

Septic System Inventory and Database Management

- Data tracking and online report submission is supported by a county owned and managed data system.
- 231 assumed systems remain to be officially documented within the MRA.

Education

- Whatcom County offers five-hour Inspection Certification Workshops which certify septic system owners within the MRA to conduct their own system inspections.
- Brochures and informational pages are available on Public Health and Social Services website.
- On-site sewage system informational workshops are available countywide as requested.
- The O&M Professional Certification Program includes meetings with industry professionals to discuss septic system-related issues in the county.

Inspection

- The most recent reported inspection compliance rate is 26% within the MRA.
- Inspections are required on all properties within the MRAs.
- Inspection requirement enforcement was more stringent until public complaints about the requirements were brought to the Whatcom County Board of Health. Once enforcement policies were less stringent, the inspection compliance rate dropped to 26% in the MRA. Before the shift in enforcement policies, the compliance rate was 74%.
- Routine inspection reminders are sent to all septic system owners within the MRA and owners of large, complex, or food service septic systems countywide.
- Inspection reporting enforcement requirement policies are in place. However, the county is focusing on education rather than enforcement at this time.
- A septic system inspection is required at the time of property sale.

Failure Investigation and Repair

- As of December 2013, all failures were fixed within 18 months countywide.

Financial Assistance

- Financial resource assistance is available through the OSS repair loan, which also covers sewer conversion assistance.

- Incentives are available for septic system owners within the MRA.

2013 Reported Current O&M Program Spending Expenditures

Staff**, i**ncludes: Staff for septic management within MRA and countywide	$390,000
Expenses, includes: Vehicles, other program expenses and enhancements	$123,250
Total	**$513,250**

Estimated Additional Annual O&M Program Funding Needs[30]

Staff, includes: (None)	$0
Expenses, includes: (None)	$0
Total	**$0**

Total Annual Estimated O&M Program (current and additional)

Total County Need	$513,250
Average Cost per OSS Countywide	$18.62

Program Needs

Whatcom County estimates that their ongoing program need is an annual total of approximately **$510,000.** As shown above, Whatcom County program managers report no additional funds needed at this time. This estimation is based on the current programmatic framework for OSS management in Whatcom County. Whatcom County's program focuses on OSS inspection, tracking, and fixing identified problems and failures. A more proactive countywide OSS management program would require additional funds. It is possible that Whatcom County's OSS management framework may need to change based on rulings by the Growth Management Hearings Board:

Case	Board	Title	Date Issued
12-2-0013	WWGMHB	Hirst, et al. v. Whatcom County, Compliance Order: Finding Continuing Noncompliance, Extending Compliance Schedule, Supplementing the Record and Denying Invalidity	01/10/2014
12-2-0013	WWGMHB	Hirst, et al. v. Whatcom County, Order Denying Motion for Reconsideration	02/07/2014

[30] As reported by Whatcom County.

Appendix 2: Index of Terms

Table 17. Terms and Acronyms

Term	Description
Designated Area	A region within a Puget Sound county which is served by the county's enhanced septic system management program. Examples include Marine Recovery Areas and other Sensitive Areas.
LHJ	Local Health Jurisdiction
MRA	Marine Recovery Area. According to chapter 70.118A RCW, Marine *Recovery Area* means "an area of definite boundaries where the local health officer, or the department in consultation with the health officer, determines that additional requirements for existing on-site sewage disposal systems may be necessary to reduce potential failing systems or minimize negative impacts of on-site sewage disposal systems." The majority of the Puget Sound region's MRAs were designated in the 2007 septic management plans written by each county.
O&M	Operations and Maintenance (in reference to septic systems). For the purposes of this report, we use O&M program interchangeably with septic management program.
OSS	On-site Sewage System(s). Used interchangeably with the term *septic system*.
PIC	Pollution Identification and Correction
RCW	Revised Code of Washington
Sensitive Area	Sensitive Area, as described in the *On-Site Sewage System Management Plan Guidance,* refers to the following elements of WAC 246-272A-0015(1): (b) Identify any areas where OSS could pose an increased public health risk. Prioritized areas are listed below. (i) Assure that the Plan was developed to coordinate with the comprehensive land use plan of the entities governing development in the health officer's jurisdiction. (h) Describe the capacity of the local health jurisdiction to adequately fund the local OSS plan, including the ability to find failing and unknown systems.
WAC	Washington Administrative Code
PSP	Puget Sound Partnership

