

**Thurston County  
On-Site Sewage Operation & Maintenance Program**

*Current Status*

December 2013

Prepared by  
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The purpose of this report is to capture the current status of the county's on-site sewage operation and maintenance program and to evaluate the various elements of the program. This report has been written to be used by staff as well as the advisory committee who is updating the county's 2008 On-Site Sewage Management Plan.

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# Thurston County's Operation & Maintenance Program

Current program  
December 2013

## Introduction

For more than 40 years, Thurston County has worked to assure that on-site sewage systems (OSS) that pose the greatest risk to public health and the environment are properly managed. These efforts started with the "lakes" program in the late 1970's when new construction and monitoring requirements were put in place to reduce nutrient levels in lakes. The program has evolved to the recently adopted Nisqually Reach Watershed Protection Area with its special monitoring, maintenance and education programs. In between, the county has implemented, rescinded and modified programs as directed by the Thurston County Board of Health to address specific problems in defined areas as well as provide baseline services to all on-site sewage system (OSS) owners in Thurston County.

In 2005 and 2006 the State Board of Health and Washington State Legislature adopted laws (WAC 246-272A and RCW 70.118A) that directed the 12 Puget Sound counties to develop and adopt on-site sewage system management plans. These laws require counties to develop programs to:

- Progressively develop and maintain an inventory of all known OSS in operation within Thurston County.
- Find existing failing systems and ensure that system owners make necessary repairs.
- Find unknown systems and ensure that they are inspected and functioning properly, and repaired if necessary.
- Identify areas where OSS could pose an increased public health risk or contribute to degraded water quality.
- Identify operation, maintenance and monitoring requirements commensurate with the risks posed by OSS within sensitive areas.
- Enforce OSS owner permit application, operation, monitoring, maintenance and failure repair requirements.
- Develop a methodology for establishing Marine Recovery Areas (MRAs).
- Develop a database for keeping records associated with MRAs.
- Inventory all OSS in MRAs by 2012 and ensure all failing systems are serviced.
- Educate homeowners regarding their responsibilities for the operation and maintenance of their OSS.
- Remind and encourage homeowners to complete their operation and maintenance inspections.

The Thurston County On-site Sewage System Management Plan was developed by an advisory committee and county staff in response to these laws. It was adopted on January 8, 2008. Since that time the county, residents and on-site professionals have done much to implement the plan.

This document is a report of Thurston County's On-Site Sewage System Operation & Maintenance Program as it exists in October 2013. It describes the program and highlights changes that came about as the county implemented the 2008 management plan to comply with requirements in RCW 70.118A, WAC 246-272A and the goals of the Puget Sound Partnership.

This report is divided into the following sections:

- Number of Systems
- Notification of O&M Requirements
- Fees and Budget
- OSS Notice Response, Inspections and Maintenance
- Failing Systems
- Financial Assistance
- Enforcement Effectiveness
- Education / Training

The data for this report is from the AMANDA permit tracking system and various databases maintained by Thurston County Environmental Health. The purpose of this report is to evaluate Thurston County's O&M program and compare it against the requirements in RCW 70.118A, WAC 246-272A and the goals of the Puget Sound Partnership.

## Background

Thurston County has three active O&M programs:

- Henderson Watershed Protection Area / Marine Recover Area (Appendix A) – Implemented 2007
- Nisqually Reach Watershed Protection Area / Marine Recover Area (Appendix B) - Implemented 2013
- County-wide systems that require an operation & maintenance certificate for large and complex OSS – June 1999

The Henderson and Nisqually Reach Watershed Protection Area (WPA) / Marine Recovery Area (MRA) programs establish specific inspection requirements for every on-site sewage system within the program boundaries. The county-wide program applies to specific systems based on type or use that are outside the MRAs. It includes complex systems like mounds, sand filters, recirculating gravel filters, experimental and proprietary systems, aerobic treatment units (ATU's), drip dispersal systems, systems with disinfection units, holding tanks, remediation measures, community systems (COSS) and food establishments. Larger onsite sewage systems (LOSS), with design flows greater than 3,500 gpd, are regulated by Washington Department of Health and do not fall under the authority of the local health jurisdiction. Table 1 shows the number of systems within each program area. There is a combined total of 13,648 OSS in county O&M programs.

Of the *estimated* county-wide 70,000 OSS, 56,000+ do not require an operational certificate (OPC), i.e. gravity systems, pumped-to-gravity and pressure distribution systems that are outside the MRAs. These 56,000 are 80% of all septic systems in the county. They are not in any regulated O&M program at this time. Operation and maintenance information is available to these property owners online and two-hour basic OSS workshops offered by the County as resources are available.

TABLE 1  
Thurston County OSS Stats

Henderson 5928 parcels		Nisqually 3781 parcels		County Required OPCs		Known OSS with No Special O&M Requirements
Systems	6510	Systems	4195	Systems	2943	24,782
Total # of Systems in O&M programs: 13,648						

A requirement of RCW 70.118A is to develop an inventory of all OSS within the county. Thurston County has an inventory of 38,430 'known' OSS, i.e. a record of the septic system exists in the AMANDA database. [Table 1] Therefore, approximately 31,570 OSS are 'unknown' (70,000 – 38,430) OSS. 'Unknowns' become 'known' whenever ...

- The parcel is transferred at a time of sale
- A permitted repair is applied for
- An inspection report is submitted
- A building permit is reviewed
- A study area is inventoried

## Number of Systems

To help assure that the OSS is being properly monitored and maintained, a renewable operational certificate is required for each OSS that is part of an active O&M program. This certificate must be renewed at an established frequency – the majority are every three years (some are annual). In order to renew, the OSS must be inspected by an onsite professional or certified homeowner (MRAs only) and an inspection report submitted along with documentation of completed maintenance or repairs. The most frequent maintenance item is pumping the septic tank.

There are often more than one OSS on a single parcel, and sometimes components of a single system are on more than one parcel. On some occasions the system components have more than one owner. Table 2 shows the distribution of the number of systems per parcel within the two MRAs and the county. Because of multiple OSS on single parcels, there were almost 600 more systems ‘discovered’ in the Henderson MRA than was first estimated.

TABLE 2  
Distribution of Number of OSS per Parcel

Number of OSS	Henderson Parcels	Nisqually Parcels	County Parcels
1	5631	3659	26036
2	237	31	594
3-5	32	10	59
6-10	11	2	8
11-50	8	4	8
51-100	1	2	1
101-200	0	1	0

There are 13,648 OSS that are in regulated O&M programs. 14,108 operational certificates are required for these systems due to the extra OPCs for individual sewage tanks.

## Notification of O&M Requirements

Septic system owners need to know the requirements and recommendations for operating and maintaining their OSS. A list of the requirements for proper OSS operation and maintenance is sent to the OSS owner when:

- An initial OPC is issued for a new or repaired OSS
- New O&M requirements are established for an existing OSS
- Ownership of a property with an OSS is transferred
- A postcard is sent to the owner to confirm that the required operational certificate for an existing OSS has been renewed, and that they should contact the department if they want another copy of the O&M requirements.

## *Initial OPCs*

Permit applicants are sent a formal letter listing the O&M requirements for approved designs of OSS that will require a contract with a monitoring specialist or quarterly sampling. When any new or repaired system has been installed, the owner is sent an initial OPC that states the required and/or recommended O&M items. Upon renewal, postcards are mailed in lieu of the entire certificate and conditions. For systems that do not require an operational certificate, *County Other* in Table 3, the owner only receives an initial document with recommended maintenance.

TABLE 3  
**Number of 'New System Approvals'**

<b>Year</b>	<b>Henderson</b>	<b>Nisqually</b>	<b>County Required</b>	<b>County Other</b>
2007	0	#N/A	0	609
2008	2	#N/A	0	412
2009	4	#N/A	0	242
2010	9	#N/A	0	250
2011	67	#N/A	64	207
2012	58	5	75	150

## *Time of Transfer*

Thurston County adopted a Time of Transfer program in September 2010. A time of transfer report is required before a property served by an OSS can be sold or transferred. The applicant must submit a complete application and fees, have the OSS inspected, and have the septic tank pumped if it has not been pumped within the last twelve months. If the OSS is failing, it must be repaired. Any system deficiencies, including expired operational certificates, are reported to the applicant. Time of transfer applicants receive the requirements (or recommendations for gravity and pressure distribution systems) for proper operation and maintenance of their septic system. In 2012, 73% (985) of the time of transfer applications were for septic systems that do not currently require an operational certificate. [Table 4] Therefore, maintenance information was sent to almost one thousand septic owners who may not have previously gotten any maintenance information from the county. The Time of Transfer program has increased the distribution of septic system maintenance information. While one of the goals of the program was to ensure that new owners received information about the OSS they were purchasing, often times the applicant is a realtor, septic professional or current owner, and the information may not be passed on to the buyer.

TABLE 4  
**Time of Transfer Applicants**

<b>Year</b>	<b>Henderson</b>	<b>Nisqually</b>	<b>County Required</b>	<b>County Other</b>
2010	34	#N/A	22	239
2011	124	#N/A	78	929
2012	173	100	98	985

## *Operational Certificate Renewal*

The county permit tracking system, AMANDA, is a relational database that integrates all permitting functions, i.e. building permits, land use applications, OSS permits, food service permits, complaints and property violations, etc. The database includes OSS permit records. An electronic OSS record is created for each system when permitted or when 'discovered' in the case of existing 'unknown' systems. An operation and maintenance *folder* is created for each OSS where inspection and maintenance records can be tracked. If required, Inspection due dates are assigned and tracked. Upon completion of a satisfactory inspection and any needed maintenance or repairs, an OPC is issued.

When the certificate has not been renewed within 120 days of the renewal due date, the operational certificate folder status automatically changes to non-conforming. This places a 'red flag' on that property in AMANDA that shows the property has a violation. No other permit can be issued until the septic system and its operational certificate are brought into compliance. The status and history of inspections and maintenance of each OSS is recorded in the permit tracking system.

Table 5 lists the number of septic system parcels where the homeowner received operation and maintenance requirement information at time of certificate renewal. The majority of renewal notices for required operational certificates are on a 3-year renewal cycle; five hundred thirty-seven systems (537) require an annual renewal. In Table 5 the number for any given year is approximately one-third of the total notices for that program area. Note that the Nisqually program began in 2013 with the first notices being sent at the end of 2012.

TABLE 5  
**Operational Certificate Renewal Notices**  
Notification of O&M Requirements

Year	Henderson	Nisqually	County Required
2007	2016	#N/A	1164
2008	2060	#N/A	1089
2009	2379	#N/A	1026
2010	1854	#N/A	1053
2011	1946	#N/A	1020
2012	2043	*	894♦

\*Nisqually has approximately 1424 notices sent annually.

