On-Site

Sewage Systems

Management Plan

Board of Health Resolution No. 2007-4001
Adopted September 5, 2007
On-Site Sewage Systems Management Plan

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Executive Summary

Pierce County is located in the south Puget Sound region of western Washington State. The 2005 estimate of the population of Pierce County is 755,900. The City of Tacoma (population 198,100) is the largest urban center in the county.

The majority of incorporated areas in Pierce County are served by sanitary sewers, as is a portion of the unincorporated area. However an estimated 80,000 on-site sewage systems (OSS) are currently in use across the county. Many of the existing OSS are located outside planned urban growth boundaries so extension of sewers into these areas is not anticipated.

The combination of a substantial population, a large number of OSS in use and a comprehensive land use plan that excludes sewer extension into some developed areas underscores the importance of continued function of the systems. This can be best assured through an active Operation & Maintenance (O&M) program. The Tacoma-Pierce County Health Department has implemented a progressive O&M program that provides an adequate level of protection to public health and water quality.


Chapter 246-272A WAC (WAC) requires local health jurisdictions to develop a written plan that will provide guidance regarding development and management activities for all OSS within the jurisdiction. The plan is required to address improvements in OSS inventory, inspection record keeping, outreach and education, permitting and inspection enforcement, and operation, monitoring and maintenance to assure proper system function.

Third Substitute House Bill 1458 (now RCW 70.118A) requires health departments for the twelve Puget Sound counties to propose and establish Marine Recovery Areas (MRA) where OSS are a significant factor contributing to concerns associated with marine water quality. RCW 70.118A further requires formulation of a Marine Recovery Area On-Site Strategy that will, by July 1, 2012, demonstrate substantial progress toward the following: locating unknown OSS; ensuring required inspections are performed; locating existing failing OSS; and ensuring necessary repairs are made to failing systems.

This plan was written to fulfill the requirements of both the WAC and RCW 70.118A, and to provide a basis for future development and management of OSS in Pierce County. The plan describes the current Tacoma-Pierce County Health Department O&M program, presents goals and objectives for enhancement of the O&M program and describes actions needed to achieve the plan goals and objectives.

The plan proposes to protect public health, the environment and the longevity of the system through a program of enhanced O&M activities including:

- Expanded OSS Inventory
- Improved O&M Inspection Record Maintenance
• Enhanced Outreach and Education for OSS Owners
• Improved Enforcement of O&M Permitting, OSS Repair and Inspection Requirements
• Identification of Environmentally Sensitive Areas, Including Marine Recovery Areas
• Enhanced O&M Requirements to Protect Environmentally Sensitive Areas
• A Marine Recovery Area On-Site Strategy for Regions with Impaired Marine Water Quality

The plan implementation priorities are established according to the potential for water quality degradation from poorly maintained or failing OSS in different areas of environmental sensitivity. The implementation schedule considers mandated reporting dates contained in RCW 70.118A, local program priorities and local capacity to fund the proposed program enhancements. A phased approach is suggested with the number of phases and duration of implementation dependent on available resources and an assessment of the progress made in each prior phase.
Introduction

The Rules and Regulations of the Washington State Board of Health (Chapter 246-272A-0015 WAC – On-Site Sewage Systems) require all local health jurisdictions (LHJ) to develop a written plan that will provide guidance regarding development and management activities for all on-site sewage systems (OSS) within the jurisdiction. The written plan must specify how the LHJ will accomplish the following tasks:

- Progressively develop and maintain an inventory of all known OSS;
- Identify areas where OSS could pose an increased public health risk in a variety of areas of sensitive water quality ranging from drinking water supplies to public-access swimming beaches to shellfish growing areas;
- Identify operation, monitoring and maintenance (O&M) requirements commensurate with the risks posed by OSS in the identified sensitive areas;
- Facilitate education of homeowners regarding their responsibilities to provide O&M for all OSS within the LHJ;
- Remind and encourage homeowners to complete O&M inspections as required by the WAC;
- Maintain O&M records as required by the WAC;
- Enforce OSS permit application, O&M inspection, and failure repair requirements as defined by the WAC;
- Describe the capacity of the LHJ to adequately fund the plan;
- Assure the plan is developed in coordination with the comprehensive land use plan of the development agency within the LHJ.

In addition to Chapter 246-272A WAC, RCW 70.118A requires LHJ for the twelve Puget Sound counties to propose and establish Marine Recovery Areas (MRA) where OSS are a significant contributor to concerns with marine water quality as identified by the following:

- Shellfish growing areas that have been listed as threatened or downgraded by the Washington State Department of Health (DOH) under Chapter 69.30 RCW;
- Marine waters listed as impaired by the Washington State Department of Ecology under Section 303(d) of the federal Clean Water Act for fecal coliform or low dissolved oxygen;
- Marine waters where nitrogen has been identified as a contaminant of concern by the local health officer.

In addition to identifying MRA, LHJ must then implement a Marine Recovery Area On-Site Strategy that will, by July 1, 2012, demonstrate substantial progress toward the following:

a) locating unknown OSS and ensuring that required inspections are performed to assure they are functioning properly, and repaired, if necessary; and

b) locating existing failing OSS and ensuring that system owners make necessary repairs.
This plan was written to fulfill the requirements of the WAC and RCW 70.118A, and to provide a basis for future development and management of OSS in Pierce County. In this OSS Management Plan, the Tacoma-Pierce County Health Department (TPCHD) identifies proactive steps that should be taken to advance the O&M program beyond its current level to provide additional protection to public health and the environment in Pierce County. The timing and completeness of plan implementation will depend on resources available, progress made as implementation moves forward, and any emerging issues and changing priorities that arise during implementation.

**Current TPCHD OSS Program Activities**

The TPCHD conducts progressive programs of permitting, ongoing O&M and compliance for activities related to on-site sewage systems. The authority for this program comes from Chapter 246-272A WAC – *On-Site Sewage Systems* and the *Land Use Regulation* of the Tacoma-Pierce County Board of Health (Resolution 2002-3411).

The TPCHD OSS program regulates the mandated land use applications through an established comprehensive permitting program. The O&M program has evolved into a risk based program that incorporates permitting, registration, required inspection, and outreach and education. Compliance activities focus on failing OSS and permitting violations. The Compliance program is currently supported by the OSS and O&M programs.

The TPCHD has established both regulatory and advisory partnerships with numerous public and private sector groups. These include public agencies involved in land use planning, utility management and permitting activities. The TPCHD also works in partnership with private sector interests in the real estate, land development, construction, and OSS monitoring and maintenance industries. Together, these participating groups work toward a common goal: a safe and healthy environment in which we can work and live.

**Intent of the O&M Program**

The intent of the O&M program is to protect public health and the environment from adverse impacts by domestic wastewater treatment and disposal. To achieve protection of public health, the environment, and the longevity of the system TPCHD must ensure that all OSS in Pierce County are operated, maintained and monitored in a manner that assures proper function.