Appendix 3: Interview Tools

Below is the survey guide used during the interview and the spreadsheet detailing the pre-interview data request sent to the LHJ staff.

Survey Guide

The project team followed the survey guide below in facilitating the interview with each county.

1. Opening
    - **a.** Introductions
    - **b.** Brief recap of the goal of the study
2. Program Overview
    - **a.** Do you have a written overview of your OSS program (a flyer, briefing paper, etc.) that you can send us?
    - **b.** We understand you have MRAs in these geographic areas [verify our info]. Please describe the basic differences in your program within MRA(s) and County-wide.
    - **c.** Do you have other geographical areas (e.g. Sensitive Areas) that are different than the two areas noted above (MRA and non-MRA)? If so, please describe.
3. Overview of data submitted
    - **a.** Ask if they had any problems filling out the tables. Discuss.
    - **b.** Verify time periods for cost estimates (calendar year? Other?)
    - **c.** Discuss the basis for the costs (YTD data, last year's budget, other estimations, etc.—we will need to do this entry by entry based on our needs) [Clarify which entries may include a lot of variation from the numbers given.]
    - **d.** Verify that none of the costs are double-counted (particularly MRA vs. countywide)
    - **e.** Ask if there is an average FTE cost of a person working in their program? (if needed)
4. Review of data submitted
    - **a.** Revenue
        - i. Review information/verify understanding
        - ii. Discuss local revenue sources, mechanisms, stability, etc.
        - iii. Clarify and categorize "other" expenses
    - **b.** Current Costs/Budget
        - i. Clarify staff tasks to verify we have properly separated baseline from O&M Management activities
        - ii. Review operating budget tasks/costs
        - iii. Clarify and categorize "other" costs
    - **c.** Additional Funds needed
        - i. Clarify how these numbers were derived/justified
    - **d.** Future Funds Needed

i. Clarify how these numbers were derived/justified

e. Program Components

i. Discuss any anomalies/ inconsistencies with OSS plan

f. OSS Inventory

i. Clarify any questions on the numbers

ii. Ask if they have electronic report submission

iii. Discuss ability of database to generate other information if needed

5. Other

a. Do you feel as though the program as described in your management plan meets the minimum requirements of the WAC and RCW? If not, what are the barriers to meeting the requirements? If so, does it go above and beyond? Describe "extras."

b. Do you have a process of to identify new Sensitive Areas and/or MRAs? Describe.

c. Besides funding, what are other constraints to implementation of the optimal O&M program? How large are these constraints in comparison to funding constraints?

d. Help us understand the level of support (or lack of support) for your O&M programs you receive from:

i. OSS owners,

ii. General public

iii. OSS professionals

iv. Local elected officials

v. others

e. Program Components

i. Discuss each component to obtain a basic summary of what is included. In addition:

1. Discuss how they track inspections
2. Discuss their enforcement procedures, if any. Discuss how to quantify the time/effort needed (or spent if currently doing it) for enforcement.

ii. Clarify breadth of education efforts (Direct mail, ads, newspaper announcements, public service announcements, etc.)

iii. Be sure we have a clear understanding of MRA vs. countywide programs.

iv. Clarify baseline vs. O&M management activities.

v. Clarify that funding for these matches the budget and revenue on previous tables.

f. Loan program

i. Review responses to the loan program and/or identify best person to contact for the information.

6. Closing

a. Thank you!

b. Clarify contact info (both sides) in case of future questions.