♦In 2011 the Washington State Department took over management of all OSS that were designed for flows greater than 3,500 gallons per day. That resulted in a reduction of 100+ County Req'd certificates.

Other than at Time of Transfer and for newly installed systems, the remainder of OSS owners do not receive written O&M recommendations for their OSS. Approximately 6,000 septic owners are annually sent information regarding operation and maintenance of their specific septic system as a result of the three O&M programs, new OSS installations and the Time of Transfer program.

## Fees and Budget

Ongoing O&M activities in Thurston County are supported by a variety of funding sources. The county-wide operational certificate program is funded through an individual fee charged to the owner or applicant at time of initial issuance and upon renewal. The Henderson and Nisqually MRA programs are primarily funded by an annual fee charged through the property tax statement. In the case of Henderson the cost of fully implementing a successful program was greater than estimated, and grants have been used to supplement the budget. Grants have been used to augment work at Nisqually and dye testing and shoreline survey work along Eld Inlet. Grants have also been used to fund project work such as the current "Onsite Sewage Management in the Scatter Creek Aquifer" project and to fund the Urban Septic Assessment project in Lacey, Olympia and Tumwater and their urban growth areas. Beginning in 2010 a fee is charged for each septic tank pump report filed by pumping companies. This fee funds OSS complaint investigation and compliance activities for OSS reported to have deficiencies. A separate fee is charged for Time of Transfer reports.

Most fees must be paid in person by check or credit card. MRA program charges are collected through the property tax billing and collection system. Appendix C lists 2013 fees and program rates. The pump report fee is paid electronically by OSS pumping firms through a third party online web service and electronically transferred to the County. The County is exploring the use of a web-based permit application system which would allow the public to apply for permits and pay associated fees online.

The 2014 budget for all O&M program costs is itemized in Table 6. The O&M budget does not include the time of transfer program. The bottom rows of the table identify the revenue source for the different programs and activities, as well as the number of staff for each.

TABLE 6  
Thurston County Onsite Sewage Operation and Maintenance Program 2014 Budgets

2014 Budget	Henderson MRA	Nisqually Reach MRA	MRA Compliance	OSS Owner Incentives/Financial Assistance	County-wide O&M	TOTAL
<b>Salaries &amp; Benefits</b>	\$161,551.36	\$175,599.72	\$35,184.00	\$2,253.52	\$128,180.64	\$502,770.00
<b>Lab Services</b>	\$3,500.00	\$2,500.00			\$500.00	\$6,500.00
<b>Postage</b>	\$2,700.00	\$2,700.00			\$2,500.00	\$7,900.00
<b>Supplies</b>	\$5,500.00	\$4,000.00			\$4,000.00	\$13,500.00
<b>Training</b>	\$1,200.00	\$1,000.00			\$1,000.00	\$3,200.00
<b>Misc. expenses</b>	\$2,000.00	\$2,000.00			\$2,000.00	\$6,000.00
<b>Mapping Services</b>	\$5,000.00	\$4,500.00			\$5,000.00	\$14,500.00
<b>Owner Grants/Rebates</b>				\$24,000.00		\$24,000.00
<b>Overhead/Internal Services</b>	\$40,387.84	\$52,679.92	\$10,556.00	\$676.06	\$32,045.16	\$136,345.00
<b>TOTAL</b>	<b>\$221,839.20</b>	<b>\$244,979.64</b>	<b>\$45,740.00</b>	<b>\$26,930.00</b>	<b>\$175,225.80</b>	<b>\$714,715.00</b>
<b>Revenue Source</b>	Charge on property	Charge on property	State grant	Conservation District Assessment	Fee	
<b># of Staff</b>	1.42	1.64	0.46	0.02	1.01	<b>4.55</b>

# OSS Renewal Notice Response, Inspections and Maintenance

## *OSS Notice Response*

Septic system inspections are required at time of Operational Certificate renewal. Operational Certificates are required for all OSS within the two marine recovery areas of Henderson and Nisqually as well as 2,943 other systems as required by sanitary code. [Table 1]

When operational certificate renewals are required, the process is as follows:

- 60 days before inspection due date ..... Renewal Notice
- 30 days after due date.....Second Notice – reminder
- 60 days after due date.....Third Letter – informing of impending noncompliance
- 120 days after due date.....OSS automatically flagged as non-conforming; no permits can be issued until system brought into compliance

Upon completion of a satisfactory inspection and any needed maintenance or repairs, an OPC is issued. (If part of the county-wide program, fees must also be received.) Table 7 shows that approximately half (range 44 -57%) of those who receive a first notice pay the fee if in the county-wide program, do the necessary inspection and required maintenance (pump tank or complete repairs), and renew their certificate. The compliance is similar for both Henderson and the county's required OPC program.

TABLE 7  
**O&M Renewal Notices Sent and First Response**

Year	Henderson	Renewed after 1 <sup>st</sup> notice	County Required	Renewed after 1 <sup>st</sup> notice
2007	2016	54%	1164	44%
2008	2060	46%	1089	53%
2009	2379	46%	1026	57%
2010	1854	48%	1053	54%
2011	1946	56%	1020	57%
2012	2043	54%	894	52%

Those who do not renew their certificate – either by not doing an inspection, not paying a renewal fee if in the county-wide program and / or not completing the required maintenance – receive a second notice thirty days after the certificate has expired. (In other words, three months after they receive the first notice.) Table 8 shows that about 40% of these who receive a second notice renew their certificate, i.e. do the required inspection, pay the renewal fee if required, submit the report and complete any necessary maintenance. Note: Table 8 data is for 2010 – 2012. Second notice and non-conforming notice processes were not fully automated until 2010.

**TABLE 8**  
**O&M Program Second Notices and Response**

Year	Henderson	Renewed after 2 <sup>nd</sup> notice	County Required	Renewed after 2 <sup>nd</sup> notice
2010	963	42%	485	42%
2011	859	44%	435	43%
2012	929	39%	497	37%

A final notice is sent sixty days after the due date if no inspection report is received or needed maintenance or repairs done, or no payment if in the county-wide program. About 27% of all notices initially sent, get a third letter. [Table 9] This notice informs the owner that their system is about to be out of compliance and gives the owner an additional sixty days to complete the inspection and any necessary maintenance. If the owner does not comply or call for an extension of deadlines, the system is automatically flagged as 'non-conforming' in the permit tracking system. In order to bring the system back into compliance, everything that was required to renew the OPC must be completed, and in addition all sewage tanks must be pumped, a county inspection done and a county field inspection fee paid.

Eighty-four percent (84%) of OSS with required OPCs are inspected and needed maintenance is completed in a timely manner. The notification process is labor intensive because approximately 45% of the owners need more than one notice.

**TABLE 9**  
**O&M Program Non-conforming Notices**

Year	Henderson	Percent of total notices sent	County Required	Percent of total notices sent
2010	563	30%	280	27%
2011	482	25%	249	24%
2012	566	28%	314	35%

### *Inspections*

Prior to 2011 pump and inspection reports could be submitted to the department on paper. Since January 1, 2011 all pump reports have had to be submitted electronically via OnlineRME – Responsible Management Entity. Since January 1, 2012 inspection reports completed by onsite professionals have had to be submitted via OnlineRME.

Effective January 2010, the sanitary code required that OSS requiring renewable OPCs in the county-wide program had to be inspected by an OSS professional. This change was made to ensure that these alternative systems were being inspected by qualified individuals.

**TABLE 10**  
**Number of OSS Inspections Reports Submitted**

Year	Henderson	Percent of 1 <sup>st</sup> notices sent	County Required	Percent of 1 <sup>st</sup> notices sent	Other County Inspections	Total Reports	Time of Transfer*
2007	1323	66%	824	70%	21	2168	
2008	1697	82%	980	90%	24	2701	
2009	2009	84%	816	80%	16	2841	
2010	1932	104%	887	84%	234	3053	16
2011	1903	98%	859	84%	174	2936	86
2012	1957	96%	779	87%	867	3603	381

\* Time of Transfer number is a subset of 'County other'.

### *Maintenance: Tank Pumps*

The most common OSS maintenance activity occurring is septic tank pumping. Since January 2010 pump reports have been filed electronically. To get an estimate of what percentage of tanks were pumped in Henderson during the first 3-year cycle, the number of pump reports received was divided by the number of notices sent in a given year. Most certainly tanks were being pumped without a renewal notice being sent. Though the almost 70% of septic tanks being pumped during the first 3-year Henderson cycle is a liberal estimate, more than a thousand tanks were being pumped each of the first three years. During the second cycle, 2010-2012, that dropped below 50%. About 3,700 tanks are being pumped annually in Thurston County.

**TABLE 11**  
**Septic Tank Pump Reports Submitted**

Year	Henderson	Percent of notices sent	County Req'd	County Other	Time of Transfer*
2007	1294	64%	452	89	
2008	1513	73%	554	121	
2009	1667	71%	565	249	
2010	894	48%	552	1285	76
2011	944	49%	581	2346	370
2012	880	43%	447	2336	383

\* Time of Transfer number is a subset of 'County other'.

### *Maintenance: Sampling*

Certain systems, such as those designed to meet a treatment standard, have required sampling as a condition of the operational certificate. The purpose of the sampling is to track the system's performance and ensure adequate sewage treatment prior to disposal. Many of these systems were installed in highly sensitive areas, often as repairs, where soil and site conditions were not adequate for installation of conventional systems. Sampling is typically required on a quarterly basis.

Sample results are reported electronically through OnlineRME. All systems that have monitoring requirements have a 1-year renewal frequency and must have a service contract with a Certified Monitoring Specialist (CMS) to do inspections and sampling. As of 2012 all Monitoring Specialists are submitting their reports online. Staff is assigned to track these results on a quarterly basis and notify owners and their CMS if the system is not performing as designed.

**TABLE 12  
Monitoring Reports Submitted**

<b>Year</b>	<b>Henderson</b>	<b>Nisqually</b>	<b>County Req'd</b>
2007	8	N/A	94
2008	8	N/A	91
2009	17	N/A	128
2010	18	N/A	104
2011	30	N/A	172
2012	86	25	171

Oversight of these complex systems is especially important because they are in highly sensitive areas and need to adhere to treatment standards. If not adequately treating sewage, disposal can pose a risk of fecal coliform or nutrient pollution to ground and surface water. Compliance status for monitored systems is listed in Table 13. Reasons for monitored systems being out-of-compliance include: 1) no CMS contract, 2) sample results not meeting treatment standards, 3) not renewing operational certificate and/or 4) not paying required fees.