**Current O&M Program**

The current O&M program has been successful in assuring that a large number of new and existing OSS receive ongoing operation, monitoring and maintenance. This has generally been accomplished through regulation at a “moment of opportunity” in which the OSS owner is seeking approval for a new or replacement system, or is required to obtain a written Report of System Status to complete a real estate transaction. However, many existing OSS, both known and unknown to TPCHD, remain outside the O&M program because no particular action has occurred with the property to bring the OSS to the attention of TPCHD. This plan proposes a
number of methods to actively enroll additional OSS that are outside of the O&M program at this time.

**OSS Management Plan Goals**

The purpose of this OSS Management Plan is to advance the TPCHD O&M program toward comprehensive coverage of all OSS in Pierce County, to provide data for more informed decisions about the present and future use and management of OSS, and to meet the requirements of the WAC and RCW 70.118A. To achieve this purpose, multiple goals have been established:

1. Begin a comprehensive inventory to locate and index existing unknown OSS by tax parcel number
2. Improve the means by which O&M inspection records are received, maintained and disseminated to interested parties
3. Expand outreach and education efforts so more OSS owners are aware of the type, location and maintenance requirements of their system and better understand the benefits of ongoing O&M
4. Increase compliance enforcement for operation, monitoring and maintenance requirements, and the identification and repair of failing OSS
5. Review areas currently recognized as environmentally sensitive to determine whether existing protection measures are adequate, and determine whether new sensitive areas should be designated.
6. Coordinate with and augment existing programs that provide long-term protection for groundwater, surface water and marine resources, add staffing and new program activities to increase public health protection.
7. Develop long-term funding and create local capacity to implement and sustain the needed O&M program improvements

The following sections outlines the current activities in specific O&M program areas, then propose actions to reach the goals described above.
Database Enhancement

Current OSS Inventory

The TPCHD currently maintains a database of On-Site Sewage Systems (OSS) using Decade Software Company’s Envision for Windows. OSS information is entered into the database at the time of application to install, repair or review a system for remodel of a structure or sale of real estate. A variety of site-specific information is stored in Envision including application type, date of application, date of permit issue, date of installation and final inspection, designer name, installation company name and system components present. When a site is in a sensitive area, such as a Shellfish Protection District, the record is flagged.

The Envision database uses several file search keys; most commonly the tax parcel number, street address and applicant name. Other information is searchable but some of those fields were not used consistently at the time of the original database’s inception in 1992. Only data entered since 2001 can be considered essentially complete, accurate and following strict data entry standards.

A small portion of the Envision database is updated monthly for billing purposes on certain system types and uses. The monthly update primarily concerns current property ownership so the responsible party will be notified of ongoing inspection and maintenance requirements associated with the OSS.

However, the majority of the data entries in Envision are only updated when further application is made for OSS repair, remodel of a structure or sale of real estate. Inspection and maintenance records are also updated whenever inspection information is presented to TPCHD. When updates are performed, action dates, such as application date, date of system alteration, etc., and any changes in OSS components or maintenance requirements, are noted. The entire Envision database is backed up daily along with the rest of the TPCHD information network.

The database contains information on approximately 32,000 (40 percent) out of the estimated 80,000 OSS in Pierce County. Sites are added as additional properties are developed and when older properties that were developed prior to the introduction of electronic databases are redeveloped, repaired, remodeled or reviewed for various reasons.

A variety of information can be derived from the Envision database. One example is site development information that is cross-linked to OSS component type, creating a profile of OSS installed in a particular period or region. Another example is that a profile of inspection history can be provided at levels ranging from an individual property to a region, such as a Shellfish Protection District, focused on a particular component used county-wide.

The TPCHD maintains another “database” in Microsoft Access that contains the search terms and locations of scanned images for properties developed prior to 1992 (Pre’92). This database searches for scanned files on approximately 50,000 properties, some of which are also represented in the Envision database. However, the indexing of most Pre’92 files does not
include a parcel number, so the number of discrete parcels represented in Pre’92 can only be estimated.

The Pre’92 database has recently been modified to allow insertion of a parcel number, address correction, and other keyword additions. In this way, better linkages with Envision can be established as existing OSS are repaired or reviewed for remodel of a structure or sale of real estate.

**Objectives to Improve OSS Inventory**

1. Index OSS records by tax parcel number for the property on which they are located
2. Utilize routine site visits, currently made by staff for other purposes, to increase the OSS inventory
3. Locate unknown OSS and add those systems to the inventory

**Actions to Improve OSS Inventory**

In addition to current means used to inventory OSS and track ongoing site development activity, the following activities will improve and increase the TPCHD OSS database:

**Assignment of Staff to Update the Pre’92 Database:** Staff will be assigned to review files in the Pre’92 image database and add the parcel number to the indexing. This will allow linkage to other records on the same property making record searches faster and easier.

**Addition of OSS Inventory to Ongoing Surveys:** In the course of their current duties, TPCHD staff visit many properties throughout Pierce County. Many of the sites visited by staff are not yet registered in Envision. For example: staff conducting sanitary survey and pollution source identification work in areas of water quality concern, such as shellfish growing areas, will add questions about OSS type and maintenance activity to their survey forms. The survey procedure will be modified to include entry of this information into Envision adding to the OSS inventory.

**Improved Use of Non-Permitting Data:** When staff receive information such as reports of septic tank decommissioning, indicating a property has been connected to municipal sewer and no longer uses an OSS, the decommissioning will be noted in the Envision database. Actions such as this will prevent confusion about the active status of an OSS and save staff time.

**Property Owner / OSS User Surveys:** Additional OSS information will be obtained through a mail or phone survey. Owners of unknown and assumed OSS will be contacted to ascertain system type, when the system was last inspected or pumped, and to offer educational materials. Responses to these surveys will be used to add the systems to the Envision database.

**Assignment of Staff to Locate Unknown High and Moderate Risk OSS:** Commercial and multifamily OSS are currently added to the Envision database when application is made for review, replacement or modification to the OSS. Additional staff will be assigned to use tax
records to identify and register existing “unknown” commercial and multifamily OSS in the Envision database. This action will provide a means to enforce O&M permitting and inspection requirements on high and moderate risk OSS currently unknown to TPCHD. This will also provide a means to furnish educational materials to the OSS owner / user.

**Current O&M Record Maintenance**

In addition to tracking permit activities, the TPCHD uses Envision for Windows to track results of inspections performed by private-sector maintenance companies and TPCHD staff. Copies of all inspections performed by private-sector inspection companies for O&M permit renewal or sale of real estate must be submitted to TPCHD. All OSS inspections conducted by TPCHD staff are also entered in the Envision database. To assure prompt investigation and repair, the TPCHD Land Use Regulation requires timely reporting of OSS failures noted by certified O&M inspection and pumping personnel, regardless of the location or assumed sensitivity of nearby water resources.

Inspection results are manually entered into Envision on forms linked to the site address and parcel number. Information entered includes inspection date, inspector name and company, septic tank scum and sludge levels, condition of all components, including the drainfield area, and others. Through repeated inspections a maintenance history is developed for an OSS.

Individual sites can be queried for an inspection history, or inspection of a particular region or component type can be summarized through custom reports. At this time, inspection information is only available to TPCHD staff. Future program developments are needed to make this information accessible to industry and the general public.