Pre-Interview Spreadsheet

LHJ staff were asked to fill in the following seven tables in advance of the interview with the project team. The project team included instructions for these tables in the request to schedule interviews in order to allow time for completion.

Revenue

Instructions: This purple table summarizes the funding sources used in your OSS programs: Grants, County General Fund, Fees, Other. Examples are included to clarify the type of information we are looking for.

Grants	Funder	Program Tasks Funded (in full or in part)	Amount	Term (if not Jan-Dec)	Notes
ex. Centennial Grant	*ex. WA Dept. of Ecology*	*ex. OSS inventory and enforcement w/in MRA*	*ex. $80,000*	*ex. Jan 2011-Dec 2013*	
County General Funds		**Program Tasks Funded (in full or in part)**	**Amount**	**Term**	
	--				
	--				
County Fees	**Who pays?**	**Program Tasks Funded (in full or in part)**	**Amount**	**Term**	
Other	**Funder**	**Program Tasks Funded (in full or in part)**	**Amount**	**Term**	

Current Costs/Budget
(Current Annual Expenditures)

Instructions: This green table lists all your current costs (based on your current budget and funding). It is separated by FTEs (staff costs) and operating (non-staff) costs. If you know the FTE dollar amounts, please enter; if not, leave it blank and we will calculate based on an average FTE cost.

Current FTE (by name or position)	**Program Tasks**	**FTEs**	**$/year** (leave this blank if you don't know FTE costs)	**Notes**
ex. Permit Tech	*ex. Database entry, report submission quality assurance*	*ex.0.5*	*ex.$40,000*	
Operating Budget (non-staff costs)	**Program Tasks**	**$/year**	**--**	**Notes**
ex. Printing	*ex. Property owner training materials and printed reports*	*ex. $1000*	--	
			--	
			--	
			--	
			--	
Other Expenses (if any)	**Program Tasks**	**$/year**	**--**	**Notes**
			--	
			--	

Additional Funds Needed to Support OSS Management Program
(Additional Annual Need)

Instructions: This blue table summarizes the funds needed, beyond current costs, in order to fully implement the OSS Management Plan and achieve regulatory standards. Please enter additional need estimates needed to achieve the following:

- Countywide: 1) Inventory all systems; 2) Regularly notify all system owners; 3) Educate all owners
- MRAs and designated areas: 1) Have current records on all systems; 2) Fix all failures; 3) Maintain inspection rates of 95% compliance by 2020.

NOTE: *These estimates should not include the current FTE and expenses from the green table. The two tables added together will represent the total estimated funding needed.*

Additional FTE (by name or position)	**Program Tasks**	**$/year** (may use average FTE if needed)	**FTE**	**Notes**
ex. Permit Tech	*ex. Database entry, report submission quality assurance*	*ex.$90,000*	*ex.0.5*	
Additional Operating Budget (non-staff costs)	**Program Tasks**	**$/year**	**--**	**Notes**
ex. Printing	*ex. Property owner training materials and printed reports*	*ex. $1000*	--	
			--	
			--	
			--	
			--	
Other Expenses (if any)	**Program Tasks**	**$/year**	**--**	**Notes**
			--	
			--	

Future Funds Needed
(Anticipated One-Time Costs)

Instructions: This orange table summarizes any future funds, beyond the costs/funds needed in the blue and green tables, which you currently anticipate due to upcoming program changes. The most important part of this table is the list of anticipated changes. If costs are not estimable, please make note of this and leave the rest of the table blank.

