Henderson Watershed Protection Area
Onsite Sewage System Operation & Maintenance Program
Five-Year Review

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INTRODUCTION

The Henderson Watershed Protection Area Program (HWPA) has been in place since January 1, 2007. Two ordinances were adopted by the Thurston County Boards of Health and County Commissioners on November 21, 2005, which created the Henderson Watershed Protection Area and established the program boundary, goals and elements, and rates and charges to fund the activities.

Included in one of the ordinances was a provision to conduct an evaluation five years after creation of the program to evaluate the program elements and effectiveness. The report is to be submitted to the Thurston County Board of Health. What follows in this document is the five-year evaluation of the Henderson Watershed Protection Program.

BACKGROUND

Commercial shellfish harvesting has been restricted or prohibited in portions of Henderson Inlet by Washington State Department of Health since the early 1970's due to degraded water quality after rainfall events. A "no harvest for three days after an inch of rainfall (in 24 hours)" in 1973 was increased to an even greater restriction in 1998 of no harvest for five days after a half inch of rainfall. In some years that resulted in no harvesting for more than a third of the days in a year. In addition, the amount of tideland within a 'prohibited' harvest designation, under any condition, steadily increased over the three decades since 1973. In 2001, after the prohibited and conditional harvest areas were expanded because of continued and increasing bacterial pollution, a Shellfish Protection District was formed as required by state law RCW 90.72.045.

In addition, Washington State Department of Ecology placed Henderson Inlet and four of its tributaries, including Woodland and Woodard creeks, on the list of impaired water bodies of Washington State for failing to meet water quality standards.

Henderson Inlet and its watershed had serious water quality problems. Development and urbanization of the watershed had been steadily increasing. Numerous protection efforts undertaken throughout the watershed between 1983 through 2003 slowed, but did not stop, the decline of water quality.

PROGRAM DESIGN

Upon formation of the Shellfish Protection District, the Board of County Commissioners appointed a Shellfish District Advisory Committee comprised of watershed residents and stakeholders. One of the committee's first tasks was to review the water quality data and establish a work plan to address the sources of pollution. They determined that pollution from on-site sewage systems (OSS) was the first priority for action.

In 2003, Thurston County received a grant from the State Department of Ecology to fund development of an operation and maintenance program for OSS in the Henderson Inlet watershed. In December 2003, an advisory committee was appointed and program development work began. During 2004, a draft proposal was written and presented to the Board. A full and intensive public process for review and input was undertaken from 2004 through 2005. Revisions were made to the proposal based on public input. In November 2005, ordinances creating the new program were adopted by the Boards of Health and County Commissioners.

One ordinance revised the county sanitary code and created an "area of special concern" within which all OSS must have renewable operational certificates (OPC). An OPC is issued for an OSS based on an inspection report showing that the system is functioning properly and all needed maintenance and repairs are done. A second ordinance established a charge on every property with an OSS to finance the program.

January 2006 began the year-long effort of developing the program elements and systems needed to implement the program on effective date of January 1, 2007. Work activities in 2006 included the following:

- Hire staff
- Develop a roster of properties
- Determine risk levels
- Build databases for tracking, OPC renewal notification, compliance, and dye testing
- Inform septic professionals
- Develop policies and procedures

Program Elements

The adopted program includes the following elements:

- Routine inspections of all OSS within the program area
- OSS maintenance as needed – most common being septic tank pumping
- Renewable operational certificates (OPC) issued when inspection and maintenance reports are submitted to the Health Department showing OSS is functioning satisfactorily
- Training and certification of property owners to conduct their own inspections
- Incentives and financial assistance
- Dye tests of "high risk" OSS; those which pose a greater risk to public health and water quality if they fail
- Compliance to assure that OSS are inspected, maintained, and repaired as required.

A property is included in the program if any portion of its on-site sewage system is located within the HWPA boundary - including a building with plumbing and any sewage collection, transport, treatment, and disposal components. A renewable OPC must be kept current and renewed on prescribed schedules. The majority of OSS has a three-year renewal cycle, however, some OSS have a one-year renewal based on system type and use.

Renewal of an OPC requires a routine inspection and completion of any needed maintenance or repairs. For "low risk" OSS, those located away from surface waters, a physical inspection of all system components is required when OPC renewal is due. For "high risk" OSS, a dye test evaluation must be done once every six years in addition to the physical inspection. County-certified pumpers, system installers, and monitoring specialists can do inspections. Owners of standard gravity systems, pressure distribution systems, mounds, and Glendon® Biofilter systems may conduct their own inspections if they become certified by attending county-sponsored training. Dye test evaluations are performed only by county program staff, or professionals trained and approved by the County Health Officer.

Incentives are available to encourage and assist owners to comply. These include a waiver of the program fee for senior and disabled owners who are enrolled in the property tax exemption program. Owner/inspector training and certification is offered as an incentive and cost-saving option. Rebates are paid to owners who install sewage tank access risers, which make it easier to do routine inspections. Small grants are available to low income property owners to help with the cost of inspections and maintenance. Loans and grants are also available to help finance major OSS repairs.

Compliance is an essential element of an effective program to ensure that inspections, maintenance, and repairs are done as required and in a timely manner. It is also needed to ensure that the information being reported is accurate and complete.

2006 - Preparation Year

Staff within the Environmental Health Division, Resource Protection Section, was assigned various duties related to the newly adopted program. In addition, one staff person with onsite sewage and water quality experience was reassigned to the new program from another section within the Division. The total amount of staff time dedicated to the new program was the equivalent of 2.5 staff.

One of the first tasks was to review the boundary of the program area. Thurston County's geographic information system (GIS) staff had established the program boundary using mapping software and rain-drop analysis technology. Because properties are subject to program requirements and charges based on being located within the Henderson watershed and the potential to impact Henderson Inlet water quality, it was essential to accurately set the program boundary. Since culverts and roadside ditches alter the natural flow of water, it was necessary to verify and 'field truth' the boundary. An engineer with the stormwater program with Thurston County's Water and Waste Department drove the perimeter of the program area and adjusted boundary lines where drainage features altered the flow of water.

The next task was to develop the roster of properties subject to the program requirements and assessed the program charge. All properties served by an OSS within the boundary were included in the program. The boundary was established based on topography, which resulted in some properties being divided by the program boundary line. Where that occurred it was necessary to review OSS records, topographic maps, aerial photos and make field visits to determine whether any part of the OSS or sewage plumbing was within the program boundary.

Another major challenge was determining which developed properties had OSS and which were served by sewer. The sewer utilities use a different format for maintaining their sewer customer rosters than the County uses for property ownership, making it difficult to find, and remove sewered parcels from the program roster. It was also discovered that the sewer rosters were incomplete and sometimes inaccurate.

The determinations of parcel designations and system operation and maintenance requirements, as well as expectations for owners, septic professionals and staff, meant that numerous departmental policies had to be drafted and adopted during the program's first years. These policies were necessary to standardize procedures and decisions. A list of the policies is included in Appendix B.

One of the first policies drafted defined how risk level was assigned for each parcel. Risk level determines the annual charge and inspection requirement. A ranking matrix had been included in the final program proposal, but the application of that matrix had to be outlined in policy (Appendix A). "High risk" was assigned to those properties whose OSS pose the greatest risk to public health should they fail. High risk factors include 1) proximity to surface water (marine or freshwater) and 2) restrictive soils (Class 4, 5, 6). "Low risk" systems were those inland – away from water. The 'points' assigned for restrictive soils alone were not enough to award high risk status. "Community" was the third designation and is defined as any OSS designed to serve more than two (2) residential units or with a design flow greater than one thousand (1000) gallons per day and less than three thousand five hundred (3500) gallons per day.

Once risk levels were assigned, letters were sent out to six thousand five hundred and two (6,502) property owners notifying them of the upcoming program, their risk designation, and the amount of their annual charge (to appear on their next property tax statement). A provision in the ordinance, allowed property owners the opportunity to request a review of their property's inclusion in the program or risk designation if they believed there was an error made. Staff reviewed the requests and made a recommendation to the Environmental Health director to either accept or deny the request. During 2006, one hundred and sixty (160) Lacey sewer customers informed us that they were served by sewer. Fifty-nine (59) property owners who were identified as being served by a larger OSS managed by the state were removed from the program. Fifty-two (52) 'non-sewer'-related requests were received, and twenty-four (24) of those were granted.

Databases were developed to establish and manage the program roster, generate inspection notices, track compliance activities, schedule dye tests of high-risk systems, and manage owner-certification training workshops. Sorting and completing OSS records for every property was a process that was started in the preparation year and continued to be a major task throughout the first three years of the program.

Another activity was informing septic professionals of the new program requirements and emphasizing the importance of complete and accurate reporting of inspections and pump outs. Forms were designed and created for the inspections and tank pump-outs to be completed. Initially paper reports were submitted and County staff reviewed each report received to determine OSS function. Reports were then electronically scanned and made part of the electronic OSS records in the permit tracking system. The volume of paper reports received during the first few years of the program created a significant workload and several month back log. During the first five years, an electronic report submittal format was adopted, making reviews and records management much more efficient. During the second cycle, part of the inspection review was automated so that only reports showing OSS deficiencies had to be reviewed.

Staff developed a curriculum to teach and certify OSS owners to inspect their own systems. The owner/inspector certification was intended to serve as an incentive to comply with the inspection requirement and to provide a mechanism for financial relief for those owners willing and able to do their own inspection. Only the simplest to inspect OSS were allowed to be inspected by certified owner/inspectors, which included gravity systems, mounds, Glendon® Biofilters and pressure distribution systems,. Two workshops per year were planned and budgeted. However, response to the owner/inspector certification option far exceeded expectations. Forty-two (42) workshops were taught in 2007 (see page 25 for further detail), and the high demand continued in years two and three.

As a training aid, staff proposed and built a septic demonstration park complete with septic tanks, pump chambers, distribution boxes, and other components as a 'hands on' experience for class attendees. Permission was obtained to use an open space located at the Department's Lilly Road building to create a "septic park". This site was conveniently located across the parking lot from the classroom. A small grant from the Puget Sound Water Quality Authority helped fund the park. Some materials, tanks, pump chambers and other components, and labor were donated by various septic professionals and individuals. The park was constructed with the help of Thurston County Public Works, an OSS contractor, and health department staff (See Figure 1.). OSS owners have found it beneficial to see septic tanks and other components when they are not full of sewage.

Figure 1. Septic Demonstration Park

In addition to the owner/inspector certification, other incentives and financial assistance elements were developed during 2006. One incentive was a riser rebate program, where up to $100 per OSS/owner could be rebated to watershed residents who provided documentation that access risers had been installed on their sewage tanks. Another incentive was establishment of a small grant program for low-income OSS owners to help with the cost of inspections maintenance, and minor repairs. Owners submit an application and estimates for the work they need done. Once the grant is approved, they can arrange to have the work done. The owner is responsible for 25% of the cost, and the grant pays the professional 75% of the cost up to a maximum of $500. The last financial relief element was a waiving of the annual program charge for owners enrolled in the Senior/Disabled property tax exemption program. This element was included in the adopted ordinance.

IMPLEMENTATION

The graphs and tables on the following pages tell the story of the first five years of the program. With inspections required every three years, all of Inspection Cycle 1 (2007 – 2009) and the first two years of Inspection Cycle 2 (2010 and 2011) are included in the evaluation and statistics reported. There is a clear distinction between the two inspection cycles in several of the data sets. Therefore, the second cycle data is shaded grey for easy reference. The first cycle was an initiation for most OSS owners who had never had to have an OPC or OSS inspection. The program requirements were also new for the septic professionals, who were accustomed to pumping septic tanks, but not necessarily conducting a thorough inspection of all components. Separate reports were required for an inspection and pump out. It was a gradual transition for homeowners and professionals to shift from a mind set of “always pump’ to ‘always inspect and pump only when needed’. As the program progressed owners became aware that pumping is not always needed; and professionals adapted their business practices to meet the consumers’ needs and program requirements.

Number of Parcels

The first-year assessment roll was reduced from 6,502 to 6,263 when owners provided documentation that they were actually served by city sewer and not by a septic system. Parcels were routinely removed from the roll throughout the first five years of the program as more parcels were determined to be served by sewer or had recently converted to sewer. Owners often called upon receiving a 'Notice of Non-Conforming System' letter, which outlined the actions and costs needed to bring the system back into compliance.

City public works departments assisted in verifying whether a residence or business was served by sewer. Dye testing was done on dozens of buildings to determine if they were connected to the sewer. In some instances, the structure had been connected to sewer for years, but the owner had never received a monthly bill. In other cases, the owner had been paying for sewer, but actually was served by an OSS. In situations where the owner was not aware that they had an OSS, inspection and maintenance had not been done for many years.

Table 1 shows the changes in the property roll during the first five years. By 2011, there were 158 fewer parcels on the program roll than when the program began in 2007. This was due primarily to corrections related to sewered parcels. Newly developed properties with OSS were added each year. Some systems were abandoned and others connected to sewer. In addition, changes made by the County Assessor to the property numbering system effects the total property count. The distribution of risk levels stayed relatively the same each year, 5% high risk, 94% low risk, 1% community systems.

