

**Thurston County  
Public Health and Social Services Department  
Environmental Health Division  
On-Site Sewage System  
Management Plan  
January 7, 2008**



**THURSTON COUNTY**  
WASHINGTON  
SINCE 1852



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## Acknowledgements

Thurston County Public Health and Social Services would like to acknowledge all those who have been instrumental in our process to develop our Local Management Plan (LMA).

First of all we appreciate the contributions of the Article IV Advisory Committee in assisting the Environmental Health Division. Your dedication to providing direction and tone for the LMA has been invaluable.

We would also like to recognize the Environmental Health, Development Services and Geodata staff for supplying input, recommendations and attending committee meetings to offer insight into our program areas.

Our appreciation is also extended to the Washington State Department of Health. We are grateful for their staff support and funding. We especially appreciate the use of the guidance document, which has provided section descriptions and format for our plan.

<b>Committee Member</b>	<b>Affiliation</b>
Ron Camus	Certified Monitoring Specialist
Tris Carlson	Henderson Inlet Group & Shellfish Industry
Eric Christensen	City of Olympia
Evan Cusack	Kelly Earthworks
Bill Dewey	Taylor Shellfish Company
John Eliasson	Washington State Department of Health
Jim Goode	Thurston County PHSS - Environmental Health Division
Laura Harper	Washington State Department of Health
Brandon Houskeeper	Olympia Master Builders
Terry Hull	South Sound Action Team/Citizen
JR Inman	Northwest Cascade, Inc.
Randy Jackson	R&J Trends LLC
Dan Kelly	Kelly Earthworks
Laura Kimbrough	Olympia Master Builders
John Konovsky	Squaxin Tribe
Dennis McVey	City of Rainier
Gregory Moe	Thurston County Realtors Association
Paul Morneau	Alternative Designs
Steve Sheller	Thurston County Realtors Association/Citizen
Will Stakelin	Olympia Master Builders
Art Starry	Thurston County PHSS - Environmental Health Division

## Executive Summary

On July 13, 2005, the State Board of Health adopted new regulations for on-site sewage systems (OSS). The regulations require each local health officer for the Puget Sound counties to develop an On-Site Sewage System Management Plan for the development and management of OSS within their jurisdictions. The plan must specify how the local health officer will progressively develop and maintain an inventory OSS within their jurisdiction, identify areas where OSS could pose an increased public health risk, identify the operation and maintenance requirements for OSS commensurate with the public health risks of those systems, and meet other requirements.

The 2006 Legislature passed 3SHB 1458, which subsequently was incorporated into the Revised Code of Washington (RCW) as Chapter 70.118A. This legislation directs the Department of Health and the local health officer of the twelve Puget Sound counties to take further actions to reduce fecal coliform pollution and the degradation and loss of marine life in Hood Canal and other marine waters in Puget Sound caused by low-dissolved oxygen conditions. The legislation directs agencies to reduce the input of human-influenced nutrients, especially nitrogen, into marine waters.

RCW 70.118A requires that Marine Recovery Areas (MRAs) be designated when the local health officer determines that existing OSS are a significant factor contributing to concerns associated with the degradation of shellfish growing areas, marine waters listed by the Department of Ecology (Ecology) for low-dissolved oxygen levels or fecal coliform, or marine waters where nitrogen has been identified as a contaminant of concern. The MRA strategy must specify how, by July 12, 2012, the local health officer will:

- Find existing failing systems and ensure that system owners make necessary repairs, and,
- Find unknown systems and ensure that they are inspected and functioning properly, and repaired if necessary.

This plan is based on the recommendations of an advisory committee that met 10 times from November 2006 to September 2007 and developed recommendations both for this plan and Article IV of the Thurston County Sanitary Code.

### Vision Statement

While the plan needs to satisfy the requirements of state law, it also needs to meet the needs of the citizens of Thurston County. The programs and proposals need to make sense and be reasonable to the public and meet our public health goals. The advisory committee and Health Department staff developed the following vision or goal statement to guide them as they worked on the management and regulations.

“Our goal is to protect public health in Thurston County by assuring that on-site sewage systems are properly built, operated and maintained. As we revise our regulations we will try to accomplish this goal while complying with the changes in the state regulations and meeting the needs of the citizens of Thurston County.”

This plan is organized in a format similar to guidance documents produced by the Washington State Department of Health, and includes the following parts:

- Part 1 – Database Enhancement
- Part 2 – Identification of Sensitive Areas
- Part 3 – Operation, Monitoring and Maintenance in Sensitive Areas
- Part 4 – Marine Recovery and Sensitive Area Strategy
- Part 5 – Education
- Part 6 – Plan Summary

## **Plan Recommendations**

Recommendations are organized in each part within the following categories:

- Regulation Amendments
- Electronic Database Enhancement
- Identification of Sensitive Areas and Marine Recovery Areas
- Education and Training
- Quality Assurance
- Funding Strategy
- Performance Measurement

## **Regulation Changes**

The committee identified regulation changes that are needed to help inventory OSS in the county and whether they are being properly maintained. The plan recommends that Article IV be amended to require:

- OSS be evaluated before the property they serve is transferred or sold, and that the inspection results be submitted to the Health Department, preferably using an electronic system; and,
- Septic tank pumpers submit records for each OSS tank that is pumped or serviced in Thurston County.

## **Electronic Database Enhancement**

To maximize the benefits from the time of transfer and pumper reporting regulation changes, the existing AMANDA electronic database system should be enhanced. AMANDA currently requires sewage system operation and maintenance (O&M) and permit data to be entered manually. This plan recommends that a web-based system be developed to allow O&M records to be submitted electronically and transferred to and managed by AMANDA. This will allow Health Department staff to better meet the O&M monitoring and management goals, and will be a step towards setting up systems to remind all OSS owners of the O&M needs for their system.

## **Identification of Sensitive Areas and Marine Recovery Areas**

Health Department staff and the advisory committee evaluated land use, shellfish closure data and existing water quality information to identify areas where OSS could pose an increased public health risk or where existing OSS are a significant factor contributing to concerns. They identified nine areas where OSS could pose an increased public health risk:

- Henderson Watershed Protection Area

- Nisqually Reach Shellfish Protection Area
- Eld Inlet
- Totten Inlet
- Budd Inlet
- Summit Lake
- Southern Thurston County (Scatter Creek Area)
- McAllister Geologically Sensitive Area
- Shana Park Wellhead Protection Area/East Olympia Aquifer

After further evaluation the advisory committee concluded:

- The Henderson Inlet Watershed Protection Area and Nisqually Shellfish Protection District should be recognized as Marine Recovery Areas:
  - The Henderson boundaries and programs would remain intact as currently developed.
  - OSS monitoring, maintenance and education programs for OSS in the Nisqually area should be modeled after the Henderson Watershed Protection Area.
- The Eld Inlet watershed should be more carefully evaluated to determine if it should be established as Marine Recovery Area.
- With the available information the committee could not determine if the other areas should become sensitive areas or MRAs. They recommend that these areas be evaluated further to determine if OSS are causing or have the potential to create water quality and public health problems. They should be evaluated using criteria that evaluate if OSS can or are likely to pollute water resources. Specific criteria are described in Part 3 of the plan.

The plan recommends the creation of a Sensitive Areas Workgroup who will work with Health Department staff to evaluate the impact of OSS on water resources within prospective sensitive areas. This group will need to be recruited and oriented, and they will need to refine the criteria used to identify sensitive areas. Staff and resources may be needed to investigate problem areas, perform field evaluations, conduct monitoring to verify problems and analyze monitoring and environmental data.

## **Education**

For the new O&M requirements to work as well as possible, on-site industry professionals, the real estate community, the public and other affected parties need to be educated about the new evaluation and inventory requirements in Article IV. Educational materials and forms need to be developed. In addition, the advanced training made available to residents in the Henderson Watershed Protection Area has been very well received and seems to have resulted in a community that actively looks after and maintains its on-site sewage systems. This plan recommends that advanced OSS monitoring and maintenance training be made available for all Thurston County residents.

## **Quality Assurance and Enforcement**

This plan recognizes that resources are needed to evaluate the data that is submitted to both identify failing on-site sewage systems and to evaluate the quality of work being done. Performance measures and indicators need to be developed to evaluate the work done under this plan to determine if progress is being made toward plan and regulatory goals.

**Funding Strategy**

A mechanism for funding these plan elements needs to be developed. While some funding is being provided through the Washington State Department of Health, additional resources are needed to sustain current programs and those envisioned by this plan.

**Performance Measurement**

A set of performance management criteria and indicators need to be developed and implemented. These need to be evaluated and modified over time so that the effectiveness of the programs described in this plan can be determined.

**Implementation Strategy**

Based on the current resource limitations in Thurston County, the implementation schedule and work plan have been split into:

- Activities that can be achieved with currently available funding and resources
- Activities that require additional resources

This strategy allocates resources to complete activities that achieve the greatest number of regulatory goals or allow other plan elements to proceed. These include regulation changes needed to implement the OSS inventory elements of this plan, database enhancements to allow O&M records to be submitted on-line, and creation of the sensitive area workgroup. Because funding is assured only through June 2009, this strategy focuses on activities that can be completed within that window of time. Other plan elements are put on a workplan for the future.

This plan will be a living document. Beginning in 2009 an annual progress report will be presented to the Thurston County Board of Health to document work done to implement the plan along with any proposed changes to it. The plan will be updated periodically to reflect changes that come about from this process.

# **Thurston County On-Site Sewage System Management Plan January 7, 2008**

## ***Background***

On July 13, 2005, the State Board of Health adopted new regulations for on-site sewage systems (OSS). The regulations, WAC 246-272A-0015, require the Thurston County health officer to develop an On-Site Sewage System Management Plan for the development and management of OSS within their jurisdictions. The plan must specify how Thurston County will progressively develop and maintain an inventory of all known OSS within the county;

- Identify areas where OSS could pose an increased public health risk;
- Identify the operation and maintenance requirements for OSS commensurate with their public health risks;
- Facilitate education of homeowners regarding their responsibilities to monitor and maintain their OSS;
- Remind and encourage homeowners to complete and document the operation and maintenance inspections required by state law;
- Enforce OSS owner permit application, operation, monitoring and maintenance and failure repair requirements of state law;
- Describe the capacity of the local health jurisdiction to adequately fund the OSS plan; and,
- Assure the management plan was developed to coordinate with the comprehensive land use plan of the entities governing development in the health officer's jurisdiction.

The 2006 Legislature passed 3SHB 1458, which subsequently was incorporated into the Revised Code of Washington (RCW) as Chapter 70.118A. This legislation directed the Department of Health and the local health officers of the twelve Puget Sound counties to take further actions to reduce fecal coliform pollution and the degradation and loss of marine life in Hood Canal and other marine waters in Puget Sound caused by low-dissolved oxygen conditions. The legislation directed the agencies to reduce the input of human-influenced nutrients, especially nitrogen, into marine waters.

Marine Recovery Areas (MRAs) must be designated when the local health officer determines that existing OSS are a significant factor contributing to concerns associated with the degradation of shellfish growing areas, marine waters listed by the Department of Ecology (Ecology) for low-dissolved oxygen levels or fecal coliform, or marine waters where nitrogen has been identified as a contaminant of concern.

The legislature directed the local health officers to develop an on-site strategy for marine recovery areas that must specify how they will do the following by July 1, 2012, and thereafter:

- Find existing failing systems and ensure that system owners make necessary repairs, and,
- Find unknown systems and ensure that they are inspected and functioning properly, and repaired if necessary.

In November 2006 Thurston County Public Health and Social Services, Environmental Health Division (Health Department) convened an advisory committee to develop recommendations for



the county's on-site sewage system management plan and the revision of Article IV of the Thurston County sanitary code (Thurston County's on-site sewage system regulations). The committee met 10 times from November 2006 to September 2007 and provided recommendations that are the backbone of this plan.

### **Vision Statement**

While the primary goal of the committee and staff was to fulfill the requirements of state law, they remained cognizant of the need to recognize the needs of the citizens of Thurston County. The programs and proposals needed to make sense and be reasonable to the citizens in addition to meeting our public health goals. The advisory committee and Health Department staff developed the following vision or goal statement to guide them as they worked on the management and regulations.

“Our goal is to protect public health in Thurston County by assuring that on-site sewage systems are properly built, operated and maintained. As we revise our regulations we will try to accomplish this goal while complying with the changes in the state regulations and meeting the needs of the citizens of Thurston County.”

## **Part 1 – Database Enhancement**

### ***Program and Regulatory Goals***

Part 1 of this plan addresses on-site sewage system (OSS) and sewage system operation and maintenance (O&M) record keeping activities necessary to maintain an OSS inventory within Thurston County. These activities include the resources necessary to implement the database components and comply with WAC 246-272A-0015(1), which says the local health officer must:

- a. Progressively develop and maintain an inventory of all known OSS in operation within the jurisdiction.
- b. Maintain records required under this chapter, including all operation and maintenance activities as identified.
- c. Describe the capacity of the local health jurisdiction to adequately fund the local OSS plan, including the ability to find failing and unknown systems.

### ***Background***

Thurston County has extensive experience evaluating and monitoring on-site sewage systems and developing electronic database systems to schedule and track sewage system maintenance activities. These efforts started with the “lakes” program in the late 1970’s, continued with the implementation of a county wide operational permit program in 1990, and have progressed to the current AMANDA<sup>1</sup> system that is a fully integrated component of Thurston County’s electronic permitting system.

AMANDA was purchased in 2001 and the sewage system Operational Certificate component was fully implemented in 2004. While AMANDA is used for all the county’s building and land use permits, the way it can be set up to manage sewage system monitoring and maintenance activities is a key reason it was selected by Thurston County.

AMANDA tracks sewage system design, installation, monitoring and maintenance characteristics for each OSS in its inventory. AMANDA generates “to do” lists, reminders and notices for the owners of OSS that require evaluations or maintenance to comply with conditions in their renewable operational certificates. AMANDA can also track maintenance and prepare reminders for system owners who voluntarily submit maintenance inspection results and reports. Scanned or electronic images of OSS record drawings and permits can be attached to AMANDA files, and Thurston County is in the midst of completing this work.

While AMANDA is a versatile and powerful tool, it currently requires OSS monitoring and maintenance data to be input manually. The management of paper records and the entry of monitoring and maintenance data is staff intensive and limits the time staff has available for other monitoring and maintenance tasks. The advisory committee, Thurston County Board of Health and staff believe a system is needed that will allow monitoring and maintenance data to be input and managed electronically, using some sort of internet based interface.

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<sup>1</sup> AMANDA is an electronic permit management system that fully integrates all building, OSS and land use permitting activities in Thurston County. AMANDA is a licensed product of CSDC Systems Inc.

## **Activities**

### **A. Inventory**

- I. Current OSS Database: Thurston County uses AMANDA for permitting and O&M activities. AMANDA currently tracks 77 OSS characteristics ranging from the date of OSS installation to the most recent maintenance inspection results, and can generate 73 reports (Appendix A) and notifications to respond to common queries. AMANDA can also generate “quick and simple” reports for any user, and the system administrator can develop custom reports for more complex queries. There are approximately 44,300 OSS related records in AMANDA, and we estimate there are approximately 70,000 OSS in the county.

The quality and level of detail of records in AMANDA vary substantially, from complete records that include all OSS permit, monitoring and maintenance data, to those that merely confirm a property is served by some sort of on-site sewage system. Relatively complete data is available for about half the systems entered in AMANDA. More complete data is available for systems permitted since 1990, when Thurston County initiated a broad based OSS operation and maintenance permitting system that was tracked on an electronic database system, whose records were eventually transferred to AMANDA.

All OSS within the Henderson Watershed Protection Area have been inventoried and entered into AMANDA as a part of the program that was adopted by the Thurston County Board of Health when the associated Area of Special Concern was adopted in 2006 (See the program summary in Part 4 of this plan and Appendix B for more details). Operational certificates are required for each of the 6,219 OSS within the Henderson area. Each system is categorized as high or low risk depending on its location and the soil conditions in the area where it's installed. Where available, the system type (gravity, mound, etc.) is entered, as is information on its size, age and maintenance history.

- II. Adding and Updating Records in the OSS Database and Identifying Unknown OSS: On-site sewage system records are added and updated as a result of permit requests, complaint investigations or special surveys. We estimate that these processes update hundreds of records each year. With the exception of the Henderson Watershed Protection Area program, Thurston County does not have a program that actively searches for “unknown” systems.