NOTE: *These estimates should not include the current FTE and expenses from the green table or the additional funds needed from the blue table. The three tables added together will represent the total estimated funding needed, accounting for anticipated changes.*

Anticipated Changes Requiring More Funding				**Notes**
ex. New or expanded MRAs				
Additional FTE (by name or position)	**Program Tasks**	**$/year** (may use average FTE if needed)	**FTE**	**Notes**
ex. Permit Tech	*ex. Database entry, report submission quality assurance*	*ex.$90,000*	*ex.0.5*	
Additional Operating Budget (non-staff costs)	**Program Tasks**	**$/year**	**--**	**Notes**
ex. Printing	*ex. Property owner training materials and printed reports*	*ex. $1000*	--	
			--	
			--	
Other Expenses (if any)	**Program Tasks**	**$/year**	**--**	**Notes**
			--	
			--	

Program Component Clarification

Instructions: This pink table summarizes the basic program components to aid in our understanding of what each county program currently offers and shed light on some of the budget and financial need differences among counties. Please place an "X" in each box as it applies to your county.

Program Components	Is this part of your program? MARK WITH "X"			
	Yes, Countywide	Yes, only MRA	No, not really	Notes
Actively seeking out unknown OSS Any proactive measures to identify unknown OSS beyond the data entry of newly reported OSS from inspection reports.				
Actively seeking OSS that need repairs/replacement Any proactive measures to identify OSS that need repair/replacement				
Maintaining an electronic database and report submission				
A process for identifying and creating new MRA or other designated areas				
Certifying OSS owners and accepting owner-inspected OSS inspections Please note if only for certain system types.				
Sending individual reminders to homeowners when an inspection is needed				
Feasible methods to ensure that inspections are completed if reminder is not heeded Tracking system, enforcement procedures, etc.				
Feasible methods to ensure that OSS systems are repaired or replaced when needed Tracking system, enforcement procedures, etc.				
Offering educational classes for property owners				
Offering educational classes for the OSS industry				
Does your county require any type of reporting or inspection of OSS at time of property transfer?				

OSS Inventory

Instructions: This brown table is included in order to inform a separate OSS-related project (as noted in the instruction page). Please note the number of OSS for each category. The number of OSS included in the countywide column should include all OSS in the county (within MRAs and outside of the MRAs). If any of the data points are particularly difficult to collect, please note why you are not able to obtain the information at this time.

# OSS (please do not include LOSS)	**Countywide**	**MRA-only** (should be a subset of the Countywide column)	**Notes**
# OSS in your county database (known OSS)			
# OSS estimated total (known and assumed or anticipated unknown)			
# Gravity-flow OSS			
# Mechanical (pump/pressure) OSS			
# OSS other than gravity/mechanical, (if any)			
# OSS Urban Growth Areas (only if this # is easily obtained)			
# Residential OSS (single family, multifamily, mobile home, other)			
# Commercial OSS			
# Non-residential, non-commercial OSS (*ex. public*)			

Loan Program (if applicable)

Instructions: This gray table summarizes background information on loan programs related to OSS within your county. If you do not have a loan program leave the table blank. If there is more than one loan program in your county, please copy/paste this table and repeat.

NOTE: *If your residents have access to the Craft3 Clean Water loan, there is no need to include it here; we will gather data on the Craft3 loan program separately. If there is someone else in your county who would be better able to provide this information please indicate who that is and leave the table blank.*

Characteristics of the loan program in your county		Notes
Title of the loan program		
Funder(s)		
Funding Mechanism (e.g. revolving loan)		
Is it low-interest?		
Is it secured by a lien on the property? If not, please elaborate.		
Available Countywide? Only MRA?		
Minimum or maximum loan amount?		
What is the payback term?		
What can the loan be used for? (e.g. small and large repairs, replacement, connection to sewers, etc.)		
What are the eligibility criteria? Please elaborate.		

Appendix 4: Hood Canal Regional Pollution Identification and Correction Case Study

Introduction

When reviewing the project team's findings from the Puget Sound Septic Financing Assessment: Local Septic Management Program Needs Assessment (Program Needs Assessment), the Advisory Committee expressed interest in further understanding Pollution Identification and Correction (PIC) programs and their interaction with the on-site sewage system (OSS) management programs conducted by Local Health Jurisdictions (LHJs). In response to the Advisory Committee request, this appendix outlines the elements of Hood Canal's Regional PIC program and provides estimates for the associated costs. Appendix A: Foundational OSS Services describes the role of water quality monitoring—including PIC—in LHJ OSS management. Appendix A also states the need for LHJs to prioritize efforts annually, which includes the determination of locations for water quality monitoring.