Table 1
Number of Program Parcels
Risk Categories and Newly Developed Properties

Year	Number of Parcels	Low Risk	High Risk	Community	Newly Developed
2007	6263	5868	330	65	34
2008	6217	5821	331	65	37
2009	6157	5762	330	65	30
2010	6139	5735	336	68	30
2011	6105	5730	324	51	24

Notices Sent and Certificates Issued

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, which were transferred from an earlier county permit system, OPTS. When the Henderson Watershed Protection Area roster was generated in 2006, an electronic OSS record was created for each parcel that did not already have an electronic record in place. Then an operational certificate "folder" was created for each OSS where inspection and maintenance records would be tracked. Inspection due dates were assigned. Over the course of the first three years, inspections came due for all of the properties in the program. By December 31, 2009 all properties should have received their first notice to inspect. January 1, 2010 began the second inspection cycle.

The operational certificate renewal 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. For most OSS the OPC is valid for three years. A small number of systems including food establishments, community systems, and complex aerobic treatment systems require annual inspections.

When the certificate has not been renewed within 120 days of the renewal due date, the operational certificate folder status automatically changes to reflect a non-conforming system. A compliance folder is automatically created, and all other permit folders for that property have a 'red flag' that shows on the screen indicating that 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 2 shows the OPC renewal and issuance activity for the first five years. In 2009 (the third year of cycle 1) approximately 350 more notices were sent than previous years because renewal notices for mobile home parks had been held until year three. Building all of the folders for a mobile home park and connecting all the record drawings and permit details for each of those systems was complicated and time consuming.

Many processes were automated during the first five years of the program. Two processes related to compliance were intentionally delayed during the first cycle of the program to give owners a maximum opportunity to learn about the new program and comply with the requirements. The two delayed processes were the sending of third notice of impending non-conforming status and the actual status change to *non-conforming* OSS when inspection and maintenance requirements were not met. These two processes were automated in late 2009.

Notifications sent, inspections received, and certificates issued are summarized in Table 2. The number of systems that became nonconforming in 2009, 2010 and 2011 and remain in nonconforming status is listed on the far right column. These comprise 7% of all notices sent. 87% are in full compliance with a current operational certificate. The remaining 6% are 'in process'.

In 2010, more inspections were received, evaluated, and certificates issued than notices sent. This is because the county's Time of Transfer program began that year requiring septic system inspections when a property sells. The volume of inspections increased and consequently more certificates were issued. Another likely reason was that mobile home park owners were completing their inspections, submitting their information, and receiving certificates.

Table 2
Administrative Process
Notifications, Inspections Received, and Certificates Issued

Year	OPC Notices Sent	Second Notice Sent / Percent who required a reminder	NonConforming Letter Sent	Inspections Rec'd and Evaluated	OPC Issued	In NonConforming Status
2007	2027	932 / 46%			983	
2008	2069	1112 / 54%		1391	1634	
2009	2416	1299 / 54%		2221	2270	55
2010	1885	994 / 53%	579	1993	2190	420
2011	1992	884 / 44%	493	1925	1875	226
Total	**10323**	**5221 / 51%**	**57%** (1072/1878)		**8952** 87%	**701**

The data shows that about half of owners complete their inspection and maintenance by the due date. The other fifty percent need a second notice to remind them that an inspection is due. Of those receiving a second notice, fifty-seven percent (57%) need a third letter, nonconforming letter, which also explains the consequences of not complying. Overall, about eighty-seven percent (87%) of properties are in compliance with the program requirements, and thirteen percent (13%) are nonconforming.

In 2010, the county began use of a web-based service, OnlineRME, initially called EOnsite. This service enables OSS professionals to submit inspection and pump reports electronically. By 2012, the electronic format for report submittal was mandatory. The information from OnlineRME is electronically transferred to the county permit tracking system every night. Use of OnlineRME system vastly improved the efficiency of inspection reviews, OPC issuance, and records management. Septic professionals are charged $2 per report to use the online reporting service. An additional $15 is collected for each pump report and transferred to the county to finance OSS compliance activities.

Onsite Sewage System Records

The goal of Thurston County's On-Site Sewage Management Plan is to "*protect public health in Thurston County by assuring that on-site sewage systems are properly built, operated, and maintained".* This includes an inventory of all septic systems in the County. Through the Henderson program, records for more than 6,000 OSS have been generated, updated, and made complete. An electronic file in the permit tracking system was created for every OSS. During the second cycle, complex and community OSS were also 'built' in OnlineRME (all OSS components individually listed for inspection questions) so that septic professionals would know what system components are present when doing an inspection. Septic professionals are building the systems in OnlineRME for standard gravity, pressure distribution, mounds, and Glendon® Biofilters.

This program has accomplished the following for OSS records:

- Separated scanned septic system records from all other records to help staff, owners and professionals
- Updated the county permit tracking system converted from a previous database system (OPTS)

- Created a record for every septic system in the program area where one did not exist previously
- Attached distinct septic system records to the respective permit files within Amanda
- Improved public access to records
- Set up Amanda to automatically renew operational certificates from electronic report submissions when there are no deficiencies with the septic system
- Held meetings and training sessions with professionals to explain the requirements of the program, as well as the importance of providing complete information from their inspections and pump outs in order to build an operation and maintenance history of a property's OSS
- Scanned paper pump and inspection reports, owner site plans, and documentation of repairs, and attached them to the electronic septic files

As inspection reports began filtering in, staff reviewed each report and either issued a certificate or wrote a letter to the owner detailing any maintenance or repairs needed before a certificate could be issued. To increase efficiency, the most frequently used letters were set up as templates that could be easily generated from the permit tracking system.

The permit tracking design and program budget was based on an assumption of one OSS per parcel. Early in the implementation phase, it became apparent that there were many parcels with more than one OSS. Ultimately there were more than 300 parcels (~5%) found to have more than one OSS. Considerable staff time was spent sorting and correcting OSS records and updating the permit tracking system to be able to record inspections and maintenance for multiple OSS on properties.

Compliance

During the first program cycle the focus was to get failing systems repaired – whether the failures were found during dye testing or during routine inspections. Correction of failing systems remains the top priority. During the second 3-year cycle, compliance activities were expanded to address high risk systems that were not 'in compliance' with the program requirements, i.e. the operational certificate had not been renewed because an inspection had not been done, a dye test not completed, or identified maintenance or repair needs not completed. This was possible due to much of the program set-up work being completed during the first inspection cycle and efficiencies and automations made.

With the shift to electronic reporting and database enhancements, tracking and flagging of systems out of compliance became automated and therefore more consistently managed. For "low risk" systems in non-conforming status, the approach is passive compliance. This means that the system is flagged as non-conforming in the permit tracking system, and all future county permits are withheld until it is resolved. It also means that at the time of a sale, the non-conforming status is reported to the buyer. With initiation of a time of transfer inspection program (time of sale) in September 2010, the number of systems brought back into compliance has increased dramatically.

The most important factor in successful compliance has been a dedicated staff person who doggedly tracks progress on correction of failing and non-conforming systems. A combination of professional expertise, humor, tenacity, and legal support from the prosecuting attorney is used to ensure that owners take the actions needed to get systems inspected, maintained, and properly functioning.

Program Funding and Billing

An Access database is used to manage the program roll of all developed OSS parcels. Each property's risk level is identified with the respective annual charge. For the first six years of the program, the prepared roster was sent to Thurston County Storm and Surface Water Utility who combined the septic

charge with the stormwater utility charge. It was then sent to the County Treasurer to be added to the property tax statement for collection. The charges were combined on one line because there had not been adequate space on the tax statement for a separate line. Beginning 2013, the statement format was changed which allowed the program to have its own billing line, making the charge more transparent to property owners.

The ordinance states that program charges are to be adjusted annually by the percentage increase, if any, in the June Consumer Price Index for the previous year. The maximum increase cannot exceed 3.5 percent per year. The table below shows the charges and total revenue collected during the first five years. The low risk charge increased a total of two dollars over five years. The high-risk charge increased by six dollars, and community charge increased by thirteen dollars.

Table 3
Program Rates and Annual Revenue

Year	Low Risk Charge	High Risk Charge	Community Charge	Revenue
2007	$32	$87	$160	$218,262
2008	$33	$90	$165	$227,768
2009	$34	$93	$171	$221,406
2010	$34	$93	$171	$221,845
2011	$34	$93	$171	$255,307

As part of a financial relief measure, the program charge is waived for low income owners enrolled in the County Assessor senior/disabled property tax exemption program. The number of owners enrolled in the senior/disabled tax exemption program stayed relatively constant over the five-year period, only changing by 17. The lowest number enrolled was during 2007, with 363. The highest number enrolled in the senior/disabled program was in 2010, with 380.

Collecting program charges via the property tax statement is efficient, and allows staff to focus on OSS inspections and other technical aspects of the program.

PROGRAM RESULTS

During implementation, questions were constantly posed about what could be learned from such a program. In order to answer these questions, the permit tracking system was modified to be able to capture more information. Tables and graphs in this section display the information gathered about the effectiveness of the program elements.

Number of Septic Tanks Pumped

From the beginning, the focus of this program has been **inspections** with maintenance and repairs to be done as needed. However, it took a year of implementation before the mindset of “always pump” began to shift.

Table 4 presents the number septic tank pump outs. Pump reports less than one year old were accepted in lieu of inspection reports during the first three years (first cycle) of the program in order to give owners credit for maintaining their system and facilitate goodwill and compliance. It may be one reason for the high number of pump outs in the first cycle. Another possible explanation for the high number of pump outs in the first cycle was the misunderstanding that pumping was required. Although,

based on the statistics shown in Figure 2, deferred maintenance was a major reason for the high number of pump outs needed during the first cycle. The number of pump outs done during the second cycle decreased by half.

Table 4
Pumping Statistics

Year	Pump outs
2007	1229
2008	1414
2009	1628
2010	769
2011	768
Total	**5808**

Finding: Property owners and septic professionals now recognized that this is an inspection program with pumping on an as-needed basis, and that pumping is not accepted as a complete inspection.

Solids Accumulation in Septic Tanks

In order to evaluate whether tanks actually needed to be pumped, the inspection form included a section to report solids accumulation in the septic tank. Pumping is required if more than one-third of the septic tank operating capacity is filled with solids, scum and sludge. For most tanks, one-third of the capacity is 16 inches or more.

Figure 2. This photo shows a pumper standing in the open tank manhole atop the contents of the septic tank. The tank was packed full of solids. It is uncertain where the liquid portion of the sewage effluent was going.

The graph on the next page charts the reported solids accumulation in tanks during the first cycle and during the second cycle. [Only those inspection reports that included the scum and sludge measurements are included.] Even though residents testified during the public process that they were maintaining their systems; the data from the first cycle shows that 48% (2321) of the tanks where scum and sludge were reported were in need of pumping. Many tanks were more than two-thirds full of solids, and some were completely full of solids. In contrast, only 23% needed pumping in the first two years of the second cycle.

Finding: During the first cycle, almost half of tanks needed pumping. The number of tanks which needed pumping decreased by half during the second inspection cycle.

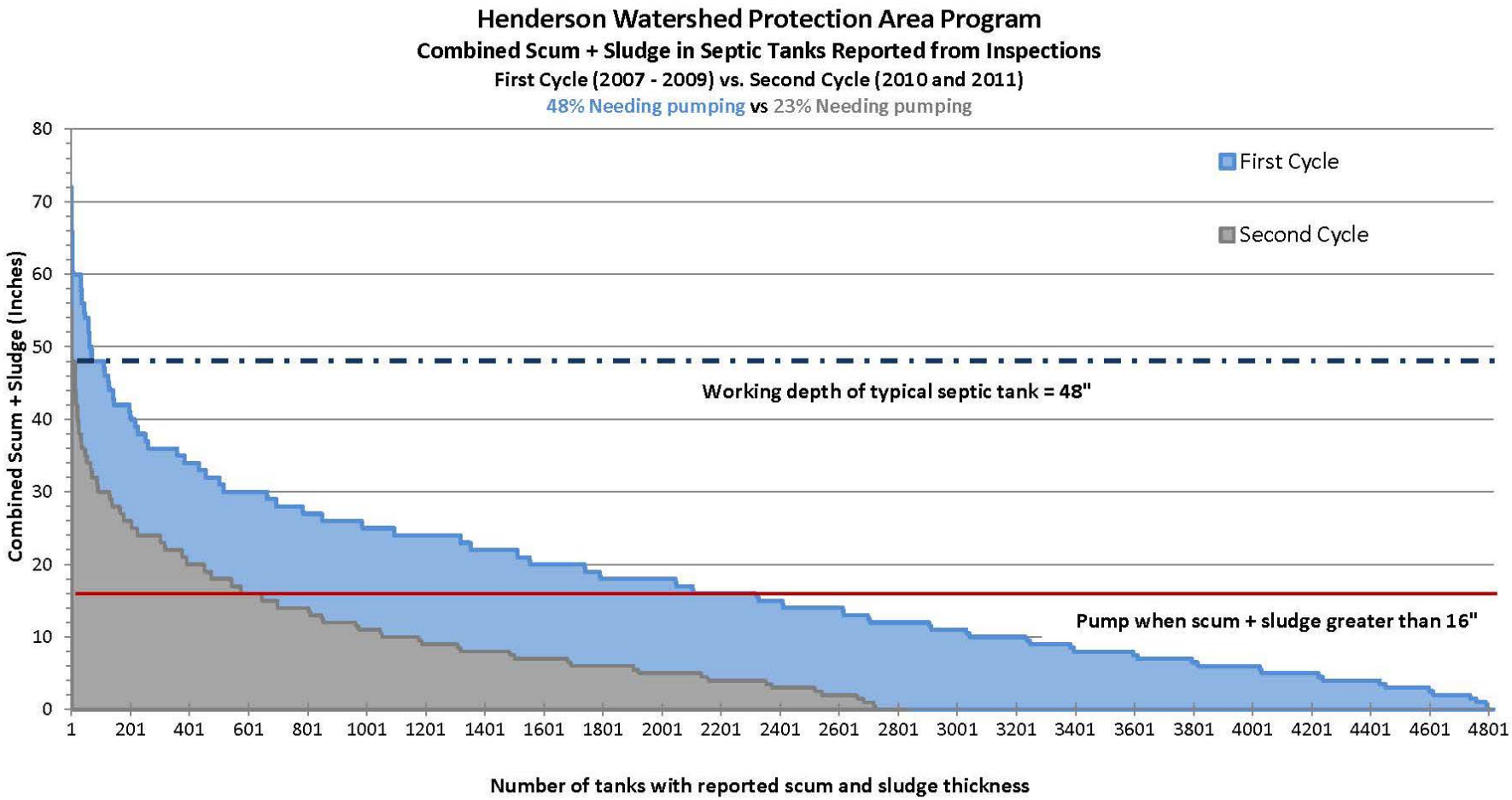


Figure 3. Solids Accumulation in Septic Tanks

Number of Permitted Repairs

One of the program objectives and a priority in state law is to find and correct failing septic systems. From the outset of the program the number of repairs was tracked. Because many "failures" were due to leaking sewage tanks, the number septic tank replacements was tracking separately from more extensive repairs such as drainfield replacements. Installation of permitted repairs was also tracked.