The advisory committee recommends Article IV be amended to require that OSS be inspected when the properties they serve are sold or transferred. This requirement could be waived for OSS included and in compliance with a program that requires renewable operational certificates, such as the Henderson Watershed Protection Area program. A certified monitoring specialist, septic tank pumper or other qualified person should inspect the OSS before the property transfers to document the system type, location, maintenance needs and overt signs of failure. The inspection results will be submitted to the county electronically. As a minimum the inspection will document:

- a. The condition of components inspected or evaluated:
  - Liquid levels within the septic tank(s)
  - Condition of tank and baffles
  - Obvious signs of failure, such as surfacing sewage or sewage running back into the septic tank after pumping (stated objectively).
- b. Key features of the OSS through a sketch of the system if an as-built or record drawing is not on file with the county.
  - This will include the location of the OSS noting distance of tank from structure.

- Where the drainfield or disposal component is located – if this can be determined by the inspector (i.e. greener grass in part of the yard or homeowner knows where it was installed).
- c. The OSS inspection results will be transferred to Thurston County, preferably via a web based system or some other electronic means.
- d. When an unknown OSS is identified the Health Department will contact the property owners and advise them of the requirements for maintaining their system.

This inventory information could be used to generate reminders for OSS owners to advise them what should be done to monitor and maintain their sewage system.

Health department staff and the advisory committee believe Article IV should be amended to require that septic tank pumpers file their individual pumper reports with the county for all work done in Thurston County. The preference is that this be done via the web based system that is also described below. Pumpers are currently required to submit monthly reports that show the address of the property where a septic tank was pumped, the volume pumped, and the location where the septage was taken for final treatment and disposal. These paper records provide little information about the system served by the septic tank that was pumped. The septic tank pumper report that is given to the customer contains much more information and could be used to determine the type of system serviced and could be used by Thurston County staff to develop maintenance recommendations for the system owner.

Records for OSS within the Henderson Watershed Protection Area are updated when the OSS owners obtain or renew their operational certificates. The first permit cycle for Henderson runs through 2009, at which time complete system records should be available for all systems that have completed their operational certificate requirements.

III. What additional or planned changes, if any, will be made to the data system(s)?

The process for submitting, storing and managing on-site maintenance data needs to be streamlined. We need to develop an on-line or web based system for the submission of on-site maintenance and monitoring records, pumper reports, and the inspection results for time of transfer inspections. Research is needed to determine the best way to accomplish this, and then resources are needed to implement the chosen solution. It appears that AMANDA modules and products by companies such as eOnsite can be used to receive O&M reports and integrate them with the current database system.

AMANDA itself is very powerful and versatile and needs only routine upgrades and maintenance to remain a viable OSS tracking system. As Marine Recovery Areas or sensitive areas are identified where special monitoring and maintenance requirements are needed, AMANDA can be adapted to meet those needs. The primary need for improvement is the creation of a web based interface that allows monitoring and maintenance information to be entered on-line via the internet.

## **B. Operation & Monitoring - Record Maintenance**

- I. Current System: Thurston County currently uses AMANDA to track operation and maintenance activities for systems that are required to obtain and maintain renewable operational certificates, as well as those who submit data voluntarily. Thurston County

- II. regulations currently require renewable operational certificates for the following types of systems:
- a. Operational Certificates are required for large or complex OSS when they are installed or repaired. Systems that require renewable certificates include:
    - Complex systems including recirculating sand filters, mounds and aerobic treatment units.
    - Large and community systems, including those that serve three or more residences or have daily wastewater flows greater than 1000 gallons per day.
  - b. Henderson Watershed Protection Area. Renewable operational certificates are required for all OSS within this area. The certificates must be renewed every three years. The certificates are required in addition to the minimum monitoring and maintenance requirements in state and county law (every 1 or 3 years, depending on system type).

Approximately 90% of OSS whose owners have been notified have complied with program requirements and renewed their operational certificates. About half of OSS owners complete their certification requirements after receiving one notice. Others require up to three notices before they comply. AMANDA tracks operational certificate status and issues renewal notices and reminders.

AMANDA can track operation and maintenance activities for any system, regardless of whether it requires a renewable operational certificate. Due to limited resources, Thurston County does not actively request that data be submitted for systems unless they have a renewable operational certificate.

- II. Describe the current database system for maintaining O&M records. Thurston County uses the AMANDA system to:
- a. Track operational certificate renewals and issue renewal reminders and notices.
  - b. Store records for OSS within Thurston County that are required to have and maintain renewable operational certificates.
  - c. Maintain basic system characteristics for sewage systems in the county, including data for “unknown” systems when it becomes available.
  - d. Track which sewage systems are being maintained and in compliance with their operational certificate requirements.
  - e. Generate O&M requirements or recommendations for new systems in the database.

- III. What additional or planned changes, if any, will be made to the data system(s)?

The advisory committee recommends that the county amend Article IV to require that OSS be inspected when the properties they serve are sold or transferred as described in the Inventory section of this plan. They also recommend that records be updated and OSS data be improved through the following actions:

- a. Data entry and updating when systems are evaluated as part of the permitting process – e.g. home remodel;
- b. Inventory OSS associated with special studies or surveys;
- c. Update Inventory as follow up to complaint investigations;
- d. Mandatory inspections at time of property transfer; and,
- e. Inventory in preparation for the implementation of a Marine Recovery Area (see Section 4 of the plan).

As described earlier in this part of the report, the process for submitting, storing and managing on-site maintenance data needs to be streamlined, and an on-line or web based system for data submission is needed. Some modifications or reconfigurations of AMANDA may be needed to enable this change.

### ***Resources Necessary to Implement Data Components of the plan***

The following resources are needed to implement the data recommendations of this plan.

#### **A. Enhancements to Hardware, Software and Data**

Our primary needs are resources to develop and implement on-line submission of O&M results. This will require assistance from programming staff, and possible software and licensing. It is possible to update AMANDA to receive data on-line, either as part of an AMANDA module or through an interface with another data management product like eOnsite. AMANDA and other products require the purchase of additional component and licenses. While there are no up front licensing costs with eOnsite, an AMANDA interface must be developed, and use and licensing agreements must be created.

AMANDA can be modified to accommodate updated O&M requirements. Thurston County has a program in place to assure that staff has adequate computer hardware and software, and that AMANDA upgrades and licensing are maintained.

A training program will need to be developed to assist on-site professionals and staff to learn to use the new data submission system.

#### **B. Personnel**

Staff resources are needed for:

- Database enhancement.
- Regulation amendments needed to implement the time of transfer program requirements, including forms, educational materials, and regulations.
- Development of voluntary data submission program, including forms, educational materials, and regulatory considerations.
- Development of quality assurance program to determine if data submissions are adequate and accurate.
- Ongoing maintenance of data system, including responses to data and report requests.

#### **C. Steps to Achieve Program and Regulatory Goals**

The following activities need to be completed to fulfill this part of the plan:

Database enhancements: The web based system to allow O&M records to be submitted to the Health Department needs to be developed and implemented.

Education and training: On-site industry professionals, the real estate community, the public and other affected parties need to be educated regarding the new evaluation and inventory requirements in Article IV. Educational materials and forms need to be developed.

Funding Strategy: A mechanism for funding these plan elements needs to be developed.

Performance Measurement: A set of performance management criteria and indicators need to be developed and implemented.

Quality Assurance: Resources are needed to evaluate the data that is submitted to identify failing on-site sewage systems and to evaluate the quality of work being done.

Regulation amendments: Article IV will need to be amended to require:

- The OSS that serves a property to be evaluated before the property is sold or transferred and the inspection report for the system to be submitted to the Health Department;
- Septic tank pumpers submit records for each OSS tank that is pumped or serviced in Thurston County.

## ***Timeline***

An implementation strategy and evaluation of the resources and funding needed for this part of the plan are included in Part 6 – Plan Summary and Implementation Strategy.

## **Part 2 – Identification of Sensitive Areas**

### ***Program and Regulatory Goals***

This element of the plan indicates how sensitive areas where OSS pose an increased public health risk will be identified in Thurston County. The following elements of WAC 246-272A-0015(1) require us to:

- a. Identify any areas where OSS could pose an increased public health risk.
- b. Assure that the Plan was developed to coordinate with the comprehensive land use plan of the entities governing development in the health officer's jurisdiction.
- c. Describe the capacity of the local health jurisdiction to adequately fund the local OSS plan, including the ability to find failing and unknown systems.

State law also requires action where OSS are a significant factor contributing to the pollution of marine waters. RCW 70.118A.040 provides that the local health officer shall propose a marine recovery area for those land areas where existing OSS are a significant factor contributing to concerns associated with:

- a. Shellfish growing areas that have been threatened or downgraded by the Washington State Department of Health.
- b. Marine waters that are listed by the Department of Ecology under section 303(d) of the federal Clean Water Act for low dissolved oxygen or fecal coliform.
- c. Marine waters where nitrogen has been identified as a contaminant of concern by the local health officer.

When designating the boundaries of a Marine Recovery Area the local health officer will include areas with OSS that may affect water quality in the land areas listed above.

### ***Activities***

#### **A. Description of the Jurisdictional Environment**

Thurston County is located in Western Washington at the terminus of Puget Sound. It is the 32nd largest county in the state, with a total land mass of 737 square miles. Nearly 87 percent of the land area is unincorporated.

The area topography ranges from coastal lowlands to prairie flatlands to the foothills of the Cascades. Glacial activity in the county's geologic past left the land dotted with lakes and ponds. The northernmost boundary of the county is determined by the shoreline of Puget Sound. Inlets exclusive to the county are Budd, Henderson, and Eld Inlets. Budd and Henderson Inlets are separated by Dana Passage. Other inlets form the boundaries between Thurston and adjacent counties. Totten Inlet divides Thurston and Mason counties, and the Nisqually River separates Thurston from Pierce County. Overall Thurston County has approximately 110 miles of marine shoreline.

Thurston County has a population of approximately 220,000 people and encompasses eight cities. The most populous, Lacey, Olympia, Tumwater, are located in the northern half of the county and are served primarily by sewer systems. Bucoda, Rainier, Rochester, Tenino and Yelm are smaller cities located in the southern county. Yelm has a sewer system that serves



most of the incorporated area, while the other cities rely on some form of on-site sewage systems. Tenino is planning a sewer system that will serve most of the city and will begin providing service in 2009.

Soils in Thurston County vary extensively, from deep excessively drained glacial outwash soils to slowly permeable soils that were formed from basalt formations that make up mountains on the western side of the county. The variation of soil depth and texture has resulted in a wide spectrum of sewage systems in Thurston County.

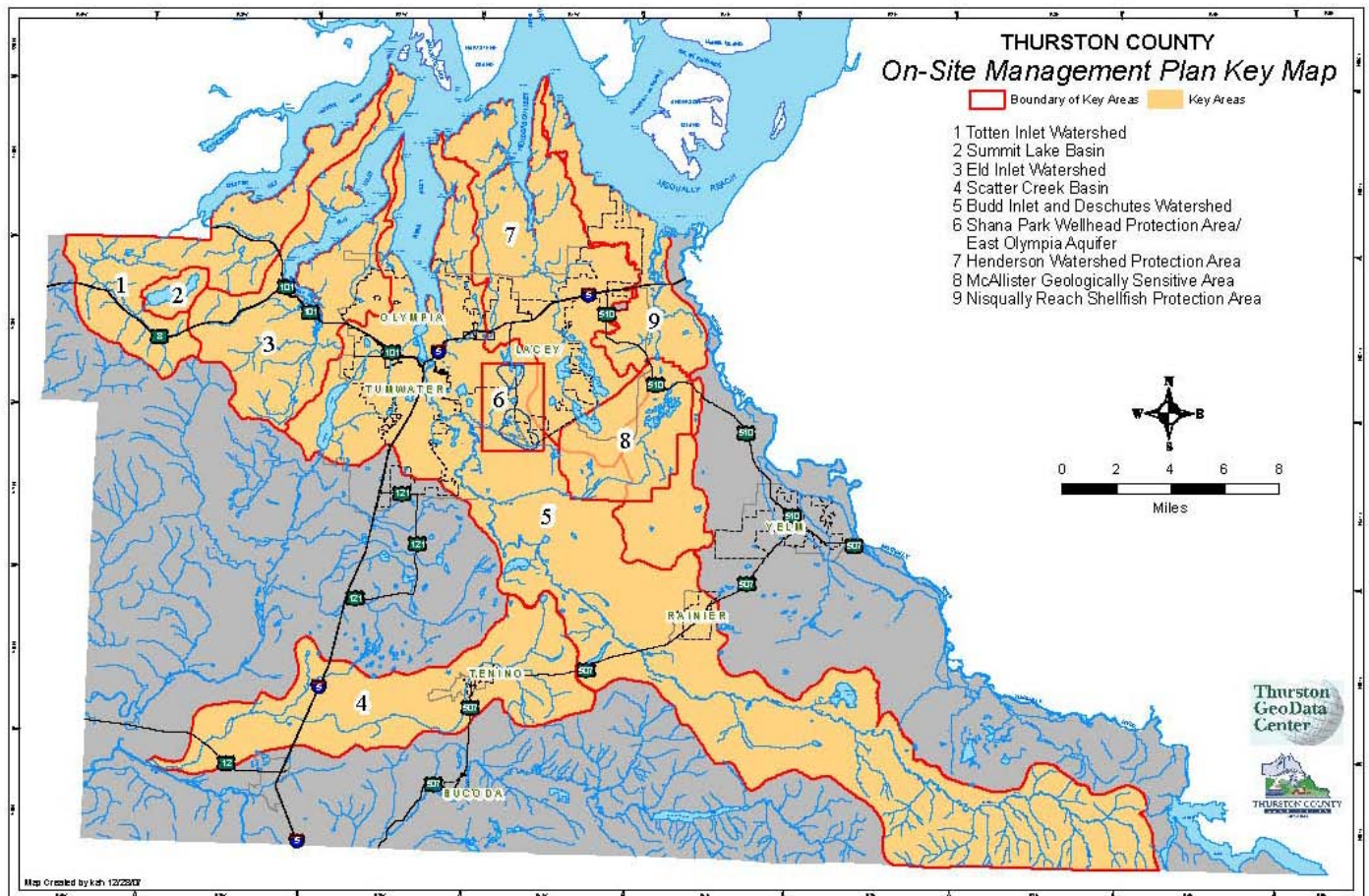
Ground water supplies serve most of Thurston County, with one notable exception. Most residents surrounding Summit Lake, in northwest Thurston County, use the lake as their drinking water source. Most municipalities and large public water supplies are served by wells that access deep, confined aquifers. Some municipal water supplies are more vulnerable, however, such as Shana Park and the water supplies in the Scatter Creek basin in southern Thurston County. Both aquifer systems are relatively shallow and lack protective or confining layers.

## **B. Designating Sensitive Areas**

For this plan element Health Department staff evaluated land use, shellfish closure data and existing water quality information to identify areas where OSS could pose an increased public health risk or where existing OSS are a significant factor contributing to concerns (Appendix C). The evaluations and recommendations were provided to the advisory committee. The committee used this information and an evaluation tool (Appendix D) to review recommendations prepared by staff to identify potential Marine Recovery Areas or other sensitive areas.

The advisory committee and staff identified eight areas where OSS could pose an increased public health risk. These include five marine watershed areas, a lake where surface water is used as a potable water source, and two aquifer recharge areas where OSS could pose a risk to the regional aquifer and water supplies.