The frequency of inspection varies depending on the components present, the type of development on the property and how often the property title transfers to another party. OSS considered high risk are inspected annually, moderate risk systems are inspected on a triennial basis. Low risk OSS do not have a prescribed inspection interval. All OSS, regardless of assumed risk level are inspected prior to sale to another party. The risk levels for various OSS are described in some detail in the section on operation, monitoring and maintenance of OSS in sensitive areas.

**Objectives to Improve O&M Record Maintenance**

1. Develop a means to report O&M inspection data to TPCHD electronically.
2. Add routine, non-permitting inspection and maintenance data to the OSS database.
3. Improve access to O&M data for TPCHD staff, OSS professionals and the public.

**Actions to Improve O&M Record Maintenance**

**Electronic Reporting of Maintenance Activities**: An on-line reporting form will be created for submission of inspection and maintenance data from OSS pumping and inspection companies.
This will replace the current method that relies on submission of paper forms and requires data entry by hand. To ensure data quality, consistency and completeness, TPCHD staff will develop a quality assurance/quality control protocol.

**Reporting of Routine Inspection and Maintenance Activities**
Prior to this plan, only inspection records that are submitted to meet submittal requirements, such as O&M permit renewal, are routinely data entered. Through electronic reporting, all inspection and maintenance will be automatically uploaded. To assure compliance with inspection requirements and quality of service, periodic random sampling will be conducted via telephone follow-up or site visits. This will substantially increase the volume of maintenance information readily available to staff, industry and the public.

**Convenient Access to Inspection/Maintenance Data:** TPCHD staff will develop a web-access interface with OSS maintenance records. TPCHD staff, OSS service companies and the general public will have monitored access to inspection and maintenance data on all OSS in Pierce County. This access will allow anyone to enter a parcel number or click on a parcel map to obtain comprehensive information on the OSS on the property. Issues of privacy and data quality control will be overcome by careful development of the reporting tool and ongoing oversight by TPCHD staff.
Outreach and Education

Current Outreach and Education Activities

As part of the TPCHD Risk-Based O&M program, high and moderate risk OSS must be permitted either annually or triennially. Through ongoing permitting, owners of high and moderate risk OSS are periodically reminded of their responsibility to correctly operate, monitor and maintain their OSS. As part of the permitting process, a list of certified service companies is sent to the OSS owner. Additional information is offered, including a website, access to as-built drawings on-line, an e-mailbox and phone numbers where individuals can obtain further assistance.

Owners of all OSS receive a packet of information prior to property title transfer with instructions to pass it on to the new owner. The packet includes a copy of the system as-built drawing, if available, a DVD explaining the proper use and maintenance needs of OSS, and three publications produced by the University of Washington Sea Grant program: Septic Sense, Scents, Cents; Landscaping Your Septic System; and Pumping Your Septic Tank.

Educational workshops are offered in partnership with a local power and water company at least twice per year to property owners. These workshops are well attended, however attendees are generally from only that company’s customer base. Short presentations are frequently given to local real estate offices to promote the Report of System Status program.

Objectives to Improve Outreach and Education

1. Inform more OSS owners about the benefits of O&M
2. Improve marketing and education tools for the O&M program
3. Inform OSS owners about ongoing O&M requirements
4. Expand outreach and education efforts for owners of commercial OSS

Actions to Improve Outreach and Education

Expand the Distribution of the OSS Information Packet: Currently, TPCHD staff distribute information packets for the benefit of new property owners at the time of real estate purchase. Other packets are distributed to interested parties on request. This program will be expanded to include owners of all recently installed or reviewed OSS, whether the purpose was new construction, repair or alteration. Field staff will also carry packets with them for distribution during site visits for purposes not directly related to OSS inspection and permitting, such as water quality testing and well surveys.

Advertise the Availability of Staff for Workshops and Presentations: Using various means, including e-mails, web posting, flyers at community events and other means yet to be
determined, TPCHD will let it be known that staff are available to conduct workshops and provide presentations on various aspects of OSS review, inspection and O&M.

**Update and Improve Display Materials and Handouts:** Many of the educational materials currently used by TPCHD and many other local health departments were developed over 10 years ago. While much of the information remains relevant, new technologies and appurtenances have come into use that are not included in the dated materials in circulation. For example, time-dosed systems, Aerobic Treatment Units and Ultraviolet Disinfection have come into widespread use in Pierce County and elsewhere. However, none of the educational materials known to TPCHD include information on these newer technologies. Staff will search for new materials and, if possible, work with other agencies and the OSS industry to create updated materials to include recent innovations.

**Conduct Follow-Up Surveys After Distribution of Information Packets:** To evaluate the value of the information packet to the OSS owner/user, a follow-up survey will be sent by mail to a sample of packet recipients. The survey will encourage OSS owners to go to a web site to complete a survey and ask for more information and materials as needed. This will help evaluate the packet contents, reinforce the best management practices emphasized and verify that the owner did receive the packet.

**Increase Use of the TPCHD Web Site for Information Distribution:** O&M and permitting information and various links to outside resources are already posted on the TPCHD web site, but improvements are needed. A variety of forms are used in the TPCHD OSS and O&M programs that are currently available only from TPCHD or only web-posted as printable versions. Forms that can be completed on-line and either printed for submittal with other documents or submitted directly via the web site will be developed. Staff will also explore the possibility of streaming video from the TPCHD web site, allowing browsers to view presentations that are now available only on DVD.

**Show Future Maintenance Requirements on OSS Documents Distributed to the Public:** As a reminder of the practical and regulatory maintenance requirements for OSS, particularly those employing complex technologies, the ongoing O&M requirements will be shown on various documents released to the public. These include approved designs, installation permits, as-built drawings and Reports of System Status. With this information widely available, all parties in a property transaction will know the system’s O&M requirements.

**Develop Educational Materials for Commercial Properties Using OSS:** Few of the educational materials developed for OSS specifically discuss the potential impacts of wastes from commercial activities on the sewage system and the environment. Additional materials are needed to complement current programs that seek to reduce contamination from potentially hazardous products and wastes. New materials will be obtained or developed to inform commercial OSS users that even small amounts of potentially hazardous substances can not only impair the function of an OSS, but also possibly reach the region’s drinking water supply. This is especially relevant in areas of sensitive groundwater resources.
Enforcement

Current Enforcement of OSS Repair

Failing OSS are generally located via sanitary survey work in sensitive areas or are brought to the attention of TPCHD through complaints from the public. Investigating and enforcing repair of failing OSS is a high priority for the TPCHD Compliance program.

Once a failing OSS is identified, Compliance staff initiate an enforcement process that includes letters to the property owner, posting a warning sign on the front door if the structure is unoccupied, and referral to the Pierce County Prosecuting Attorney if the failure is not resolved in a timely manner. Compliance and OSS permitting staff provide technical assistance to the property owner to resolve the failing OSS.

In all cases, these efforts to achieve compliance result in repair of the system, connection to sewer, termination of system use until it is repaired, or criminal prosecution in which the courts force resolution of the failure. Staffing for investigating failing OSS is critical and ongoing funding for the Compliance program is essential.