Table 5 shows that septic tank replacements peaked during the first cycle and decreased sharply in the second cycle. On the other hand, system repairs have been fairly consistent – 20 to 25 repair permits each year. In order to learn how many failures were discovered as a result of routine inspections versus some other means, the table includes, in parentheses, the number of permits taken out after the property owner received their inspection notice. (For example, in 2007 four (4) of the twenty-four (24) OSS permits were taken out after the property owner received their inspection notice.) The majority of system repair permit applications were made before the property owner received their inspection notice, implying that the owner became aware of the failure by another means and took action before their inspection and report to the department was due. Of the repair permits applied for, 88% of the tank placements and 90% of the system repairs were actually installed.

Some failures were also found through dye testing high-risk systems. Those failures are shown in the last column in Table 5.

Table 5
Repairs and Tank Replacements
Permits vs. Installations

Year	Tank Replacement Permits Taken Out	Tanks Installed	OSS Repair Permits Taken Out	OSS Installed	Sandfilter/ Mound Rebuilds	Dye Test Failures Found
2007	24 (11)	22 (10)	24 (4)	22 (3)	0	3
2008	16 (13)	12 (11)	23 (2)	18 (1)	2	5
2009	22 (20)	20 (19)	25 (3)	24 (3)	1	3
2010	5 (3)	5 (3)	20 (9)	18 (6)	0	1
2011	3	3 (3)	21 (19)	20 (17)	0	2
Total	**70 (50)**	**62 (45)**	**113 (37)**	**102 (30)**	**3**	**14**
% Installed		**88%**		**90%**		

NOTE: # in parentheses indicates the # of permits taken out after the "Notice to Inspect" was sent.

To help determine the effect this program has had on operation and maintenance of OSS, Table 6 shows a nine-year period of repair permit activity in the Henderson program area compared to the rest of the county.

Table 6

Septic System Repairs - County versus Henderson Program Area

2003 – 2011

Year	Henderson Tanks Replacements	County Tanks Replacements	Henderson Systems Repairs	County Systems Repairs
2003	8	32	16	91
2004	8	51	24	96
2005	5	45	15	85
2006	6	17	17	61
2007	**24**	39	**24**	91
2008	**16**	23	**23**	85
2009	**22**	16	**25**	78
2010	5	20	20	78
2011	3	13	21	76
Total	**97**	**256**	**185**	**741**
Percent of total*	**1.6%**	**0.4%**	**3.0%**	**1.2%**

* Approximate Total number of systems: **HWPA = 6100** **Countywide** = 70,000 – 6,100 in HWPA = **63,900**

- For the septic tank replacement rate county-wide to equal that in Henderson, an additional 766 tanks would have had to be replaced.
- For the county-wide OSS repair rate to equal that of HWPA, an additional 1176 systems would have had to be repaired.

During the first 3-year inspection cycle (2007 – 2009), fifty-two (52) tank replacement permits were issued in Henderson versus only seventy-eight (78) in the rest of the county. That means that, in Henderson, tank replacements represented about forty (40) percent of the total tank placement permits issued in the county even though the number of OSS in Henderson is just over nine percent of all OSS estimated to exist in the county. In the four years preceding initiation of the Henderson program, tank replacement permits in Henderson represented only sixteen (16) percent of the total county-wide, implying that the mandatory inspections in Henderson resulted in the discovery and repair of leaking or damaged septic tanks.

Regarding system repairs, there was a thirty-three (33) percent increase in system repairs in Henderson during the first three years of the program compared to the years before the program began. The exception was in 2004, which had a fifty percent increase in repair permits from the previous and next two years. Interestingly, 2004 was when the public process for program development began and an initial newsletter was sent to all watershed owners. By comparison, the number of repairs in the rest of the county were relatively similar between the same two time periods, less than two percent difference. This data indicates that more failing systems were being found and repaired as a result of the Henderson program.

During the first two years of the second inspection cycle, repair permits in the Henderson area decreased by fifteen percent compared to a nine percent decrease in the rest of the county. There could be several possible reasons for the decrease in repairs, and the factors influencing repairs may

have been different in Henderson and the rest of the county. It is likely that after the first cycle of inspections and repairs in Henderson, fewer repairs were needed in the second cycle. Throughout the county it is possible that the economy affected owners' ability to finance repairs. Trends will need to be tracked over time to determine the long term affect that a routine septic inspection program has on failure and repair rates.

Findings: Leaking sewage tanks and failing OSS were found and repaired at a higher rate in Henderson than in the rest of the county.

Minor Repairs

Two years into the program, staff noted that a significant number of minor repairs were being done following system inspections. In order to capture data on minor repairs, the permit tracking system was modified in 2009. Table 7 below shows the number of minor repairs for 2009 through 2011.

Table 7
Minor Repairs
Repairs Not Requiring a Permit

Year	Number of Minor Repairs
2009	434
2010	202
2011	181
Total	**817**

In 2009, the last year of the first round of inspections, 434 minor repairs were reported. Hundreds of minor repairs was a significant finding when compared to just forty-seven major repairs needed the same year. Four hundred and thirty-four (434) minor repairs represented almost twenty percent of the systems inspected that year. It is likely that 2007 and 2008 had similar numbers of minor repairs. In 2010 and 2011 minor repairs decreased by more than half, indicating that the higher minor repair rate during the first cycle was due to deferred maintenance.

Table 8 on the next page shows the minor repairs by type. Outlet baffles were the number one repair, followed by holes in septic tank bottoms and broken pipes. Every type of repair decreased in numbers between 2009 and 2010, especially outlet baffles and holes in tank bottoms. Pump alarms repairs dropped in 2010, but increased in 2011. Tracking minor repairs would be helpful in understanding the longevity of various OSS components.

Table 8
Types of Minor Repairs
1st vs. 2nd Cycle

Type of Minor Repair	2009	2010	2011
Repair / replace outlet baffle	142	55	51
Holes in septic tank bottom	56	35	12
Replace transport/reseal pipe	45	13	16
Septic tank crack repair	41	31	17
Repair/replace inlet baffle	30	15	9
Floats	28	16	18
Electrical	23	12	14
Pump: repair/replace	22	11	13
Pump alarm	21	4	18
Building Sewer	11	2	3
Replace/repair Tee	5		3
Other [d-box repair, effluent filters, tank lids]	10	8	7
Total	**434**	**202**	**181**

Conclusion: Minor problems are prevalent, and can be found and repaired as a result of routine inspections.

Dye Test Results

All high-risk systems must have a dye test every other renewal cycle, or every six years. The dye test method is highly effective at identifying shoreline/waterfront OSS that are 'leaking' untreated or partially treated sewage into surface water. A dye test can locate short circuits in a system not visible by physical inspections.

Since the early 1990's Thurston County has conducted over 2,000 dye tests along the shorelines, mostly marine shoreline. The overall OSS failure rate found using dye testing for one-time projects has been between thirteen (13) and fourteen (14) percent. It has been hypothesized that if routine OSS inspections and dye tests are done at the frequency required by the Henderson program, then the rate of failure could be expected to decrease over time.

The dye test results for the first five years of the Henderson program, shown in Table 9, suggest that the percent of failing systems is decreasing over time – by more than fifty percent (50%). The percent failing in 2007 and 2008 was consistent with the county's previous results. In 2009 the percent failing was only seven percent (7%). In 2010 and 2011, the percent failing was even lower, two (2%) and four (4%) percent respectively. The OSS dye tested in the second cycle had already had one physical inspection, three years before. The overall first cycle failure rate was ten percent (10%) as compared to the three percent (3%) in the second cycle.

Twenty-two percent (22%) of the systems that have been dye tested during this program had been previously dye tested during past projects. The failure rate when previously tested was eleven percent (11%), which is a higher failure rate than the overall five-year Henderson program failure rate of seven percent (7%).

Table 9
Dye Test Results
High Risk Systems

Dye Year	Completed Tests	Failures	Percent Failing	Previously Tested	Previous DT Failure
2007	21	3	14%	5	1
2008	38	5	13%	9	0
2009	45	3	7%	11	0
1st Cycle Total	**104**	**11**	**10%**	**25**	**1**
2010	50	1	2%	10	3
2011	51	2	4%	11	1
Yr-4+5 Total	**101**	**3**	**3%**	**22**	**4**
TOTAL	**205**	**14**	**7%**	**47** (22%)	**5** (11%)

When the third physical inspection cycle begins in 2013, most high risk OSS will have been tested once within the last six years and the dye test cycle will begin again. Following dye test results and failure trends through future inspection cycles will provide information on the influence of the program on long-term OSS function.

Streamside properties with poorly drained soil and any component of the OSS within 100 feet of the stream were initially designated as *high* risk and required a dye test. However, as these systems were inspected, staff often found that there were no drainages or places to put charcoal packets and recover dye if failing. As a result, where the site conditions did not lend themselves to direct surface water contamination upon failure, the risk level was changed to *low risk*. In situations, where a dye test would not be effective but the site conditions would allow a direct failure to surface water, the risk level remained as *high* and a sanitary survey inspection by county staff will be done every six years.

Findings: The data indicates that routine physical inspections and dye test evaluations may reduce the failure rate over time. Dye tests are an effective tool in locating shoreline OSS problems that are not readily found through physical inspections. Streamside OSS with no constructed drainage system nearby are more suited to a physical OSS inspection in combination with a county sanitary survey inspection rather than a dye test.

Compliance

Inspection Notice Process

When an OSS is due for an inspection, the property owner is sent a notice 60 days before the due date. If an inspection report is not received for that OSS, a second, or warning, letter is sent 30 days past the due date. If still no inspection report is received, a third and final notice, or nonconforming letter, is sent 60 days past the due date. Finally, the OSS is flagged as nonconforming in the permit tracking system 60 days after the last notice is sent (120 days after the OPC renewal due date) if the required inspection or any needed maintenance or repairs are not completed.

Nonconforming Systems

A septic system becomes classified as nonconforming when the required inspection or needed repairs or maintenance has not been completed. If there are circumstances that delay completion of any of these requirements, owners can request, and are usually granted, additional time to complete the work.

Once a system becomes nonconforming, there are four requirements to bring it back into compliance:

- System inspection conducted by a septic professional
- All sewage tanks must be pumped
- Identified maintenance and repairs completed and documented
- Application and fee for a field inspection by County staff

Compliance action on nonconforming OSS varies depending on risk level. A passive compliance approach is taken for *low* risk OSS. This means that the property is flagged in the permit tracking system to indicate that the septic system is nonconforming, and before any other future county permit are approved, the OSS must be brought into compliance.

A more active compliance approach is taken for *high* risk OSS. The property is flagged as nonconforming, and the requirements for reinstatement are the same as for *low* risk OSS. In addition, compliance staff use a variety of informal and legal means to motivate the owner to comply, including direct and phone communication, written notices of violation, administrative hearings, civil penalties, and court action.

Table 10 below shows the statistics for nonconforming OSS and those brought back into compliance during the first five years of the program. While the exact number of nonconforming OSS changes daily, the overall compliance rate is about eighty-seven percent (87%). Compliance status, as of December 2011, is displayed graphically in Figure 3.

Table 10
Nonconforming Systems
Number Created and Number that Remain as Nonconforming

Year	Made Non Conforming	Remain Nonconforming Systems	Violation Reminders Sent	Systems Brought into Compliance
2007	1			
2008	0			
2009	91	55		
2010	604	420	579	26
2011	283	226	493	142

The primary objective of the program is to have OSS routinely inspected and timely maintenance and repairs completed to ensure protection of public health. The program is not intended to create a hardship or be punitive. When property owners request additional time or assistance in order to comply, the department has attempted to be as flexible and accommodating as reasonable. However, during the second inspection cycle, it became apparent that many OSS went into nonconforming status due to legitimate personal life issues. As a result, a policy was adopted in 2011 to consistently address

these extenuating circumstances and provide some relief to owners by forgoing the county field inspection fee and/or field inspection requirement. Examples of circumstances where forgoing the field inspection step are considered include death in the family, major medical problem, military deployment, and mail delivery problem.