**TABLE 13  
Compliance Status of Monitored Systems**  
November 2013

<b>Area</b>	<b>In Compliance</b>	<b>Non-conforming</b>	<b>Total</b>
Henderson MRA	98	7	105
Nisqually MRA	44	1	45
County	212	42	254

## Failing Systems

The department investigates complaints and reports of failing systems. When a failure is confirmed, the department notifies the owner of their responsibility to repair it and tracks progress for compliance. If the owner does not repair the system, the department uses a variety of methods to enforce compliance, including court orders and civil penalties.

Failing septic systems are currently identified through the following activities:

- Voluntary application of a repair permit
- Complaint report
- Time of transfer inspection report indicates problem
- OPC renewal inspection report indicates problem
- Pump report notes problem
- Failed dye test in MRA or special project area

## *Dye Test Results*

The O&M program in the MRAs uses dye test methodology to identify failing septic systems. Henderson and Nisqually programs require high risk systems, those with close proximity to water and restrictive soils, to have a dye test evaluation once every six years – every other renewal cycle. The methodology used is effective at finding systems failing to surface water. Approximately fifty dye tests are due every wet season in Henderson. Table 14 shows the number of systems found to be failing through dye testing. The dye test failure rate dropped from 11 % during the first 3-year cycle of the Henderson program to 4% or less in the 2<sup>nd</sup> cycle 2010-2012. The reason for lower failure rate is unknown at this time.

The county has been conducting dye tests since the early 1990's. The overall percent of shoreline systems found failing through dye testing has been 13 – 14%. This is the percentage seen during the first 2 years of the Henderson program, in 2007 and 2008. However, that rate has dropped to 2 – 4%. Following this data may help determine if routine dye testing and physical inspections and maintenance are contributing to lower rates of OSS failure.

TABLE 14  
Number of Henderson MRA Failed Dye Tests

Year	Number of Tests	Number of Failed Tests in Henderson	Failed dye test percentage
2007	21	3	14%
2008	38	5	13%
2009	45	3	7%
2010	50	1	2%
2011	51	2	4%
2012	53	1	2%

When an OSS fails a dye test,

- the owner is notified of the results;
- diagnostics are often performed to determine the cause of failure;
- Notice of Violation is issued with a timeline to repair; and
- O&M staff tracks repair progress through the permitting process.
- Enforcement actions are taken when needed.

## *Repair Records*

Another way to assess failures is to examine repair permit activity. Table 15 shows the number of system repair permits issued as well as the number installed. The rate of installation is consistent between the marine recovery area and the rest of the county.

For the six years examined, repairs of systems outside the Henderson MRA have been less than 1% – approximately 0.7% (470 permits / 63,490 systems) of the total estimated number of systems. Within the Henderson MRA 2.0% (132 repair permits /6,510) of the systems have been repaired. It is reasonable to conclude that the higher number of repairs within the Henderson MRA is because more failures are found as a result of regular inspections of every system.

TABLE 15  
**OSS Repairs Permits**

Year	Henderson			County		
	Issued	Installed	% installed	Issued	Installed	% installed
2007	26	24	92%	81	70	86%
2008	21	16	76%	86	78	91%
2009	28	25	89%	84	76	90%
2010	19	17	89%	83	75	90%
2011	21	20	95%	86	80	93%
2012	17	14	82%	50	42	84%
<b>Total</b>	<b>132</b>			<b>470</b>		

Table 16 shows the number of permits for tank replacements and installations. Within the Henderson MRA, there was a 71% drop in the number of tank replacement permits between the first and second inspection cycles. There was also a decrease in the number of tank replacements within the rest of the county during these same two time periods. However, the decrease was only 38%. The economic downturn may have been a factor in lower permitted tank replacements in the 2010 to 2012 time period. However, it is also possible that the Henderson inspection program identified leaking tanks that had been in that condition for some time, and once those were corrected the numbers decreased. Data from routine inspections may help estimate the life expectancy of sewage tanks.

TABLE 16  
**Permitted Tank Replacements**

Year	Henderson		County	
	Issued	Installed	Issued	Installed
2007	26	24	42	38
2008	15	11	28	23
2009	24	22	19	13
2010	5	5	27	21
2011	5	5	17	15
2012	9	9	11	8

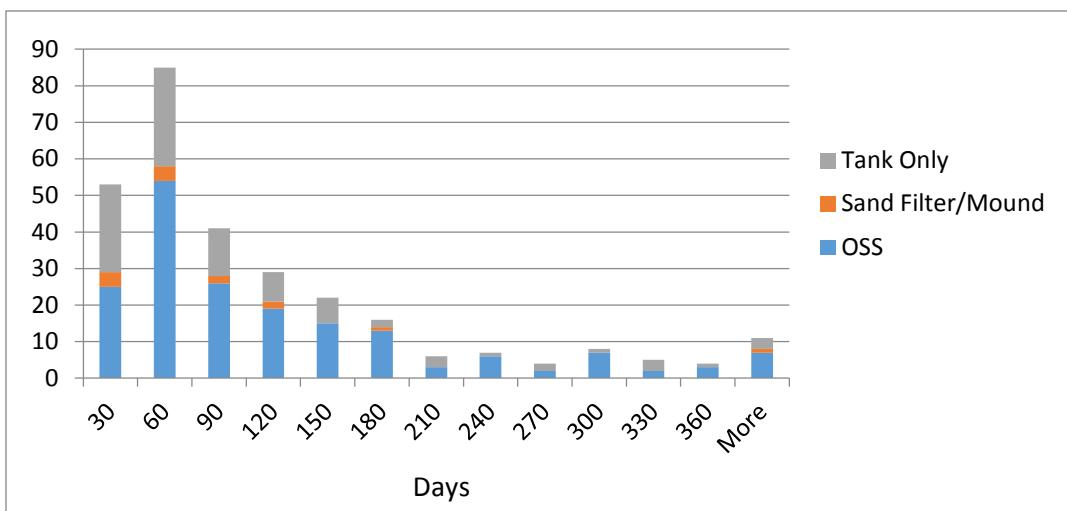
Repairs to sand filters and mounds include rebuilding / replacing these components. For the six year period 2007 – 2012, 3% of the sand filter, mound and sand filter / mound systems had replacement permits. [Table 17]

**TABLE 17**  
**Numbers of Sand filter / Mound OSS**  
**and Replacement Permits**  
 2007 - 2012

System type	Henderson	County		
	Total number of systems			
Sand filter only	118	1015		
Mound only	199	1023		
Sand filter/mound	82	205		
<b>Total</b>	<b>399</b>	<b>2243</b>		
Year	Rebuild / Replace Permits			
	Issued	Installed	Issued	Installed
2007	1	1	12	11
2008	1	1	8	7
2009	5	4	4	4
2010	0	0	8	7
2011	2	2	15	13
2012	2	2	11	8
<b>Total</b>	<b>11</b>	<b>10</b>	<b>58</b>	<b>50</b>

The majority of repairs are installed within 90 days of being permitted. (Figure 1)

**FIGURE 1**  
**Days from Repair Permit to Installation**  
 293 OSS: 2003 - 2013



## *Minor Repairs*

An example of adaptive management happened during the first cycle of the Henderson program. When reviewing inspection and pump reports, staff noticed that a considerable number of repairs were being done that did not require a permit. In 2009, the county began tracking minor repairs. These are termed 'minor repairs' – minor because a permit is not required, but important because these problems could indicate that the system is failing. The sanitary code definition is as follows:

\* "Minor repair" means the repair or replacement of any of the tightline pipe between a structure and a sewage tank; tightline between a sewage tank and the dispersal component; a pump; an interceptor drain; sewage tank pumps; pump control floats; effluent filters; pipes connecting multiple sewage tanks; OSS inspection boxes and ports where a sewage tank, treatment component, or soil dispersal component does not need to be replaced; and the replacement of a small section ten (10) feet or less of the SSAS damaged as the result of digging into it as part of an OSS evaluation. SANITARY CODE, ARTICLE IV, DEFINITIONS.

In 2009, which was the last year of the first 3-year inspection cycle, there were 431 minor repairs. [Table 18] It likely is true that the number of minor repairs that occurred in years one and two were similar. Hundreds of minor repairs were done. During the second 3-year cycle, the minor repairs decreased by half. With routine inspections and required reporting, it may be possible to estimate the number of minor repairs.

TABLE 18  
**Minor Repairs**

<b>Year</b>	<b>Henderson</b>
2007	# N/A
2008	# N/A
2009	431
2010	194
2011	184
2012	159

## *Financial assistance*

To assist OSS owners incentives and financial assistance are an integral piece of Thurston County's O&M program. Rebates, grants and loans are available to various groups within the county. Each funding program has eligibility criteria. Rebates for installing risers over septic components are available only to septic owners in the MRA / Shellfish Protection Districts. The funding source for the rebates is an annual Conservation District assessment of residents within these districts. Rebates are \$50 per riser with a maximum of \$100 per system and two rebate awards per person. The program is administered by O&M program staff.

Riser rebates have been available to septic owners in Nisqually for the same number of years as in Henderson. [Table 19] The sharp increase in the number of Nisqually riser rebates coincides with development and adoption of Nisqually O&M program.

The number of rebates in Henderson peaked the second and third year of program implementation. Approximately, 13% of the Henderson systems have received rebates for installing risers.

**TABLE 19  
Riser Rebates Awarded**

<b>Henderson SPD</b>				<b>Nisqually SPD</b>		
<b>Year</b>	<b># of Risers</b>	<b>\$ in Rebates</b>	<b># of OSS</b>	<b># of Risers</b>	<b>\$ in Rebates</b>	<b># of OSS</b>
2007	254	\$12,700.00	154	4	\$200.00	2
2008	372	\$18,600.00	217	4	\$200.00	3
2009	377	\$18,850.00	244	9	\$450.00	5
2010	167	\$8,350.00	98	4	\$200.00	2
2011	140	\$7,000.00	83	38	\$1,900.00	21
2012	117	\$5,850.00	77	44	\$2,200.00	23
<b>TOTAL</b>	<b>1427</b>	<b>\$71,350.00</b>	<b>873</b>	<b>103</b>	<b>\$5,150.00</b>	<b>56</b>

Small grants are offered to low income septic owners within the two shellfish protection districts to help with the cost of inspections, maintenance and minor repairs. They are available to owners enrolled in the senior/disabled property tax exemption program or have an annual household income of \$40,000 per year or less. Qualifying owners are eligible for a small grant once every three years to coincide with their inspection frequency. The funding source for the rebates is an annual Conservation District assessment of residents within these districts.