Permitting and O&M Requirements

At the TPCHD, OSS permitting requirements come in several forms. Activities requiring a permit include OSS construction such as new installations, alterations, new connections, expansions and repairs. Permitting also includes ongoing permit requirements such as operation, monitoring and maintenance requirements for OSS with enhanced treatment, proprietary technology or other high and moderate risk uses. In addition, the owner’s responsibilities for operation, monitoring and maintenance of all OSS are described in Chapter 246-272-0270 WAC. The current risk-based O&M program at TPCHD does not require the level of oversight for low risk OSS as does the WAC. However, methods need to be developed to notify OSS owners regarding their O&M obligations under the state rule.

Current Enforcement of Permitting and O&M Requirements

In addition to locating failing OSS, Compliance staff investigate reports of any unauthorized OSS installation, modification or repair work. However successful enforcement requires clear evidence of wrongdoing including photographs, receipts for work or materials, testimony from neighbors or participants in the work and careful documentation of the findings of investigation.

Obtaining evidence, particularly photographs and eyewitness accounts, requires a timely response to a report of unauthorized work in progress. Compliance staff have a variety of potential violations to investigate, making it difficult to respond quickly to reports of unauthorized work in progress. Staff are needed to dedicate time to investigation and follow up of certification and permit violations.

The TPCHD O&M permitting requirements for moderate and high risk OSS are enforced through a process that begins with invoicing property owners. The process includes notices to
the property owner as a reminder that inspection and maintenance is required. After appropriate notice, late fees are added to delinquent accounts. For most OSS owners, the final enforcement step, if necessary, is recording of a noncompliance notice with the Pierce County Auditor. In an extreme case, where a lack of OSS maintenance and monitoring could lead to significant risk to public health, referral to the Pierce County Prosecuting Attorney is an option.

At the present time, not all high and moderate risk OSS are in the TPCHD O&M program. Many of these OSS pre-date the O&M program and need to be identified so appropriate operation, monitoring and maintenance requirements can be enforced. Additional staff time is needed to enforce O&M requirements once these OSS are identified.

**Objectives to Improve Enforcement**

1. Dedicate permanent funding to sustain the compliance program
2. Improve enforcement regulations for OSS inspection and permitting compliance
3. Improve enforcement of certification and permitting requirements for O&M contractors
4. Increase OSS owner awareness of O&M requirements

**Actions to Improve Enforcement**

*Continue to Prioritize and Provide Full Support for Correction of Failing OSS:* The current program priority to enforce correction of failing OSS is clear. However, consistent dedicated funding is required to enforce timely repair of failing OSS. Staff are evaluating funding options.

*Strengthen Enforcement Tools for OSS Service/Construction Compliance:* Current TPCHD regulations regarding certification and permitting requirements will be rewritten to strengthen enforcement and clarify contractor responsibilities. Enforcement tools will be developed to facilitate certification and permitting enforcement.

*Assign Dedicated Staff to Investigate Unauthorized OSS Service and Construction:* Staff will be assigned to investigate reports of unauthorized work and document the cases for enforcement actions. This program will also be assigned to coordinate testing and certification of contractors installing and servicing OSS.

*Coordinate O&M Permit Renewal Compliance with OSS Permitting Compliance:* Staff time will be committed to follow-up on O&M permit renewal requirements. Reports generated from the TPCHD database will determine which sites are out of compliance and require additional notices or enforcement. Staff for OSS permitting compliance will follow up on O&M renewal compliance.

*Notify OSS Owners Regarding Periodic Maintenance Under Chapter 246-272-0270 WAC:* Service reminders and other education and outreach materials will be modified to remind owners of moderate and low risk OSS that, under the WAC, they are required to periodically inspect and maintain their systems. A means to track the O&M of low risk OSS and report the results to DOH will be developed.
Identification of Sensitive Areas

Pierce County Water Resources

Pierce County is located in the south Puget Sound region of western Washington State. The current population of Pierce County is 755,900 (2005 data from the Washington State Office of Financial Management) and the City of Tacoma (population 198,100) is the largest urban center in the county. (Figure 1)

The majority of the incorporated areas in Pierce County are served by sanitary sewer, however OSS exist in some incorporated areas that pre-date sewers. Many of the more recently developed areas of unincorporated Pierce County, particularly in areas of high-density commercial growth, are also served by sanitary sewer.

Despite the widespread use of sanitary sewer, as many as 80,000 OSS are known or assumed to serve both residential and commercial development across Pierce County. While the exact number is not known, up to 30 percent of the population may depend on OSS for wastewater treatment and disposal.

Pierce County is fortunate to have extensive fresh and marine water resources from which the population derives a variety of benefits including withdrawal of drinking water, recreational activities, fish and shellfish harvest and many more. With these abundant water resources comes the responsibility to prevent their degradation and protect the health and safety of the people using them.

Together, numerous local, state and federal agencies, organizations and tribes monitor and protect the waters of Pierce County. These agencies include the TPCHD, Pierce County Public Works and Utilities, the Pierce Conservation District, many incorporated municipalities, and the Washington State Departments of Health and Ecology. Primary responsibility for storm water quality in unincorporated Pierce County rests with Pierce County Public Works and Utilities, with assistance provided by TPCHD and the others, depending on jurisdictional boundaries.
Figure 1 – Map of Pierce County, Washington
Existing Sensitive Areas

The TPCHD has no formal definition of the term *Sensitive Area*, but for the purpose of this document any region where water quality degradation could pose an increased health risk will be considered a Sensitive Area. Generally, the activities and uses of water resources recommended for protection by Chapter 246-272A-0015 WAC encompass the areas most commonly considered sensitive. The following paragraphs discuss the sensitive areas thus far identified in Pierce County. Other potential sensitive areas described in Chapter 246-272A-0015, such as wetland areas under production of crops for human consumption and areas where nitrogen has been identified as a contaminant of concern, are generally not found in Pierce County. Frequently flooded areas are closely regulated by Pierce County Planning and Land Services and, through cooperation from TPCHD and other local agencies, OSS are not a significant concern in these areas.

Shellfish Harvest

The western portion of Pierce County contains numerous commercial and recreational shellfish harvest areas, mostly located on the Key Peninsula, Anderson Island and Fox Island. Population density in the uplands adjacent to these areas is relatively low, but nearly all development depends on OSS for wastewater treatment and disposal. In addition, these areas rely exclusively on ground water as the source of drinking water.