Violation Reminder Notices

Beginning March 2010, a new cycle of notices started being sent to owners who had not renewed their operational certificate during the first year of the first cycle of the program. It was now three years later and another inspection would have been due. Because the OSS had not been inspected and an OPC was not obtained during the first cycle, the OSS was now flagged as nonconforming; no other county permits would be issued; and a field inspection and associated fee was added to the requirements to bring the system back into compliance.

The initial response to the violation reminder notice was minimal – a few inquires and field inspection applications were received. However, that changed when a new Time of Transfer inspection and reporting regulation took effect in September 2010. The Time of Transfer program requires an OSS to be inspected and the sewage tanks pumped at the time of property transfer. In conjunction with the inspection and pumping, the Health Department issues an OSS status report to the seller and buyer. Now, during or shortly after property sales, many nonconforming OSS are brought back into compliance. The other event that has resulted in resolution of some nonconforming OSS has been when another county permit is sought, such as a reroof or furnace replacement permit. Some *low* risk OSS owners have chosen to let the nonconforming status stand and will remain so until something changes which triggers county action or voluntary compliance.

Figure 4 on the next page shows the compliance status of every parcel within the program as of December 31, 2011.

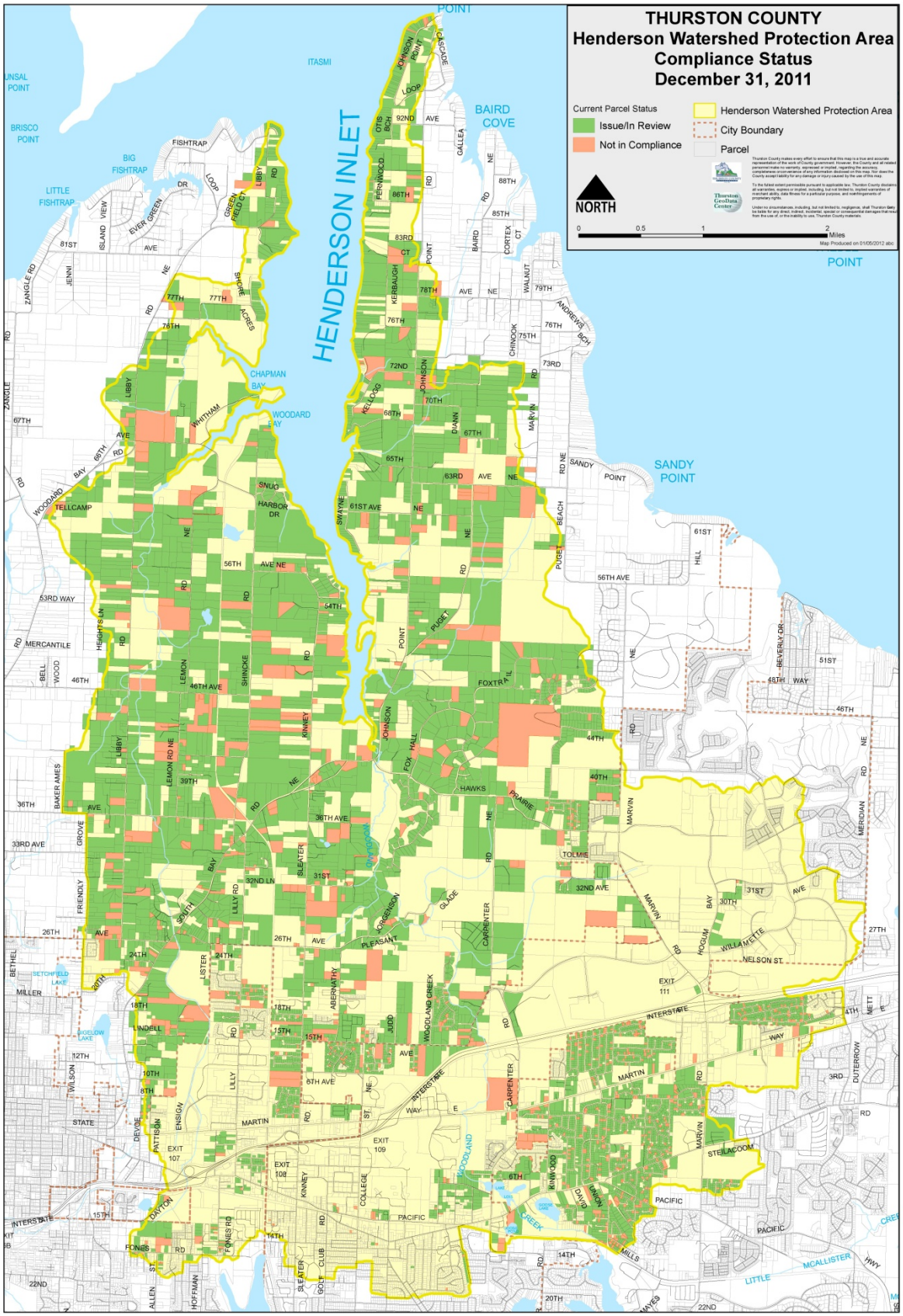


Figure 4. Compliance Status as of December 31, 2011

Quality Assurance/Quality Control

Another element of compliance is quality assurance/quality control field visits and technical assistance. The goal is to field check ten percent (10%) of completed inspections each year to confirm that inspectors are accurately reporting the condition and function of the OSS. 2008 was the only year where that goal was achieved. In the first two years of the second inspection cycle, the average percentage of QA/QC inspections was five percent (5%). Table 11 below shows the number of site visits made.

Table 11
Field Visits

Year	QA/QC Visits	Tech Assist Visits	Discrepancies Found During Visits
2007	56		
2008	196	2	
2009	91	12	5
2010	88	3	1
2011	120	6	2

Only a small number of discrepancies were found between what we reported and what was observed by county staff. Staff also provides technical assistance to OSS owners. Some technical assistance is provided through field visits, but hundreds more are via phone calls.

Staffing

In 2008, a one-half time staff person dedicated to Henderson compliance activities was added to the program staff through additional grant funding provided by Washington Department of Health. With a designated compliance officer, the repair rate of failing OSS has been one hundred percent. Failing systems are identified through dye testing of high-risk systems, routine inspections, and owner response to OSS problems. Repairs are often achieved with voluntary action and cooperation by the owner. The repair process entails hiring a septic system designer, obtaining a county permit, submitting a proposed design, getting permit approval, obtaining bids for the work, installing the system and submitting a record drawing of the system installed. In cases where an owner is uncooperative, it can take a considerable amount of staff time and legal support to gain compliance. The compliance person also is responsible to follow-up on high-risk OSS in non-conforming status as described in a previous paragraph.

The amount of resources needed for compliance was under-estimated in development of the initial program budget. In order to achieve program success, the program budget has been supplemented annually, since 2008, with grants from Washington State Department of Health to fund a half time compliance position, approximately $40,000 per year.

Findings: Overall compliance with program requirements has been high, approximately 87%. The compliance approach of using passive compliance for low risk OSS and active compliance for high risk is a good balance between protecting public health and effective use of resources. Dedicated compliance staff has resulted in timely repairs of failing OSS. The time of transfer program has played a large role in nonconforming OSS being brought back into compliance.

INCENTIVES

OSS Owner/ Inspector Certification

An owner/ inspector certification program was developed as an incentive for compliance with the program requirements. The initial program budget included two OSS workshops per year for owners. Neither the stakeholder committee, who helped design the program, nor staff, anticipated the overwhelming interest in this element of the program. Forty-two (42) classes were held in the first year. Subsequent years were similar with 36 and 37 classes. Owners spent five and a half hours on a Friday or Saturday to learn about their OSS and how to conduct an inspection. This incentive was well received as evidenced by eighty-seven percent (87%) of enrollees attending a class.

Approximately, one-third of the properties within the protection area have an owner certified to conduct routine inspections. (See Figure 5) Only owners of gravity, pressure distribution, mound, and Glendon® Biofilter type systems can be certified to inspect their own OSS. All other systems must be inspected by a septic professional.

One of the keys to the success of this program is an excellent instructor. Class evaluations from attendees over the years have held few criticisms - mostly overwhelming praise for a subject attendees thought would not be interesting. At the end of one class, one attendee's criticism was that the class had begun too late in the day (9:00 a.m.) to be able to go home and do their inspection. (See Appendix B to read more comments.) Another frequent suggestion is that every septic system owner in the county should have to take the class.

Table 12
Certified Owner Inspectors
Attendance at 5.5 Hour Class

Year	Number of workshops	Number who signed up	Number who attended	*Percent who attended*
2007	42	603	554	88
2008	36	630	546	87
2009	37	607	507	84
2010	19	338	285	84
2011	12	238	209	88
Total	**146**	**2416**	**2101**	**87%**

The septic demonstration park is used for each class. There is at least a half hour of instruction in the park regardless of weather. (See page 7 for description.) A variety of props, videos, lecture, and multiple teaching methods are used. The number of 'certified owners' who actually did their own inspections versus those who hired a professional has not been tracked.

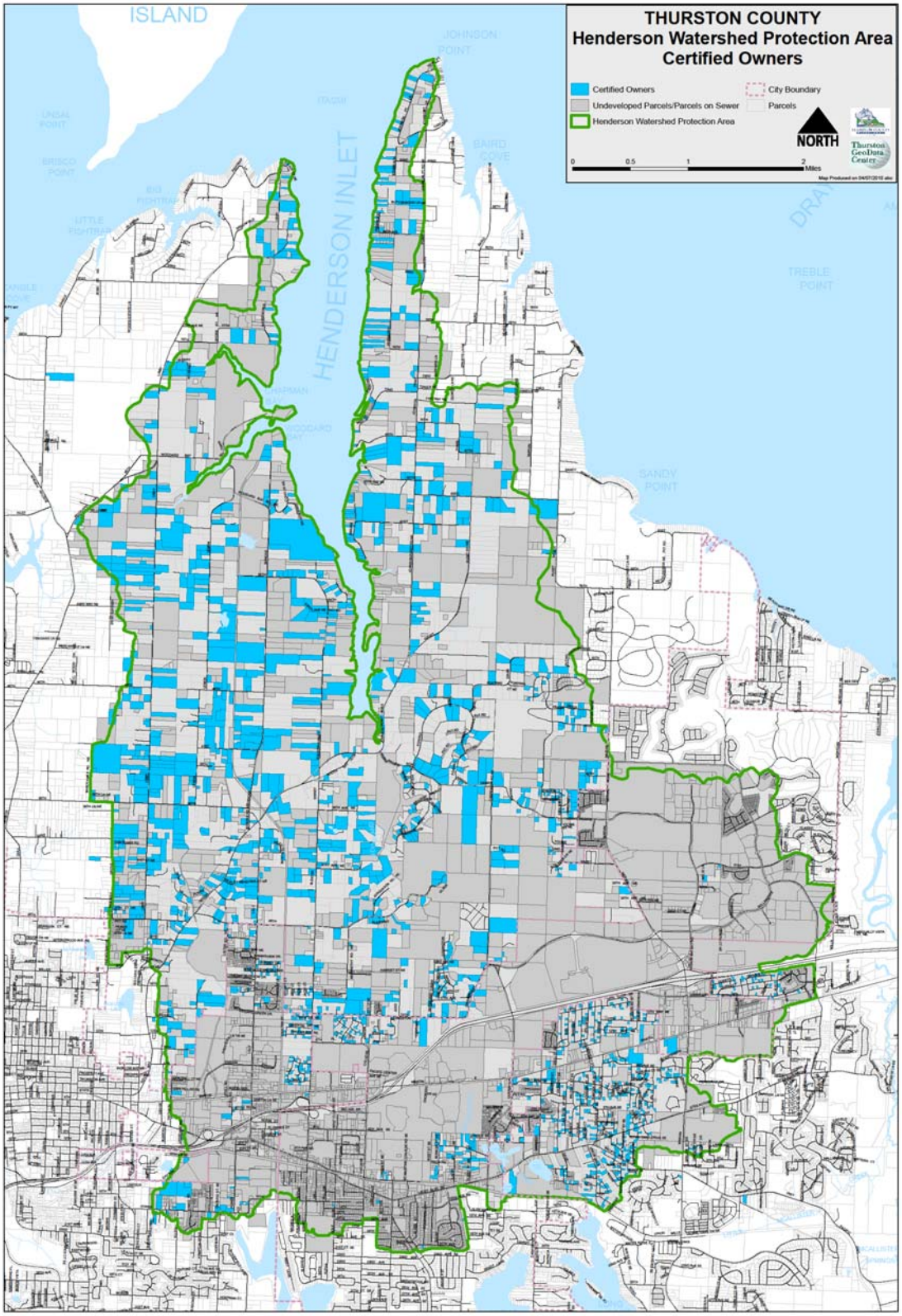


Figure 5. Distribution of Certified Owner Inspectors

Because only two classes per year were budgeted, additional funding had to be found for the additional 130 classes. Additional resources to help finance the owner/inspector certification program were requested from the Henderson Shellfish Protection District. The shellfish protection district is jointly managed by Thurston Conservation District Board of Directors and Thurston County Board of County Commissioners, with input from a stakeholder committee. A total of $44,466 of shellfish protection district funds was approved during the first three years to supplement the program budget for owner/inspector training. The funds paid for staff to prepare for and conduct classes, purchase materials for door prizes (sludge and scum measuring sticks), and construct a security fence around the septic demonstration park. Once the second cycle began in 2010, the demand for classes decreased by about half.