- Henderson Watershed Protection Area
- Nisqually Reach Shellfish Protection Area
- Eld Inlet
- Totten Inlet
- Budd Inlet
- Summit Lake
- Southern Thurston County (Scatter Creek Area)
- McAllister Geologically Sensitive Area
- Shana Park Wellhead Protection Area/East Olympia Aquifer

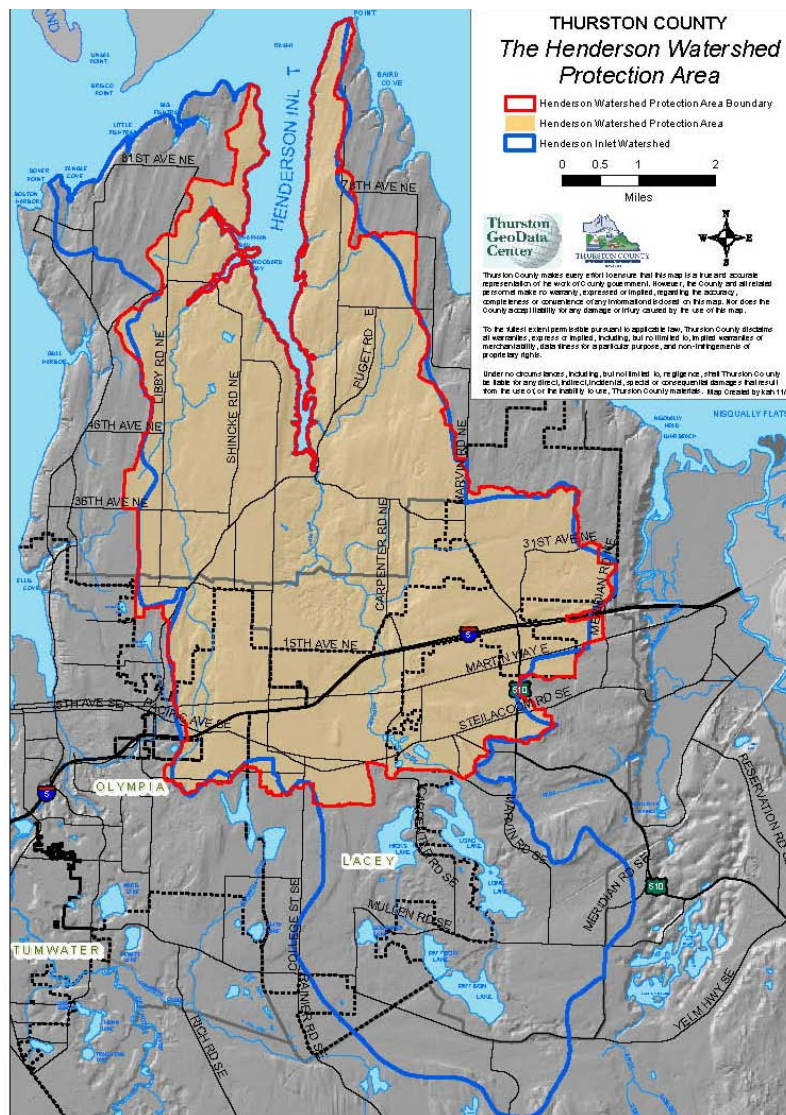


- The advisory committee spent a considerable amount of time evaluating the available information and comparing it to the criteria for sensitive area designations stated in WAC 246-272A and RCW 70.118A.

The advisory committee and staff concluded:

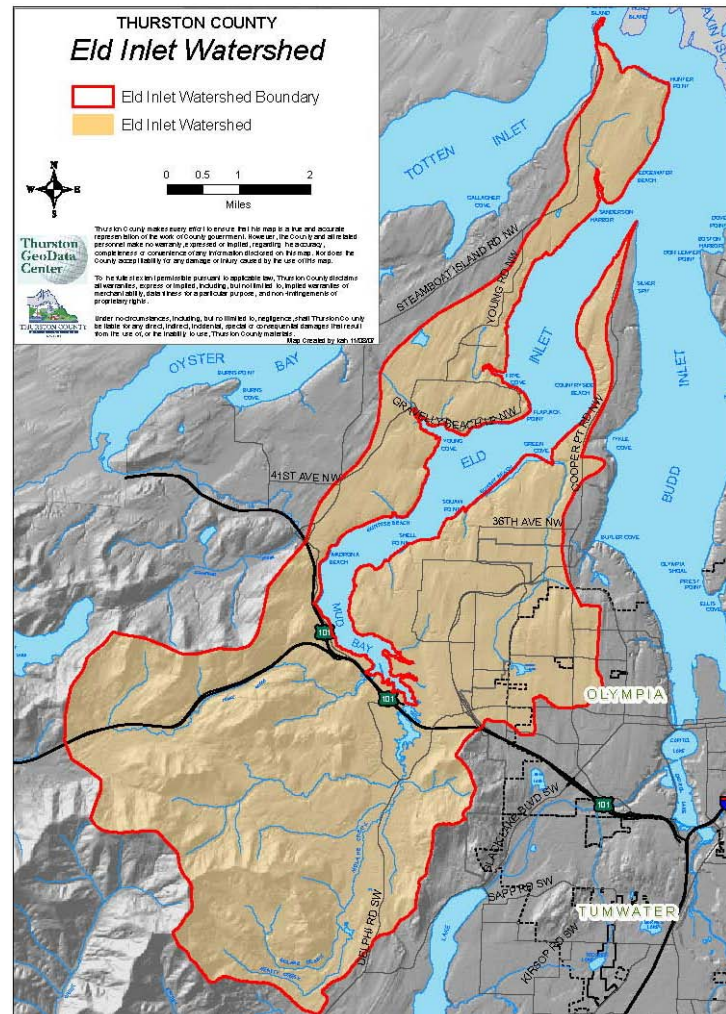
- The Henderson Inlet Watershed Protection Area and Nisqually Shellfish Protection District should be recognized as Marine Recovery Areas as soon as possible. This recognizes the years of work that documented the impact of OSS on marine water quality and led to the development of the Henderson and Nisqually Reach shellfish protection districts and the Henderson Watershed Protection Area. Under this proposal:

- The Henderson boundaries and programs would remain intact as currently developed.





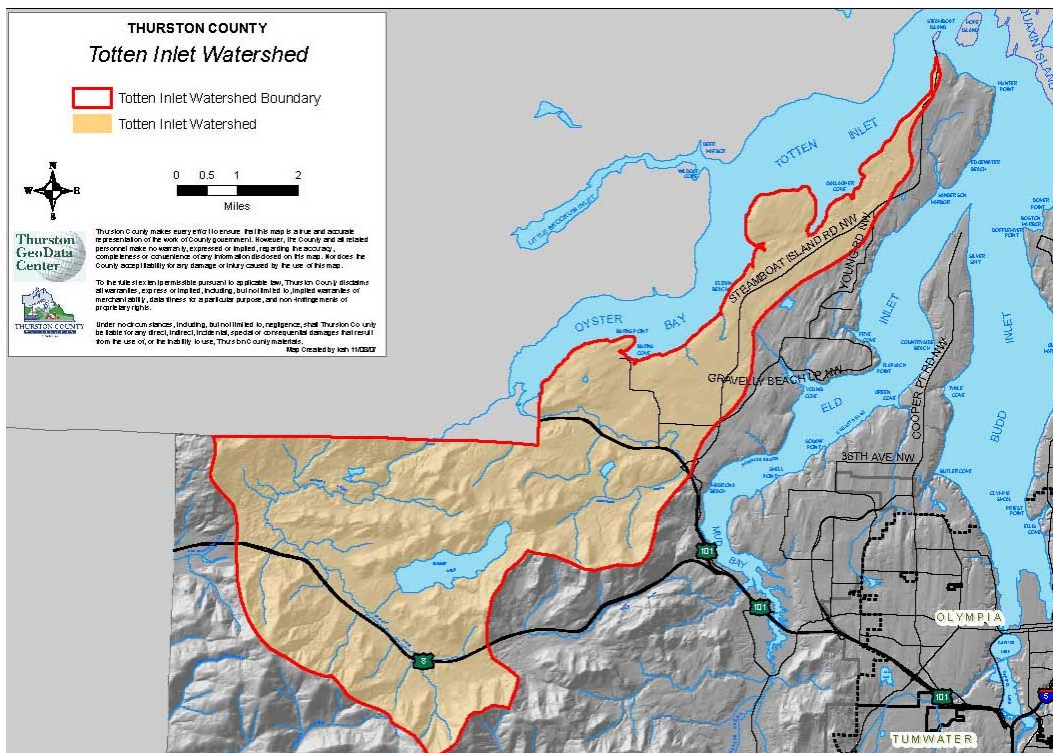
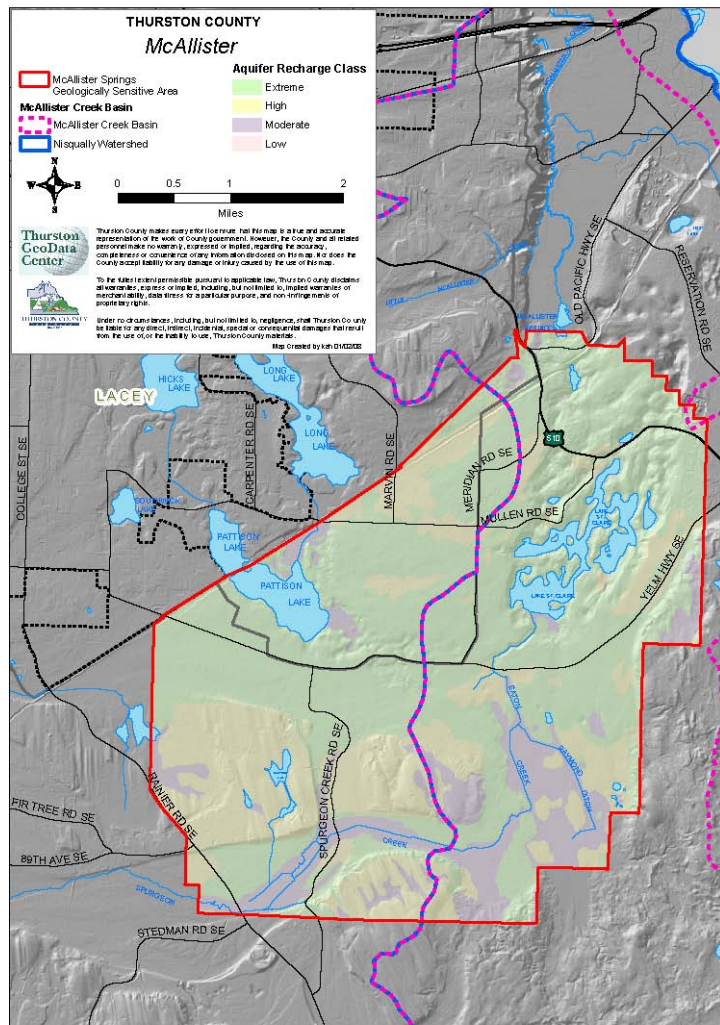
- The Eld Inlet watershed should be more carefully evaluated to determine if it should be established as Marine Recovery Area



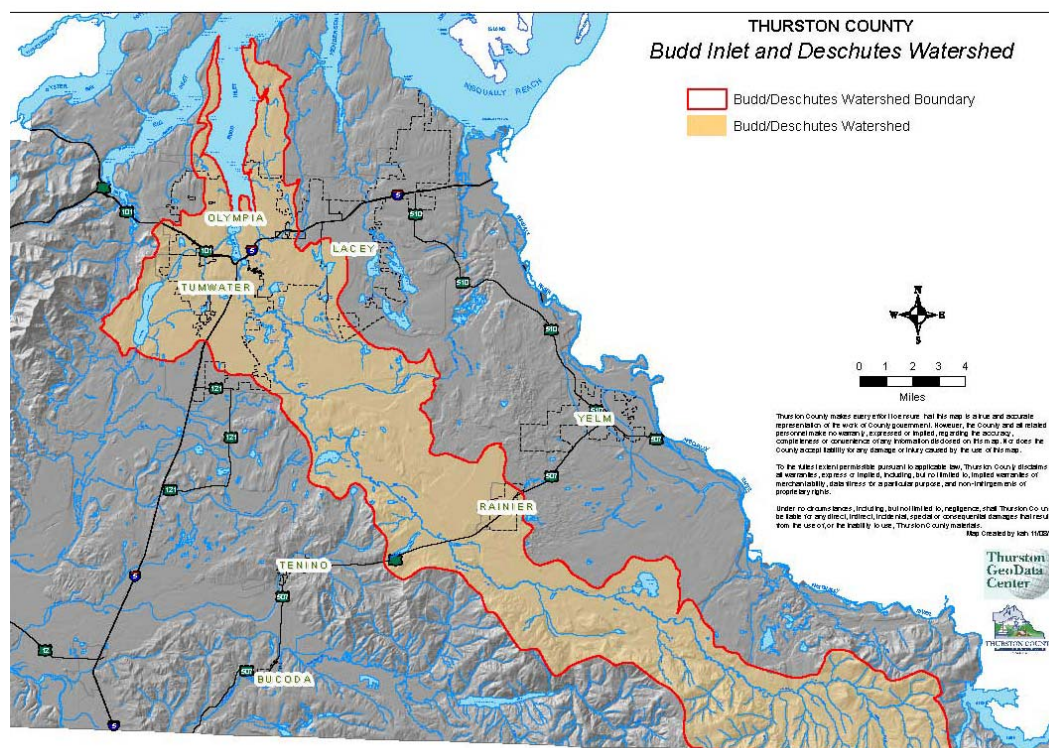
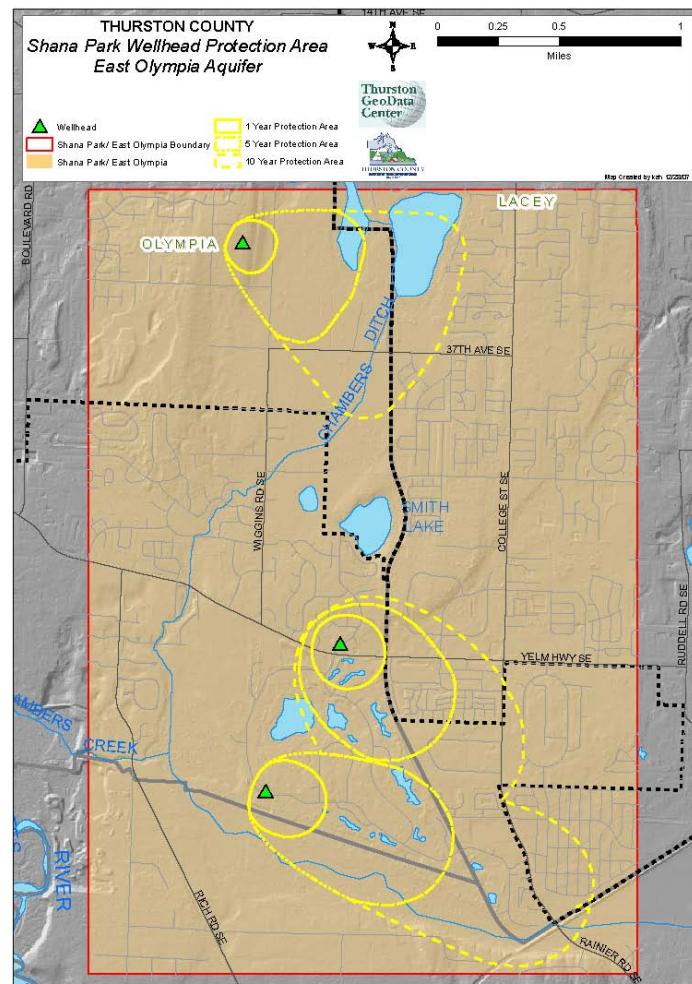












After evaluating these areas the advisory committee could not determine whether OSS were responsible for or likely to cause pollution that requires action as described in WAC 246-272A and RCW 70.118A. They decided further evaluation is needed over time to determine if any of the areas should be categorized as sensitive areas. The results of their evaluations are summarized in the following two tables.

**Table 1: Summary of Advisory Committee Recommendations for Marine Waters in Thurston County**

Area	Pollution In Area <sup>1</sup>	Linked to OSS?	Committee Recommendation	Notes
Henderson Inlet	FC, DO, N	YES	MRA	Henderson Watershed Protection Area recently created in upper watershed.
Nisqually Reach	FC	YES	MRA	Nisqually Shellfish Protection District created in 2001. <i>Nisqually Reach Shellfish Protection District Report (2003)</i> , and the <i>Henderson Inlet and Nisqually Reach Shellfish Protection Districts Implementation Work Plan (2005)</i> recommend the formation of an O&M program similar to Henderson.
Eld Inlet	FC	YES	Evaluate Further	Marine water quality in some areas is declining. McLane and Perry Creeks on 303d list for fecal coliform. In 1998 Cooper Point stakeholders recommended risk based OSS O&M program in response to shellfish closures and declining water quality.
Totten Inlet	FC	NO	Evaluate Further	Very productive shellfish area. Water quality is very good. Some localized areas with water quality problems.
Budd Inlet	FC, DO, N	???	Evaluate Further	Substantial water quality problems. Southern Budd Inlet dominated by urban development served by LOTT sewage treatment plant. Aging stormwater infrastructure. OSS may be having impact to tributaries, such as Chamber's, Indian and Moxlie Creeks. Recommend that this be evaluated further as part of or at the conclusion of the TMDL process.

<sup>1</sup> FC = fecal coliform, DO = dissolved oxygen, and N = nitrate (nitrogen)

**Table 2: Summary of Advisory Committee Recommendations for Potential Sensitive Areas in Thurston County (other than marine waters)**

Area	Pollution Found In Area <sup>1</sup>	Pubic Health Risk	OSS Related	Committee Recommendation	Notes
Summit Lake	FC	Drinking Water	YES	Evaluate Further	Low fecal coliform levels in lake. Most residents use lake as drinking water source – some without any form of treatment. Shallow soils, slopes and small lots make OSS installations and repairs difficult.
Southern Thurston County (Scatter Creek area)	FC, N	Drinking Water	YES	Evaluate Further	Elevated nitrate and fecal coliform levels down gradient from some areas with higher density OSS development. Extensive agricultural practices in area also impact groundwater.