**TABLE 20  
Small O&M Grants**

<b>Henderson SPD</b>			<b>Nisqually SPD</b>	
<b>Year</b>	<b># Grants Approved</b>	<b>\$ Granted</b>	<b># Grants Approved</b>	<b>\$ Granted</b>
2007	16	\$4,594.29	2	\$759.50
2008	26	\$8,408.84	0	\$0.00
2009	25	\$8,182.21	0	\$0.00
2010	20	\$6,855.89	1	\$500.00
2011	22	\$6,035.89	2	\$612.53
2012	26	\$6,283.10	1	\$420.40
<b>TOTAL</b>	<b>135</b>	<b>\$40,360.22</b>	<b>6</b>	<b>\$2,292.43</b>

The county health department has had a financial assistance program for septic system repairs since 1993. Tables 21 and 22 show amount and distribution of grant and loan repair funds. The data shows that while only about 10% of the OSS in the county are within the Henderson Watershed Protection Area roughly 30% of the repair grant and loan funds distributed were for Henderson OSS repairs.

TABLE 21  
Repair Grants

Henderson			Nisqually		County		All Areas	
Year	# of Grants	Amount	# of Grants	Amount	# of Grants	Amount	# of Grants	Amount
2007	0	0	0	0	1	\$3000	1	\$3000
2008	0	0	0	0	1	\$2800	1	\$2800
2009	6	\$19,655.33	1	\$3750.00	5	\$18,619.82	12	\$42,025.15
2010	2	\$6750	0	0	5	\$21,500	7	\$28,250
2011	6	\$15,250	0	0	8	\$41,750	14	\$57,000
2012	1	\$2250	0	0	1	\$6500	2	\$8750
<b>TOTAL</b>	<b>15</b>	<b>\$43,905.33</b>	<b>1</b>	<b>\$3750.00</b>	<b>21</b>	<b>\$94,169.82</b>	<b>37</b>	<b>\$141,825.15</b>

TABLE 22  
Repair Loans

Henderson			Nisqually		County		All Areas	
Year	# of Loans	Amount of Loans	# of Loans	Amount of Loans	# of Loans	Amount of Loans	# of Loans	Amount of Loans
2007	0	0	1	\$14,752.39	2	\$32,315.07	3	\$47,067.46
2008	3	\$47,932.73	0	0	3	\$33,584.76	6	\$81,517.49
2009	0	0	1	\$7,280.39	5	\$56,489.18	6	\$63,769.57
2010	2	\$21,831.09	0	0	1	\$19,480.47	3	\$41,311.56
2011	2	\$26,359.97	0	0	8	\$117,607.41	10	\$143,967.38
2012	2	\$25,268.67	0	0	0	0	2	\$25,268.67
<b>TOTAL</b>	<b>9</b>	<b>\$121,392.46</b>	<b>2</b>	<b>\$22,032.78</b>	<b>19</b>	<b>\$259,476.89</b>	<b>30</b>	<b>\$402,902.13</b>

In six years, over half a million, \$663,880, of financial assistance has helped Thurston county OSS owners operate, maintain and repair their septic systems.

## Enforcement Effectiveness

Thurston County's O&M Program enforcement strategy is a combination of active and passive enforcement. When an OPC has not been renewed within 120 days, and no request has been granted for an extension, the OSS is automatically designated as a non-conforming system and is out of compliance with the county sanitary code. This designation is noted in the permit tracking system and can be seen by all permitting staff. To reinstate an OPC the following is required:

- A system inspection by a certified professional
- Pump the tank if it is more than a year since the previous pump
- Complete any required repairs to the system
- Pay back renewal fees if in the county-wide O&M program
- Pay a county field inspection fee
- Complete an field inspection application for a county OSS inspection

The owner of a non-conforming OSS receives a written notice of the status and a reminder to bring it back into compliance at the time of prescribed renewal due date, i.e. usually three years after the last due date.

Table 23 lists the number of systems / components that are '*In Compliance*' and '*Non-conforming*' within each of the O&M program areas. Eighty-four percent (84%) are in compliance – both in Henderson and County.

TABLE 23  
Number of OSS in Compliance and Non-conforming

	Henderson		Nisqually		County Required	
	Systems	Components*	Systems	Components*	Systems	Components*
In Compliance	5483	5601	4195	4274	2475	2713
Non-conforming	1027	1031	N/A	N/A	468	489
Total	6510	6632	4195	4274	2943	3202

\*More components than systems due primarily to additional septic tanks.

Passive enforcement means that no permits can be issued for any activity on a parcel with a non-conforming OSS until the OSS is brought back into compliance. At time of transfer, non-conforming status is reported, which results in many OSS being brought back into compliance. [See Table 24] As well at time of certificate renewal many OSS are reinstated, i.e. brought back into compliance. The process to notify OSS owners of their non-conforming status was automated in 2010 and may explain the increase in Henderson reinstatements that year.

The department does take compliance action when high risk OSS within the marine recovery areas fall into non-conforming status. The typical actions taken first include direct communication attempts to inform the owner and get voluntary action. If unsuccessful, it is followed by a notice of violation and can go on to civil penalties and court action if needed.

**TABLE 24**  
**Number of OSS Made Non-conforming and Number of OSS Reinstated**

Year	Henderson		County		<b>Reinstatements due to Time of Transfer</b>
	Made Non- Conforming	Reinstated	Made Non- Conforming	Reinstated	
2007			67	37	
2008	1	1	50	24	
2009	80	28	37	14	
2010	565	184	55	26	
2011	273	75	280	118	11
2012	302	66	170	59	24
<b>Total</b>	<b>1221</b>	<b>354</b>	<b>659</b>	<b>278</b>	

## Education / Training

Environmental Health uses a variety of means to inform and education OSS owners throughout the county including informational brochures that are included when mailing new operational certificates.

### *Workshops*

Two-hour basic septic system workshops are usually held several times each year in a variety of locations around the county. More than 2,000 people have attended these workshops from 1998 to 2008. [Table 25] These workshops are conducted by department onsite sewage staff and educators. Due to budget reductions, since 2011 the two-hour classes were not conducted unless grant funds were available.

**TABLE 25**  
**Number Attending 2-Hour Workshops**

Year	Number of 2 hour workshops	Number attending
1998	5	208
1999	8	245
2000	6	186
2001	6	208
2002	7	174
2003	7	216
2004	8	211
2005	8	155
2006	8	243
2007	4	112+
2008	4	111
2011	2	N/A
<b>Total</b>	<b>73</b>	<b>2039+</b>

An integral piece of the Henderson Watershed Protection Area program has been a 5 ½ -hour class to train and certify owners of gravity, pressure distribution, mound and Glendon systems to inspect and maintain their systems. The training includes classroom instruction, as well as outdoor instruction at a ‘septic system demonstration park’, located at Thurston County Health Department where the owner training is held.

Since 2007, 161 training workshops have been held, and 2,295 homeowners have been certified. The class is now open to property owners in either Henderson or Nisqually Reach MRAs and who have a standard gravity, pressure distribution, mound or Glendon type system. The training is funded by annual program charges.

**TABLE 26**  
**Number Attending Homeowner Inspection Certification Training**

<b>Year</b>	<b># of Workshops</b>	<b>Henderson</b>		<b>Nisqually</b>	
		<b>Registered</b>	<b>Attended</b>	<b>Registered</b>	<b>Attended</b>
2007	42	603	554	#N/A	#N/A
2008	36	630	546	#N/A	#N/A
2009	37	607	507	#N/A	#N/A
2010	19	338	285	#N/A	#N/A
2011	12	238	209	#N/A	#N/A
2012	15	224	194	124	107

Part of evaluating the county’s septic system education programs is to determine if this intensive education effort is achieving its goals. A questionnaire was developed and sent (in September 2013) to 150 class attendees. These certified homeowners were chosen at random from class participants of the first 3-year cycle (2007 – 2009). The certified homeowner had to be ‘in good standing’, i.e. their certification had not been revoked due to failure to renew their certificate.

The overall response was very positive. The program content is providing homeowners with the skills to conduct their own septic system inspections. The inspections are being done and are being repeated at time of renewal. Information is recalled, or handouts and personal notes provide the needed refresher. More web-based inspection information is desired. If the attendees were to decide, they would continue the training program. The full report can be found in Appendix D.

### *Website / Online information*

The Environmental Health website has pages of OSS and O&M information that can be viewed or downloaded. The webpages contain videos, brochures, fact sheets, lists of certified septic professionals, do-it-yourself instructions. More information can be found by ‘drilling down’ on each of the following pages:

- Septic Systems
- Septic System Operation & Maintenance
- Operational Certificates
- Educational Materials / Workshops
- Henderson Watershed Protection Area
- Nisqually Reach Watershed Protection Area

See Appendix E to preview what each of the above pages looks like.

## *Community Outreach and Events*

The Environmental Health educators organize and host the two-hour basic septic system workshops. Other educational outreach activities include:

- Dr. Yu, Thurston County Health Officer, articles in The Olympian
- Talkin' Trash articles distributed by Thurston County Public Works Department's Solid Waste Program
- Homeowner association newsletter articles
- General newspaper articles
- A septic display used at events such as the county fair and other water quality-related workshops
- Environmental Health blog to provide information on the basics of septic systems.
- Brochures

## *Septic Help Line*

The department has a designated 'Septic Help Line' that the public can call with questions, get advice and request technical assistance for their OSS.

## *Conclusions*

Thurston County's operation and maintenance program is a 'work in progress'. In the last decade, the program has expanded from 3,000 OSS with required O&M to include two marine recovery areas for a total of more than 13,000 OSS. The program which began as an exercise in paper management is now primarily electronic – a database that stores OSS permit designs, records and maintenance reports; an automated inspection notification system that sends more than 7,500 notices annually; and electronic submittal of OSS inspections and pump reports by OSS professionals through use of a web-based application. More OSS are being routinely inspected and maintained than ever before, and eighty-four percent (84%) with required O&M are in compliance. Failures are being found and repairs completed. Compliance and enforcement are now an integral and specifically funded element of the program. Hundreds of minor repairs to OSS components are being done that are extending the life of systems. Education has been expanded to include a certification for OSS owners to conduct their own inspections. More and more septic system information is available on the county's website to assist OSS owners in the care and operation of their systems. More than half a million dollars have been distributed to assist Thurston county septic system owners in the operation and maintenance of their systems.

The primary goal of Thurston County's O&M program is to protect public health. The program has been designed to meet the requirements of state law, the county's sanitary code and the county's OSS management plan. These requirements have either been met, or the mechanisms to meet the requirement have been put in place. (See Appendix F)

The program is accomplishing its goal and meeting its legal requirements. As a 'work in progress', the O&M program faces the challenge of how to become fully funded without the reliance on federal and state grants.



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Vasey Engineering. On-Site Sewage System Evaluation Using Dye Tracers in Thurston County. January 1996.