The policy developed for administering the owner/inspector certification program states that if an owner fails to perform maintenance, inspections, submit inspection reports, or any other required activities, certification will be revoked. Table 13 shows the number of owners who were certified and the number of certifications revoked.

Table 13
Certified Owner Inspector Revocations

Year	Number certified	Number certifications revoked	% certifications revoked
2007	554	35	6.3
2008	546	53	9.7
2009	506	64	12.6
2010	282	24	8.5
2011	209	15	7.2
Total	**2097**	**191**	**9.1**

The primary reason for owner certification revocation was failing to perform and report an OSS inspection. Most of these owners reported an inspection during the first cycle but failed to report the second (renewal) time. Other reasons for revocation include failing to complete needed OSS maintenance or repairs, filing an incomplete inspection, and falsifying an OSS inspection report.

Failure to do an OSS inspection is tracked through the permit tracking system; the OSS is automatically flagged as “nonconforming”, and program staff removes the owner certified status. The “other” reasons for revocation are indentified through the quality control / quality assurance element of the program, which includes field verification of inspection reports and tracking of OSS deficiencies corrections. Currently the number of revocations is being tracked, but the reasons are not. Future modification to the permit tracking system may include the capability to track this information.

Findings: Owner/inspector training and certification element is a popular incentive. Benefits include owners being better informed about OSS and how to be wise consumers of septic professional services; it fosters a good relationship between the department and public; saves owners money; and empowers them to take ownership of the operation and maintenance of their system. About 9% of owners fail to meet department expectations and had their certification revoked. It is a staff intensive program.

Riser Rebates

Rebates for installing sewage tank access risers have been offered to residents of both Henderson and Nisqually Reach Shellfish Protection Districts since 2006 as an incentive to encourage compliance with program requirements. Sewage tank access risers make it easier to access the tanks for inspections and maintenance, and eliminate the need to dig to expose tank lids. The rebate program has been funded through Shellfish Protection District fund, which is a subset of the Thurston Conservation District assessment.

To apply for a rebate, owners have to submit a short rebate form with a receipt for materials purchased and photo documentation of the riser installation. The rebate amount is $50 per large riser, with a maximum rebate of $100 per system, and a limit of two rebates per person. The rebate program is very popular. The number of risers installed and amount of rebates awarded are shown in Table 14 below. Similar to owner/inspector classes, demand for rebates decreased after the first inspection cycle, but is still a popular feature of the program. Roughly 20% of the OSS in the program had newly installed risers after five years. A total of $65,500 has been rebated to watershed residents.

Table 14

Riser Rebates

Year	Number of Riser Rebates	Paid for Rebates
2007	254	$12,700
2008	372	$18,600
2009	377	$18,850
2010	167	$8,350
2011	140	$7,000
Total	**1310**	**$65,500**

Findings: Rebates for risers has been an effective incentive for septic owner. Consequently, future inspections will be easier to conduct.

Financial Assistance

Two types of financial assistance have been available to OSS owners. Small grants are available to low income owners to help with the cost of inspections, maintenance, and minor repairs. Grants and loans are also available to help owners finance repairs of failing OSS.

Small grants are available to owners who are enrolled in the senior/disabled property tax exemption program or have an annual household income of $40,000 per year or less. The maximum grant amount is $500, and qualifying owner is eligible once every three years. The homeowner is required to pay 25% of the cost, which can include in-kind labor, and is responsible for any cost over $500. During the first five years of the program, 109 grants were awarded totaling $34,077.

Demand for assistance was high. In 2008 all of the money budgeted was granted. These grants have helped low-income owners pay for inspections, pumping, and minor repairs. There has been only about a 20% decrease in small grants during the second cycle, compared to a 60% decrease in riser rebate requests. This small grant program serves a critical need in the community by providing a means for low-income owners to comply with inspection requirements and properly maintain their systems.

Table 15
Small Inspection and Maintenance Grants

Year	Number of Small Grants	Amount Granted
2007	16	$4594.29
2008	26	$8408.84
2009	25	$8182.21
2010	20	$6855.89
2011	22	$6035.89
Total	**109**	**$34,077.12**

The health department has had a financial assistance program to repair failing OSS since 1992. While this program is not necessarily an incentive to comply with the program requirements, it does provide a means to repair failing OSS with either a replacement OSS or connection to sewer. Eligibility is dependent on household income and financial status. Grants had been available to both low-income owners and marine shoreline residents. However, as of 2012, grants are only available to low-income owners. Table 16 shows the number and amount of grants and loans awarded to repair failures.

Table 16
OSS Repair Grants and Loans
2007 - 2011

Onsite Grants	Amount Granted	Onsite Loans	Amount Loaned
6	**$23,050**	**5**	**$74,230**

Total financial assistance awarded to Henderson Watershed residents between 2007 and 2011 was $131,357.12

Findings: The small grant program is an effective means of assisting low-income OSS owners inspect and maintain their OSS. Owners with a failing OSS benefit from grants or low-interest loans to complete the repair, which helps ensure protection of public health and water quality.

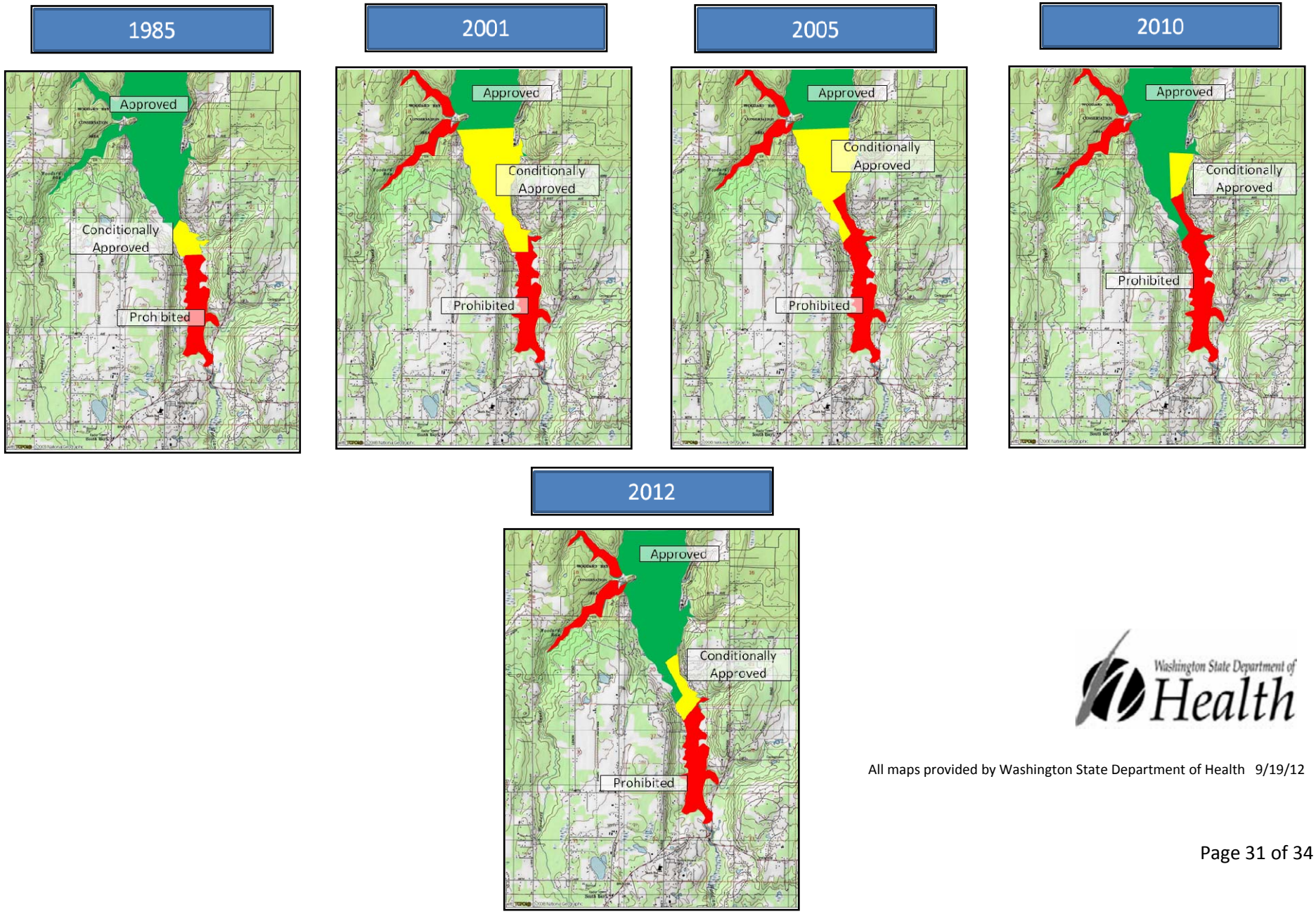
WATER QUALITY

Water quality in Henderson Inlet has improved since this program went into effect. The series of maps of lower Henderson Inlet (See Figure 6) show the changes in shellfish growing area classifications as water quality changed over time. Between 1985 and 2005 the *Prohibited* (red) area and *Conditional Approved* area (yellow) increased and the area where it was safe to harvest shellfish got smaller. However, at the end of the first cycle of the O&M program in 2010, 240 acres of tideland were upgraded to *Approved* status, which was the first growing area upgrade in 30 years. In 2012, additional 100 acres were upgraded due to improved water quality and the *Prohibited* area shrank.

These upgrades are extraordinary for inlets such as Henderson that have urbanizing areas in the headwaters of the watershed.

In addition to this septic O&M program, many other actions have been taken by city and county stormwater utilities, the agricultural community, watershed residents, and pet owners to prevent polluted runoff from reaching Henderson Inlet and its tributaries. Collectively, everyone's efforts have led to improved water quality throughout the watershed.

Figure 6. Time Series of Shellfish Growing Area Classification Maps



All maps provided by Washington State Department of Health 9/19/12

SUMMARY AND CONCLUSIONS:

The program has been successful in achieving the goal of reducing pollution contributed by failing OSS through a routine inspection and maintenance program. Measurable improvements in the marine water of Henderson Inlet have occurred, and the shellfish harvest status was upgraded for 340 acres of tideland. OSS owners have taken ownership of and responsibility for the operation and maintenance of their systems – as evidenced by the 2100+ certified homeowner inspectors and an on-going compliance rate of about 87 percent.

Failing systems are being found and repaired. The number of repairs decreased during the second cycle of the program. Data shows that the physical inspections revealed minor problems that needed to be repaired. However, the number of minor repairs needed decreased in the second inspection cycle. Likewise, the first inspection cycle showed that 48% of septic tanks were due or past due for pumping of accumulated solids. While the second cycle shows that less than a quarter of the septic tanks needed to pump. While there is insufficient data at this time, it is possible that this inspection program could avert more serious 'system' problems and prolong the working life of OSS by identifying and repairing minor problems early and performing timely maintenance.

Use of the property tax statement as the means to collect the program charge is efficient and allows more program dollars to be spent on the technical aspects of the program.

The incentive and assistance have helped the residents learn about their systems, take responsibility for the maintenance, and made compliance with the required inspections easier. The small grant program has provided a means for low-income citizens to inspect and maintain their OSS, who would not otherwise have the financial resources to do so.

Automating processes, converting paper septic files to easily accessible electronic records and improving the permit tracking system have improved efficiency and allowed program staff to spend more time on technical issues and correcting septic systems with deficiencies.

LESSONS LEARNED

- First cycle is labor intensive with many surprises and unanticipated complications.
- Many parcels have more than one system
- Sewer records may be incomplete or incorrect
- Supplemental funds were needed to cover program costs for the first inspection cycle particularly owner/inspector classes and compliance
- Owners are willing to take 5.5 hours class to be certified to do their own inspections.
- Community systems and mobile home parks are complex and required a lot of time to sort OSS records and set up in permit tracking system
- Septic tank pumpers adapted their business practices to meet the program requirements and their client needs. They expanded their services to include inspections and adopted an electronic reporting system
- The county permit tracking system can be used to manage more than one OSS per property, but it can be confusing
- Parcel numbers are routinely changed by the County Assessor making it difficult to correctly track OSS O&M activities, charge rates, and track statistics. A unique parcel identification system is needed

- Dye test evaluations are not effective for all streamside properties
- Many septic systems that went into nonconforming status were due to legitimate personal life owner issues, and it was necessary to develop a standard and consistent way to evaluate these cases and provide some relief to reinstatement requirements

WHAT WORKED WELL

- Charge collected with property taxes
- Online reporting by septic professionals
- Owner/inspector certification classes
- Building a stronger relationship with pumpers
- Increased automation of administrative processes
- 'Elevating' pumpers to O&M Technicians (Septic System Inspectors)
- Cooperation from Henderson septic system owners
- Incentives and financial assistance
- Passive compliance for nonconforming low risk systems
- Compliance staff dedicated to the Henderson program

WHAT IS NEEDED

- Provisions for certified owner/inspectors to submit their inspection reports online
- Continuing education / training for OSS professionals
- Continuing communication and education for certified owner/inspectors
- Revision of program charge to fully support program costs – specifically owner/inspector workshops, compliance, and data systems management (permit tracking system, onlineRME, Laserfiche records, web-based permit applications, OSS GIS layer)
- Addition of IT technical staff to improve data management, further automate and expand use of electronic records, web capabilities, and GIS systems
- Resolution of problems created by changing tax parcel number issue
- Increase number of QA/QC visits

APPENDICIES

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Appendix A
Ordinances

ORDINANCE NO. 13470

AN ORDINANCE amending the Henderson Inlet Shellfish Protection District boundaries, amending the Shellfish Protection District program, and fixing rates and charges to fund an on-site sewage system operation and maintenance program.