McAllister Geologically Sensitive Area	N	Drinking Water	YES	Evaluate Further	Work done for McAllister GSA shows elevated nitrate levels in part associated with OSS. Density limits placed on new development using OSS in 1990.
Shana Park/East Olympia	N	Drinking Water	YES	Evaluate Further	City of Olympia studies indicate OSS may be contributing to groundwater nitrate levels in this area.

<sup>1</sup> FC = fecal coliform and N = nitrate (nitrogen)

The advisory committee developed a form of adaptive management for evaluating these and other sensitive areas over time to determine if OSS poses a public health problem or additional OSS standards are needed. This was called the “hybrid” concept<sup>2</sup>. Under this proposal Health Department staff and an oversight team will:

- Determine the number, type and location of on-site sewage systems within the sensitive area;
- Determine other potential pollution sources that can generate fecal coliform and nitrate, or lead to oxygen depletion in marine waters;
- Look at water quality data over time in each sensitive area to look for changes that might indicate OSS influence;
- Investigate and evaluate areas to determine if OSS are cause; and,
- Implement controls to reduce impact of OSS. These could include additional monitoring and maintenance requirements, limiting new systems and repairs to types that provide enhanced treatment for pollutants of concern (fecal coliform or nitrate), or other measures proposed by the oversight committee.

The use of the hybrid model will require the assistance of staff or consultants with expertise evaluating water quality data and land use characteristics. The exact methodology for this process will need to be developed by staff with assistance from the oversight team.

#### **D. Coordination with Planning Entities within the Jurisdiction**

The Health Department coordinates activities with both the county planning department and with city and town planning agencies across the county. These include Thurston County Development Services and the cities of Olympia, Lacey, Tumwater, Bucoda, Rainier, Rochester, Tenino, and Yelm.

Thurston County is currently revising the Critical Areas regulations within the county Comprehensive Plan. TCPHSS staff has been and will continue to be involved in the process.

This plan was reviewed by the county’s SEPA coordinator and was not deemed an action that triggers action under SEPA. As elements of the plan are implemented, however, they will be submitted to the county SEPA coordinator for review. We do not believe implementation of this will trigger SEPA, but will defer to the SEPA coordinator in this regard.

The City of Olympia has updated their Wastewater Management Plan. Policies within the plan have significant implications for the use of OSS within city limits. The policies include:

- The prohibition of new OSS;
- The prohibition of community OSS; and,

<sup>2</sup> The term “hybrid” came about because the concept described above was adapted from several ideas discussed by the committee.

- The requirement to connect to gravity sewer for building remodels and expansions that affect the OSS when sewer is within 300 feet of the property.

These new requirements within Olympia will require additional coordination between Health Department and city staff, and may result in amendments to Article IV.

## **Resources**

The following resources are needed to implement this part of the plan.

### **A. Personnel**

Personnel are needed for the following activities:

- Regulatory changes needed for creation of Henderson MRA
- Creation and implementation of Nisqually MRA
- Recruiting and coordination of the Sensitive Area Workgroup
- Data collection and analysis, including possible monitoring
- Coordination with Tenino and Olympia for sewer conversion wastewater plan implementation

### **B. Staff or consultants**

Work with oversight committee to evaluate possible sensitive areas and MRAs, including:

- Boundaries
- Identify sub basins or shoreline areas where special programs or monitoring is needed,
- Confirm elements of the program, and monitoring and analysis criteria
- Coordinate community outreach if more extensive program is warranted

### **C. Steps to Achieve Program and Regulatory Goals**

The following activities need to be completed to fulfill this part of the plan:

Funding Strategy: A mechanism for funding these plan elements needs to be developed.

Performance Measurement: A set of performance management criteria and indicators need to be developed and implemented.

Quality Assurance: Resources are needed to evaluate the data that is submitted to identify failing on-site sewage systems and to evaluate the quality of work being done.

Regulation amendments: Article IV will need to be amended to require:

- Creation of Marine Recovery Areas for Henderson Inlet and other areas when needed.
- Define the relationship between the Area of Special Concern designation for marine waters and Marine Recovery Areas.
- The responsibility and role of the Sensitive Area Workgroup should be identified in Article IV.

Sensitive Area Workgroup: The plan envisions the creation of a work group who will work with Health Department staff to evaluate land use, water quality and other data to determine

if OSS are likely to pose a public health risk or become a significant factor contributing to water quality pollution. This group will need to be recruited and oriented, and they will need to refine the criteria used to identify sensitive areas. Staff and resources may be needed to investigate problem areas, perform field evaluations, conduct monitoring to verify problems and analyze monitoring and environmental data.

### ***Timeline***

An implementation strategy and evaluation of the resources and funding needed for this part of the plan are included in Part 6 – Plan Summary and Implementation Strategy.

## **Part 3 – Operation, Monitoring and Maintenance in Sensitive Areas**

### ***Program and Regulatory Goals***

This part of the plan considers whether our current O&M requirements are adequate to protect public health, and whether program additions or enhancements are needed.

This part of the plan relates to the following elements of WAC 246-272A-0015:

**A. By July 1, 2007, a written plan must be developed that specifies how Thurston County will:**

1. Identify operation, maintenance and monitoring requirements commensurate with risks posed by OSS within the geographic areas identified in element (b). [Part 2 of this document].
2. Enforce OSS owner permit application, operation, monitoring and maintenance and failure repair requirements defined in [WAC 246-272A-0200\(1\)](#), [246-272A-0270](#), [246-272A-0275](#), and [246-272A-0280](#) (1) and (2).
3. Describe the capacity of the local health jurisdiction to adequately fund the local OSS plan, including the ability to find failing and unknown systems.

**B. In order to implement the Plan, the local health officer may require the owner of the OSS to:**

1. Ensure additional maintenance and monitoring of the OSS;
2. Provide dedicated easements for inspections, maintenance, and potential future expansion of the OSS;
3. Place a notice to title identifying any additional requirements for OSS operation, maintenance and monitoring; and
4. Have an inspection of the OSS at the time of property transfer including the preparation of a "record drawing" if necessary.

### ***Activities***

**A. Current O&M Requirements common to all areas of Thurston County**

- I. Following is a description of the current O&M program requirements in Thurston County.

Thurston County regulations currently require the owners of large or complex OSS to obtain and maintain renewable operational certificates. Systems that require renewable certificates include:

- Complex systems including recirculating sand filters, mounds and aerobic treatment units.
- Large and community systems, including those that serve three or more residences or have daily wastewater flows greater than 1000 gallons per day.

The operational certificates include monitoring and maintenance requirements that must be satisfied before the certificate can be renewed. Prior to the expiration date of the certificate a renewal notice is generated by the AMANDA system and sent to system owner by staff. Up to three renewal notices are sent. If the certificate is not renewed in time the property owner is subject to late fees and penalties as specified in Article IV and the Environmental Health fee schedule. Health Department staff can take direct enforcement action against property owners when there is evidence their OSS is failing. The options and processes available are stated in Article I and Article IV of the Thurston County Sanitary Code.

Owners of sewage systems with renewable operational certificates are notified when the certificates are about to expire. They receive up to three reminder notices prior before their OSS falls out of compliance (becomes non-conforming).

The operational certificate program is augmented by the education and technical assistance programs that are described in Section 5 of this plan.

II. Are there deficiencies in the current O&M program that will be addressed in the Plan?

The advisory committee and staff believe the baseline operational certificate program is adequate for most areas of the county for systems that require renewable certificates. There is a need, however, to make sure that all OSS owners know the O&M requirements for their system.

The committee approached this in three ways:

- a. Amend Article IV to require all OSS owners to file basic pumping and maintenance information with Thurston County when properties served by OSS are sold or transferred. This is described in Part 1 of this report.
- b. Amend Article IV to require that septic tank pumpers file their individual pumper reports with the county for all work done in Thurston County. The preference is that this be done via the web based system that is also described in Part 1 of this report. Pumpers are currently required to submit monthly reports that identify the address of the property where a septic tank was pumped, the volume pumped, and the location where the septage was taken for final treatment and disposal. These monthly reports provide little information about the system served by the septic tank that was pumped. The septic tank pumper report that is given to the customer contains much more information and could be used to determine the type of system serviced and could be used by Thurston County staff to develop maintenance recommendations for the system owner.
- c. Inventory systems within urban areas where sewer lines exist to confirm whether the home or business is served by OSS or sewer. This could be done with assistance by staff from the associated city. The information could be used by Thurston County to generate monitoring and maintenance information for properties served by OSS, and by the city to update their utility records and implement their sewer plans.

## **B. Sensitive Area O&M Requirements**

### **Sensitive areas:**

Currently the Henderson Watershed Protection Area is the only designated sensitive area in Thurston County that has special O&M requirements.

### Henderson Watershed Protection Area

Renewable operational certificates are required for OSS within the Henderson Watershed Protection Area. The certificates, most of which must be renewed every three years, are required in addition to the minimum monitoring and maintenance requirements in state and county law (WAC 246-272A requires sewage system owners to inspect their system every 1 or 3 years, depending on system type).

The operational certificate for each OSS must be renewed every three years, requiring inspections by an industry professional or by the system owner who has been trained and certified by the department to do self-inspections. This is in addition to the basic inspection requirements in county code and state law. The department must perform quality assurance inspections on 10% of the systems. All OSS are designated either “high” or “low”-risk, based on the soil type and the system proximity to surface water. All “high-risk” systems must be dye-tested every six years by the department or department-trained professionals to determine if they are failing.

Incentives are a key factor in gaining compliance with this program, and include owner education, technical assistance, and financial incentives. Thurston County has a financial assistance program for repairing failing systems. Both loans and grants are available for owners of septic systems who have a financial need or who own marine waterfront property served by a failing system. The County has established a rebate program for installation of septic tank access risers to encourage owners to make system inspections easier, and a financial assistance fund for qualifying senior, disabled, and low-income residents to assist with the cost of the required septic system inspections and maintenance.

The Henderson program allows homeowners of certain types of on-site systems to conduct their own inspections upon completion of a six hour department-conducted training. As a training aid for the workshops, Thurston County constructed an outdoor septic demonstration park. The park includes two styles of septic tanks (partially installed), two above-ground drainfield segments with plexi-glass faces to view a cross-section of the trench, a pump and pump chamber, control panels and pump floats, and tank access risers. It is an innovative approach to homeowner training and was completed with assistance from local industry professionals and the Puget Sound Action Team (see APPENDIX F).

The Henderson program is funded by a charge that is placed on the property tax statement. The funds recovered from these charges pay for most of the area activities. These funds have been supplemented by grants and other dollars to pay for the financial incentive programs and some program start up costs.

Other areas:

There currently are no other sensitive areas in Thurston County that require special OSS operation and maintenance requirements.

We expect that sensitive areas will be identified in the future, and that higher O&M standards will be needed for these areas where OSS are identified as a significant contributor to pollution and water quality problems. The recommended standards for these areas will be developed by staff and the steering committee when it is determined that problems are occurring that require mitigation. The standards and mitigation strategy will

be based on the nature of the problem to be addressed, site conditions, geology and the availability of sewer or other sewage management alternatives within the area.

Nisqually Reach is an area that the committee and a previous public involvement process identified as an area that should be classified as a Marine Recovery Area as described in Section 2 of this Plan. The *Nisqually Reach Shellfish Protection District Stakeholder Group Report & Recommendations (2003)* and the *Henderson Inlet and Nisqually Reach Shellfish Protection Districts Implementation Work Plan (March 2005)* envisioned that the O&M programs for Henderson and Nisqually would be similar. The advisory committee believes O&M program for Nisqually Reach should be modeled after Henderson Watershed Protection Area.

The steering committee identified Eld Inlet as an area that should be evaluated more thoroughly.

The “hybrid” concept described in **Evaluation of Sensitive Areas** in Part 2 of this plan should be used to evaluate the sensitive area candidates listed earlier in Part 2.

### **C. Enforcement Activities**

#### **County Wide Enforcement Programs:**

Owners of OSS with renewable operational certificates receive renewal notices generated by AMANDA. Up to three renewal notices are sent. If the certificate is not renewed in time the property owner is subject to late fees and penalties as specified in Article IV and the Environmental Health fee schedule. Any future building related permits for the property within Thurston County are withheld until the OSS is brought into compliance. The Health Department can also take direct enforcement action against property owners when there is evidence their OSS is failing.

Approximately 90% of OSS whose owners have been notified have complied with program requirements and renewed their operational certificates. About half of OSS owners complete their certification requirements after receiving one notice. Others require up to three notices before they comply. AMANDA tracks operational certificate status and issues renewal notices and reminders.

The issuance of building permits for remodels or expansions, that could affect the OSS, require the homeowner to demonstrate that the sewage system has been properly maintained within the last three years. This typically includes a septic system pumper's report or a homeowner evaluation showing the tank does not need pumping and the system is not failing.

The Health Department has a compliance officer whose primary responsibility is the evaluation of OSS complaints and the coordination of enforcement actions for failing on-site systems. Thurston County receives approximately 200 OSS related complaints each year. Health Department compliance staff actively manages these cases, and approximately 95% of them are resolved within one year (in some instances due process and poor weather delay the repair of failing systems).

Thurston County currently offers a variety of loan and grant programs for owners of failing and obsolete OSS. Low interest loans are available county-wide and special grant and loan programs are available for marine shoreline repairs and OSS owners who meet certain income eligibility criteria.

The enforcement process for the Henderson Watershed Protection Area is similar to what is described above; however; there is a requirement that 10% of monitoring and maintenance inspections be evaluated in the field for quality assurance purposes.

### **Proposed**

Thurston County will continue its current compliance programs, and will monitor them to determine if changes and improvements are needed. Health Department staff is concerned that the current operational certificate compliance process will not be effective for some OSS owners. We will actively seek grants and additional resources to allow us to fully implement the Henderson program quality assurance program, and to provide staff to evaluate monitoring and maintenance reports that are submitted.

As the Henderson and county wide programs are fully implemented, additional resources and approaches may be needed to assure monitoring and maintenance requirements are fulfilled. To help evaluate this we will develop performance measures to determine the effectiveness of our programs. Possible measures include:

- Track operational certificate compliance rate, complaint follow up time and rate of repair and length of time needed for failing on-site systems.
- Development of a model program to evaluate whether there might be more effective and efficient ways to oversee renewable monitoring and maintenance permits for OSS.

### **Resources**

Resources are needed to:

- Database enhancement to allow on-line submission of O&M records and information.
- Amend regulations to implement the time of transfer program requirements, including forms, educational materials, and regulations.
- Development of voluntary data submission program, including forms, educational materials, and regulatory considerations.
- Develop a funding strategy to evaluate future program needs and how to provide the resources needed for them.
- Develop a quality assurance program to determine if data submissions are adequate and accurate.
- Recruit and staff a Sensitive Area Workgroup.

### **Steps to Achieve Program and Regulatory Goals**

The following activities need to be completed to fulfill this part of the plan:

Database enhancements: The web based system to allow O&M records to be submitted to the Health Department needs to be developed and implemented.



Education and training: On-site industry professionals, the real estate community, the public and other affected parties will need to be educated regarding the new evaluation and inventory requirements in Article IV. Educational materials and forms will need to be developed.

Funding Strategy: A mechanism for funding these plan elements needs to be developed.

Performance Measurement: A set of performance management criteria and indicators need to be developed and implemented to evaluate the effectiveness of compliance activities.

Quality Assurance: Resources are needed to evaluate the data that is submitted to identify failing on-site sewage systems and to evaluate the quality of work being done.

Regulation amendments: Article IV will need to be amended to require:

- The OSS that serves a property is evaluated before the property is sold or transferred, and the inspection report for the system is submitted to the Health Department;
- Septic tank pumpers submit records for each OSS tank that is pumped or serviced in Thurston County.

Sensitive Area Workgroup: The plan envisions the creation of a work group who will work with Health Department staff to evaluate land use, water quality and other data to determine if OSS are likely to pose a public health risk or are significant factors contributing to water quality pollution. This group will need to be recruited and oriented, and they will need to refine the criteria used to identify sensitive areas.

## ***Timeline***

An implementation strategy and evaluation of the resources and funding needed for this part of the plan are included in Part 6 – Plan Summary and Implementation Strategy.

## **PART 4 – MARINE RECOVERY AND SENSITIVE AREA STRATEGY**

### ***Program and Regulatory Goals***

This part of the plan relates to the implementation of Chapter RCW 70-118A which requires the local health officer to take action where OSS are a significant factor contributing to the pollution of marine waters. It provides that the local health officer shall propose a marine recovery area for those land areas where existing OSS are a significant factor contributing to concerns associated with:

- a. Shellfish growing areas that have been threatened or downgraded by the Washington State Department of Health.
- d. Marine waters that are listed by the Department of Ecology under section 303(d) of the federal Clean Water Act for low dissolved oxygen or fecal coliform.
- e. Marine waters where nitrogen has been identified as a contaminant of concern by the local health officer.