Shellfish harvest in a number of these areas is limited due to less than optimal bacterial water quality. These areas are classified ‘Prohibited’, ‘Restricted’ or ‘Conditional’ by DOH. However, many of the areas have sufficient water quality to be classified ‘Approved’ and open year round. In spite of good bacterial water quality, blooms of the naturally occurring organism that causes Paralytic Shellfish Poisoning restricts harvest in at least some portion of Pierce County almost every year. Also, some of the recreational harvest sites in the county are periodically closed by the Washington State Department of Fish and Wildlife for resource conservation. (Figure 2)

Public-Access Swimming Beaches

There are 17 major swimming beaches with acknowledged public access in Pierce County, primarily sited in county, city or state parks. Six of the public swimming beaches are on freshwater lakes, 11 are on Puget Sound. Eight of the 17 swimming beaches are located in areas where development relies on OSS for wastewater treatment and disposal. (Figure 3)

Groundwater Protection

Pierce County contains some or all of four Water Resource Inventory Areas: WRIA 10 (Puyallup), WRIA 11 (Nisqually), WRIA 12 (Chambers-Clover Creeks) and WRIA 15 (Kitsap). Each of these WRIAs have an active watershed council working to implement a water resource protection plan. Each plan contains action items promoting O&M in coordination with TPCHD. (Figure 4)

The EPA has designated a large portion of Central Pierce County as a Sole Source Aquifer. Much of this area is also classified as Aquifer Recharge Areas under Pierce County Critical Areas Regulations. The many Aquifer Recharge Areas include Wellhead Protection Areas
Figure 2 – Map of Commercial and Recreational Shellfish Harvest Areas
Figure 3 – Map of Public Swimming Beached in Pierce County
Figure 4 – Map of Pierce County Water Resource Inventory Areas

The map features are approximate and are intended only to provide an indication of said feature. Additional areas that have not been mapped may be present. This is not a survey. The County assumes no liability for variations ascertained by actual survey. ALL DATA IS EXPRESSLY PROVIDED "AS IS AND "WITH ALL FAULTS". The County makes no warranty of fitness for a particular purpose.
established around large public water wells. Nearly all of Pierce County relies on groundwater for domestic water supply. Only a few municipalities, mainly the City of Tacoma, utilize surface water resources in addition to groundwater.

**Current Programs to Protect Sensitive Areas**

**Shellfish Areas**
To protect public health and water quality in shellfish harvest areas, TPCHD, Pierce County Water Programs and the Pierce Conservation District work collaboratively through a formalized arrangement called the Pierce County Shellfish Partners. When a participating agency identifies a contaminant source, the appropriate agency is notified to resolve the issue. When the source is a failing OSS, the TPCHD Compliance program takes the lead to enforce repair.

As part of this collaborative effort TPCHD conducts sanitary surveys and water quality sampling in shellfish areas. Sanitary surveys include examination of the drainfield area, dye testing of the OSS if necessary to evaluate the system function and interview of the occupant regarding operation and maintenance of the system. There are currently 10 shellfish areas where extensive survey and water quality investigation are routinely conducted.

Two shellfish areas are surveyed annually by TPCHD, with each area subject to survey on a five-year rotation. Water quality sampling is conducted at least annually in the other eight shellfish areas not in the current year’s survey rotation.

With support from the DOH, TPCHD staff collects shellfish samples from at least six locations for Paralytic Shellfish Poisoning analysis. This program is conducted from May through October each year. If levels of toxin in samples exceed action levels, warning signs are posted until a sufficient number of samples show that toxin levels are below the action level.

**Public-Access Swimming Beaches**
Generally, 17 public-access swimming beaches are sampled weekly or biweekly from late May through early September. The number of beaches sampled and the frequency of sampling varies based on funding and the results of previous monitoring efforts. Beaches showing high bacteria counts are posted with an advisory against swimming. The posting is removed after a sufficient number of samples are collected that indicate reduced bacterial contamination. Any contaminant source identified is referred to the appropriate agency for resolution.

**Other Surface Water Concerns**
Six lakes in Pierce County are routinely monitored for excessive blooms of cyanobacteria (blue-green algae) that may produce a toxin. The period in which the lakes are monitored varies as some lakes have had winter blooms and some have had summer blooms. When monitoring is in progress, the lakes are monitored biweekly. Another 15 to 20 requests to assess algal blooms or similar concerns are received and investigated annually.

**Groundwater Protection**
The many TPCHD programs intended to protect groundwater quality demonstrate the importance of this resource to the community. These programs involve well construction and
decommissioning, underground storage tank removal, EnviroStars, the South Tacoma Groundwater Protection District, long-term groundwater monitoring, hydrogeologic assessments and groundwater nitrate modeling for new developments, and others.

The TPCHD conducts these programs in conjunction with many other local, state and federal agencies, organizations and tribes to prevent contamination and depletion of groundwater resources. These programs are successful in protecting groundwater and must be sustained. However, additional tools would be helpful in preventing unintended groundwater contamination from poorly maintained or failing OSS.

**Benefit of O&M Activities on Sensitive Areas with Different Characteristics**

Chapter 246-272 WAC suggests a variety of environmentally sensitive areas where local health jurisdictions should focus their efforts, including shellfish growing areas, sole source aquifers, areas influencing water recreation facilities, areas adversely impacted by nitrogen, and others.

Water quality in some of the sensitive areas listed above may benefit from increased inspection and maintenance of OSS, chiefly through prevention of failures that may result in sewage reaching adjacent water bodies. In terms of regional water quality, reducing the incidence of surfacing sewage primarily benefits adjacent surface waters used for recreation, aquaculture or other purposes.

Water quality in upland areas, away from surface water, may benefit from changes in regulations for new development or expansion by reducing long-term degradation of groundwater. Increased treatment, such as effluent nitrate reduction or a requirement for larger lot size may provide more environmental protection to regional groundwater resources than is currently achieved through conventional approaches.

Some environmentally sensitive areas may benefit from both of the regulatory approaches discussed above. In addition, any approach to water quality protection will benefit from a program of improved public education and water quality awareness. If an OSS owner/user is informed about the best management practices for OSS use, fewer systems will fail prematurely and fewer contaminants will enter the waste stream and eventually reach regional water resources. It is through owner/user education and cooperation with existing groundwater protection programs that O&M can have the most beneficial impact on groundwater protection.

**Objectives to Improve Sensitive Area Management**

To improve management of existing areas of concern, and to investigate the potential for designation of new sensitive areas, an evaluation of known and prospective areas of impaired or vulnerable water quality is proposed. The goals of the evaluation process shall be the following:

1. Evaluate the effectiveness of protection measures in existing environmentally sensitive areas.

2. Determine whether new sensitive areas, such as Marine Recovery Areas, are needed.
3. Assure that current and proposed protection measures for sensitive areas are consistent with local planning efforts

**Actions to Improve Sensitive Area Management**

**Review of Existing Sensitive Areas**
If the health officer has a concern that protective measures in any existing sensitive area may be inadequate, staff will evaluate the sensitive area and any protection measures previously implemented. It will be determined whether the protection measures in effect have been successful and, if not, why. Water quality data and other relevant information will be used in the evaluation, depending on the nature of the sensitive area designation.

If necessary, additional protective measures may be proposed and, if approved and resources are provided, implemented to increase protection of public health and water quality. New measures proposed may include additional survey and water quality assessment, changes in land use regulations or O&M requirements. All existing sensitive areas are included in the current O&M program described above in the section entitled Current Programs to Protect Sensitive Areas. Until a review of sensitive areas and protective measures is complete, no additional inspection or management changes are proposed.

**Determine if New Sensitive Areas are Needed**
As required under RCW 70.118A, LHJ must evaluate the need for new environmentally sensitive areas in regions of Pierce County that front on marine shoreline. The process for evaluating sub-watersheds on Puget Sound for designation as Marine Recovery Areas is discussed in detail in the section on Marine Recovery Strategy later in this document.

For areas outside the marine environment, water quality data, section 303 (d) listing and other evaluation criteria similar to those set forth in RCW 70.118A will be used to determine any potential threat to public health and the environment. Additional criteria such as soil depth, location of sewers, density of existing development and age of existing OSS may be used in determining the need for sensitive area designation.