WHEREAS, the Board of County Commissioners adopts the following findings:

1. Henderson Inlet is an important shellfish growing area in Thurston County.

2. On October 19, 2000, the Washington State Department of Health downgraded an approximately nine-acre portion of the commercial shellfish growing area in Henderson Inlet in Thurston County to a classification of "Prohibited" because of water quality degradation. In 2001, the Washington State Department of Health downgraded an additional 300 acres to conditionally approved status because of bacterial contamination in Henderson Inlet. In June 2005, an additional 49 acres were reclassified to "Prohibited" status.

3. The Washington State Department of Health determined that degradation of the Henderson Inlet water quality is primarily due to nonpoint sources of water pollution.

4. Nonpoint water pollution sources, including failing on-site sewage systems, agricultural surface water runoff, and stormwater runoff, threaten the public health.

5. Studies performed by Thurston County and the State of Washington have identified on-site sewage systems as a significant source of contamination contributing to the water pollution in Henderson Inlet.

6. On December 17, 2001 the Henderson Inlet Shellfish Protection District was created by Ordinance No. 12679, and a work program was adopted.

7. Since the Shellfish Protection District was established in 2001, additional study of topography and drainage to Henderson Inlet has provided information for refining the District boundaries.

8. The Henderson Inlet Shellfish Protection District stakeholder committee has identified the regulation and testing of on-site sewage systems to reduce their impact as a source of pollution to Henderson Inlet as the number one priority for the District.

9. A program should be implemented to regulate proper operation and maintenance of on-site sewage systems if the shellfish protection district goal of improving water quality is to

be achieved in an effort to upgrade conditionally approved, restricted, and prohibited shellfish beds.

10. Proper operation and maintenance, including periodic inspection and testing, of on-site sewage systems, are necessary to identify systems that are contributing to the water pollution in Henderson Inlet and to ensure that non-failing on-site sewage systems continue to function properly.

11. An on-site sewage system operation and maintenance program will provide a means to address water quality degradation in Henderson Inlet resulting from on-site sewage systems.

12. To implement a comprehensive on-site sewage system operation and maintenance program within the Henderson Inlet Shellfish Protection District, a stable funding source is necessary.

13. RCW 90.72.070 authorizes the Board of County Commissioners to finance activities specified in the shellfish protection program through reasonable fees or rates or charges.

14. Providing financing for an on-site sewage system operation and maintenance program, to be carried out by Thurston County Public Health and Social Services Department, is consistent with the recommendations of the District stakeholders' committee.

15. The on-site sewage system operation and maintenance program funded by Shellfish Protection District charges should be administered by the Thurston County Public Health and Social Services Department in its role of regulating on-site sewage systems.

16. The fees, rates and charges for the on-site sewage system operation and maintenance program are reasonable and are established at a level necessary to fund the program.

17. Only those properties served by an on-site sewage system, or on which any portion of an on-site sewage system is located, should be charged for the on-site sewage system operation and maintenance program.

18. The boundary of the rate area for imposition of the on-site sewage system operation and maintenance charges should be limited to the portions of the Henderson Inlet Shellfish Protection District that are more likely to have an impact on water quality in Henderson Inlet.

19. The Thurston County Public Health and Social Services Department has determined that on-site sewage systems in the area south of the outlet to Long Lake are not likely to significantly contribute to bacterial pollution in Henderson Inlet due to the long retention time in the lakes. Therefore, this area should not be subject to rates and charges for the on-site sewage system operation and maintenance program.

20. The Board of Thurston County Commissioners held a public hearing on October 27, 2005.

NOW, THEREFORE, THE BOARD OF COUNTY COMMISSIONERS OF THURSTON COUNTY hereby ordains as follows:

Section 1. District Boundaries. The Henderson Inlet Shellfish Protection District boundaries are amended to include the area shown in Exhibit A, which is attached hereto and incorporated herein by reference.

Section 2. Work Program. The Henderson Inlet Shellfish Protection District And Nisqually Reach Shellfish Protection District Consolidated Work Program, Phase 2, section IV(A) is amended to read as follows:

Septic System Additional Work Needed:

Failed onsite sewage systems (OSS) contribute fecal coliform bacteria and other forms of harmful contamination into the Henderson Inlet and the Nisqually Reach. There is currently no adequate mechanism in place by Thurston County to monitor or control the operation and maintenance of all onsite systems. Additional work is still needed to address the contribution of bacteria by on-site septic systems including:

1. Approve the continuation of staff working on developing a Septic System Operation and Maintenance Proposal for the Henderson Inlet Watershed. Prepare appropriate documents to implement the program for consideration of adoption by the Board of Health.

2. Consider expanding the program into the Nisqually Reach District once the O&M program is implemented in Henderson Inlet Watershed.

3. With approval of an On-site Sewage System Operation and Maintenance program for the Henderson Inlet watershed in the Sanitary Code for Thurston County, Henderson Inlet Shellfish Protection District rates and charges will be an appropriate mechanism to provide a consistent funding source. Rates and charges should be established at a reasonable level to carry out an operation and maintenance program for on-site sewage systems in areas that may be contributing to the fecal coliform contamination of Henderson Inlet.

Section 3. Definitions. All terms used in this Ordinance that are defined in Article IV of the Sanitary Code for Thurston County, including Appendix A to Article IV, shall have the meanings given in the Sanitary Code.

Section 4. On-site Sewage System Operation and Maintenance Program Financing.

The Henderson Inlet on-site sewage system operation and maintenance program shall apply to the area designated as the Henderson Watershed Protection Area established as an area of special concern in Article IV of the Sanitary Code for Thurston County. The program and activities of the Henderson Inlet Shellfish Protection District to address on-site sewage system operation and maintenance of on-site sewage systems shall be financed as follows:

A. **Rates and Charges.** The following annual rates and charges shall apply to all properties served by on-site sewage systems where any portion of the wastewater system, including a building and any collection, transport, treatment or disposal component, is within the Henderson Watershed Protection Area. If portions of a single on-site sewage system, other than a Community on-site system, are present on more than one parcel, the lien for rates and charges shall only apply to the parcel where the sewage originates, as determined by the Thurston County Environmental Health Division. Each year, the rates and charges shall be determined by improvements present on the property on June 30th of the previous year.

1. For the year 2007, the following charges shall apply:

   a. Properties with a Low Risk system shall be charged $32.00 annually per on-site sewage system.

   b. Properties with a High Risk system shall be charged $87.00 annually per on-site sewage system.

   c. Properties with a Community on-site system shall be charged $160.00 annually per on-site sewage system for the parcel where the drainfield is located. Each parcel where a septic tank is located that is connected to the Community on-site system shall also be charged either the rate for a Low Risk system or High Risk system, as applicable.

2. For each subsequent year, the charges shall be automatically adjusted each January 1 by the percentage increase, if any, in the June Consumer Price Index for the previous year. The maximum increase shall be 3.5%. "Consumer Price Index" for the purposes of this section shall mean the Urban Wage Earners and Clerical Workers Index for the Seattle-Tacoma-Bremerton area. All adjustments to the rates and charges based on the Consumer Price Index shall be rounded to the nearest whole dollar. An alternative calculation for automatically adjusting the charges may be adopted by further action of the Board of County Commissioners.

B. **Exemptions**

1. Senior/disabled exemption. The rates and charges on any parcel owned by a person who is currently granted an exemption under RCW 84.36.381 through .385 shall be reduced by 100%.

2. Properties exempted by RCW 90.72.070:

a. Confined animal feeding operations subject to the national pollutant discharge elimination system (NPDES) and implementing regulations.

b. Facilities permitted and assessed fees for wastewater discharge under the NPDES.

c. Lands classified as forest land under Chapter 84.33 RCW.

d. Lands classified as timber land under Chapter 84.34 RCW.

C. **Collection**

1. The rates and charges authorized by this ordinance shall be included in Thurston County's property tax statements and shall be collected by the Thurston County Treasurer along with and in the same manner as property taxes are collected, including foreclosure of delinquent liens. The Treasurer may include the rates and charges on the same line of the property tax statements with the Thurston County storm and surface water utility rates and charges.

2. The rates and charges, and any interest, shall be due and payable on or before the 30th day of April and shall be delinquent after that date; however, if one-half of the rates and charges are paid on or before the 30th day of April, the remainder shall be due and payable on or before the 31st day of October and shall be delinquent after that date.

D. **Lien.** The rates and charges imposed by this ordinance shall be a lien against the property charged, which lien shall be superior to all other liens and encumbrances except general taxes and local improvement district liens and special assessments. Such liens shall be effective on January 1 of each year.

E. **Delinquent charges.** Delinquent charges shall bear interest at the rate of 12% per annum, computed on a monthly basis and shall be included with the lien for the charges.

F. **Corrections.** If the Environmental Health Division Director, or the Director's designee, determines that the rates and charges assessed against any property were incorrect based on errors in billing, incorrectly identified property or the location of the wastewater system, the rates and charges may be corrected, provided that no corrections shall be allowed more than three years after the date payment was due without delinquency. Changes in the risk level of an on-site sewage system that result in adjustments to rates and charges assessed against any property shall be prospective only and no refund shall be allowed.

G. **Sunset.** The provisions of this section, entitled "On-site Sewage System Operation and Maintenance Program Financing", as may be hereafter amended, are repealed effective December 31, 2017 unless re-enacted by the Board of County Commissioners.

Section 5. Severability. If any term or provision of this Ordinance, or its application to any person or circumstance, is held to be invalid, illegal or unenforceable by any court or agency of competent jurisdiction, the remaining terms and provisions of this Ordinance, and the application of the provision to other persons or circumstances, shall not be affected thereby, but each remaining term and provision shall be valid and enforceable to the fullest extent permitted by law.

Section 6. Effectiveness. This ordinance shall take effect immediately on the date adopted below.

ADOPTED: November 21, 2005

ATTEST:

Clerk of the Board

APPROVED AS TO FORM:

EDWARD G. HOLM
PROSECUTING ATTORNEY

Jane Futterman
Deputy Prosecuting Attorney

BOARD OF COUNTY COMMISSIONERS
Thurston County, Washington

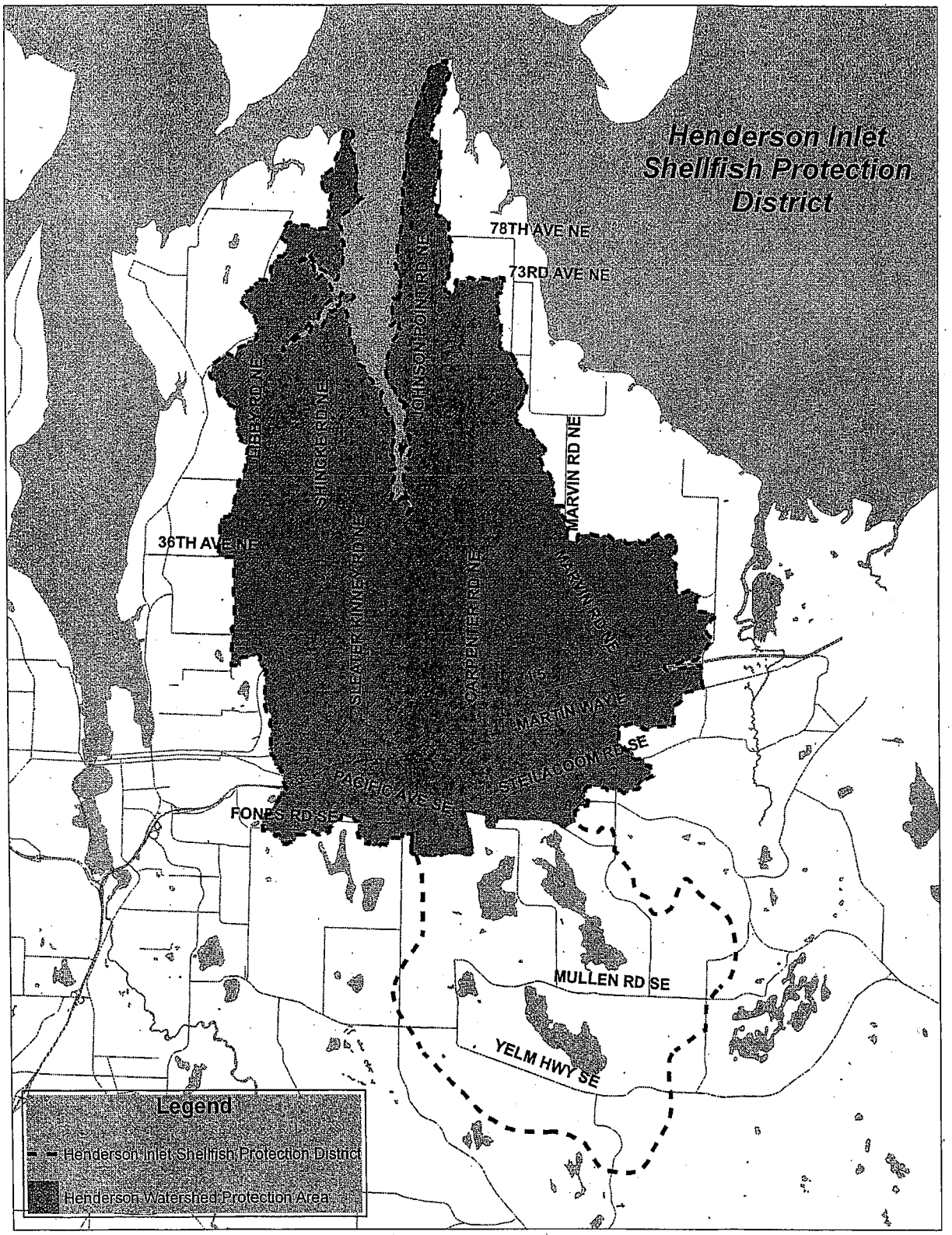
Voted No
Chairman Oberquell

Commissioner

Commissioner

J:\WP\ORDINANC\Shellfish Henderson Ordinance 2005 (11-8-2005 version).doc

EXHIBIT A


Henderson Inlet
Shellfish Protection
District
78TH AVE NE
73RD AVE NE
JOHNSON POINT RD NE
MARVIN RD NE
SHINGER RD NE
SLEATER KINNEY RD NE
CARPENTER RD NE
36TH AVE NE
MARTIN WAY
STILLACOOM RD SE
PACIFIC AVE SE
FONES RD SE
MULLEN RD SE
YELM HWY SE
Legend
Henderson Inlet Shellfish Protection District
Henderson Watershed Protection Area

ORDINANCE NO. H-3-2005

AN ORDINANCE amending Article IV and adopting Article IV, Appendix A of the Sanitary Code for Thurston County.