When designating the boundaries of a Marine Recovery Area the local health officer will include areas with OSS that may affect water quality in the land areas listed above.

#### **70.118A.050**

Marine recovery area on-site strategy.

1. The local health officer of a local health jurisdiction where a marine recovery area has been proposed under RCW 70.118A.040 shall develop and approve a marine recovery area on-site strategy that includes designation of marine recovery areas to guide the local health jurisdiction in developing and managing all existing on-site sewage disposal systems within marine recovery areas within its jurisdiction. The on-site strategy must be a component of the program management plan required under RCW 70.118A.030. The department may grant an extension of twelve months where a local health jurisdiction has demonstrated substantial progress toward completing its on-site strategy.
2. An on-site strategy for a marine recovery area must specify how the local health jurisdiction will by July 1, 2012, and thereafter, find:
  - a. Existing failing systems and ensure that system owners make necessary repairs; and
  - b. Unknown systems and ensure that they are inspected as required to ensure that they are functioning properly, and repaired, if necessary.

#### **70.118A.060**

Local health officer duties — Electronic data systems.

In a marine recovery area, each local health officer shall:

1. Require that on-site sewage disposal system maintenance specialists, septic tank pumpers, or others performing on-site sewage disposal system inspections submit reports or inspection results to the local health jurisdiction regarding any failing system; and
2. Develop and maintain an electronic data system of all on-site sewage disposal systems within a marine recovery area to enable the local health jurisdiction to actively manage on-site sewage disposal systems. In assisting development of electronic data systems, the department shall work with local health jurisdictions with marine recovery areas and the on-site sewage disposal system industry to develop common forms and protocols to facilitate

sharing of data. A marine recovery area on-site sewage disposal electronic data system must be compatible with all on-site sewage disposal electronic data systems used throughout a local health jurisdiction.

## ***Background***

The advisory committee evaluated water quality data, land use and concluded that two areas in Thurston County should become Marine Recovery Areas. These areas include Henderson Inlet, Nisqually Reach, and are described in more detail in Part 2 of this plan.

Shellfish Protection Districts were formed around Henderson Inlet and Nisqually Reach in response to shellfish growing area downgrades and closures in 2000 and 2001. Advisory committees convened at that time recommended that both areas be designated as Areas of Special Concern as described in Article IV of the Thurston County Sanitary Code.

The Henderson Inlet Watershed Protection Area and Nisqually Shellfish Protection District should be recognized as MRAs. This recognizes the years of work that lead to the development of the Henderson and Nisqually shellfish protection districts, and the Henderson Watershed Protection Area, which documented the impact of on-site systems on surface water quality. Under this proposal:

- The Henderson boundaries and programs would remain intact as currently developed; and,
- Development and implementation of OSS monitoring, maintenance and education programs will be a priority for Nisqually Reach.

The advisory committee also concluded that the Eld Inlet watershed should be more carefully evaluated to determine if it should be established as Marine Recovery Area.

The MRAs are being proposed in response to fecal coliform pollution that resulted in downgrades and restrictions to commercial shellfish harvesting areas and the formation of shellfish protection districts in Henderson Inlet and Nisqually Reach.

## ***Activities***

The committee believes the current Henderson Inlet Watershed Protection Program meets the requirements of RCW 70.118A and when fully implemented will be more than adequate to protect public health and the environment from OSS within the area. The advisory committee believes it should be duplicated for the Nisqually Shellfish Protection District, as envisioned when the area was created in 2001. The components of the Henderson Watershed Protection Area Plan, and hence the proposal for Nisqually, are summarized below.

## **Summary of Septic System Operation and Maintenance Program For the Henderson Watershed Protection Area**

**Purpose of the program** is to reduce fecal coliform pollution from on-site sewage systems in Henderson Inlet and its tributaries. This will be accomplished by establishing an area of special concern called the Henderson Watershed Protection Area (HWP) and requiring owners to show that septic systems are properly operated and maintained. Thurston County Public Health and Social Services Department would manage the HWP program.

### **Program Area:**

The area includes that portion of Henderson Inlet Shellfish Protection District where OSS are likely having an impact on water quality.

There shall be an annual review of the map to update the boundary accuracy. The map shall be used to generate the property rolls for program billing, which are included on the property tax statements.

### **Criteria for including properties:**

If any portion of the property is within the area, the property is considered to be within the program area.

Rates and charges shall apply to those properties in the Henderson Inlet Shellfish Protection District with an on-site sewage system where any portion, including a building, and any collection, transport, treatment and disposal components, is within the program boundary.

Thurston County staff reviewed OSS records, assessor data, aerial photographs and other available information to determine whether an OSS was installed on properties within the Henderson Watershed Protection Area. To confirm the accuracy of this review, letters were sent to each property owner within the area where records showed an OSS exists. The property owners were invited to provide information to county staff if their property was not served by an OSS, or if it was outside of the Henderson area boundary.

**High and Low Risk System Designation:** OSS will be designated as either high or low risk based on the risk they pose to public health by contributing to water quality degradation should they fail. These criteria are based on soil type, proximity to surface water, and other appropriate criteria.

### **Requirements:**

All septic systems within the program area must have renewable operational certificates.

All operational certificates must be kept current and renewed on prescribed schedule.

Requirements for certificate renewal shall include:

- Routine maintenance inspections, including dye tests for high-risk systems
- Submittal of inspection reports to the Department

**Program Funding - Rates and Charges.** Beginning in January, 2007, rates and charges were imposed within the shellfish protection district to pay for Henderson activities. These rates were collected via the property tax statement.

Monitoring and maintenance records are submitted to the county as part of the operational certificate renewal process. This information is recorded in AMANDA as described in Part 1 of this plan.

**Homeowner Education.** The Henderson program allows homeowners of certain types of on-site systems to conduct their own inspections upon completion of a six hour department-conducted training. As a training aid for the workshops, Thurston County constructed an outdoor septic demonstration park. The park includes two styles of septic tanks (partially installed), two above-ground drainfield segments with plexi-glass faces to view a cross-section of the trench, a pump and pump chamber, control panels and pump floats, and tank access risers.

The committee recommends that the Henderson program be duplicated for Nisqually Reach and that this become a priority effort for Thurston County.

## **Resources**

Resources are needed to:

- Database enhancement to allow on-line submission of O&M records and information.
- Development of voluntary data submission program, including forms, educational materials, and regulatory considerations.
- Develop a funding strategy to evaluate future program needs and how to provide the resources needed for them.
- Develop a quality assurance program to determine if data submissions are adequate and accurate.
- Regulatory changes needed for creation of Henderson and Nisqually MRAs.

### **Steps to Achieve Program and Regulatory Goals**

The following activities need to be completed to fulfill this part of the plan:

Database enhancements: The web based system to allow O&M records to be submitted to the Health Department needs to be developed and implemented.

Funding Strategy: A funding mechanism is needed if special services and programs will be offered within a Marine Recovery Area.

Performance Measurement: A set of performance management criteria and indicators need to be developed and implemented to evaluate the effectiveness of compliance activities.

Quality Assurance: Resources are needed to evaluate the data that is submitted to identify failing on-site sewage systems and to evaluate the quality of work being done.

Regulation amendments: Article IV will need to be amended to require:

- Create Marine Recovery Areas for Henderson Inlet, Nisqually Reach and other areas as needed.
- The responsibility and role of the sensitive area workgroup committee should be defined in Article IV.

Sensitive Area Workgroup: The plan envisions the creation of a work group who will work with Health Department staff to evaluate land use, water quality and other data to determine if OSS are likely to pose a public health risk or are significant factors contributing to water

quality pollution. This group will need to be recruited and oriented, and they will need to refine the criteria used to identify sensitive areas.

### ***Timeline***

An implementation strategy and evaluation of the resources and funding needed for this part of the plan are included in Part 6 – Plan Summary and Implementation Strategy.

## PART 5 – EDUCATION

### ***Program and Regulatory Goals***

This part of the guidance relates to the following elements of WAC 246-272A-0015(1):

- a. Facilitate education of homeowners regarding their responsibilities under this chapter and provide operation and maintenance information for all types of systems in use within the jurisdiction.
- b. Remind and encourage homeowners to complete their operation and maintenance inspections.
- c. Describe the capacity of the local health jurisdiction to adequately fund the local OSS plan, including the ability to find failing and unknown systems.

### ***Background***

Educating the public about the importance of proper care of OSS, signs of poorly performing OSS and potential risks to public health can reduce the number of failing systems. The advisory committee looked at current OSS education programs and activities and concluded they are generally adequate; however, it is desirable to provide the advanced training classes that are offered to Henderson area residents to the rest of the county.

### ***Activities***

#### **A. Current Education**

Thurston County conducts a variety of activities to help sewage system owners learn about their systems and how to properly monitor and maintain them. These activities include:

##### Workshops:

- County wide: We conduct 8-10 Septic Sense workshops throughout the year at various locations across the county. The classes are split between the spring and fall.
- Henderson Watershed Protection Area: The Henderson program allows homeowners of certain types of on-site systems to conduct their own inspections upon completion of a six hour department-conducted training, as described in Part 3 of this plan. We will conduct more than 40 classes in 2007, with up to 12-20 people in each class.
- Workshops and training is provided to citizen groups and neighborhood associations upon request.
- Watershed Pledge: Septic system education is incorporated into this stewardship program that is conducted in cooperation with the Thurston Conservation District.

##### Articles and Publications:

- The Thurston County health officer has a regular column in *The Olympian*. Columns related to on-site sewage systems are published several times each a year.
- Articles about onsite sewage systems are also published in Thurston County's *Talkin Trash*- a newsletter that is sent to all county residents twice per year.
- The Health Department has a web site with a section dedicated to OSS and O&M topics. This includes a variety of articles and fact sheets that describe everything from operational certificate requirements to recommended landscaping practices for drainfield areas (see <http://www.co.thurston.wa.us/health/ehoss/index.html>).

- Information on the care of the OSS is mailed with the operational certificate.

Technical Assistance:

- Thurston County has a Septic Help Line. Members of the public can call this line to have their OSS questions answered and to get assistance diagnosing OSS related problems. The service is free of charge.

## **B. Planned Education**

Thurston County plans to continue the Septic Sense workshops, Henderson Watershed Protection Area classes, and other activities described above. Future resources will dictate how extensive our public education/outreach will be. Thurston County will continue to provide the help line, the current website links and information and the special purpose trainings.

The advisory committee suggested that the advanced O&M classes that are currently available for Henderson area residents be offered county wide. The classes are very popular and OSS owners who attend them say they have a new appreciation for the importance of routine inspections and maintenance. The classes are staff time intensive, however, requiring almost two days of staff time to prepare and conduct.

## **C. Current Reminders**

Owners of sewage systems with renewable operational certificates are notified when the certificates are about to expire, as described in Part 3 of this plan. They receive up to three reminder notices before their OSS falls out of compliance (becomes non-conforming).

When OSS are initially installed or repaired, the owners of gravity or conventional pressure distribution systems receive maintenance recommendations. Owners of systems requiring renewable operational certificates receive an operation and maintenance certificate after the record drawing (as-built) is submitted.

Certified monitoring specialists are also sent notices if they are not timely with submission of their maintenance reports for systems that require on-going testing and monitoring.

## **D. Planned Reminders**

Thurston County's goal is to routinely notify all sewage system owners that regular and routine maintenance is required and provide them with a list of recommendations. Research is needed to identify cost effective and efficient ways to advise OSS owners of their monitoring and maintenance responsibilities. We plan to continue the notification procedures identified above.

The advisory committee recommends a more formal notification procedure to advise the owners of systems that don't have renewable operational certificates about what they should do to monitor and maintain their system.

## **E. Measured Effectiveness**

Thurston County does survey participants to get their opinions on the content, effectiveness and value of OSS workshops. Responses are usually very positive for the workshops. Post workshop surveys have been conducted in the past to determine if participants have changed behaviors or employed practices that are more likely to prolong the life of their system and



reduce impacts on public health and water quality. These surveys have not been done for several years.

Performance measures need to be developed to evaluate the effectiveness of the educational programs. These could include measures such as tracking calls and information requests after workshops or specific education events, evaluating renewal rates for operation and maintenance certificates, and evaluating water quality in areas over time to gauge whether programs such as the Henderson Watershed Protection Area are having a positive influence on surface water quality.

## ***Resources***

Resources are needed to develop:

- Database enhancements that allow AMANDA or some other system to remind all OSS owners of the O&M needs for their system. A system needs to be developed and implemented that allows O&M records to be submitted on-line.
- A funding strategy to evaluate the resource needs for enhanced education activities.
- An advanced O&M workshop made available to all Thurston County residents.
- Performance measures and indicators for education activities.

## **Steps to Achieve Program and Regulatory Goals**

The following activities need to be completed to fulfill this part of the plan:

Database enhancements: AMANDA or some other system needs to be set up to remind all OSS owners of the O&M needs for their system. The web based system to allow O&M records to be submitted to the Health Department needs to be developed and implemented.

Education and training: Advanced OSS monitoring and maintenance training should be made available for all Thurston County residents.

Funding Strategy: A mechanism for funding these plan elements needs to be developed.

Performance Measurement: A set of performance management criteria and indicators need to be developed and implemented.

## ***Timeline***

An implementation strategy and evaluation of the resources and funding needed for this part of the plan are included in Part 6 – Plan Summary and Implementation Strategy.

## Part 6 – PLAN Summary and Implementation Strategy

Activities proposed to address needs identified in parts 1 through 5 of the *Thurston County On-site Sewage System Management Plan* are summarized below. A list of program priorities, an implementation schedule and budget can be found at the conclusion of this summary.

### A. Database Enhancement

#### Proposed Activities

The process for submitting, storing and managing on-site maintenance data needs to be streamlined, and Thurston County needs to develop an on-line or web based system for the submission of on-site maintenance related reports. Research is needed to determine the best way to accomplish this and the resources are needed to implement the chosen solution.

This plan recommends that Article IV be amended to require that OSS be inspected when the properties they serve are sold or transferred unless the system is required to have and is in full compliance with a renewable operational certificate. An industry professional or OSS owner with proper training will need to inspect the OSS before the property transfers and submit the inspection results to the Health Department (preferably electronically). As a minimum the inspection will document:

- The condition of components inspected or evaluated
- Key features of the OSS through a sketch of the system if an as-built or record drawing is not on file with the county.

This plan recommends that Article IV be amended to require that septic tank pumpers file their individual pumper reports with the county for all work done in Thurston County. This information can be used by the county to inventory OSS and find unknown systems. It could also be linked to AMANDA and used as the basis for the maintenance tracking and reminder programs recommended in this plan. The plan recognizes that to the extent possible all OSS related inspection reports should be submitted on-line.

As the plan is implemented performance measurement tools need to be confirmed that can be used to evaluate the program elements and the quality of the monitoring and maintenance work being done in Thurston County.

#### Program Goals

When fully implemented, this part of the plan will allow us to make progress toward following program and regulatory goals:

- Progressively develop and maintain an inventory of all known OSS in operation within Thurston County; and,
- Maintain records required under WAC 246-272A and Article IV, including all operation and maintenance activities as identified.

#### Steps to Achieve Goals

The following activities need to be completed to fulfill this part of the plan:

Database enhancements: The web based system to allow O&M records to be submitted to the Health Department needs to be developed and implemented.

Education and training: On-site industry professionals, the real estate community, the public and other affected parties need to be educated regarding the new evaluation and inventory requirements in Article IV. Educational materials and forms need to be developed.

Funding Strategy: A mechanism for funding these plan elements needs to be developed.

Performance Measurement: A set of performance management criteria and indicators need to be developed and implemented.

Quality Assurance: Resources are needed to evaluate the data that is submitted to identify failing on-site sewage systems and to evaluate the quality of work being done.