As with all water quality monitoring efforts, the goals of Pollution Identification and Correction (PIC) programs are to:

- Assess fecal pollution of surface waters, including fecal coliform (FC) and Escherichia coli (EC).
- Prevent waterborne illness related to fecal pollution of surface waters, stormwater, and shellfish.
- Comply with federal, state, and county water quality mandates as required.

These goals are achieved through the program elements described in the Program Elements section, which include:

- Organizational elements
- OSS GIS Mapping
- Water Quality Monitoring
- Marine Water
- Fresh Water
- Shoreline Surveys
- Water Quality Investigations
- Pilot Nutrient Studies
- Education and Outreach
- OSS Operation, Monitoring and Maintenance
- PIC Priority Work Areas

Approach

The following text is extracted from "Hood Canal Regional Pollution Identification and Correct: Sustainable Funding Strategy," which was produced through a National Estuary Program grant. The grant was awarded to the Hood Canal Coordinating Council by the United States Environmental Protection Agency to support the planning phase of a regional PIC program to restore and protect water quality and habitat in the Hood Canal Action Area. Further program details and all planning documents are available at http://hccc.wa.gov/AquaticRehabilitation/Regional+PIC/default.aspx.

Plan Element Details and Funding Range

To achieve and sustain water quality improvements in the Hood Canal Action Area, the Hood Canal Regional PIC program needs to establish a regional approach to funding ongoing PIC activities. Below is a brief description of proposed program elements and funding costs.

Organizational

A regional pilot guidance group will be essential to the success of a Hood Canal Regional PIC program. It will be developed from local stakeholders and water quality experts to provided oversight and consistency to the regional PIC program and technical assistance to the jurisdictions. The group will develop strategies to assist jurisdictions to repair or replace failing OSS and other pollution sources. They will also develop strategies to fund regional work list tasks, PIC priority area work and long-term regional PIC funding. They will facilitate adaptive management to effectively utilize resources and share lessons learned.

OSS GIS Mapping

Because existing fresh water monitoring data does not allow a robust comparison of Hood Canal fresh water quality and until a robust fresh water monitoring program can be implemented, Department of Health marine water data and OSS GIS data, based on clusters of old or unpermitted OSS, will be useful to identify pollution areas of concern for PIC Priority Area Work Lists.

Water Quality Monitoring

The Hood Canal Regional PIC program will utilize water quality monitoring data to assess Hood canal Action Area water bodies to determine current fecal and nutrient contamination problems and short-term and long-term trends.

Marine Water

Marine water data from the Department of Health's ambient water quality monitoring program will be a useful resource for the Hood Canal Regional PIC team.

Fresh Water

The Hood Canal Regional PIC Monitoring Plan recommends that ambient freshwater stream monitoring be implemented monthly and included a list of proposed monitoring stations (HCCC, July 31, 2013).

Shoreline Surveys

The regional PIC team developed a work plan, including a table of proposed PIC shoreline project areas based on Department of Health shellfish and swimming beach concerns and local areas of concern. Shoreline surveys include: monitoring all fresh water discharges to the shoreline during wet and dry weather seasons, collecting confirmation samples for drainages that exceed the confirmation threshold, investigating fecal pollution "hotspots" through bracket sampling, property surveys, and dye testing when necessary.

Water Quality Investigations

Water quality investigations are conducted for complaints and to investigate confirmed bacterial "hotspots" found based on monitoring data collected from stream segments and drainages to marine shorelines. Confirmed water quality hotspots are investigated by creating a map of the area within 200 feet of the "hotspot" drainage. If there are ten or less developed parcels in the mapped areas, all of the parcels are inspected. Mapped areas with more than ten parcels are segmented and a series of three segment samples are collected to identify "hotspot" segments. Parcel investigations and surveys are conducted within the "hotspot" segments to find and correct fecal sources.