WHEREAS, the Board of Health adopts the following findings:

1. Pursuant to Chapter 70.05 RCW and Washington State Constitution Article XI, Section 11, the Board of Health has the power to enact rules and regulations as are necessary to preserve, promote and improve the public health.

2. Henderson Inlet is an important shellfish growing area in Thurston County.

3. On October 19, 2000, the Washington State Department of Health downgraded approximately nine acres of commercial shellfish growing area in Henderson Inlet to a classification of "Prohibited" because of water quality degradation. In 2001, the Washington State Department of Health downgraded an additional 300 acres to "Conditionally Approved" status because of bacterial contamination in Henderson Inlet. In June 2005, an additional 49 acres of tidelands were downgraded to "Prohibited" status for shellfish harvesting.

4. Studies performed by Thurston County and the State of Washington have identified on-site sewage systems as a significant source of contamination contributing to the water pollution in Henderson Inlet.

5. The presence of human sewage from failing on-site sewage systems in the waters of Henderson Inlet and its tributaries poses a serious risk to the public health of Thurston County residents and visitors.

6. A systematic approach to managing on-site sewage systems within the Henderson Inlet Shellfish Protection District is needed to reduce fecal coliform bacteria pollution from failing systems.

7. Routine operation and maintenance are key to maintaining fully functioning on-site sewage systems that do not contribute to water quality degradation.

8. Pursuant to Article IV, section 22.4 of the Sanitary Code for Thurston County, an area of special concern should be established to minimize public health risk and implement enhanced operation and maintenance requirements for on-site-sewage systems.

9. The boundary of an area of special concern governing on-site sewage systems should include that portion of the Henderson Inlet Shellfish Protection District that is more likely to have an impact on water quality in Henderson Inlet.

10. Article IV of the Sanitary Code for Thurston County should be amended to establish an enhanced operation and maintenance program for on-site sewage systems within a portion of the Henderson Inlet Shellfish Protection District to improve water quality in Henderson Inlet and its tributaries.

11. The amendments will enable Thurston County to better preserve, promote and protect the public health.

NOW, THEREFORE, THE THURSTON COUNTY BOARD OF HEALTH HEREBY ORDAINS AS FOLLOWS:

Section 1. The definition of "Community On-site Sewage System (COSS)" in Article IV, section 3 of the Sanitary Code for Thurston County is hereby amended to read as follows:

"Community On-site Sewage System (COSS)" means any on-site sewage system

(a) ~~d~~Designed to serve more than ~~one single family residence~~ two residential units; ~~and~~/or

(b) ~~w~~With a design flow, at any common point, more than one thousand (1,000) gallons per day and less than or equal to three thousand five hundred (3,500) gallons per day~~, except when dealing with issues and proposals~~; or

(c) Within the Lacey, Olympia or Tumwater Urban Growth Areas with a design flow, at any common point, more than six hundred (600) gallons per day and less than or equal to three thousand five hundred (3,500) gallons per day ~~within the designated Thurston County Urban Growth Management Area and/or covered by the Thurston County Sewerage General Plan, the lower design limit shall be six hundred (600) gallons per day~~.

Section 2. The definition of "Conforming system" in Article IV, section 3 of the Sanitary Code for Thurston County is hereby amended to read as follows:

"Conforming system" means any on-site sewage system, except an experimental system, that is in full conformance with an operational certificate, where required, and meets any of the following criteria:

(a) The system is in full compliance with all requirements for new construction as specified in this article, including the provision of a reserve area. This includes~~:~~

~~(i) A~~ a repair system that meets the requirements for new construction as specified in this article; or

~~(ii) A new or repair system was permitted, but a waiver had to be obtained as per section 24 of this article; or~~

(b) The system is an existing on-site sewage system approved, installed, and operated under a previous edition of this article; or

(c) The system is a repair system that was permitted to meet the requirements of this article to the maximum extent permitted by the site; or

~~(c)~~(d) The system or repair was permitted through the waiver process ~~which assure public health protection by higher treatment performance or other methods~~; or

~~(d)~~(e) The system ~~is existing,~~ was in existence prior to 1979, is not in failure, and its use is consistent with its size and design. ~~, and, where required, is in full conformance with a valid operational certificate~~

Section 3. The definition of "Non-conforming system" in Article IV, section 3 of the Sanitary Code for Thurston County is hereby amended to read as follows:

"**Non-conforming system**" means an on-site sewage system which is ~~not in failure but which is:~~

(a) ~~n~~Not in compliance with the conditions ~~stipulated~~ specified on the approved On-site Sewage System Application or accepted as-built drawing; or

(b) ~~n~~Not being operated consistent with its size and design; or

(c) ~~Is n~~Not in full conformance with an ~~valid~~ operational certificate where one is required; or

(d) Failing. ~~A repair which is placed in the originally designated reserve area shall be considered a conforming system as long as the system is not in failure.~~

Section 4. Article IV, section 16.2.1 of the Sanitary Code for Thurston County is hereby amended to read as follows:

16.2.1 Establish ~~recommended~~ required conditions, monitoring schedules, ~~and~~ reporting schedules, and recommendations to assure proper on-going operation and maintenance for all OSS. The conditions and monitoring schedules will vary depending on the type of system, the location of the system, population or facility(ies) served, the sensitivity of the site, and requirements within alternative system guidelines.

Section 5. Article IV, section 16.3 of the Sanitary Code for Thurston County is hereby amended to read as follows:

16.3 Operational Certificates shall be required ~~for certain large or complex OSS. These include~~ for the following systems: experimental, community, large OSS, proprietary devices which require third party maintenance, OSS which serve food establishments as defined by Article II of the Thurston County Sanitary Code, OSS which must meet treatment standard 1, or treatment standard 2 where disinfection is required, lined sand filters, mounds, those which require waivers where enhanced system performance and monitoring is the basis for approval of the waiver, and systems in Areas of Special Concern as established by the Board of Health.

16.3.1 The operational certificate will contain specific conditions required for the continued use of the OSS, as noted in subsection 16.3.4 of this article. The purpose of these conditions is to assist the OSS owner in minimizing the potential of a failure and having to repair the OSS.

16.3.2 The operational certificate and the conditions contained therein shall run continuously with the property; however, when an operational certificate is no longer required, the health officer may issue an operational certificate release, which the owner may record against his/her property.

16.3.3 As noted in section 16.4 of this article, the owner of an OSS with an operational certificate is responsible for operating, maintaining, and monitoring the OSS in a manner that satisfies the conditions in the operational certificate. Failure to maintain a current operational certificate or failure to comply with required conditions in an operational certificate is a violation of this article.

16.3.4 The Health Officer will establish conditions, monitoring schedules, ~~and~~ reporting schedules, and any required testing and inspections to assure proper on-going operation and maintenance for OSS with an operational certificate. The conditions may include a requirement to connect to a public sewer system within a specific time frame. At a minimum, the conditions shall require ~~the OSS owner do~~ the following:

16.3.4.1 Determine the level of solids and scum in the septic tank once every three years;

16.3.4.2 Protect the OSS area and the reserve area from:

16.3.4.2.1 Cover by structures or impervious material;

16.3.4.2.2 Surface drainage;

16.3.4.2.3 Soil compaction, for example by vehicular traffic or livestock; and

16.3.4.2.4 Damage by soil removal and grade alteration;

16.3.4.3 Keep the flow of sewage to the OSS at or below the approved design both in quantity and waste strength;

16.3.4.4 Operate and maintain alternative systems as directed by the health officer;

16.3.4.5 Direct drains, such as footing or roof drains away from the area where the OSS is located;

16.3.4.6 Maintain the OSS and meet conditions as specified in the approval of the OSS;

16.3.4.7 Require annual inspections of OSS serving food service establishments and may require pumping as needed;

16.3.4.8 Other appropriate requirements for OSS in an area of special concern based on criteria developed by the health officer.

16.3.5 The Health Officer shall:

16.3.5.1 Renew operational certificates for another specified period of time once all conditions of the certificate have been fulfilled and fees for renewal have been paid.

16.3.5.2 Charge fees for performing these activities as per Appendix A of article I.

~~16.3.5.3 Require annual inspections of OSS serving food service establishments and may require pumping as needed.~~

16.3.5.3 Withhold approvals for permits or recommend denial of permits for future property development if a required operational certificate has not been obtained or renewed.

16.3.5.4 Withhold issuance of an operational certificate on any OSS that is in failure.

Section 6. Article IV, section 16.4 of the Sanitary Code for Thurston County is hereby amended to read as follows:

16.4 The OSS owner is responsible for properly operating and maintaining the OSS to comply with the ~~recommended~~ standards ~~or the~~ and conditions of the Operational Certificate, when one is required. The OSS owner shall:

16.4.1 Either monitor the OSS himself/herself at least once every three years or contract with a ~~licensed monitoring firm~~ person approved, certified or authorized by the health officer to perform the monitoring.

16.4.2 Employ a pumping firm to remove the septage from the septic tank, pump chamber, and or other vessel when the level of solids and/or scum indicates that removal is necessary.

16.4.3 Send the report of the monitoring results to the health officer ~~for review and input of the appropriate data into the health officer's data base~~. When required as part of an operational certificate, the report must be submitted in accordance with a schedule established by the department.

16.4.4 Pay the fees, when applicable, as per Appendix A of a~~a~~Article I.

Section 7. Article IV, section 16.6 of the Sanitary Code for Thurston County is hereby amended to read as follows:

16.6 If an OSS has been classified as non-conforming because of failure to maintain a valid operational certificate, the system may be reinstated as a conforming system only after all of the following conditions have been met:

16.6.1 The tank has been pumped and a report has been submitted by a certified pumping firm; and

16.6.2 A field inspection of the OSS has been conducted by the department to verify the status of the system and confirm it is not in failure; and

16.6.3 All past renewal fees and the field inspection fee have been paid; and~~.~~

16.6.4 All other applicable requirements of the expired operational certificate have been satisfied.

Section 8. Article IV, section 22.3 of the Sanitary Code for Thurston County is hereby amended to read as follows:

22.3 Within areas of special concern, to reduce risk of system failures, a ~~certified monitoring firm~~ person approved, certified or authorized by the Health Officer shall:

22.3.1 Inspect every OSS at least once every three ~~four~~ years;

22.3.2 Submit the following written information to both the department and the property owner within 30 days following the inspection:

22.3.2.1 Location of the tank, if not on file with the department;

22.3.2.2 Structural condition of the tank(s), including baffles, and system components;

22.3.2.3 Depth of scum and solids in the tank;

22.3.2.4 Problems detected with any part of the system;

22.3.2.5 Results of visual inspection of OSS;

22.3.2.6 ~~22.3.2.5~~ Maintenance needed;

22.3.2.7 ~~22.3.2.6~~ Maintenance provided at time of inspection; and

22.3.2.8 ~~22.3.2.7~~ Other information as required by the department.

22.3.3 Immediately report failures to the department.

Section 9. New subsection 22.4 of Article IV of the Sanitary Code for Thurston County is hereby adopted to read as follows:

22.4 The Henderson Watershed Protection Area is designated as an area of special concern as set forth in Appendix A. The Henderson Watershed Protection Area, and all requirements for the Area set forth in this article, as may be hereafter amended, shall terminate on December 31, 2017 unless re-enacted by the Board of Health.

Section 10. Article IV, section 27.1 is hereby amended to read as follows:

27.1 Any person aggrieved by a decision, an inspection or notice made by the health officer shall have the right to appeal the matter as specified in article I, except for (1) appeals of disciplinary actions taken pursuant to section 23 of article IV, which shall be governed by section 27.2 and (2) determinations of the applicability of Henderson Watershed Protection Area requirements which shall be governed by Appendix A of this article.