If deemed necessary, new sensitive areas and protective measures will be proposed. If the designation is approved and resources are provided, appropriate measures will be implemented to increase protection of public health and water quality. New measures proposed may include sanitary survey and water quality assessment, changes in land use regulations or O&M requirements.

**Coordination with Local Planning Entities**
The TPCHD routinely works with various programs such as Pierce County Planning and Land Services (PALS) to coordinate policy on land development issues. TPCHD staff often interface with PALS Resource Management (on issues such as wetlands, and other critical resource areas identified in the Pierce County Comprehensive Land Use Plan), Advanced Planning and Current Planning programs. As previously mentioned, Pierce County Water Programs is a participant in water quality assessment, the Shellfish Partners and in Watershed Planning.
Coordination on land development issues begins with the presence of a full-time TPCHD representative at the Pierce County Development Center. TPCHD surface water and OSS program staff communicate directly with Water Programs on water quality and watershed planning issues.

This close relationship with local planning and building authorities is enhanced by the participation of City of Tacoma Environmental Services, the Pierce County Building Official, and Water Programs in the On-Site Sewage Advisory Committee (OSSAC). The OSSAC is a committee sanctioned by the Tacoma-Pierce County Board of Health that has convened many times over the past 15 years to advise TPCHD on county-wide issues, including this OSS Management Plan.

SEPA review
The OSS Management Plan for Pierce County is not exempt from review under SEPA and a checklist has been completed for the plan.
Operation, Monitoring and Maintenance in Sensitive Areas

Current O&M Program

The TPCHD has a Risk-Based O&M program in which high and moderate risk OSS require recurring inspection and permitting. Low risk OSS have no recurring inspection or permitting requirements, but are inspected at the time of sale.

OSS that employ complex, often proprietary, technology or are used to treat a large volume of wastewater are considered high risk. High risk OSS must be inspected by a certified professional and permitted annually. All components of the OSS must be inspected, repairs made and maintenance performed as necessary. The inspection report must be forwarded to TPCHD along with the required renewal fee. This information is then entered into the Envision database.

OSS employing enhanced technologies, such as sand filtration, and those serving small commercial or small multifamily development are considered moderate risk and must be inspected and permitted every three years. The inspection and reporting requirements for moderate risk are the same as for high risk and the inspection information is entered into Envision.

OSS using conventional treatment technology, serving a single-family residence and contained on the property on which the wastewater is generated are considered low risk. Low risk OSS do not require regular inspection or O&M permit renewal. After final inspection following construction, operational inspections of low risk OSS are typically required only when the property title is transferred from one owner to another. Outside of the inspection requirement prior to resale, proper operation, monitoring and maintenance is achieved primarily through education and outreach efforts.

All OSS, regardless of risk level, require inspection by a certified professional and a Report of System Status (RSS) issued by TPCHD prior to sale of real property. To process an application for RSS, TPCHD staff review current and past maintenance information, visit the site to verify the condition and proper use of the OSS, and then issue a report that summarizes the function and current use of the OSS.

No RSS is issued if there are compliance issues with any TPCHD program, if the OSS has significant defects or is failing. These issues must be resolved before a RSS may be issued and the property sold.

Through the RSS each purchaser of real property with an OSS is assured the system is currently working and should continue to function for the foreseeable future. This requirement applies to all OSS but especially serves to provide some level of inspection and maintenance for low risk OSS.

The TPCHD O&M program includes approximately 32,000 existing OSS. Roughly 2,000 are considered high risk, 1,500 are moderate risk, and the remaining 28,500 are low risk.
Approximately 6,000 new or existing OSS are added to the TPCHD database annually. Of the 6,000 added to the database, about 4,000 are added through the RSS requirement.

Inspection, O&M permit renewal and compliance with Report of System Status is enforced through a series of written notices and, eventually, late fees assessed on delinquent accounts. If the property owner fails to comply within 120 days of notification, a Notice of Noncompliance is recorded on the property with the Pierce County Auditor.

**Current O&M Requirements in Sensitive Areas**

The TPCHD risk-based O&M program applies to all of Pierce County, including Sensitive Areas. Hence, inspection at the time of sale, and high and moderate risk OSS inspection and permitting requirements apply to sensitive areas.

As part of the current O&M inspection program, Pierce County’s major shellfish areas are receiving routine water quality assessments and sanitary surveys under the Shellfish Partners.

A pilot project was recently completed in the Clarks Creek drainage basin, in the Puyallup River Watershed. Clarks Creek has numerous 303 (d) listings for impaired water quality, including fecal coliform. In the pilot project, water quality assessment and sanitary survey work was undertaken to locate and address sources of bacterial contamination. This project was conducted, in part, to demonstrate that assessment and survey work that is successful in marine areas can be applied to freshwater stream corridors.

Other than the O&M requirements in force countywide, the Clarks Creek pilot project and the Shellfish Partners’ work are the only OSS assessment programs currently underway in Pierce County sensitive areas.

**Objectives for O&M in Sensitive Areas**

To comply with the requirements of RCW 70.118A, the WAC and local priorities, it is proposed that the following objectives be undertaken in sensitive areas:

1. Designate MRA and implement a Marine Recovery Area On-Site Strategy where required by RCW 70.118A
2. Continue work in existing Shellfish Protection Districts and other marine areas in the current Shellfish Partners collaborative effort
3. Expand water quality assessment and sanitary survey work in other areas of water quality concern determined by the local health officer
4. Begin implementation of Database, Education and Enforcement enhancements that support water quality assessment and survey in sensitive areas
Actions to Improve O&M in Sensitive Areas

Prioritize Designation of MRA and Implement a Recovery Strategy
In Marine Recovery Areas, the on-site recovery strategy will be implemented to the extent that funding allows. The proposed marine recovery strategy is discussed in detail in a later section of this plan.

Continue to Support Shellfish Partners
It is important to continue collaborative efforts with Pierce County Shellfish Partners. Some shellfish harvest areas are not included in the Marine Recovery Area proposed in this plan. Added staff support for MRA will help sustain water quality assessment and sanitary survey in all Pierce County shellfish areas.

Increase Water Quality Assessment for Surface Waters of Concern
A water quality assessment team will be added to investigate potential sources of contamination in freshwater bodies with known impairment. Resources will also be provided to conduct limited sanitary surveys and water quality assessment adjacent to public swimming beaches.

Begin Implementation of Support Functions in Sensitive Areas
The support functions discussed earlier in this plan, including Database Enhancements, Outreach and Education, and Enforcement, will be first implemented in sensitive areas. Resources will be gradually added as implementation occurs in priority sensitive areas. The possible approaches to implementation are discussed in a later section of this plan.
Marine Recovery Area On-Site Strategy

Due to the implementation deadline in RCW 70.118A, marine recovery areas will receive the highest priority in plan implementation. The objectives shown below are required to achieve full implementation of the MRA strategy for Pierce County.