Washington Administrative Code. Chapter 246 – 272A: On-Site Sewage Systems. August 2010.



## **Appendices**

APPENDIX A: Map - Henderson Marine Recovery Area

APPENDIX B: Map - Nisqually Reach Marine Recovery Area

APPENDIX C: 2013 O&M Fees and Program Rates

APPENDIX D: Summary of Henderson Certified Homeowner Questionnaire

APPENDIX E: Environmental Health Web Pages

APPENDIX F: Summary of How Thurston County O&M Program Meets State Requirements and Plan Recommendations

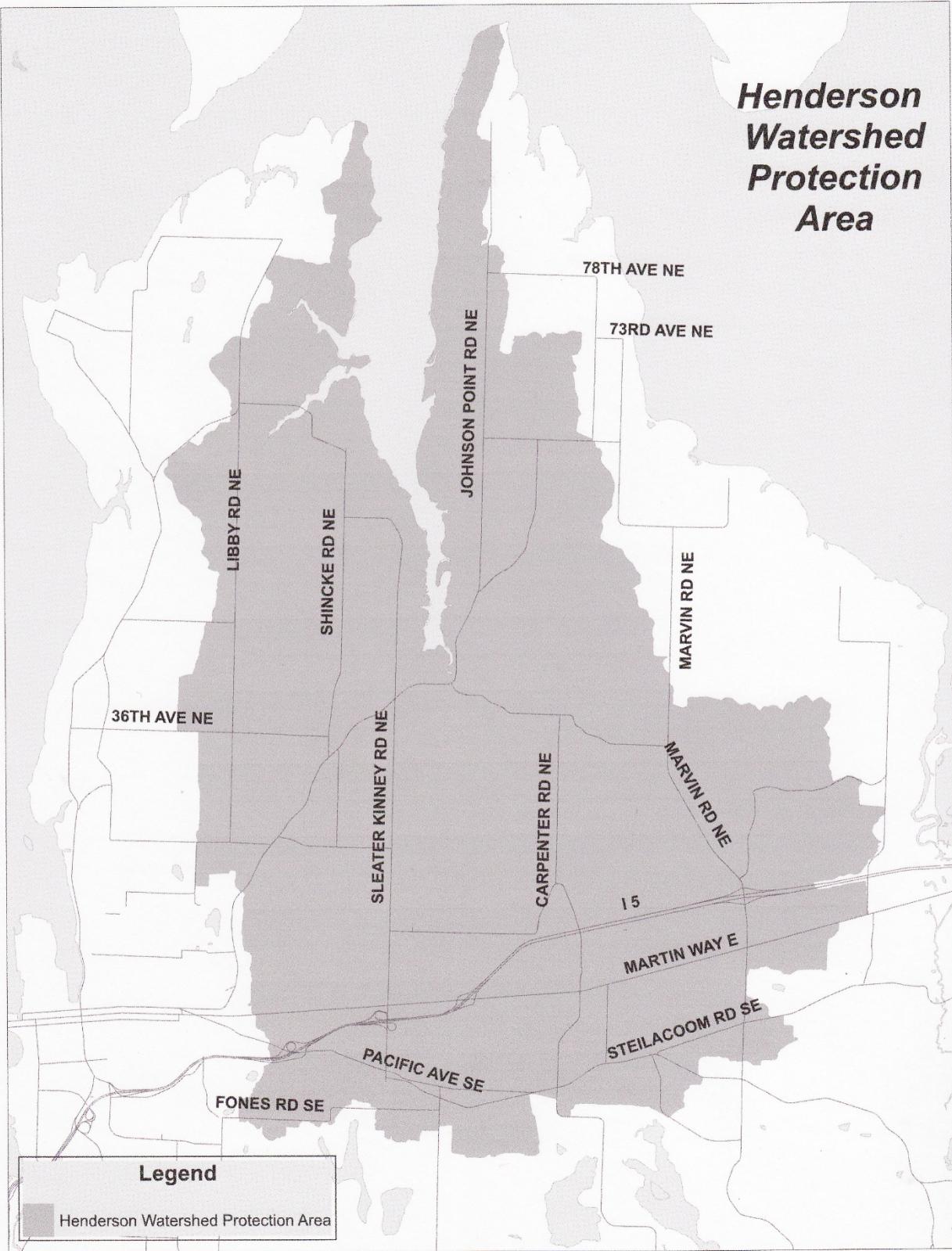


## **APPENDIX A**

### **Map Henderson Marine Recovery Area**



## Henderson Watershed Protection Area





## **APPENDIX B**

### **Map Nisqually Reach Marine Recovery Area**



## THURSTON COUNTY Nisqually Reach Watershed Protection Area

NRWPA Boundary

City Boundary

0 0.5 1 2 Miles

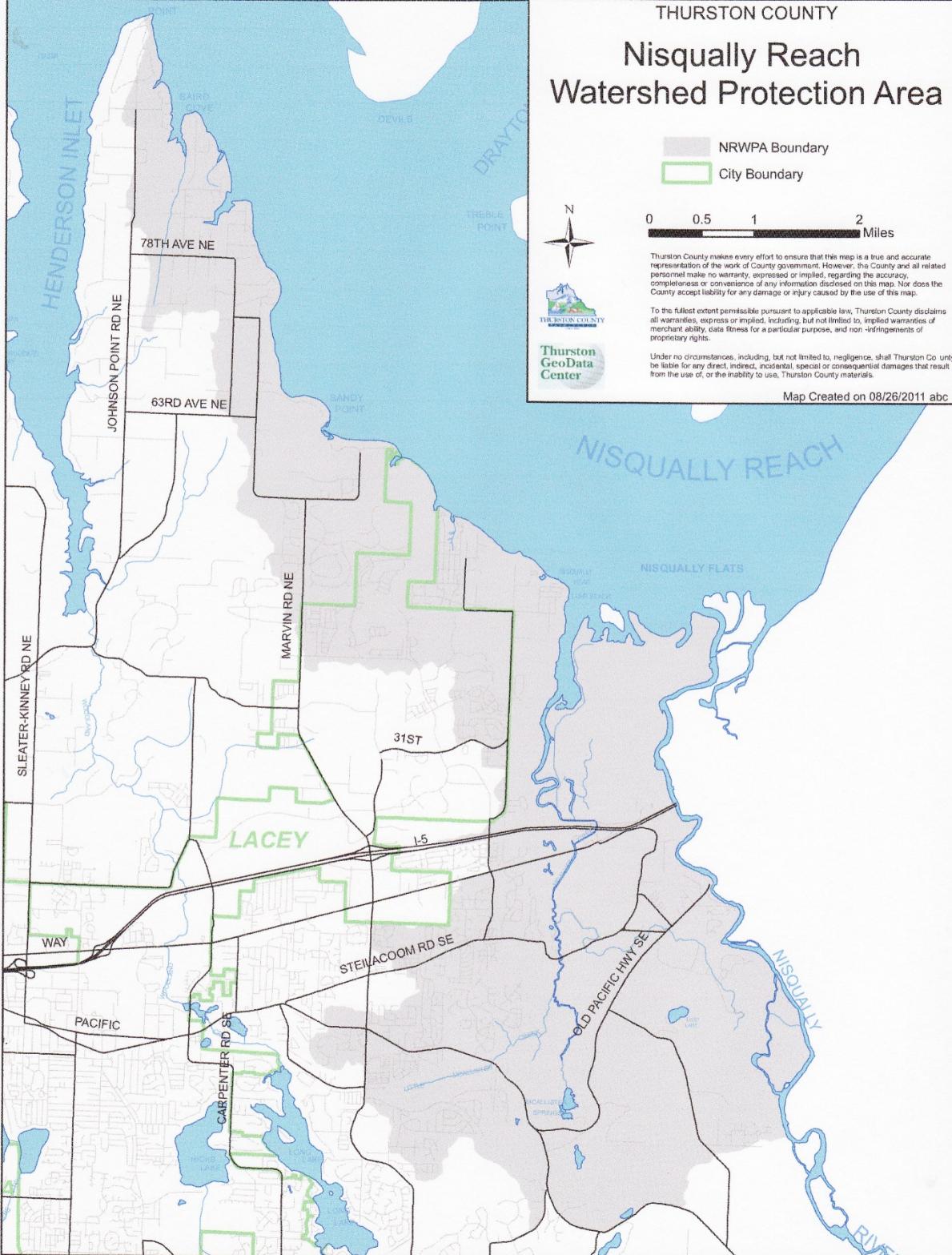


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Map Created on 08/26/2011 abc





**APPENDIX C**

**2013 O&M Fees and Program Rates**



## O&M Program Rates and Fees

2013

MRA program rate category	Henderson	Nisqually
Low risk	\$36	\$60
High risk	\$99	\$135
Community system	\$182	\$145
Food & Schools		\$145

Program Fees	
<b>New Operational Certificate</b>	\$155
<b>OSS Operation and Maintenance fee</b>	\$20
<b>Renewal</b> of Operational Certificate county-wide	\$120
<b>Renewal</b> fee for senior/disabled property owner	\$60
<b>Pumper report</b> filing fee	\$15
<b>Time of transfer</b> – online	\$185
<b>Time of transfer</b> – in person	\$205
<b>Field inspection</b> fee County portion of Reinstatement costs*	\$310

\* Additional reinstatement costs to OSS owner

- o System inspection by a professional
- o Pump tank if not within 1 year of last pump
- o Cost of any required maintenance
- o Pay all back fees if in county-wide program



**APPENDIX D**

**Summary  
of  
Henderson Certified Homeowner Questionnaire**



## **Henderson Certified Homeowner Questionnaire**

### **Summary Report**

October 2013

An integral piece of the Henderson Watershed Protection Area program has been to offer a 5 ½ -hour class to homeowners of gravity, pressure distribution, mound and Glendon systems on how to inspect and maintain their septic system. Upon completion of the class, homeowners are certified to inspect their own system and submit reports to the Health Department. This class has been taught by Dave Tipton, a veteran environmental health specialist. In addition to classroom instruction, a ‘septic system demonstration park’ was constructed at the Thurston County Health Department on Lilly Road in Olympia where the owner training is held.

Since 2007, 161 training workshops have been held; 2402 homeowners have been certified. These classes have had high attendance and a very low cancellation rate. The class is open to owners who live within the boundary of the Protection Area and have either a standard gravity, pressure distribution, mound or Glendon system. The program is funded by annual program charges.

Notification, registration and preparation for class takes significant staff time. The first 3-year cycle (2007 – 2009) of the Henderson program was a full schedule of four classes (each with 15 – 20 participants) held monthly with August having no classes. The second 3-year cycle (2010 – 2012) had full classes though fewer were held.