Section 11. Article IV, Appendix A of the Sanitary Code for Thurston County is hereby adopted to read as set forth in Attachment A, attached hereto and incorporated herein by reference.

Section 12. This ordinance shall take effect January 1, 2006.

Section 13. Severability. If any provision of this Ordinance or its application to any person or circumstance is held invalid, in whole or in part, for any reason, the remainder of this ordinance or the application of the provision to other persons or circumstances shall not be affected.

ADOPTED: November 21, 2005

ATTEST:

LaBenita J. Bergman
Clerk of the Board

APPROVED AS TO FORM:

EDWARD G. HOLM
PROSECUTING ATTORNEY

Jane Futterman
Deputy Prosecuting Attorney

BOARD OF HEALTH
Thurston County, Washington

Voted No
Chairman Cheryl Wetherell

Bob Macleod
Member

Cathy Wolfe
Member

ATTACHMENT A

Article IV, Appendix A

Henderson Watershed Protection Area

1. **Creation of Area of Special Concern.** Pursuant to Article IV, section 22.4 of the Sanitary Code for Thurston County, the Henderson Watershed Protection Area is established as an area of special concern.

2. **Henderson Watershed Protection Area Map.** The Henderson Watershed Protection Area includes all property where drainage flows toward Henderson Inlet within the area generally depicted on the map attached hereto as Appendix A-1. The official Henderson Watershed Protection Area Map is a parcel-specific map adopted as a part of this article that shall be maintained by the Health Officer.

If any portion of a parcel is within the area, the entire parcel will be considered to be within the area.

The Health Officer shall review the Henderson Watershed Protection Area map annually to update the boundary based on any new information obtained regarding drainage flow and location of on-site sewage systems and other improvements.

3. **On-site Sewage System Regulations.** Any property served by an on-site sewage system where any portion of the wastewater system (including a building and any collection, transport, treatment, and disposal components) is within the Henderson Watershed Protection Area will be required to comply with operation and maintenance requirements established for the Area.

4. **Operation and Maintenance Requirements.** The following operation and maintenance requirements shall apply to all on-site sewage systems within the Henderson Watershed Protection Area:

(a) **Operational Certificates**
All on-site sewage systems within the Area are required to have renewable operational certificates in accordance with Section 16 of this article. The operational certificates must be kept current and renewed on prescribed schedules. The operational certificate requirements shall include routine inspections and submission of inspection reports to the health officer.

An operational certificate shall not be issued or renewed for a system that is failing.

The Health Officer shall establish a schedule to phase in implementation of the operational certificate requirements within the Area.

(b) **High and Low Risk System Designation**
The Health Officer shall establish policies and procedures adopting criteria for ranking on-site sewage systems as low or high risk and setting minimum inspection and evaluation requirements for on-site sewage systems within the Henderson Watershed Protection Area. The criteria to rank on-site sewage systems shall be based on soil type, proximity to surface water and other appropriate criteria.

(i) A High Risk System is an on-site sewage system that, if failing, would pose a high risk to public health by contributing to water quality degradation.

(ii) A Low Risk System is an on-site sewage system that, if failing, would pose a lower risk to public health and would be less likely to contribute to water quality degradation.

(c) **Dye Trace Evaluations**
For High Risk Systems, a dye trace evaluation shall be required as a condition of the operational certificate to determine whether or not the system is failing. Dye trace evaluations shall be required to be performed every other renewal cycle for the operational certificate.

Dye trace evaluations shall be conducted in accordance with policies and procedures adopted by the Health Officer.

Dye trace evaluations may be performed only by authorized Department staff or other persons approved by the Health Officer as having the necessary training and expertise. The Health Officer shall establish minimum qualifications for individuals to be approved to perform dye trace evaluations. Before starting a dye trace evaluation, private evaluators shall submit a dye trace plan to the Health Officer for approval. Failure to follow adopted procedures will result in withdrawal of approval to perform these evaluations.

5. **Owner Request for Review.** Once a year there will be a review period for property owners to request review of whether Henderson Watershed Protection Area requirements apply to their properties.

(a) Property owners may request review of the following:

(i) Whether their property is served by an on-site sewage system;
(ii) Whether their property drains toward Henderson Inlet;
(iii) Whether the location of any portion of their wastewater system is within the Henderson Watershed Protection Area;
(iv) Whether their on-site sewage system is a high-risk system or a low-risk system.

No other review or appeal will be allowed.

(b) Applications for review shall be submitted to the Environmental Health Division Director, or Director's designee, on a form provided by the Department. The applicant may submit any information (maps, photographs, details) to support the adjustment requested.

The burden of proof shall be on the applicant to show that the adjustment sought should be granted.

The Director will consider all information submitted by the applicant and any information on file with the Department regarding the property. The Director may request a meeting with the applicant and Department staff to consider available information regarding the review.

(c) Applications for review must be received by April 30th of each year.

For applications received by April 30th, the Director will issue a letter of determination by June 30th. If the Director determines that an adjustment is warranted, the adjustment shall be made effective for the next year after the date of the determination.

The determination is final and there shall be no further right of administrative appeal.

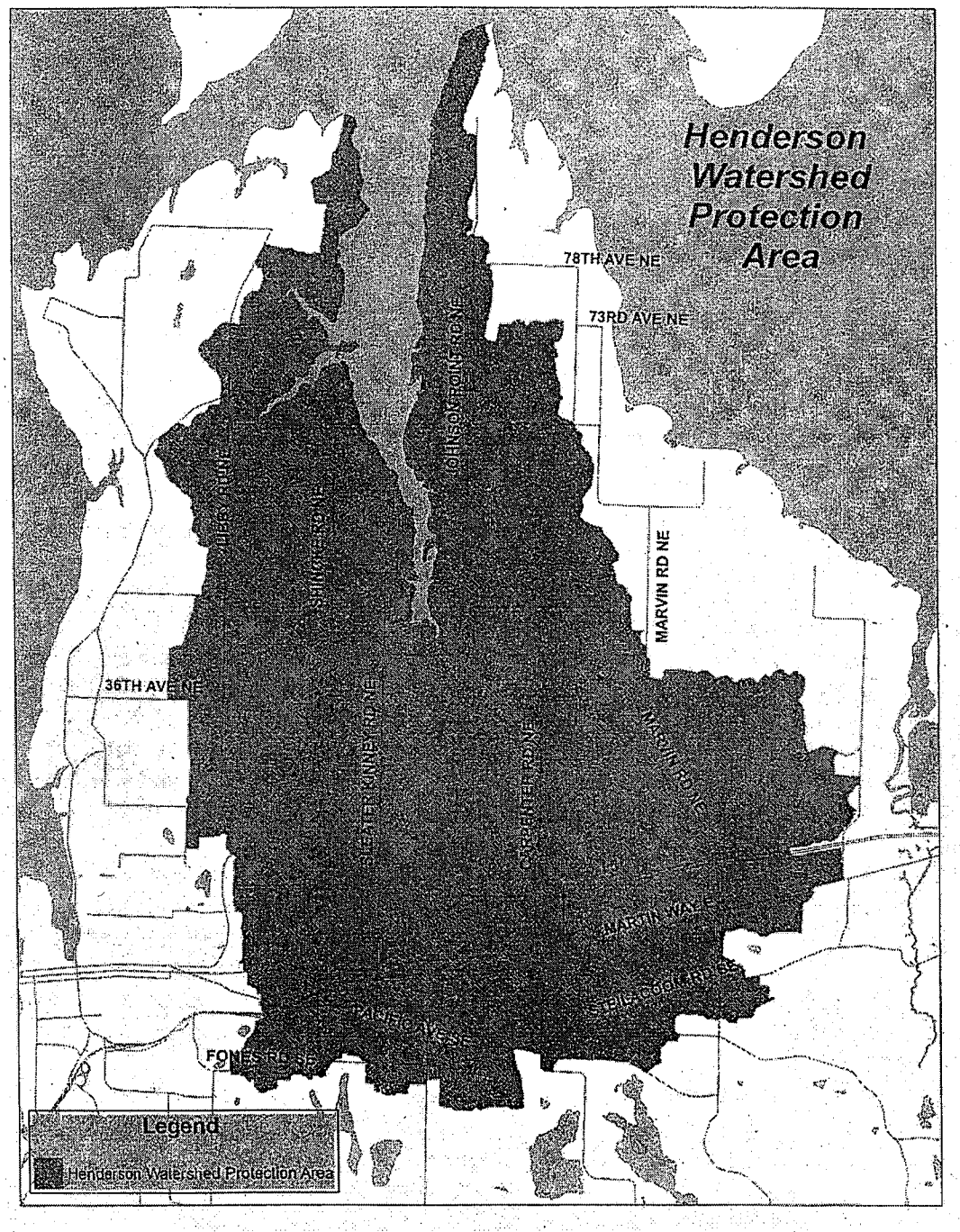
6. **Corrections and Adjustments.** As new information is obtained and, based on the adopted policies, procedures, and program criteria, the Health Officer may make appropriate adjustments and corrections to properties included in the Area, OSS risk rankings, conditions in operational certificates, and other appropriate adjustments; except for expansion of the Henderson Watershed Protection Area boundary which would require legislative action by the Thurston County Board of Health. Property owners affected by any corrections and adjustments shall be notified of such corrections and adjustments at least 30 days prior to the effective date of those changes.

7. **Fees.** The operational certificate renewal fee and Areas of Special Concern Annual Regulatory Fees set forth in Article I, Appendix A of this code shall not apply within the Henderson Inlet Shellfish Protection District. Parcels in the Henderson Watershed Protection Area are subject to rates and charges of the Henderson Inlet Shellfish Protection District On-site Sewage System Operation and Maintenance Program.

8. **Program Evaluation.** Five years after creation of the Henderson Watershed Protection Area, the Health Officer will conduct an evaluation of the program and activities and submit a report to the Board of Health.

Article IV, Appendix A-1

Henderson Watershed Protection Area Map



Appendix B

List of Policies

Henderson Policies

- Determining In or Out of Marine Recovery Areas (MRA) O&M Program ONST.12.POL.826
- Determining Risk Level in HWPA ONST.12.POL.827
- Determine In or Out & Risk Level ONST.12.PRO.826 AND ONST.12.PRO.827
- Annual Review of Risk Level ONST.12.POL.828
- Procedure to Review Annual Risk Level ONST.06.PRO.828
- Request Change in Risk Level ONST.12.POL.829
- Procedure to Review Property Owner Request to Change Determination ONST.12.PRO.829
- Risk Level Change Due to Soil Survey Map ONST.12.POL.831
- OSS Inspections in Marine Recovery Areas (MRA) ONST.12.POL.833
- Owner Inspection in Marine Recovery Areas (MRA) ONST.12.POL.834
- Qualifications for Dye Testing in Marine Recovery Areas (MRA) ONST.12.POL.835
- Dye Test Procedure for On-Site Sewage Systems ONST.06.POL.836

  Task 1 Dye Test Office Evaluation ONST.06.TSK.836(1)

  Task 2 Dye Test Site and System Evaluation ONST.06.TSK.836(2)

  Task 3 Dye Test System Testing ONST.06.TSK.836(3)

  Task 4 Charcoal Packet Analysis for Fluorescein ONST.06.TSK.836(4)

  Task 5 Dye Test Quality Control ONST.06.TSK.836(5)

  Task 6 Dye Test Supplies ONST.06.TSK.836(6)
- Dye Test Procedure for On-Site Sewage Systems ONST.96.PRO.836
- Minimum OPC Requirements in Marine Recovery Areas (MRA) ONST.12.POL.837

O&M Policies

- Requiring Service Contracts with CMS's ONST.08.POL.605
- Effluent Sampling Required as Condition of OPC ONST.08.POL.606
- Sewage Systems Requiring Operational Certificates (Aug) ONST.10.POL.808
- Third Party Maintenance Contract Requirements ONST.06.POL.830
- Third Party Maintenance Contract Procedures ONST.06.PRO.830
- Owner Certification to Self-Inspect OSS ONST.10.POL.846
- Foregoing Field Inspection ONST.11.POL.848

Appendix C

Comments from Attendees of Owner Inspector Certification Training Classes

• I came in skeptical, graduated as a believer. The props were very helpful.

• This was the best interaction I've had with a government regulator in a long time! Good work!

• This is one of the best courses I've taken out of 18-20 courses over the years covering land use issues. Very clear explanations and demonstrations.

• I learned things I never thought about. Class was extremely informative, educational and helpful! Thank you!

• Very good. This was one example of government and public working together. We need more programs like this.

• Everyone should be required to take this

• This should be a required course before someone buys a home (if they have a septic system.)

• Excellent workshop. Looking forward to future workshops re advanced systems (pre-sand and pressurized mound systems). Probably the biggest plus is knowing someone that we can call to troubleshoot or to discuss septic
system issues.

• You are obviously a supremely advanced septic geek! Thanks for your enthusiastic presentation and your sense of humor making the class fun. So far you answered all my questions and I had a lot!

• Great, interesting info. Empowering for me as I worried about how often to pump and fears of septic tank failure.

• Great workshop, very informative.

• I had attended a couple of workshops; however this is the deep detail, easier, clear understanding. It will be more helpful if we are invited to attend the workshop every three years for updating or refresh the knowledge.

• It was great and I feel well informed. Very interesting- beyond my expectations! Thank you!

• I am now motivated to take charge of my septic system. I will also install risers and will be doing inspections often as entertainment during my backyard summer parties!