Regulation amendments: Article IV will need to be amended to require:

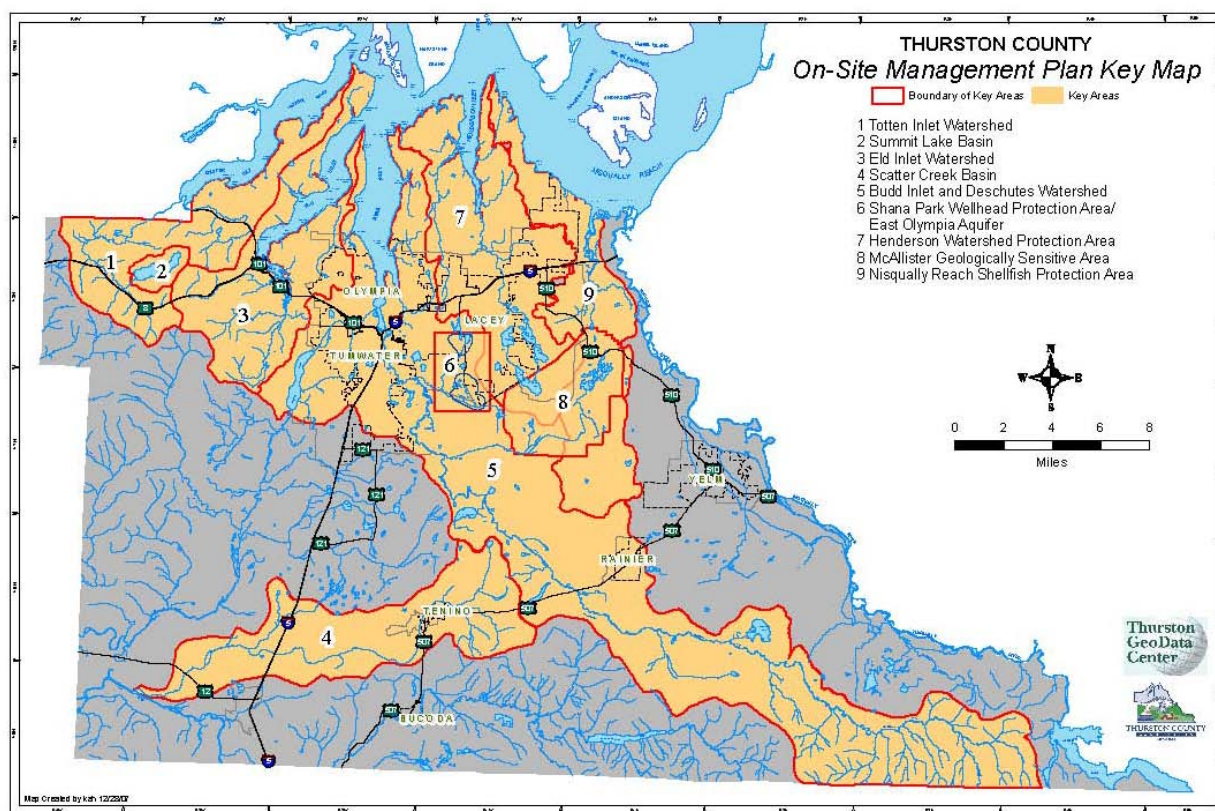
- The OSS that serves a property is evaluated before the property is sold or transferred, and the inspection report for the system is submitted to the Health Department;
- Septic tank pumpers submit records for each OSS tank that is pumped or serviced in Thurston County.

## **B. Identification of Sensitive Areas**

### **Proposed Activities**

Health Department staff evaluated land use, shellfish closure data and existing water quality information to identify areas where OSS could pose an increased public health risk or where existing OSS are a significant factor contributing to water quality concerns. The advisory committee and staff reviewed this information and identified nine areas where OSS could pose an increased public health risk:

- Henderson Watershed Protection Area
- Nisqually Reach Shellfish Protection Area
- Eld Inlet
- Totten Inlet
- Budd Inlet
- Summit Lake
- Southern Thurston County (Scatter Creek Area)
- McAllister Geologically Sensitive Area
- Shana Park Wellhead Protection Area/East Olympia Aquifer



The plan concludes:

- The Henderson Inlet Watershed Protection Area and Nisqually Shellfish Protection District should be recognized as Marine Recovery Areas:
  - The Henderson boundaries and programs would remain intact as currently developed.
  - OSS monitoring, maintenance and education programs for OSS in the Nisqually area should be modeled after the Henderson Watershed Protection Area.
- The Eld Inlet watershed should be more carefully evaluated to determine if it should be established as Marine Recovery Area.

The plan recommends that the other areas be evaluated further to determine if OSS are causing or have the potential to create water quality and public health problems. They should be evaluated using the following criteria:

- Determine the number, type and location of on-site sewage systems within the sensitive area;
- Determine other potential pollution sources that can generate fecal coliform and nitrate, or lead to oxygen depletion in marine waters;
- Look at water quality data over time in each sensitive area to look for changes that might indicate OSS influence;
- Investigate and evaluate areas to determine if OSS are cause; and,
- Implement controls to reduce impact of OSS. These could include additional monitoring and maintenance requirements, limiting new systems and repairs to types that provide enhanced treatment for pollutants of concern (fecal coliform or nitrate), or other measures proposed by the oversight committee.

## **Program Goals**

The elements of this part of the plan were developed to address the regulatory goals stated in WAC 246-272A and RCW 70.118A, that state sensitive areas should be designated where:

- OSS could pose an increased public health risk, or
- OSS are a significant factor contributing to concerns a) associated with the degradation of shellfish growing areas, or b) marine waters listed for low dissolved oxygen, or c) marine waters listed for contamination with fecal coliform, or d) where nitrogen has been identified as a contaminant of concern.

## **Steps to Achieve Goals**

The following activities need to be completed to fulfill this part of the plan:

Funding Strategy: A mechanism for funding these plan elements needs to be developed.

Performance Measurement: A set of performance management criteria and indicators need to be developed and implemented.

Quality Assurance: Resources are needed to evaluate the data that is submitted to identify failing on-site sewage systems and to evaluate the quality of work being done.

Regulation amendments: Article IV will need to be amended to require:

- Create Marine Recovery Areas for Henderson Inlet and other areas when needed.
- It may be advisable to identify the responsibility and role of the sensitive area workgroup in Article IV.

Sensitive Area Workgroup: The plan envisions the creation of a work group who will work with Health Department staff to evaluate land use, water quality and other data to determine if OSS are likely to pose a public health risk or are a significant factor contributing to water quality pollution. This group will need to be recruited and oriented, and they will need to refine the criteria used to identify sensitive areas. Staff and resources may be needed to investigate problem areas, perform field evaluations, conduct monitoring to verify problems and analyze monitoring and environmental data.

## **C. Operation, Monitoring and Maintenance in Sensitive Areas**

### **Operation, Monitoring and Maintenance**

#### **Proposed Activities**

The plan recommends that Article IV be amended to:

- Require all OSS owners to file basic pumping and maintenance information with Thurston County when properties served by OSS are sold or transferred, as described in Part 1 of this plan; and
- Require that septic tank pumpers file their individual pumper reports with the county for all work done in Thurston County.

There is also a need to inventory systems within urban areas where sewer service is provided to confirm whether the home or business is served by OSS or sewer, with assistance of staff from the associated city.

### **Sensitive Areas**

#### **Proposed Activities**

The plan anticipates more sensitive areas will be identified. The standards for these areas will be developed by staff and the steering committee as described in Part 2 of this plan.

### **Enforcement**

#### **Proposed Enforcement Activities**

The Health Department will continue with its current compliance programs. A funding mechanism was built into the OSS permitting process to assure funding for the compliance officer position. This plan recommends that resources be provided to evaluate O&M reports and data that are submitted to follow up on reports that indicate an OSS is failing.

Thurston County will monitor our current compliance programs and determine if changes and improvements are needed. Health Department staff is concerned that the current operational certificate compliance process will not be effective for some OSS owners. We will actively seek grants and additional resources to allow us to fully implement the Henderson program quality assurance program, and to provide staff to evaluate monitoring and maintenance reports that are submitted.

Performance measures need to be developed to evaluate the effectiveness of our programs.

The plan anticipates additional resources and approaches may be needed to assure monitoring and maintenance requirements are fulfilled. Efforts should be made to continue the current loan and grant programs to assist the owners of failing OSS.

#### **Program Goals**

When fully implemented, this part of the plan will allow us to make progress toward the following program and regulatory goals:

- Identify operation, maintenance and monitoring requirements commensurate with risks posed by OSS within sensitive areas; and
- Enforce OSS owner permit application, operation, monitoring and maintenance and failure repair requirements

#### **Steps to Achieve Goals**

The following activities need to be completed to fulfill this part of the plan:

Database enhancements: The web based system to allow O&M records to be submitted to the Health Department needs to be developed and implemented.

Education and training: On-site industry professionals, the real estate community, the public and other affected parties will need to be educated regarding the new evaluation and

inventory requirements in Article IV. Educational materials and forms will need to be developed.

Funding Strategy: A mechanism for funding these plan elements needs to be developed.

Performance Measurement: A set of performance management criteria and indicators need to be developed and implemented to evaluate the effectiveness of compliance activities.

Quality Assurance: Resources are needed to evaluate the data that is submitted to identify failing on-site sewage systems and to evaluate the quality of work being done.

Regulation amendments: Article IV will need to be amended to require:

- The OSS that serves a property is evaluated before the property is sold or transferred, and the inspection report for the system is submitted to the Health Department;
- Septic tank pumpers submit records for each OSS tank that is pumped or serviced in Thurston County.

Sensitive Area Workgroup: The plan envisions the creation of a work group who will work with Health Department staff to evaluate land use, water quality and other data to determine if OSS are likely to pose a public health risk or are significant factors contributing to water quality pollution. This group will need to be recruited and oriented, and they will need to refine the criteria used to identify sensitive areas.

## **D. Marine Recovery Area Strategy**

### **Proposed Activities**

The creation of future MRAs may come about as part of the sensitive area evaluation process described in parts 2 and 3 of this plan. The plan recommends that the Henderson Watershed Protection Area and Nisqually Reach become Marine Recovery Areas.

### **Program Goals**

When fully implemented, this part of the plan will allow us to make progress toward the following program and regulatory goals:

- Develop a methodology for establishing MRAs.
- Develop a database strategy for keeping records associated with MRAs.
- Inventory all OSS in MRA by 2012 and ensure all that are failing are serviced.

### **Steps to Achieve Goals**

The following activities need to be completed to fulfill this part of the plan:

Database enhancements: The web based system to allow O&M records to be submitted to the Health Department needs to be developed and implemented.

Funding Strategy: A funding mechanism is needed if special services and programs will be offered within a Marine Recovery Area.

Performance Measurement: A set of performance management criteria and indicators need to be developed and implemented to evaluate the effectiveness of compliance activities.

Quality Assurance: Resources are needed to evaluate the data that is submitted to identify failing on-site sewage systems and to evaluate the quality of work being done.

Regulation amendments: Article IV will need to be amended to require:

- Create Marine Recovery Areas for Henderson Inlet, Nisqually Reach and other areas as needed.
- It may be advisable to identify the responsibility and role of the sensitive area committee in Article IV.

Sensitive Area Workgroup: The plan envisions the creation of a work group who will work with Health Department staff to evaluate land use, water quality and other data to determine if OSS are likely to pose a public health risk or are significant factors contributing to water quality pollution. This group will need to be recruited and oriented, and they will need to refine the criteria used to identify sensitive areas.

## **E. Education**

### **Proposed Education Activities**

Thurston County plans to continue the Septic Sense workshops, Henderson Watershed Protection Area classes, and other activities described above.

The plan recommends that the advanced OSS training classes currently offered to Henderson area residents be made available county wide.

### **Proposed Reminder Activities**

The advisory committee recommends that a process be developed to advise the owners of systems that don't have renewable operational certificates about what they should do to monitor and maintain their system. Research is needed to identify cost effective and efficient ways to advise OSS owners of their monitoring and maintenance responsibilities.

### **Program Goals**

When fully implemented, this part of the plan will allow us to make progress toward the following program and regulatory goals:

- Facilitate education of homeowners regarding their responsibilities for the operation and maintenance of their OSS.
- Remind and encourage homeowners to complete their operation and maintenance inspections.

### **Steps to Achieve Goals**

The following activities need to be completed to fulfill this part of the plan:

Database enhancements: AMANDA or some other system needs to be set up to remind all OSS owners of the O&M needs for their system. The web based system to allow O&M records to be submitted to the Health Department needs to be developed and implemented.



Education and training: Advanced OSS monitoring and maintenance training should be made available for all Thurston County residents.

Funding Strategy: A mechanism for funding these plan elements needs to be developed.

Performance Measurement: A set of performance management criteria and indicators need to be developed and implemented.

## **F. Implementation Strategy and Resource Needs**

The following seven sets of activities have been identified and need to be completed to fully implement this plan:

- Database enhancements
- Education and training
- Funding Strategy
- Performance Measurement
- Quality Assurance
- Regulation amendments
- Sensitive Area Workgroup

### **Existing Program Limitations, Deficiencies and Challenges**

Thurston County has very limited resources for implementing new programs identified in this plan. While current programs, such as the current Henderson Watershed Protection Area, operational certificate, compliance, and education programs will continue, new resources are needed for plan elements that go beyond current levels of service.

We are fortunate that some funding has been made available to implement this plan through the Washington State Department of Health. One hundred thousand dollars is available through June 30, 2009. Additional funding is available through competitive grants. The Health Department has been able secure approximately \$111,000 to fully implement Henderson Watershed Protection Area programs. Completion of some of the Henderson activities can help fulfill other elements of this plan.

Full implementation of this plan will take more resources than are currently available. The full cost to implement the plan cannot be determined at this time. The final funding plan and mechanism in itself will take time and resources to prepare.

### **Implementation Strategy**

Based on the current resource limitations in Thurston County, the implementation schedule and work plan have been split into:

- Activities that can be achieved with currently available funding and resources
- Activities that require additional resources

This strategy proposes to allocate resources to complete activities that will achieve the most plan and regulatory goals or allow other plan elements to proceed. These include regulation updates needed to implement the OSS inventory elements of this plan, database enhancements to allow O&M records to be submitted on-line, creation of the sensitive area

workgroup, and annual progress reports to the Board of Health. Because funding is assured only through June 2009, this strategy focuses on activities that can be completed within that window of time. Other plan elements are put on a workplan for the future.

### Activities that can be achieved with currently available funding and resources

The following table identifies activities to be completed through June 2009. This table identifies both the “general” activities in the plan, as well as those that pertain specifically to full implementation of the Henderson Watershed Protection Area programs.

**Table 3: Outline of Plan Activities with Currently Available Funding and Resources**

Plan Element <sup>1</sup>	Time Frame						Notes
	Year and Quarter						
	2008				2009		
	Q1	Q2	Q3	Q4	Q1	Q2	
Database Enhancements <ul style="list-style-type: none"><li>Develop web-based system for on-line record submission</li><li>Web based O&amp;M submittals</li><li>Web based pumper reports</li></ul>	H	H	X	X			Program will initially focus on Henderson and OSS with renewable certificates
	H	H	X	X	X	X	
Education and training <ul style="list-style-type: none"><li>Educate On-site industry on pumper and time of transfer requirements</li></ul>		X	X	X			Anticipates late 2008 Article IV amendment
Funding Strategy <ul style="list-style-type: none"><li>Discuss needs with BOH</li><li>Evaluate needs</li><li>Implementation</li></ul>		X		X	X	X	Implementation subject to determination by BOH and BOCC
Performance Measurement <ul style="list-style-type: none"><li>Confirm Measures</li><li>Implement Measures</li></ul>	X	X	X	X	X	X	
Quality Assurance <ul style="list-style-type: none"><li>Evaluation O&amp;M submittals</li><li>Failure follow up</li><li>QA Inspections</li><li>Evaluation of compliance options</li></ul>	H	H	H	H	X	X	
	H	H	H	H	X	X	
	H	H	H	H	X	X	
Regulation amendments <ul style="list-style-type: none"><li>Create Henderson MRA</li><li>Nisqually MRA</li><li>Revisions to address time of transfer</li><li>Revisions to require pumper report submittals</li></ul>		X					Anticipates late 2008 Article IV amendment Nisqually MRA public process to begin in 2009. Completion of process will go beyond June 2009
	X	X	X	X	X	X	
	X	X	X	X			
Sensitive Area Workgroup <ul style="list-style-type: none"><li>Sensitive Area Plan</li><li>Monitoring Plan</li><li>Resource/funding analysis</li></ul>			X	X	X	X	
			X	X	X	X	

Annual Report to Board of Health							Annual activity beginning 2009
• Plan Implementation Progress					X		
• Proposed Plan Revisions					X		

<sup>1</sup> H= Henderson Watershed Protection Area activity, X = General plan activity

### Activities that Require Additional Resources

#### Database enhancements

- Evaluation of options and implementation of system to generate O&M reminders for all OSS owners
- Integrate reminder system with receipt of on-line pumper and time of transfer reports

#### Education and training

- Make advanced homeowner O&M class available to all county OSS owners.