Part of evaluating the county’s septic system education programs is to determine if this intensive education effort is achieving the goals and if it should be continued. A questionnaire was developed and sent (in September 2013) to 150 class attendees. These certified homeowners were chosen at random from class participants the first 3-year cycle (2007 – 2009) registration list. The certified homeowner had to be ‘in good standing’, i.e. their certification had not been revoked due to failure to renew their certificate.

The purpose of the questionnaire was to learn if class participants:

- Thought the class was helpful
- Had experience doing septic system inspections before they took the class
- Were able to successfully do their own inspection after the training
- Could remember how to inspect their system three years later when they renewed their operational certificate
- Needed to have their septic tank pumped
- Thought a refresher of some sort would be helpful to them
- Believe the county should keep the program

Of the 150 questionnaires mailed, thirteen (13) were returned as undeliverable and seventy (70) were returned completed (51%).

The results are as follows:

1. Had you been doing your own septic system inspections before attending the class?

Yes: 14 (20%)      **No: 54(77%)**      No answer: 2 (3%)

Three-fourths of class attendees had not been inspecting their own systems prior to attending the class. One respondent stated that prior to the class they did not know the difference between a septic system and municipal sewer. Even those who answered "yes" and who had been inspecting their own systems answered question 2 as 'very helpful'.

**Conclusion:** The class is educating primarily owners who have never inspected their septic system prior to taking the training.

2. How helpful was the 5-hour homeowner septic system training?

**Very helpful: 65 (93%)** Somewhat helpful: 5 (7%)

Knew everything before: 0      Waste of time: 0

The comments at the bottom of the questionnaire confirmed that the instruction was helpful and much appreciated. The instructor was applauded for making the material interesting and easy to understand. Many commented that the class time was well used – 'no wasted time'.

**Conclusion:** Resounding approval of the instruction content and training.

3. Did you conduct your own inspection of your septic system after attending the class?

**Yes: 65 (93%)**      No: 5 (7%)

The question always arises: So they took the class, did they go do the inspection? The answer for this sampling indicates that 93% of them did. Some who answered 'no' indicated that they were 'too old' to do the work; others said they preferred to hire a professional. One comment expressed an appreciation for learning how to pick a 'responsible company'.

**Conclusion:** Good follow-through to action.

4. Were you confident doing your own inspection?

**Easy to do the inspection: 58 (83%)**      Had some problems: 11 (16%)

Wouldn't do it again: 1

A considerable amount of information is presented during the 5 ½ hour class and this question was posed to ask if participants could remember everything needed to conduct their inspection. A number commented that they took notes during class and filed them and the handouts for future reference. They said they found those most helpful when the time came to do the renewal inspection. A clear majority found the inspection easy to do.

**Conclusion:** The majority responded that it was 'easy to do' their inspection.

5. Did you need help doing the inspection?

**No: 57 (81%) Yes: 13 (19%)**

Had to call the county: 3

Had to hire a pumper: 5

The instructor told the classes that he was available to offer help—either over the phone or a site visit. The 11 who ‘had some problems’ (question 4), needed some help and chose to either call the county or hire a pumper. Of those who hired a pumper, one comment was that the pumper had confirmed that the homeowner did know what they were doing and had done the inspection correctly.

**Conclusion:** The majority did not need help with the inspection. If they did, help was readily available.

6. Did your septic tank need pumping?

Yes: 21 (30%) **No: 49 (70%)**

Almost three-fourths of the tanks did not need to be pumped. However, some people did write that the tank needed to be pumped at the subsequent renewal cycle. Many commented that this class was saving them money by not having to hire someone to do their inspection. It appears that it was also saving them money by not having to pump the tank.

**Conclusion:** The majority of tanks did not need pumping.

7. Did you conduct your own inspection when your renewal notice came in 2010, 2011 or 2012?

**Yes: 66 (94%) No: 4 (6%)**

Most homeowners are continuing to do their inspections at renewal time.

**Conclusion:** Step one toward becoming a maintenance habit.

8. Did you still remember how to do the inspection?

**Yes: 62 (88%) No: 8 (12%)**

Forgot everything: 0 Had to call the county: 1 Had to hire a pumper: 2

Most of the respondents remembered how to do their inspection. Comments indicated the importance of taking good notes during the class and filing them for future reference. The handouts were also most helpful to attendees.

**Conclusion:** Class material is learned and remembered.

9. Have you recommended the training to your neighbors?

**Yes: 56 (80%) No: 12 (17%) No answer: 2**

Many class attendees told their friends and neighbors about the class. Also many sessions had neighbors attending together.

**Conclusion:** Word-of-mouth is great publicity.

10. Would a refresher be helpful? If so, what kind of format would be best for you?

No: 23 (33%)      **Yes: 47 (67%)**

Classroom/septic park: 12      Online tutorial: 26      'How To' brochure: 19

Two-thirds of the respondents said they would like some sort of refresher. The preference was for a web-based tutorial followed by a brochure (also available online to download). Twelve preferred a classroom session. Some suggested that a 'Reminder' be put on the EH web page linking to basic inspection instructions.

**Conclusion:** Data indicates a convenient refresher is desired.

11. Should the county continue to offer the training?

**Yes: 68 (97%)**      No answer: 2

With the exception of two respondents who didn't answer the question, the answer was a resounding 'yes'. One of the two who didn't answer, wrote that it was 'easier to hire' a pumper.

**Conclusion:** Affirmation of the value of the training.

Comments written at the bottom of the questionnaire have been included with the above question results. Many respondents expressed their appreciation for the opportunity to do their own inspections.

The overall response was very positive. The program content is providing homeowners with the skills to conduct their own septic system inspections. The inspections are being done and are being repeated at time of renewal. Information is recalled or handouts and personal notes provide the needed refresher. More web-based inspection information is desired. If the attendees were to decide, they would continue the training program.

## **APPENDIX E**

### **Environmental Health Web Pages**

- Septic Systems
- Septic System Operation & Maintenance
- Operational Certificates
- Educational Materials / Workshops
- Henderson Watershed Protection Area
- Nisqually Reach Watershed





## PUBLIC HEALTH AND SOCIAL SERVICES

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EH Home > Septic Systems (OSS)

## SEPTIC SYSTEMS (ONSITE SEWAGE SYSTEMS)



### Staff Availability for Questions

**Update** - Environmental Health staff are available for questions at the Permit Assistance Center Tuesday, Wednesday and Thursday from 8 a.m. to 12:30 p.m. If you have questions about land use, septic systems, or wells, please be sure to come in on Tuesday, Wednesday or Thursday from 8 a.m. to 12:30 p.m., when staff from the Environmental Health Department are available to answer questions. For additional contact information, [click here](#).

### Septic System Permit Search

Click on our [Web Site Card](#), which provides links and information on permit status and archives, and other helpful webpages and contact phone numbers.

You are now able to look up current permit status for Septic and Landuse Projects. You will need either your permit or project number to complete the search. [Current Permit Info](#)

Are you looking for information about your septic system and want to find it "on-line"? You can access information prior to 2009. When you click on the link below [Septic Permit Info](#)

### Operation & Maintenance

Learn to properly operate and maintain your septic system.

- [Septic System Basics](#)
- [The Drainfield](#)
- [Inspecting Your Septic Tank](#)
- [Septic Systems Dos and Don'ts](#)
- [Special Conditions](#)

### Septic System Videos

- [Gravity Flow System, Understanding and Maintaining Your \[VIDEO\]](#)

### Time of Transfer

Requirements for properties with on-site sewage systems when sold or transferred...[more](#)

### Septic System Professionals

- Septic system professionals certified to perform services in Thurston County:
  - [Designers](#) [PDF]
  - [Installers](#) [PDF]
  - [Pumpers](#) [PDF]
  - [Monitoring Specialists](#) [PDF]
- [Information for Septic System Professionals:](#)
  - [Certified Monitoring Specialist](#)
  - [Designers and Installers](#)
  - [Installers](#)
  - [Pumpers](#)

### Operational Certificates

Thurston County requires certain types of septic systems to have Operational Certificates. Find out what is needed to renew the certificate...[more](#)

### Financial Assistance — Low-Interest Loans and Grant Programs

Administers several low-interest loan and grant programs to help residents who live in shellfish protection areas or need financial assistance to maintain existing systems and repair failing systems.  
...[more](#)

### Permits

Issues permits for new septic systems or when repairs to an existing system are needed. **Currently under construction.**

- **Pressure Distribution System, Understanding and Maintaining Your** [VIDEO]
- **Mound System, Understanding and Maintaining Your** [VIDEO]
- **Sand Filter System, Understanding and Maintaining Your** [VIDEO]

#### **Educational Materials / Workshops**

List of publications, workshops, and other information for septic system owners...[more](#)

#### **FAQs - Frequently Asked Questions**

Find the answers to common questions. [...more](#)

#### **Types of Septic Systems**

Find out about the different types of septic systems.

- **Conventional Systems**
  - **Gravity System** [PDF]
  - **Pressure Distribution System** [PDF]
- **Alternative Systems**
  - **Aerobic Treatment Unit (ATU)**
  - **Mound System** [PDF]
  - **Sand Filter System** [PDF]
- **Other Systems (Proprietary )**
  - Glendon® BioFilter
  - AdvanTex Filter
  - Drip Irrigation

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# PUBLIC HEALTH AND SOCIAL SERVICES

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EH Home > Septic Systems > Operation & Maintenance

## SEPTIC SYSTEM OPERATION & MAINTENANCE

### ***Septic System Basics***

- How Septic Systems Work
- Maintenance Tips
- What Can Go Wrong?

### ***The Drainfield***

- How It Works
- Drainfield Do's and Don'ts
- Is Your System Failing... Warning Signs
- Additional Information

### ***Septic System Videos***

- Gravity Flow System, Understanding and Maintaining Your [VIDEO]
- Pressure Distribution System, Understanding and Maintaining Your [VIDEO]
- Mound System, Understanding and Maintaining Your [VIDEO]
- Sand Filter System, Understanding and Maintaining Your [VIDEO]

### ***Inspecting Your Septic Tank***

How to inspect your septic tank using the "stick test" and other inspection tips....[more](#)

### ***Septic System Do's and Don'ts***

Tips to extend the life of your septic system, save on maintenance costs, and protect water quality....[more](#)

### ***Special Conditions***

Learn how to protect your septic system during a flood, power outage, and other special situations....[more](#)







## PUBLIC HEALTH AND SOCIAL SERVICES

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EH Home > Septic Systems > Operational Certificates

### OPERATIONAL CERTIFICATES

[Renewing the Certificate](#) | [What If I Don't Renew My Certificate?](#)

Thurston County regulations require an Operational Certificate, issued by Thurston County Health Department, for certain types of septic (on-site sewage) systems. The goal of the Operational Certificate is to assure that septic systems are properly operated and maintained. Properly monitored and maintained systems have longer operating lives and less impact on our water resources. The Certificate lists the required conditions for monitoring and maintaining your sewage system (check your Certificate for specific requirements that apply to your system).