Pilot Nutrient Studies

The HCCC's Aquatic Rehabilitation Technical Advisory Committee is working on dissolved oxygen issues in Hood Canal. They will determine next steps and make recommendations based on available science.

Education and Outreach

Regional partners will research existing outreach campaigns and utilize research, campaign elements, and behavior measurement techniques that were developed using social marketing when possible to realize cost efficiencies. Partners will develop a local education and outreach approach based on social marketing principles to identify priority audiences and behaviors and target behavior changes that prevent and reduce pathogen and nutrient pollution.

A regional outreach campaign will need to incorporate motivators and address barriers for the priority audiences to make the selected behavior changes and will determine outreach delivery methods. A pilot outreach campaign will be conducted to measure the adoption of the selected behaviors. The approach will be refined based on the degree of behavior change and will be implemented on a larger scale during regional PIC work.

OSS Operation, Monitoring and Maintenance

The HCPIC work plan identified essential OSS Operation, Monitoring and Maintenance tasks: following up on problem service events, implementing sale inspections, implementing homeowner education requirements, tracking and auditing homeowner inspections, and conducting contractor quality inspection programs.

PIC Priority Work Areas

The regional PIC team put together a draft list of pollution problem areas based on Department of Health shellfish program and BEACH data, and local areas of concern. These areas will be prioritized for shoreline monitoring, follow up investigation work, and corresponding education efforts. The list will be updated as water quality concerns are resolved and as new areas are identified. The list will be ranked for implementation, as funding becomes available.

Table 18 contains cost estimates for each of the work elements in the Hood Canal Regional Five-Year Priority Area Work Plan. These estimates were based on recent, similar work conducted by local jurisdictions.

Table 18. Cost Estimates for Hood Canal Regional PIC Work Plan Elements

TASK ELEMENT	ANNUAL COST RANGE	INFORMATION SOURCE
Organizational	$60,000 for .5 FTE	Based on Hood Canal Regional PIC grant
OSS GIS Mapping	$5,000 - $10,000	Based on Hood Canal Regional PIC grant
Stream Water Quality Monitoring	$48,000/year (57 stations monthly for FC) - $390,000 Mason County Clean Water Program monitoring	Based on KPHD & Mason County SWTF
Lake Water Quality Monitoring	$48,000/year - (23 beaches/17 lakes weekly for E.Coli May-September + trophic for 4 lakes)	Based on KPHD
Water Quality Data Assessment	$24,000/year includes data entry, annual report, data requests	Based on KPHD
Total Monitoring Program	$200,000 includes stream & lake monitoring and data assessment & 57 marine stations monthly (32K)	Based on KPHD 2013
Shoreline Surveys	$100 per shoreline mile (includes investigations and surveys)	Based on KPHD
Water Quality Investigations	PIC surveys range from $450 (Barker Creek) to $1,316 (Hood Canal 2004) each	Based on KPHD
Nutrient Studies	$15,000 - $50,000+ (depending on TAC recommendations)	Based on KPHD pilot nutrient study
Education and Outreach	$40,000 for social marketing campaign - $160,000 for Mason County Clean Water Program Education	Based on KPHD & Mason County SWTF
OSS Operation, Monitoring and Maintenance	$280,000 for Mason County SWTF OSS Operation & Maintenance	Based on Mason County SWTF
PIC Priority Areas	$706,000 for 508 surveys/84 failures found in 21 project areas	Based on KPHD 2013
Stormwater Retrofit	$75,000 - unlimited	Based on Mason County SWTF

DOH 332-155 October 2014

For people with disabilities, this document is available on request in other formats. To submit a request, please call 1-800-525-0127 (TDD/TTY call 711).