Objectives for the TPCHD Marine Recovery Area Strategy

The Marine Recovery Area On-Site Strategy will require the following steps to fulfill the requirements of RCW 70.118A:

1. Develop a methodology for identification of MRA
2. Designate MRA based on current information
3. Implement a five-part MRA On-Site Strategy

Identification of Marine Recovery Areas

The criteria for identifying a potential MRA as detailed in RCW 70.118A are areas where:

- Shellfish areas have been threatened or downgraded by Department of Health under Chapter 69.30 RCW;
- Marine waters are listed by the Department of Ecology under Section 303 (d) of the federal clean water act for fecal coliform or low dissolved oxygen; or
- Marine waters where nitrogen has been identified as a contaminant of concern by the local health officer.

In addition to the above criteria, it must be determined that OSS are a potentially significant factor in the contamination of the impaired water body. The association between contamination and OSS can be established through various means:

- Investigations of failing OSS by the TPCHD Compliance program;
- Water quality assessments and sanitary surveys in shellfish areas; and
- Water quality data from other agencies such as Pierce County Water Programs and DOH.

Key Peninsula Marine Recovery Area

Three relatively small shellfish harvest areas are located along the Gig Harbor Peninsula on the east side of Carr Inlet. However the majority of classified shellfish harvest areas in Pierce County are in waters adjacent to the Key Peninsula, Anderson Island and Fox Island.

At this writing, the only shellfish harvest areas or individual sampling stations that meet one or more criteria for a Marine Recovery Area are adjacent to the Key Peninsula. Two harvest areas are on the DOH Threatened List: Filucy Bay and Burley Lagoon, both located on Carr Inlet. Six
individual marine sample stations are on the Ecology 303(d) list for low dissolved oxygen or high fecal coliform. Four sample stations on Carr Inlet are listed for dissolved oxygen and one is listed for fecal coliform. One sample station on Case Inlet is listed for fecal coliform. (Figure 5)

Except for one small community, OSS are the only available means of wastewater treatment and disposal on the Key Peninsula. Over time, these OSS begin to fail at a low, yet continuous rate as documented by the TPCHD Compliance program, periodic water quality assessments and sanitary surveys conducted by the TPCHD, and through water quality sampling by DOH and Pierce County Water Programs. These programs have verified that a portion of the impairment in shellfish harvest areas and individual sample stations on the Ecology 303(d) list is associated with failing OSS.

It is proposed that the entire Key Peninsula become a Marine Recovery Area for the following reasons:

- Nearly all of the Key Peninsula depends on OSS for wastewater treatment and disposal
- Compliance investigations, water quality assessments and sanitary surveys have found failing OSS throughout the area
- Approximately 79 percent of the land area of the Key Peninsula drains to a DOH-classified shellfish harvest area (Figure 5)
- Private shellfish harvest occurs throughout the Key Peninsula, including the portions not yet classified by DOH
- New shellfish growing areas are being designated by DOH throughout the Key Peninsula

Designation of all the Key Peninsula as a MRA, rather than area-by-area, will be cost-effective and proactive in protecting public health and preventing further downgrades in shellfish harvest classification. To do otherwise would create a patchwork of different regulatory requirements and protection measures across the region.

**Marine Recovery Strategy Implementation**

Implementation of the Marine Recovery Strategy will begin in currently identified shellfish areas, particularly those draining directly to threatened or downgraded under Chapter 69.30 RCW. As implementation progresses, upland areas and those with no direct drainage to shellfish areas will be included in the recovery strategy. Outreach and education efforts and compliance enforcement will be applied area wide.

**OSS Inventory**

The first priority in expanding and improving the OSS inventory will be in MRA. Staff will use the means described in the earlier section on Database Enhancement, such as research and update of existing records, review of Assessor and Building Permit data, and numerous other means to add existing unknown and assumed OSS to the database.
Figure 5 – Map of Key Peninsula Surface Water Management Sub-Basins
Tacoma-Pierce County Board of Health Resolution No. 2007-4001 – OSS Management Plan
Adopted September 5, 2007
O&M Inspection Data
Similarly, measures described in the section on Database Enhancement to improve reporting, storage and retrieval of O&M inspection data, sanitary survey and water quality assessment data will be identified and implemented in MRA. The location of the OSS in a MRA will be noted using a sensitive area designation currently available in the Envision database.

Outreach and Education
The actions proposed in the section on Outreach and Education will first be implemented in MRA. These actions include various means to inform OSS owners about the benefits of O&M, local regulatory requirements for high and moderate risk OSS, state requirements for O&M on all OSS, and resources and educational tools available from TPCHD.

Water Quality Assessment
As proposed in the section on Operation, Monitoring and Maintenance in Sensitive Areas, a new water quality assessment and sanitary survey team will be added to work specifically in the MRA. With this additional water quality team, the interval between survey and assessment in shellfish harvest areas of concern will be shortened and more area will be monitored. This team will follow protocol for water quality sampling and sanitary survey that has been successful in the current Shellfish Partners collaborative effort.

Enforcement
MRA will be given priority for investigation of failing OSS and enforcement of repair and O&M inspection requirements. With additional staff in the field, response to requests for water quality and OSS failure investigation will be faster, and the responding staff will be more familiar with the OSS and water quality issues of the Key Peninsula.
Priorities and Implementation Timeline

Criteria for Prioritization

The following factors have been considered in prioritizing implementation of the proposed enhancements detailed in this plan:

- Local capacity to implement the program enhancements
- Mandatory actions or reporting deadlines established in rule or by statute
- The program enhancement’s potential benefit to public health by reducing human exposure to wastewater
- The importance of a program enhancement in supporting implementation of other priority actions

The implementation priorities established below are grouped by sensitive area. Those areas with the greater potential for poorly maintained or failing OSS to contaminate water resources or expose the public to wastewater are given higher priority. Those areas where there is a less direct connection between OSS and the sensitive water resource are given somewhat lower priority.
Implementation of the “support” elements of this plan, such as Database Enhancements, Outreach and Education, and Enforcement, will better protect public health and Pierce County’s water resources in the context of the sensitive areas. Implementation of the program enhancements described for each sensitive area will require a portion of each support element. Once the support elements are fully implemented for the environmentally sensitive areas, their application to the remainder of Pierce County will follow as part of the existing O&M program.

The following diagram illustrates this relationship between environmentally sensitive areas and core support activities:

![Diagram of environmentally sensitive areas and support activities]

- **Shared Support Resources/Activities**
  - **Database Enhancements**
    - Expand OSS Inventory
      - Update the Pre ’92 database
      - Conduct OSS owner surveys
      - Locate unknown OSS
    - Improve O&M Record Maintenance
      - Implement electronic reporting of OSS maintenance
      - Provide online access to maintenance data
      - Assure data quality
  - **Outreach and Education**
    - Increase Outreach and Education
      - Expand distribution of the OSS information packet
      - Increase outreach opportunities and improve educational tools
      - Extend outreach and education beyond residential OSS owners
  - **Enforcement**
    - Strengthen Enforcement of Permitting and Inspection Requirements
      - Provide permanent funding to enforcement programs
      - Strengthen enforcement regulations
      - Increase OSS owner awareness of O&M inspection requirements
Implementation Priorities

Based on the criteria previously identified, the order of implementation priority is:

1. **Marine Recovery Areas and Existing Shellfish Protection Areas.** RCW 70.118A requires identification of unknown OSS and identification and repair of existing failing OSS by July 1, 2012. The Shellfish Partners collaborative effort has already begun to address some of the priority shellfish areas under this plan.