#### ***What Do I Need to Renew the Certificate?***

Prior to your renewal date, you will receive a Septic System Operational Certificate Renewal packet, which includes:

- Renewal fee invoice
- Coupon for pumping
- Consumer tips guide

#### ***Septic System Inspection***

Your septic system must be inspected by a certified septic system professional. For additional information go to **Septic System Professionals** or contact our office at (360) 867-2626. The inspection should include the following:

1. **Inspect the septic tank and have it pumped or repaired, as necessary.** If the scum and/or sludge levels indicate, the tank should be pumped (see [Septic Inspection & Pumping Guide \[PDF\]](#)). NOTE: If you are unsure of where your septic tank or drainfield is located, see [Locate Your Drainfield](#).
2. **Inspect the drainfield area.** Look for signs of failure, note any wet spots, seeps (algae and drainage on banks or slopes), or areas where water is surfacing.
3. **Inspect other system components** — such as pump, distribution box, and monitoring ports. Look for indications that the pump system is malfunctioning, such as sewage backing up in the house, high liquid levels in the septic tank, or surfacing sewage over/near the pump chamber.

#### ***What does a septic system operational certificate look like?***

Follow the links below to view sample operational certificates for a gravity system, a mound system, an Glendon system, or a sand filter system. **Most important** are the maintenance requirements listed on page(s) 2 - 3. Page 1 includes the legal site and owner information, a renewal and an expiration date, as well as pertinent system information. On the last page of the certificates is a list of *Best Practices* for septic system owners.

- Glendon system
- Gravity system
- Lift Pump to Gravity system

- Mound system
- Pressure Distribution system
- Sand filter system

#### ***Owner-Inspector Certification***

Property Owners who wish to inspect their own septic system must apply and demonstrate qualifications to inspect their system. Only gravity, pressure distribution, mound and Glendon septic systems qualify for owner-inspection certification. Septic systems that have a sand filter, aerobic treatment unit or require a contract with a Monitoring Specialist do **not** qualify for owner-inspection certification. Please read the following documents thoroughly before applying.

1. **Policy for Owner Certification to Self-Inspect On-site Sewage Systems;**[PDF] and,
2. **Application for Septic System Owner-Inspector Certification.** [PDF] (This is a fill-in document which can be saved with Adobe Reader 8 or newer version.)

#### ***What If I Don't Renew My Certificate?***

If you fail to renew your Certificate, your sewage system will be classified as non-conforming. This means other permit approvals can be withheld until the Certificate is renewed.

The certification renewal process for non-conforming systems requires an inspection of the system by an employee of Environmental Health after additional fees are paid. Please complete the **Operational Certificate Field Inspection form** to initiate the inspection process.

By keeping your Certificate renewed on a timely basis, you can avoid the additional renewal fees and untimely delays during future building projects or property sales.

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# PUBLIC HEALTH AND SOCIAL SERVICES

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EH Home > Septic Systems > Education

## EDUCATIONAL MATERIALS / WORKSHOPS



[Publications](#) | [Workshops](#)

The Environmental Health Division offers many publications, workshops, and other information for septic system owners. Click on a title below to view the information, or call 360-867-2626 to request a flyer or brochure (Thurston County residents only, please).

### **Publications**

Basic information about caring for a particular type of septic system.

- [Mound System](#) [PDF]
- [Pressure Distribution System](#) [PDF]
- [Sand Filter System](#) [PDF]
- [Septic Tank System](#) [PDF]

### **Drainfield**

- [Landscaping Your Drainfield](#) [PDF]

### **System Maintenance**

- [Inspecting Your Septic Tank](#) [PDF] — Learn to make scum and sludge sticks so you can inspect your septic tank.
- [Septic System Do's and Don'ts](#) [PDF] — Maintenance record with septic system do's and don'ts. Includes a place to record information about your system.
- [Septic Tank Manhole and Access Riser Installation](#) [PDF] — Learn to install risers for easy access to your septic tank.

### **Other Helpful Information**

- [Water Conservation Tips](#) [PDF] — Ways to reduce your water use.
- [Green Cleaning Recipes](#) [PDF] — Easy-to-make, low-toxic household cleaners.

### **Videos**

- [Gravity Flow System, Understanding and Maintaining Your](#) [VIDEO]
- [Pressure Distribution System, Understanding and Maintaining Your](#) [VIDEO]
- [Mound System, Understanding and Maintaining Your](#) [VIDEO]
- [Sand Filter System, Understanding and Maintaining Your](#) [VIDEO]



## Questions?

For questions on septic system care in Thurston County, call the Septic Help Line at 360-867-2669 or [email us](#).

## Workshops

### ***Free Septic Sense Workshops***

***See you in the Fall!***



#### ***Septic Sense workshops are informational only.***

These workshops **do not** qualify Henderson Watershed Protection Area homeowners to do their own septic inspections (see **Henderson WPA Septic System Inspection Certification**).

### ***Henderson Watershed Protection Area Septic System Inspection Certification***

For Henderson Watershed Protection Area Homeowners only.

***Become certified  
to do your own septic system inspections!***

#### **Certification Qualifications:**

1. Own property in the Henderson Watershed Protection Area, and;
2. Have one of the following septic system types: **Conventional gravity, Pressure distribution, Mound, Glendon® Biofilter.**

### ***FREE One-day Workshop***

**When:** Friday or Saturday from 9 am - 2:30 pm (see [online sign-up](#) for dates)

**Where:** Public Health Bldg, 412 Lilly Rd (near St. Peter's Hospital)

Bring your lunch, there will be a 30-minute break.

**NOTE:** Part of the class is outside, please dress accordingly.

#### ***Attendees will receive:***

Certification to inspect your septic system  
\$10 off next septic tank pump-out  
\$50 riser rebate(s)

#### ***To register:***

Call 360-867-2644 or [online sign-up](#) (space is limited)

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## PUBLIC HEALTH AND SOCIAL SERVICES

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EH Home > Surface Water > Henderson Septic Program



## HENDERSON WATERSHED PROTECTION AREA

### ***Septic System Operation & Maintenance Program***

#### ***Background***

Background information on the Henderson Watershed Protection Area (HWPA) Septic System Operation and Maintenance Program and why it was implemented. [...more](#)

#### ***Program Basics***

Learn who is included, what is required, and other information regarding the HWPA Septic System program. [...more](#)

#### ***Operational Certificate Renewal***

Find out what is needed to renew the Operational Certificate. [...more](#)

#### ***Homeowner Septic Inspection Certification***

HWPA Septic O&M Program homeowners can be certified to inspect their own septic systems. For dates, times, or to sign up, see **Septic System Inspection Certification**.

#### ***Septic System Financial Assistance***

Low-interest loans and grants are available to help HWPA and other County homeowners maintain existing systems and repair failing ones. [...more](#)

#### ***Faqs***

Find out answers to questions about the HWPA Septic System Program [...more](#)

#### ***Program Updates and Accomplishments***

Get program updates and find out how the program is doing so far. [...more](#)

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## PUBLIC HEALTH AND SOCIAL SERVICES

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EH Home > Surface Water > Nisqually Reach Septic Program

## NISQUALLY REACH WATERSHED

### ***Septic System Operation & Maintenance Program***

**Program Began January 1, 2013**

For answers to basic program questions ...click [here](#).

#### ***Program Summary***

The purpose of the program is to assure that on-site sewage systems are properly operated and maintained to protect the health of county residents and to preserve the water quality of Nisqually Reach.

This program is modeled after the successful program that was started in Henderson Inlet in 2007. The program includes septic system inspection and monitoring requirements, incentives, funding mechanisms and enforcement elements. The program was developed by a citizen advisory group and was adopted by the Thurston County Board of Health and Board of County Commissioners in 2012. Information on the public process that led to the program is [available here](#). Additional background information on the Nisqually Reach Shellfish Protection District...[click here](#).

#### ***Homeowner Septic Inspection Certification***

Septic owners of Gravity, Mound, Pressure Distribution, and Glendon systems can become certified to inspect their own systems. For dates, times, or to sign up, [see Septic System Inspection Certification](#).

#### ***Request Correction of Rates and Charges***

A property owner can request a review if they believe their property is not in the Nisqually Reach Watershed Protection Area, or that the fees or requirements have been applied to their property in error. The following elements can be considered in the Request for Review.

- the property is served by a septic system
- the property drains toward Nisqually Reach



- the location of any portion of your plumbing and/or septic system is within the Nisqually Reach Watershed Protection Area
- the septic system is a high-risk or low-risk system

Applications for review must be submitted to Environmental Health on a **Request for Correction of Rates & Charges form** [PDF]

#### ***When will I receive my inspection notice?***

There are nearly 4,000 septic systems in the Nisqually Reach Watershed Protection Area, and the new program will be phased in over three years. Homeowners will receive a notice that includes the requirements for their operational certificate approximately 8 weeks before the inspection is due.

#### ***Septic System Financial Assistance***

Low-interest loans and grants are available to help homeowners maintain existing systems and repair failing ones. ...[more](#)

#### ***Dye Test Evaluations for "High-Risk" Systems***

A dye test is used to help determine if a septic system is failing. Dye tests are especially useful for locating seepage failures on properties located on or near the shoreline. This method involves flushing a non-toxic tracer dye down a toilet and placing charcoal packets downhill of the septic system to collect any dye that may be leaking (with the sewage) from the system.

#### ***Frequently Asked Questions***

During the 2011 public workshops, held to help develop the new program, the following questions were received and answers prepared.

- [Open House January 25, 2011 \[PDF\]](#)
- [Public Hearing, October 13, 2011 \[PDF\]](#)

#### ***E-mail contact***

Please feel free to e-mail with questions or requests for additional information.