#### Funding Strategy

- Develop options for implementation of funding strategy
- Implement strategy as determined by policy makers

#### Performance Measurement

- Continue evaluation of program over time

#### Quality Assurance

- Develop and implement quality assurance program for all O&M related activities

#### Regulation amendments

- Completion of Nisqually MRA process
- Implementation of programs for future MRA and Sensitive Area Requirements

#### Sensitive Area Workgroup

- Maintenance
- Monitoring
- Implementation of future recommendations

### Resource Requirements

A precise determination of the staffing and financial resources needed to implement this plan cannot be determined at this time. The staff time needed to evaluate reports submitted on-line and to follow up on potential problems cannot be determined until the reporting system and follow up procedures have been designed. Follow up on reports submitted on a totally automated electronic system could be substantial, depending on the level of enforcement actions and documentation needed for problem or failing OSS. It could easily require several staff costing several hundred thousands of dollars per year to implement.

For example, the public information process associated with the Henderson Watershed Protection Area program took almost two years to complete, requiring several meetings with an advisory committee as well as several community meetings and hearings. Once the ordinances creating the Henderson area were adopted, it took over a year and several staff representing more than one FTE of staff time to confirm the boundaries, identify parcels served by OSS, prepare assessment roles, and complete the policies, forms and guidance

documents needed to make the program work. The time and resources needed to create and implement Henderson easily exceeded \$200,000. Now that it's in place, the Henderson program requires an annual budget of more than \$215,000 and more than two FTE.

The budget implications of creating Henderson type programs for Nisqually Reach and Eld Inlet would be substantial. Reasonable estimates can only be prepared after the area boundary, program scope and funding options are selected.

### **Measurable Program Objectives**

In addition to the program goals that are stated throughout the plan and this summary, performance measures and objectives need to be established to determine whether programs are making progress towards the established goals. Several performance measures have been established and are included as Appendix E of this plan. These will be refined over time and implemented to evaluate the O&M and compliance activities implemented as part of this plan.

This plan will be a living document. Beginning in 2009 an annual progress report will be presented to the Thurston County Board of Health to document work done to implement the plan along with any proposed changes to it. The plan will be updated periodically to reflect changes that come about from this process.

### **G. Thurston County PHSS Environmental Health Division – Website Information**

The Health Department provides information for the public and industry professionals on our website. Below are links to pages as they relate to On-Site Sewage System Programs within the Environmental Health Division.

EH Main Page: <http://www.co.thurston.wa.us/health/ehadm/index.html>

Article IV: [http://www.co.thurston.wa.us/health/ehadm/rules\\_regs.html](http://www.co.thurston.wa.us/health/ehadm/rules_regs.html)

Management Plan: [http://www.co.thurston.wa.us/health/ehadm/OSS\\_imp.html](http://www.co.thurston.wa.us/health/ehadm/OSS_imp.html)

Septic Systems: <http://www.co.thurston.wa.us/health/ehoss/index.html>

Henderson WPA: <http://www.co.thurston.wa.us/health/ehrp/henderson.html>

**APPENDIX A****List of Amanda Reports for OSS Operation & Maintenance Program**

<b>Report Number</b>	<b>Report Title</b>	<b>Use for report</b>
36	HD Finals Requested Detail	List of installers / designers for finals
50	OSS Conditions	Listing of conditions for O&M
51	HA Errors – cannot be auto renewed	Correction of folders
53	HA 60-day notice due	
54	Required Renewal Distribution	Displays count of system / date / year
55	Required Renewal Detail	Detail for all systems on a specific renewal date. Can be either HA / HH
56	Voluntary Renewal Distribution	Displays count of system / date / year
57	Voluntary Renewal Detail	Detail for all systems on a specific renewal date. HA only
59	HD ATU	Lists individual ATU details (no sand filters)
65	HH cannot be renewed due to errors	Lists errors for HH folders
66	HH Errors	Lists errors to correct
67	HA Errors	Lists errors to correct
93	HD ATU people	List of ATU people with disinfection
94	HD System types	Listing of Septic System folder types by date range selected
97	HD System type detail	HD system type detail by type
98	HD asblt not received – Final done	HD as-built not rec'd but final done
211	Monitor with sand or mound	Sand filters OR mounds: HA or HH
212	Henderson Exempt	Listing of all Sr / Disable for Small Grants mailing
213	Nisqually Exempt	Listing of all Sr / Disable for Small Grants mailing
214	Nisqually Properties	
215	Henderson Properties	
216	Health - HA monitor	List of all monitored properties
217	Health – HA disinfection chlorine or UV	List of all monitored properties with CI / UV
218	Homeowner Certified for Inspection	List of People RSN for certified 'owner' inspectors for HWP

Report Number	Report Title	Use for report
219	HH: Renewal due date with date parameters	Can count how many HH's per given year
220	How many Required renewals sent	Counts how many renewal letters sent
221	How many Required certificates issued	Counts how many required certificates issued within a given time frame
222	How many 60-day notice sent	Counts how many warning letters sent for OPCs
223	How many 90-day notice sent	Counts how many non conforming letters sent for OPCs
224	How many CS Violations created	Counts the number of non conforming systems due to CS violation folders created
225	How many As-builts with required certificates	Counts the number of as-builts for systems with required OPCs
226	How many active parcels with an HD folder	Gives count of septic system <u>parcels</u> in county
227	HD references pending parcel only	
228	How many Non conforming violations cleared	Counts the number of non conforming system violations that have been cleared
229	HA with owner change on final inspection	
330	HD ATU People with parcel / foldersn	
331	Health - HA / HD with no conditions	No conditions
232	HA 90-day	Lists all the folders that are 90 days past due – used to send non-conforming letters
233	HA 60 day closed but not sent	
235	HA Construction Required Treatment Standard Detail	Detail of those new / Construction septic systems where a Treatment Standard is required.
236	HA Construction Required Treatment Standard Summary 1, 2	
237	HA Construction Required Treatment Standard Summary All	
239	HA / HH New Owner Mailing labels	Lists information of those septic systems where property changed ownership 6 months previous. Data downloaded to ACCESS database for mailing labels.
240	HA / HH New Owner - Folder List	Lists information of those septic systems where property changed ownership 6 months previous. Used to correct addresses in HA folders.
241	Sand Filter HD no required HA	
242	HPA required/monitor	Used to begin identification for high risk / low risk systems in Henderson Protection Area O&M program
243	HPA required/monitor in inlet and stream areas	
244	Presubs in UGA Boundary since 8/1/2003	Used to find requests for development in the Henderson Watershed area UGA.
245	HD with more than 1 open HA	Used to find errors and correct.

Report Number	Report Title	Use for report
246	Henderson Watershed Sand Filter Count	Counts and lists sand filter and mound septic systems in the Henderson Watershed. Used for Sand Filter / Mound Septic Workshop Fall 2005
247	Henderson Watershed Sand Filter Mailing	
248	Henderson Watershed Mound Count	
249	Henderson Watershed Mound Mailing	
331	Health – HA and HD with no conditions	
400	What did I do today?	Report of folders worked on for given time parameter
549	HH counts per parcels	Counts distinct parcels in HWP program
550	HH converted with subtype = construction	
551	HH – not converted with subtype = construction	
552	Distinct parcels attached to HH folders	
553	How many HH renewals sent	Counts
554	How many HH renewals completed	“
555	How many HH 60-day notices sent	“
556	How many HH 90-day notices sent	“
557	HH 90-day	Like 232
559	HD with SandFilter% and <>'mound' and issue null or <12/1/01	Used to check errors on sand filters that really weren't – no longer needed
560	HA requested since 2/18/07	ConstHH.mdb query to correct processing error
561	'Finished' HD on Property where Info code 107 = 'yes'	Identifies completed sewage permits within the HWP program
562	HH HA monitor	Lists data for download to Access for quarterly updates for ATU's / Required OPCs
563	Monitor with at least 1 bacti sample field completed	
567	Construction with indate < 1/1/07	Used to generate annual 'new' systems for HWP program
568	Construction with indate > 1/1/07	“
569	Distinct parcels for County HA's	Identifies distinct parcels for Countywide OPC's
990	HH OPC Renewals Due	Used to build monthly HWP lists of notices sent

### List of Amanda Fields for Henderson OSS Operation & Maintenance Program

Folder Type	Info Field Name	Code	Default Value	Display Order	Print	Mand.	Req. For Init.	Web Flag
HH	Last Dye Test Year	8004	P		No	No	No	
HH	Henderson Protection Area	107	B	1	No	No	No	
HH	HWPA Risk Level	8002	C	2	Yes	Yes	No	
HH	This OSS system is experimental	1210	B	No	3	Yes	No	No
HH	OPC frequency	1327	C	3 year	4	Yes	Yes	No
HH	Date of Inspection	536	D		5		No	
HH	Date septic tank pumped	1324	D		6	Yes	No	No
HH	Scum measure in tank	1330	A		7	Yes	No	No
HH	Sludge measure in tank	1331	A		8	Yes	No	No
HH	Year installed	437	N		9	Yes	Yes	No
HH	Record Drawing	444	B		10	Yes	Yes	No
HH	Tank	1225	C	Concrete	11	Yes	Yes	No
HH	Size of septic tank	1323	C	1150 gal	12	Yes	No	No
HH	# of compartments	438	N		13	Yes	Yes	No
HH	Pre/treatment	1226	C	None	14	Yes	Yes	No
HH	3rd Party Maint of OSS is required	1329	B	No	15	Yes	No	No
HH	Which treatment Standard is required?	1212	C	n/a	16	Yes	No	No
HH	Disinfection	1227	C		17	Yes	Yes	No
HH	Is bacti sampling required?	1211	B	No	18	Yes	No	No
HH	Transport	1228	C	Gravity	19	Yes	Yes	No
HH	D_Box	441	B		20	Yes	Yes	No
HH	Programmable timer needed?	1334	B	No	21	Yes	No	No
HH	Pump chamber size	439	N		22	Yes	Yes	No
HH	Disposal	1229	C	Trench: gravel	23	Yes	Yes	No
HH	Drainfield location	1320	C		24	Yes	No	No
HH	D_Configuration	440	C		25	Yes	Yes	No
HH	D_Length	442	A		26	Yes	Yes	No
HH	D_Depth	443	C		27	Yes	Yes	No
HH	Is reserve area available?	1322	B	Yes	28	Yes	No	No
HH	Occupancy Date	183	D		29			
HH	Structure type	1325	C		30	Yes	No	No
HH	Proposed Sewage System Use	772	C		31	Yes	Yes	No
HH	OSS serves a food establishment.	1314	B		32	Yes	No	No
HH	Does system have a grease trap?	1332	B	No	33	Yes	No	No
HH	OPC type	1326	C		34	Yes	Yes	No
HH	# of Units Approved	241	N		35	Yes	No	No
HH	Number of Bedrooms	21	N		36			
HH	Gallons of sewage per day	1321	N		37	Yes	No	No

77 Rows Retrieved.



Folder Type	Info Field Name	Code	Default Value	Display Order	Print	Mand.	Req. For Init.	Web Flag
HH	Name of Development	302	A	38				
HH	Manufactured Home/RV park	145	B	39				
HH	Mobile Home Connections	101	N	40				
HH	Renewal Requested	51	D	61	Yes	No	No	
HH	Date Renewal Printed	1349	D	62	Yes	No	No	
HH	Renewal Due Date	13	D	63	Yes	Yes	No	
HH	Next Dye Trace Year	8003	P	64	Yes	Yes	No	
HH	QAQC site	8005	B	65	Yes	Yes	No	
HH	Exemption Type	127	A	66	No	No	No	
HH	HWPMap Map number	8006	N	162	Yes	Yes	No	
HH	Parcel within 200 ft from marine	8007	B	163	Yes	Yes	No	
HH	System is within 100 ft of stream	8008	B	164	Yes	Yes	No	
HH	HWPMap boundary bisects parcel	8009	B	165	Yes	Yes	No	
HH	Mail returned	8010	B	166	Yes	Yes	No	
HH	Review requested	8011	B	167	Yes	Yes	No	
HH	Training notice requested	8012	B	168	Yes	Yes	No	
HH	Record Drawing Sent	1340	D	288	Yes	No	No	
HH	1st Qrt Fecal Coliform	1059	A	300	Yes	No	No	
HH	Date Bacti 1st Qrt	1260	D	301	No	No	No	
HH	2nd Qrt. Fecal Coliform	1062	A	302	Yes	No	No	
HH	Date Bacti 2nd Qrt	1261	D	303	No	No	No	
HH	3rd Qrt. Fecal Coliform	1070	A	304	Yes	No	No	
HH	Date Bacti 3rd Qrt	1262	D	305	No	No	No	
HH	4th Qrt. Fecal Coliform	1067	A	306	Yes	No	No	
HH	Date Bacti 4th Qrt	1263	D	307	No	No	No	
HH	TSS/BOD required?	1333	B No	309	Yes	No	No	
HH	No Permit	563	B	402				
HH	Annual TSS	1114	A	625	Yes	No	No	
HH	Annual BOD	1115	A	630	Yes	No	No	
HH	Annual TSS/BOD Date	1116	D	635	Yes	No	No	
HH	Follow Up 1 TSS	1117	A	640	Yes	No	No	
HH	Follow Up 1 BOD	1118	A	645	Yes	No	No	
HH	Date Follow Up TSS / BOD	1119	D	650	Yes	No	No	
HH	Follow Up 1 Fecal Coliform	1120	A	655	Yes	No	No	
HH	Date Bacti Follow Up 1	1121	D	660	Yes	No	No	
HH	Follow Up 2 Fecal Coliform	1122	A	665	Yes	No	No	
HH	Date Bacti Follow Up 2	1123	D	670	Yes	No	No	
HH	Property Access Issues	1204	A	820				

77 Rows Retrieved.

## **APPENDIX B**

### ***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 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 30<sup>th</sup> of each year.

For applications received by April 30<sup>th</sup>, the Director will issue a letter of determination by June 30<sup>th</sup>. 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.

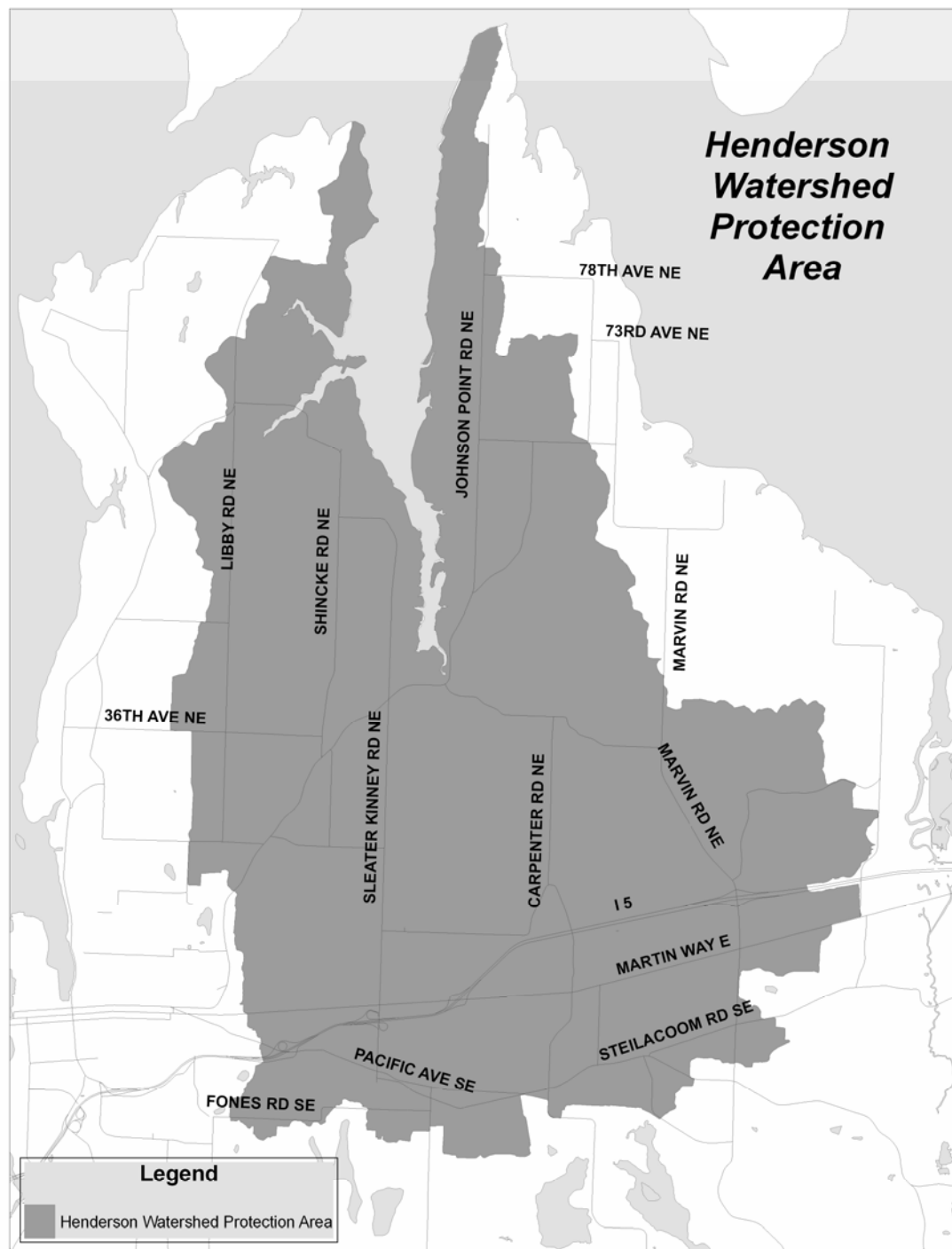
6. **Corrections and Adjustments.** As new information is obtained and, based on the adopted policies, procedures, and program criteria, the health officer may make appropriate adjustments and

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.