2. **Public-Access Swimming Beaches and Other Surface Waters of Concern.** Public swimming beaches are a source of primary contact with surface water and are second to shellfish areas only because shellfish can concentrate bacteria and other contaminants. Other surface waters that warrant the allocation of resources to investigate potential sources of contamination may come to the attention of the local health officer.

3. **Groundwater Protection Areas.** Pierce County relies heavily on groundwater as a domestic water source. Many groundwater protection measures are currently in place to protect this valuable resource and these programs are largely successful. However, some aspects of groundwater protection, such as potential contamination from commercial OSS, are not adequately addressed. In addition, ongoing outreach and education is needed as more individuals who formerly were served by sanitary sewer move to areas served by OSS.

Implementation Timeline

The following scenarios describe potential implementation timelines, depending on availability of funding. Further division of the phases may reduce implementation costs per phase, but this approach would likely extend the implementation timeline. Implementation costs for each major sensitive area grouping are shown in the following section on Local Capacity and Resource Requirements.

**Full Funding Scenario**

Should this plan be fully funded at the earliest possible date, implementation should still be phased to use resources more efficiently. It is recommended that the fully funded program quickly ramp up to full implementation over two years with the first priority serving as a template in the first phase. Then the latter two phases described above could be implemented in the second year to prevent overlap in the development of the programs.

Begin Implementation

Phase 1 – Marine Recovery Areas and Existing Shellfish Protection Areas January 1, 2009

Phase 2 – Public-Access Swimming Beaches and Other Surface Waters of Concern and Groundwater Protection Areas January 1, 2010
Moderate-Level Funding Scenario

This scenario is based on at least moderate support for plan implementation. Moderate support would provide enough new funding to allow implementation one phase at a time, yet maintain ongoing funding to continue any previous phases.

Begin Implementation

Phase 1 – Marine Recovery Areas and Existing Shellfish Protection Areas January 1, 2009
Phase 2 – Public-Access Swimming Beaches and Other Surface Waters of Concern January 1, 2010
Phase 3 – Groundwater Protection Areas January 1, 2011

Low-Level Funding Scenario

Should this plan be funded at a low level or unfunded, only the minimum required under the first priority will be implemented. Under this scenario Marine Recovery Areas will be designated as needed and TPCHD will search for the means to implement the inventory and inspection requirements of RCW 70.118A. To protect public health, repair of any failing OSS will be enforced through existing programs.

Begin Implementation

Phase 1 – Marine Recovery Areas January 1, 2010
Phase 2 – Undetermined
Resource Requirements and Local Capacity

Resource Requirements for Program Enhancements

The resource requirements shown below are based on the cost of implementing a program to address an entire environmentally sensitive area, or group of like sensitive areas, all at once. This approach is described in the previous section on Priorities and Implementation Timeline. As previously noted, the resource requirements shown for each category include a share of “pooled” support resources that are difficult to describe as a separate initiative on their own. These support resources are described in the sections leading up to this summation of local capacity and resource requirements. None of the sensitive area-defined categories of program enhancements can be completely implemented without its due portion of these pooled support resources.

The following is a summary of the estimated resource requirements of the proposed program enhancements (projected costs in 2008 dollars):

- Marine Recovery Areas/Shellfish Protection: $400,000
- Public-Access Swimming Beaches/Surface Waters of Concern: $550,000
- Groundwater Protection: $185,000
- Total resource requirement: $1,135,000

Current Programs

As described in earlier sections, TPCHD has a significant role in shellfish protection and the investigation of surface water issues. Staff in various programs actively work on, or in support of, groundwater protection efforts throughout Pierce County. The TPCHD O&M program is actively inventorying OSS, maintaining O&M records and requiring many new and existing OSS to have inspections at appropriate intervals. The TPCHD Compliance program aggressively enforces repair of failing OSS but has a more limited role in enforcing some certification and O&M permit renewal requirements.

Local Capacity

The current TPCHD programs accomplish the above tasks using available staffing and funding sources. The funding source for all of the OSS permitting, O&M and Compliance programs is fee for service based. A significant portion of TPCHD work in the Shellfish Partners collaboration is funded by Pierce County Water Programs, but overall only a small portion of the current water quality protection work described in this plan is supported through funding other than fees.

The constraints of fee for service include economic fluctuations and the cost of fee collection. Economic fluctuations, due to factors such as interest rates or demand for housing, can lead to...
wide swings in current funding levels. In times of increased revenue staffing levels and workloads must be balanced against potential downturns in the future that may result in reduced revenue. In times of decreasing revenues trained staff must be retained, if possible, to avoid processing delays and the expense of training new staff when revenues and workloads return to former levels.

Fee collection at the time of OSS construction, repair or other property improvement is straightforward as the project is initiated by the property owner. While application and permit fees must be maintained at a reasonable level, the public understands that fees are part of the cost of any construction project.

Fee collection becomes more difficult and costly when the owner of an existing OSS is required to renew an operational permit year after year. In the current TPCHD O&M program, OSS owners frequently question the validity of recurring fees, regardless of the fee amount or renewal frequency. The cost of fee collection for O&M permit renewal increases the real cost of the O&M permit significantly; up to three times the fee amount.

Despite the constraints of funding an OSS permitting, O&M and Compliance program through fee for service, TPCHD has been successful in maintaining a progressive program. However, it is a recurring challenge to maintain the current level of service and meet the obligations of the existing programs through fee for service. Under fee for service, funding and program activities must be reassessed at least annually to make adjustments and continue to have a cost-effective program. It may be that the greatest constraint to current program funding is that there is not a fee assessed to all OSS owners to maintain the O&M program.

The program enhancements proposed by this plan to fulfill the requirements of Chapter 246-272A and RCW 70.118A must be funded in addition to the current program so none of the existing measures are lost. In addition, a more progressive approach than fee for service is recommended to reduce the cost of the program enhancements.

Possible Funding Options

The success of this OSS Management Plan will depend on development of a sustainable funding source with a relatively low cost in funding collection. As discussed above, some traditional funding sources have constraints, so new funding sources must be explored as well.

The following are some possible revenue sources have been identified:

- **OSS User Fee:** This is an annual fee charged to the septic system owner and collected by either the Pierce County Assessor or TPCHD. The fee would be charged to all owners of OSS to mitigate the potential public health and environmental impacts of systems throughout Pierce County.

- **County-Wide Water Quality Tax:** This fee would be charged to all households in Pierce County as all county residents benefit from improved water quality.
• Increase Existing Permit Fees: This method would increase fees on all current OSS permitting and O&M services in Pierce County.

• State Funding Support: The cost of improved water quality throughout Washington State, particularly in the Puget Sound Region, would be spread among all citizens of the state. Directly or indirectly all of Washington will benefit from improved water quality.

• Shellfish Harvest Tax: This is a tax on shellfish products harvested in Washington State. Funds collected would go to local programs to improve and protect water quality and sustain the viability of the shellfish industry. One possible model for this fee is the existing local toxics control account.

All potential revenue sources have inherent challenges and will take time to explore and implement. The Tacoma-Pierce County Health Department is committed to ensuring all OSS in Pierce County function properly and do not pose a risk to public health and the environment.