## **APPENDIX F**

**Summary**

**Of**

**How Thurston County O&M Program Meets State Requirements and Plan  
Recommendations**



## Summary of How Thurston County O&M Program Meets State Requirements and Plan Recommendations

Requirements of state law	Recommendations of OSS Management Plan	Status within required county O&M programs	Remainder of county	Conclusions
<b>O&amp;M Program</b>				
Progressively develop and maintain an inventory of all known OSS in operation within Thurston County	<p><b>RECOMMENDATION:</b> OSS be evaluated before the property they serve is transferred or sold, and that the inspection results be submitted to the Health Department, preferably using an electronic system</p>	All OSS with required operational certificates are inventoried.	'Unknown' OSS become 'known' at time of opportunity, i.e. time of property transfer, when a study area is inventoried and when an OSS is repaired.	<p>Steady progress being made to inventory all OSS within county.</p> <p>Approximately 31,570 are not yet inventoried.</p>
Find unknown systems and ensure that they are inspected and functioning properly, and repaired if necessary	<p><b>RECOMMENDATION:</b> OSS be evaluated before the property they serve is transferred or sold, and that the inspection results be submitted to the Health Department, preferably using an electronic system</p> <p><b>RECOMMENDATION:</b> Septic tank pumpers submit records for each OSS tank that is pumped or serviced in Thurston County.</p>	All OSS are 'known' within these programs	'Unknowns' are found at time of transfer, when a study area is inventoried and when an OSS is repaired.	<p>In progress in finding 'unknown' systems.</p> <p>There is currently no requirement for routine inspections of gravity or pressure distribution OSS outside the marine recovery areas.</p>
Find existing failing systems and ensure that system owners make necessary repairs		Failing systems are found during the routine inspections and dye testing along the marine shorelines.	Failures are found via complaints, time of transfer and pump reports.	<p>Failures are being found via pump reports, repair permits, inspection reports, time of transfer applications and dye testing.</p> <p>All failures are tracked for compliance.</p>

Requirements of state law	Recommendations of OSS Management Plan	Status within required county O&M programs	Remainder of county	Conclusions
Enforce OSS owner permit application, operation, monitoring, maintenance and failure repair requirements		Designated enforcement staff as part of O&M program.	Designated enforcement staff as part of on-site program.	County has <i>passive</i> enforcement (no building permits allowed if OSS is out of compliance) for required OPCs and active enforcement for all failures.
Remind and encourage homeowners to complete their operation and maintenance inspections		Notification system in place for all required operational certificates.	No formal notification. Information about routine OSS operation and maintenance available on county website, in newspaper articles, and at community events, etc.	County has established an automated notification system for all 13,000+ required OPCs.  No notification of routine O&M for gravity and pressure distribution OSS outside the MRA boundaries.
Sensitive areas				
Develop a methodology for establishing Marine Recovery Areas (MRAs)	<b>RECOMMENDATION:</b> The Henderson Inlet Watershed Protection Area and Nisqually Shellfish Protection District should be recognized as Marine Recovery Areas: The Henderson boundaries and programs would remain intact as currently developed.			Two MRAs have been formed: Henderson Inlet Watershed and Nisqually Reach Watershed.

Requirements of state law	Recommendations of OSS Management Plan	Status within required county O&M programs	Remainder of county	Conclusions
Develop a methodology for establishing Marine Recovery Areas (MRAs)	<p><b>RECOMMENDATION:</b> The Eld Inlet watershed should be more carefully evaluated to determine if it should be established as Marine Recovery Area.</p>			Study work is in progress in Eld Inlet watershed. Study results will help determine whether an MRA should be established.
Develop a methodology for establishing Marine Recovery Areas (MRAs)	<p><b>RECOMMENDATION:</b> With the available information the committee could not determine if the other areas should become sensitive areas or MRAs. They recommend that these areas be evaluated further to determine if OSS are causing or have the potential to create water quality and public health problems. They should be evaluated using criteria that evaluate if OSS can or are likely to pollute water resources.</p>			Study work is in progress in the Scatter Creek area in southern Thurston County. Study results will provide data for sensitive area determination.

Requirements of state law	Recommendations of OSS Management Plan	Status within required county O&M programs	Remainder of county	Conclusions
Develop a methodology for establishing Marine Recovery Areas (MRAs)	<p><b>RECOMMENDATION:</b> The plan recommends the creation of a Sensitive Areas Workgroup who will work with Health Department staff to evaluate the impact of OSS on water resources within prospective sensitive areas. This group will need to be recruited and oriented, and they will need to refine the criteria used to identify sensitive areas. Staff and resources may be needed to investigate problem areas, perform field evaluations, conduct monitoring to verify problems and analyze monitoring and environmental data.</p>			This work group has not been created.
Identify areas where OSS could pose an increased public health risk or contribute to degraded water quality	<p>... identified nine areas where OSS could pose an increased public health risk:</p> <ul style="list-style-type: none"> <li>• Henderson Watershed Protection Area</li> <li>• Nisqually Reach Shellfish Protection Area</li> <li>• Eld Inlet</li> <li>• Totten Inlet</li> <li>• Budd Inlet</li> <li>• Summit Lake</li> <li>• Southern Thurston County (Scatter Creek Area)</li> <li>• McAllister Geologically Sensitive Area</li> <li>• Shana Park Wellhead Protection Area/East Olympia Aquifer</li> </ul>		On-going grant-funded work in areas of known degraded water quality	<p>Current water quality studies and projects are part of EH programs.</p> <p>Findings are used to identify areas of degraded water quality.</p>

Requirements of state law	Recommendations of OSS Management Plan	Status within required county O&M programs	Remainder of county	Conclusions
Identify operation, maintenance and monitoring requirements commensurate with the risks posed by OSS within sensitive areas	<b>RECOMMENDATION:</b> OSS monitoring, maintenance and education programs for OSS in the Nisqually area should be modeled after the Henderson Watershed Protection Area.	O&M requirements have been established for all <u>required</u> operational certificates.	O&M recommendations are sent to permit applicants of gravity and pressure distribution OSS at time of system installation.	O&M requirements have been established for all <u>required</u> operational certificates.  Additional requirements have been established for shorelines in MRAs.
Inventory all OSS in MRAs by 2012 and ensure all failing systems are serviced		All OSS have been identified within the MRAs. The inventory is the roster sent to the Treasurer for annual program charges on the property tax statement.	Inventory of 'unknown' OSS occurs at time of transfer, when a study area is inventoried and OSS repair.	Both Henderson and Nisqually MRAs have been fully inventoried.  Inventory of OSS outside MRAs continues at time of opportunity.

Requirements of state law	Recommendations of OSS Management Plan	Status within required county O&M programs	Remainder of county	Conclusions
Develop a database for keeping records associated with MRAs	<p><b>RECOMMENDATION:</b> To maximize the benefits from the time of transfer and pumper reporting regulation changes, the existing AMANDA electronic database system should be enhanced. AMANDA currently requires sewage system operation and maintenance (O&amp;M) and permit data to be entered manually. This plan recommends that a web-based system be developed to allow O&amp;M records to be submitted electronically and transferred to and managed by AMANDA. This will allow Health Department staff to better meet the O&amp;M monitoring and management goals, and will be a step towards setting up systems to remind all OSS owners of the O&amp;M needs for their system.</p>	<p>County permit tracking system has database features specifically designed for the MRA programs.</p>	<p>Thurston County permit tracking system is used for keeping OSS records, as well as pump, inspection and monitoring reports from professionals.</p>	<p>A full-time Business Applications Analyst was hired in 2013. Electronic database enhancement and expanded use of web-based applications is part of his work plan.</p> <p>The County is currently researching use of a “public portal” for the permit tracking system that would enable the public to submit permit applications and make payments electronically, and for the public and county staff to complete and submit inspection reports electronically</p>

Requirements of state law	Recommendations of OSS Management Plan	Status within required county O&M programs	Remainder of county	Conclusions
<b>Education</b>				
Educate homeowners regarding their responsibilities for the operation and maintenance of their OSS	<p><b>RECOMMENDATION:</b> OSS monitoring, maintenance and education programs for OSS in the Nisqually area should be modeled after the Henderson Watershed Protection Area.</p> <p><b>RECOMMENDATION:</b> For the new O&amp;M requirements to work as well as possible, on-site industry professionals, the real estate community, the public and other affected parties need to be educated about the new evaluation and inventory requirements in Article IV. Educational materials and forms need to be developed. In addition, the advanced training made available to residents in the Henderson Watershed Protection Area has been very well received and seems to have resulted in a community that actively looks after and maintains its on-site sewage systems. This plan recommends that advanced OSS monitoring and maintenance training be made available for all Thurston County residents.</p>	Enhanced training so MRA owners of gravity, pressure distribution, mound and Glendon OSS can conduct their own inspections.	Informational workshops are held when funding is available.  O&M information is available on the county website.	The county offers enhanced inspection training for all MRA owners of gravity, pressure, mound and Glendon OSS. This training is funded by the annual program charge to all OSS owners within the MRAs.  Informational workshops are held countywide as funding permits.

## Additional OSS Management Plan Recommendations

Recommendations of OSS Management Plan	Status within required county O&M programs	Remainder of county	Conclusions
<p><b>RECOMMENDATION:</b> A mechanism for funding these plan elements needs to be developed. While some funding is being provided through the Washington State Department of Health, additional resources are needed to sustain current programs and those envisioned by this plan.</p>	<p>Henderson Watershed and Nisqually Reach Watershed MRAs have program charges collected via the property tax statement. Each watershed has a different rate formula. Henderson program charges do not fully cover the program costs. The countywide O&amp;M program has an operational certificate fee paid by personal check at the time of renewal.</p>		<p>A funding mechanism is needed for program elements that are currently dependent on other funding sources, as well as any additional recommended elements.</p>
<p><b>RECOMMENDATION:</b> A set of performance management criteria and indicators need to be developed and implemented. These need to be evaluated and modified over time so that the effectiveness of the programs described in this plan can be determined.</p>			<p>No written set of performance management criteria and indicators has been adopted.</p>

Recommendations of OSS Management Plan	Status within required county O&M programs	Remainder of county	Conclusions
<p><b>*RECOMMENDATION:</b> Based on the current resource limitations in Thurston County, the implementation schedule and work plan have been split into:</p> <ul style="list-style-type: none"> <li>• Activities that can be achieved with currently available funding and resources</li> <li>• Activities that require additional resources</li> </ul>			<p>The Plan has been implemented based on the recommended implementation strategy.</p>
<p><b>RECOMMENDATION:</b> This plan recognizes that resources are needed to evaluate the data that is submitted to both identify failing on-site sewage systems and to evaluate the quality of work being done. Performance measures and indicators need to be developed to evaluate the work done under this plan to determine if progress is being made toward plan and regulatory goals.</p>			<p>A full-time Business Applications Analyst was hired in 2013. Electronic database enhancement and expanded use of web-based applications is part of his work plan.</p> <p>The analyst provided the data for this program evaluation report.</p>

\* This strategy allocates resources to complete activities that achieve the greatest number of regulatory goals or allow other plan elements to proceed. These include

- Regulation changes needed to implement the OSS inventory elements of this plan,
- Database enhancements to allow O&M records to be submitted on-line, and
- Creation of the sensitive area workgroup.

Because funding is assured only through June 2009, this strategy focuses on activities that can be completed within that window of time. Other plan elements are put on a work plan for the future.