## Henderson Watershed Protection Area Map



## **APPENDIX C**

### Process for Evaluation of Potential Marine Recovery Areas (MRA's) and Local Management Areas (LMA's)

March 15, 2007

#### **A. *Objective:***

- ❑ Identify any areas where OSS could pose an increased public health risk, including shellfish protection districts, shellfish growing areas, vulnerable aquifers, sole source aquifers, area where nitrogen has been designated as a contaminant of concern, and others.
- ❑ Determine areas where Marine Recovery Areas should be designated because OSS are a *significant factor contributing to concerns* a) associated with the degradation of shellfish growing areas, or b) marine waters listed for low dissolved oxygen, or c) marine waters listed for contamination with fecal coliform, or d) where nitrogen has been identified as a contaminant of concern.
- ❑ For an MRA, assess and include those land areas where existing on-site sewage disposal systems may affect water quality in the marine recovery area.

#### **B. *Materials Reviewed:***

- DOH Early Warning Reports
- DOH Sanitary Surveys
- TMDL reports for Kennedy Creek and Woodland Creek
- 303d List for Thurston County marine areas and their tributaries
- Shellfish harvesting area classification maps
- Thurston County elevated nitrate and hot spot maps
- Thurston County surface water quality reports
- Sewer utility service area maps for Olympia and Lacey
- PSAT South Puget Sound Forum Indicators Report
- Henderson Inlet and Nisqually Reach Shellfish Protection Districts Implementation Work Plan
- Cooper Point Wastewater Facilities Plan (1999)
- McAllister GSA Report (1990)

## **APPENDIX D**

### **MARINE RECOVERY AREA AND LOCAL MANAGEMENT AREA DESIGNATION TOOL**

#### **Local Management Plans**

The health officer shall develop a written plan that will provide guidance to the local health jurisdiction regarding development and management activities for all OSS within the jurisdiction. The plan must specify how the local health jurisdiction will, among other things:

- ☐ Identify any areas where OSS could pose an increased public health risk, including shellfish protection districts, shellfish growing areas, sole source aquifers, area where nitrogen has been designated as a contaminant of concern, and others.
- ☐ Identify operation, maintenance and monitoring requirements commensurate with risks posed by OSS within those areas.

#### **Marine Recovery Areas**

Marine Recovery Areas must be designated when the health officer determines that OSS are a *significant factor contributing to concerns*

- a) associated with the degradation of shellfish growing areas, or
- b) marine waters listed for low dissolved oxygen, or
- c) marine waters listed for contamination with fecal coliform, or
- d) where nitrogen has been identified as a contaminant of concern.

Any checked "yes" would designate the location as a MRA.

#### **Totten Inlet**

- |                          |                              |                             |
|--------------------------|------------------------------|-----------------------------|
| Shellfish growing areas? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Marine low DO?           | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Marine fecal coliform?   | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Nitrogen contamination?  | <input type="checkbox"/> Yes | <input type="checkbox"/> No |

#### **Eld Inlet**

- |                          |                              |                             |
|--------------------------|------------------------------|-----------------------------|
| Shellfish growing areas? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Marine low DO?           | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Marine fecal coliform?   | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Nitrogen contamination?  | <input type="checkbox"/> Yes | <input type="checkbox"/> No |

#### **Budd Inlet**

- |                          |                              |                             |
|--------------------------|------------------------------|-----------------------------|
| Shellfish growing areas? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Marine low DO?           | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Marine fecal coliform?   | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Nitrogen contamination?  | <input type="checkbox"/> Yes | <input type="checkbox"/> No |

#### **Henderson Inlet**

- |                          |                              |                             |
|--------------------------|------------------------------|-----------------------------|
| Shellfish growing areas? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Marine low DO?           | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Marine fecal coliform?   | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Nitrogen contamination?  | <input type="checkbox"/> Yes | <input type="checkbox"/> No |

**Dana Passage**

Shellfish growing areas? ☐ Yes ☐ No  
 Marine low DO? ☐ Yes ☐ No  
 Marine fecal coliform? ☐ Yes ☐ No  
 Nitrogen contamination? ☐ Yes ☐ No

**Nisqually Reach**

Shellfish growing areas? ☐ Yes ☐ No  
 Marine low DO? ☐ Yes ☐ No  
 Marine fecal coliform? ☐ Yes ☐ No  
 Nitrogen contamination? ☐ Yes ☐ No

**Areas Posing Increased Public Health Risk****Nitrates**

Grand Mound  
 Rochester  
 Yelm

**Surface Waters Used for Drinking Water**

Summit Lake

**Area: Budd – Deschutes**

Criteria	Yes or No	Comments
Shellfish growing areas?	Yes	No commercial areas, but limited recreational on private tide lands
Marine low DO?	Yes	Lower Budd Inlet on 303d list for dissolved oxygen. TMDL for Deschutes will begin in 2007, which should help identify causes of water quality concerns.
Marine fecal coliform?	Yes	
Nitrogen contamination?	Yes	
Are OSS a significant factor?	???	Southern Budd Inlet dominated by urban development that is served by LOTT sewage treatment plant and aging stormwater infrastructure. OSS may be having impact to tributaries, such as Chamber's, Indian and Moxlie Creeks.
Could OSS pose an increased public health risk?	???	

Additional Notes: Watershed is large and complex. Certain sub-basins may be impacted by OSS, but there are other potential sources for fecal coliform pollution and link to OSS isn't clear at this time. Recommend that this be evaluated further as part of or at the conclusion of the TMDL process.



Should this be a Sensitive Area? Yes ☐ No ☐ Evaluate Further XXX  
 Should this be an MRA? Yes ☐ No XXX Evaluate Further ☐

### Area: Eld Inlet

Criteria	Yes or No	Comments
Shellfish growing areas?	Yes	
Marine low DO?	No	
Marine fecal coliform?	Yes	Marine water quality is declining. McLane and Perry Creeks are 303d listed for fecal coliform
Nitrogen contamination?	???	
Are OSS a significant factor?	Yes <sup>3</sup>	Intensive on-site monitoring and corrective efforts in 1990's, along with agriculture and stormwater management improvements, lead to WQ improvements and re-opening of shellfish harvesting areas. Water quality is worsening, coinciding with lack of OSS survey programs.
Could OSS pose an increased public health risk?	Yes	Yes.

Additional Notes: Cooper Point stakeholders recommended risk based O&M program (similar to what was adopted for Henderson) in June 1999 based on work done to evaluate on-site risks and sewer strategy for the area.

Should this be a Sensitive Area? Yes ☐ No ☐ Evaluate Further XXX  
 Should this be an MRA? Yes ☐ No ☐ Evaluate Further XXX

### Area: Henderson Inlet

Criteria	Yes or No	Comments
Shellfish growing areas?	Yes	Shellfish downgrades led to creation of shellfish district in 2001 and Henderson WPA in 2006
Marine low DO?	No	TMDL and 303d show Woodland does not meet dissolved oxygen standards.
Marine fecal coliform?	Yes	Fecal coliform pollution is increasing. Woodland TMDL identifies fecal coliform reductions needed. Sleepy and Woodard Creeks on 303d list for fecal coliform

<sup>3</sup> While it appears OSS and declining water quality conditions in Eld are linked, the advisory committee did not find the available data conclusive, and consequently Eld is recommended for further study.

Nitrogen contamination?	No	
Are OSS a significant factor?	Yes	Identified as significant source in work that resulted in creation shellfish district and WPA
Could OSS pose an increased public health risk?	Yes	

Should this be a Sensitive Area? Yes XXX No      Evaluate Further       
 Should this be an MRA? Yes XXX No      Evaluate Further     

### Area: Nisqually

Criteria	Yes or No	Comments
Shellfish growing areas?	Yes	
Marine low DO?	No	McAllister Creek on 303d list for dissolved oxygen and fecal coliform.
Marine fecal coliform?	Yes	Rising FC levels have resulted in two downgrades in last 6 years
Nitrogen contamination?	No	
Are OSS a significant factor?	Yes	OSS failures linked to downgrade in Luhr Beach area
Could OSS pose an increased public health risk?	Yes	Shellfish Committee identified OSS as cause for concern and recommended enhanced O&M requirements

Notes: Area included in Nisqually Shellfish Protection District boundaries. Henderson Inlet and Nisqually Reach Shellfish Protection Districts Implementation Work Plan recommends that OSS management used for Henderson also be used for this area.

Should this be a Sensitive Area? Yes XXX No      Evaluate Further       
 Should this be an MRA? Yes XXX No      Evaluate Further     

### Area: Scatter Creek - Grand Mound

Criteria	Yes or No	Comments
Nitrate Contamination	Yes	Data shows elevated nitrate and fecal coliform levels down gradient from some areas with higher density OSS development. Data difficult to interpret because of extensive agricultural practices in area that can also result in nitrate contamination of groundwater.
Bacterial Contamination (Fecal coliform or coliform)	Yes	
Alternative Source Available?	No	Aquifer in unconfined.

Do OSS substantially contribute to ground water pollution?	Yes	Data shows elevated nitrate and fecal coliform levels down gradient from some areas with higher density OSS development
Do existing OSS or proposed OSS densities pose an increased public health risk?	Possibly.	

Additional Notes: What are "operation, maintenance and monitoring requirements commensurate with risks posed by OSS" within an area where OSS result in increased nitrate? Future DOH guidance document may be useful in making a final determination for this area.

Should this be a Sensitive Area? Yes \_\_\_ No \_\_\_ Evaluate Further XXX

### **Area: SE Lacey Area – McAllister**

Criteria	Yes or No	Comments
Nitrate Contamination	Yes	Work done for McAllister GSA shows elevated nitrate levels in part associated with OSS development in addition to agricultural impacts
Bacterial Contamination (Fecal coliform or coliform)	No	
Alternative Source Available?	No	Public water supplies available in some areas. Minimal contamination of deeper aquifer.
Do OSS substantially contribute to ground water pollution?	Yes	Somewhat – earlier OSS densities resulted in groundwater pollution.
Do existing OSS or proposed OSS densities pose an increased public health risk?	Yes	Density limits placed on area in 1990 for new development.

Additional Notes: Area is within McAllister GSA. What are "operation, maintenance and monitoring requirements commensurate with risks posed by OSS" within an area where OSS result in increased nitrate. Future guidance from DOH may be helpful in determining if additional standards are needed.

Should this be a Sensitive Area? Yes \_\_\_ No \_\_\_ Evaluate Further XXX

### **Area: Shana Park/East Olympia**

Criteria	Yes or No	Comments
Nitrate Contamination	Yes	City of Olympia studies conclude OSS may be contributing to groundwater nitrate levels in this area
Bacterial Contamination (Fecal coliform or coliform)	No	

Alternative Source Available?	Yes	Area is served by Olympia and Lacey water supplies.
Do OSS substantially contribute to ground water pollution?	Yes	City of Olympia studies conclude OSS may be contributing to groundwater nitrate levels in this area
Do existing OSS or proposed OSS densities pose an increased public health risk?	Yes	Possibly. City staff ask that this area be studied further as a potential sensitive area.

Additional Notes: Area is down gradient from communities served by on-site systems and a golf course community. City studies indicate nitrate levels are increasing in the area and that OSS are a nitrogen sources. Future guidance from DOH may be helpful in determining if additional standards are needed.

Should this be a Sensitive Area?      Yes \_\_\_\_ No \_\_\_\_ Eval. Further XXX

### Area: Summit Lake

Criteria	Yes or No	Comments
Nitrate Contamination	NO	
Bacterial Contamination (Fecal coliform or coliform)	Yes	Low levels of fecal coliform contamination. Many lake residents treat drinking water as required by county health order.
Alternative Source Available?	No	Wells are typically low capacity or unproductive in the area
Do OSS substantially contribute to ground water pollution?	Yes	Low fecal coliform levels may be due to many non-point sources, include OSS
Do existing OSS or proposed OSS densities pose an increased public health risk?	Possibly.	Area is largely developed. OSS failures could have substantial impact, at least in local area where failure occurs.

Additional Notes: Shallow soils, slopes and small lots make OSS installations and repairs challenging. Summit Lake was originally developed as recreational property. The area is converting from recreational to full time residences. Most homes pump water from the lake as their drinking water source. While water is remarkably clean, a failing system could have substantial public health impacts. Previous effort in 1989 to create public water utility failed.

Should this be a Sensitive Area?      Yes \_\_\_\_ No \_\_\_\_ Evaluate Further XXX

### Area: Totten Inlet

Criteria	Yes or No	Comments
Shellfish growing areas?	Yes	Highly productive commercial shellfish area.
Marine low DO?	No	

Marine fecal coliform?	No	Schneider, Kennedy and Burns Creeks are 303d listed for fecal coliform. Housing density low in these watersheds, and OSS not likely to be significant contributors
Nitrogen contamination?	No	
Are OSS a significant factor?	No	May have localized impacts. Sanitary survey data shows some shoreline area hot spots.
Could OSS pose an increased public health risk?	No	Zoning and housing density not likely to result in significant OSS impacts except in localized areas.

Notes: Overall water quality has been and continues to be very good – no downward trends or declines. Principal tributaries show fecal coliform problems, which are not likely to be OSS related. Totten is highly productive commercial shellfish area.

Should this be a Sensitive Area? Yes ☐ No ☐ Evaluate Further XXX  
 Should this be an MRA? Yes ☐ No XXX Evaluate Further ☐

## **APPENDIX E**

### **MEASURABLE OUTCOMES**

- A. Operational Certificate notices will be sent to owners of OSS whose certificates are to be renewed. Staff will follow up on those who do not respond to the notices or submit inspection and maintenance information timely. Measurable outcomes include:
- Number of operational certificates renewal notices sent during program period.
  - Number/percent of systems issued operational certificates.
- Materials submitted to support renewal of operational certificates will be reviewed for completeness and indications of system problems. Measurable outcomes include:
- Number of certificates evaluated.
  - Number/percent of failing systems.
  - Number/percent of systems requiring minor repairs.
- B. Quality assurance inspections will be conducted on approximately 10% of OSS whose operational certificates are renewed each year. Measurable outcomes include:
- Number of quality assurance inspections completed.
  - Number/percent of inspections where discrepancies are found in certificate renewal documentation.
- C. Workshops will be conducted to train OSS owners who want to be certified to inspect and maintain their sewage system. The workshops cover basic OSS maintenance and monitoring requirements and are six hours in length. This project will provide funding for 36 workshops over 1.5 years. Measurable outcomes include:
- Number of workshops conducted.
  - Number of owner certified to self-inspect.
- D. Technical assistance will be provided to OSS owners with questions about their systems, certification requirements and the interpretation of the monitoring and maintenance results. Measurable outcomes include:
- Number of technical assistance meetings or site visits.
- E. This program will provide staffing for enforcement actions where OSS owners do not comply with program requirements to maintain and inspect their OSS and submit documentation to the department. Measurable outcomes include:
- Number of operational certificates renewal notices sent during program period.
  - Number/percent of second notices sent.
  - Number of system which are flagged as non-conforming.
  - Number/percent of non-conforming systems where enforcement actions are started.
- F. This program will assure that failing OSS are identified and repaired. O&M reports will be reviewed, owners of systems identified as failing will be contacted, and failing systems will be evaluated and repaired. Measurable outcomes include:
- Number of O&M reports that identify failing systems.
  - Number of systems found failing.
  - Number of systems repaired.

## APPENDIX F

### **THURSTON COUNTY SEPTIC PARK**

The use of the Septic Park is part of our OSS Workshops in Thurston County. It is a tool to educate property owners on how a septic system functions.

Funding came from the Shellfish Protection District, Puget Sound Action Team and donations of materials from businesses to construct the park. The approximate cost for the Septic Park was \$12,000.

