The Gibbons Creek TMDL Implementation Project

I. Project Overview

The Gibbons Creek TMDL Implementation Project was designed to address human sources of fecal coliform bacteria loading in the Gibbons Creek Watershed. This would be accomplished by focusing primarily on:

- Identifying and correcting failing on-site sewage systems (OSSs) in the watershed, and
- Promoting proper operation and maintenance of OSSs located in the watershed.

Approximately 325 homes located within the boundaries of the 8-square-mile Gibbons Creek Watershed utilize individual OSSs for sewage treatment and disposal. This Department of Ecology (Ecology) grant allowed Clark Public Health (CCPH) the funds to survey 200 of these systems in order to help reduce bacterial contamination emanating from failing OSSs. By reducing the number of failing septic system in the watershed, CCPH would help the Department of Ecology (Ecology) meet the targeted fecal coliform reductions identified in their Total Maximum Daily Load (TMDL) submittal report for the watershed (Post, 2000)[1]. Project implementation would also assure that CCPH meet the specific TMDL implementation provisions set forth in the Memorandum of Agreement between Ecology and CCPH[2], dated November 21, 2000.

This project was successful in surveying 201 OSSs located within the Gibbons Creek Watershed, as well as promoting proper OSS operation and maintenance through educational materials and activities. Notably, none of the 201 systems surveyed were determined to be failing.

II. Project Outcomes

The agreement established between CCPH and Ecology for this TMDL implementation project details the tasks to be completed by CCPH. It divides these responsibilities into three major categories of tasks: “Project Administration and Management”, “Public Involvement, Information, and Education”, and “Conducting OSS Sanitary Surveys”. Project outcomes for these categories are detailed below.

Project Administration and Management (Task 1)

- Task 1 duties were conducted by individuals from CCPH’s Environmental Public Health Division (On-Site Sewage Treatment Program) and from CCPH’s Administration Division. Primary staff included:
  - ✓ Randy Phillips, Resource Protection Manager, Environmental Public Health Division (Note: Tom Gonzales replaced Randy in October 2007)
    - ~ Responsibility: project manager
  - ✓ Valerie Rullman, Environmental Health Specialist, Environmental Public Health Division
    - ~ Responsibility: field data tracking, progress reports and final report, maintenance of non-financial project records, agreement amendment, tracking staff time spent per task, and miscellaneous assigned duties.
  - ✓ Alana McClain, Accountant, Administrative Division
    - ~ Responsibility: maintenance of financial records, submittal of financial vouchers, financial tracking.
- *Table 1* details Task 1 performance requirements and project outcomes.

[1] Post, R. 2000. *Gibbons Creek Watershed Fecal Coliform Total Maximum Daily Load: Submittal Report.* Washington State Department of Ecology, publication number 00-10-039. Olympia, WA

[2] CCPH was known as Southwest Washington Health District in year 2000; it was subsequently re-named Clark County Health Department and then Clark County Public Health

Table 1: Performance Requirements and Project Outcomes for Task 1 ("Project Administration and Management")

Performance Requirement #1: Effectively administer and manage the project.	
▪ What was Accomplished and How: ▪ Project activities and quality control activities were conducted, coordinated, and scheduled in a timely manner. ▪ Effective communication was maintained with the recipient's designees, Ecology, any other affected government jurisdictions, and any interested individual or group. These included Clark County Clean Water, Clark Conservation District (CCD), Washington State University's (WSU's) Stream Stewards Program, and City of Washougal. ▪ Project was carried out in accordance with completion dates outlined in the amended grant agreement between Ecology and CCPH.	▪ What Was NOT Accomplished and/or Barriers to Success:
Performance Requirement #2: Maintain all project records.	
▪ What was Accomplished and How: ▪ All non-financial project records were maintained by Valerie Rullman, in the form of electronic databases and/or "hard copy" files. All project maps, address lists, completed survey forms, protocol manuals, educational materials templates, OSS permits, grant agreements, staff reports, quarterly reports, and more are kept on file in the Environmental Public Health Division at CCPH. ▪ Records of equipment purchases were maintained by Randy Phillips/Tom Gonzales, and are located in the Environmental Health Division. All other financial records were maintained by Alana McClain; these records are kept on file in the Administrative Division of CCPH. ▪ The status of OSS surveys was tracked closely to assure timely correction of any failing OSSs, as well as timely completion of 201 surveys.	▪ What Was NOT Accomplished and/or Barriers to Success:
Performance Requirement #3: Submittal of all required performance items, progress reports, and financial vouchers.	
▪ What was Accomplished and How: ▪ All required performance items and progress reports were submitted in a timely manner. ▪ Most financial vouchers (with supportive documentation) were submitted in a timely manner.	▪ What Was NOT Accomplished and/or Barriers to Success:

Public Involvement, Information, and Education (Task 2)

- Task 2 duties were conducted primarily by Environmental Health Specialists from CCPH's On-Site Sewage Treatment Program: Carla Sowder, Steve Keirn, Reuel Emery, Valerie Rullman.
- *Table 2* details Task 2 performance requirements and project outcomes -- those that were successfully accomplished, as well as those that were *not* successfully accomplished.

Conducting On-Site Sewage System Sanitary Surveys (Task 3)

- Task 3 duties were conducted primarily by Environmental Health Specialists from CCPH's OSS Program: Carla Sowder, Steve Keirn, and Valerie Rullman.
- *Table 3* details Task 3 duties, including those that were successfully accomplished (and how), as well as those that were *not* successfully accomplished (and why).

III. Project Evaluation

What made the project successful?

- Amending the original grant contract in order to:
  - ✓ Extend the completion date of the project. (See section below for details).
- Using a "softer touch" with participants rather than a harsher "enforcement" approach. This improved CCPH rapport in the community and helped build trust. Examples of this approach include:
  - ✓ Spending extra time with individuals (such as the elderly), as needed;
  - ✓ Tailoring the interview process to emphasize the particular OSS concerns/interests expressed by the interviewee;
  - ✓ Courteously offering to return at more convenient times;
  - ✓ Taking time to explain the contents of the educational materials handed out.
- Offering survey appointments in late afternoon and early evening hours, as well as on weekends, since many residents were unavailable during regular CCPH work hours.
- Acquiring approval from Clark County's Board of Health to reduce CCPH's standard repair fee for the duration of the project.
- Offering free drinking (well) water testing to the first 20 participants (in order to help recruit community interest in the project).

What hindered project success?

- Prior to amending the grant agreement to extend the end date for the project:
  - ✓ Lack of time and dedicated staff assigned or available to work on the project due to:
    - ~ Delay in completing Salmon Creek TMDL Implementation Project;
    - ~ CCPH's physical move to a new building in 2005/2006, causing temporary (though significant) disorganization;
- Inefficiencies within the survey process, itself:
  - ✓ In some areas of the watershed, staff had to work in pairs due to personal safety issues;
  - ✓ The watershed is located in the far southeast quadrant of Clark County, therefore driving to and from the watershed added at least one hour to a day's survey work;
  - ✓ Most residents were not at home when we doorknocked; and
  - ✓ Since survey participation was strictly voluntary, we may have missed the opportunity to:
    - Identify some OSSs that may have been failing, and
    - Provide additional information to these citizens about their OSSs and the impact that failing OSSs have on the watershed.

Table 2: Performance Requirements and Project Outcomes for Task 2 ("Public Involvement, Information, and Education")

Performance Requirement #1: Notify Gibbons Creek Watershed residents about planned public meetings, workshops/seminars, etc.	
▪ What Was Accomplished and How: ▪ Sent >650 mailings to >325 OSS owners in the watershed in order to introduce the project and announce dates of upcoming public notification meetings. Placed ads in the community's newspaper announcing the meetings. Also, indirectly advertised the project county-wide by placing ads announcing loan programs (for both Gibbons Creek and Salmon Creek watersheds) in widely-circulated newspaper. ▪ Held 2 public meetings at central locations within the watershed in order to notify the public about the project. Displayed and provided educational materials, offered consultation, provided snacks, etc. A total of 20 citizens attended these meetings. ▪ Mailed or delivered >650 mailings to >325 OSS owners in the watershed announcing dates of upcoming free OSS Operation & Maintenance (O&M) workshops. Ads were printed in local newspapers through the efforts of WSU and CCD. A total of 10 citizens attended these meetings.	▪ What Was NOT Accomplished and Why:
Performance Requirement #2: Promote stewardship of the Gibbons Creek Watershed and of On-Site Sewage Systems through frequent and informational education seminars.	
▪ What Was Accomplished and How: ▪ Co-hosted (with WSU and CCD) 2 OSS O&M workshops held within the watershed. 10 citizens attended. Educational materials and technical assistance were provided, as well as information about the grant project. ▪ Pertinent OSS information was also presented at the project notification meetings. ▪ A website was set up to provide information to the public about this project, as well as O&M.	▪ What Was NOT Accomplished and Why: ▪ Citizen participation in meetings and seminars seems low, but is probably typical for these types of projects/issues.
Performance Requirement #3: Coordinate public educational activities with Ecology and the Clark Conservation District (CCD).	
▪ What Was Accomplished and How: ▪ Worked with WSU Cooperative Extension Service, Clark Conservation District, and Ecology to coordinate public meetings when appropriate.	▪ What Was NOT Accomplished and Why:
Performance Requirement #4: Educate the public about proper O&M; increase public awareness of the significance of the impacts that failing OSSs have on the environment and public health.	
▪ What Was Accomplished and How: ▪ Mailed O&M brochures and project info sheets to >325 households. ▪ Hosted 2 O&M workshops held within the watershed. 10 citizens attended these workshops. Educational materials and technical assistance were provided, as well as information about the grant project. ▪ Directly educated homeowners and provided technical assistance about their OSSs through one-on-one conversations and/or by providing written educational materials during the process of conducting 201 surveys. ▪ Distributed O&M materials, door hangers, etc.	▪ What Was NOT Accomplished and Why:

Table 3: Performance Requirements and Project Outcomes for Task 3 ("Conduct OSS Sanitary Surveys")

Performance Requirement #1: Complete inspections/sanitary surveys of 200 OSSs in the watershed.	
▪ What Was Accomplished and How: ▪ Verified usage and functional status of 201 OSSs via survey process. ▪ Provided technical assistance to >100 OSS homeowners. ▪ Collected/analyzed 12 surface water samples from tributaries in order to help identify potential problem areas in the watershed. ▪ During this project: ✓ 460 "doorknock" visits were conducted. These visits resulted in: 174 completed surveys (i.e. resident interview + OSS field observation), 3 partial surveys (i.e. resident interviews only), and 9 refusals to participate. The remaining 274 doorknock visits were not responded to at all (i.e. the residents were not home and they did not reply to the information left at their front doors. Each house utilizing an OSS was doorknocked at least once, and many were visited several times. ✓ The remaining 26 completed surveys originated from residents contacting CCPH to schedule survey visits in response to our notification mailings, ads, and/or meetings. ✓ Of the 201 completed surveys: • 145 OSSs appeared to be functioning adequately and had CCPH permits on file; • 44 OSSs appeared to be functioning adequately, but had no CCPH permits on file; • 11 OSSs appeared to be functioning adequately, but were non-conforming; • 1 OSS was identified as "suspect", but wasn't failing; and • 0 OSSs were identified as failing.	▪ What Was NOT Accomplished and Why:
Performance Requirement #2: Identify failing OSSs and oversee their correction.	
▪ What Was Accomplished and How: ▪ Of the 201 OSSs surveyed, 0 were identified as failing, so no corrections were required. ▪ Consulted with City of Washougal regarding necessity and viability of extending sewer services.	▪ What Was NOT Accomplished and Why:
Performance Requirement #3: Maintain an accurate OSS O&M database.	
▪ What Was Accomplished and How: ▪ Reviewed several hundred maintenance reports. ▪ Maintained our existing O&M database (which includes OSS locations, conditions, and ownership, etc). ▪ Expanded our existing O&M database by adding approx. 50 OSSs that weren't previously being tracked. ▪ Mailed >285 O&M notices to owners of OSSs located in the watershed.	▪ What Was NOT Accomplished and Why:
Performance Requirement #4: Coordinate suspect water quality violations with Ecology.	
▪ What Was Accomplished and How: ▪ 0 suspect water quality violations were identified, so none were reported to Ecology. ▪ 0 properties needed to be dye tested and/or sampled in order to determine system failure.	▪ What Was NOT Accomplished and Why:

What is the significance of the outcomes?

- Project outcomes listed in the previous tables are significant for a number of reasons:
  - ✓ Of the 201 OSSs surveyed for this project, none were identified as failing. This finding indicates that failing OSSs may contribute *significantly less* to the watershed's total fecal load than has generally been estimated. Other sources of fecal contamination, such as livestock, wild fowl, leaking municipal sewer pipes, and pets should continue to be examined more closely by involved agencies. Conducting more *E. coli* tests on environmental surface waters samples would at least better pinpoint mammalian sources of bacterial contamination.
  - ✓ Educating hundreds of residents should have a lasting positive impact on the watershed, on public health, and on the attitudes of the populations living there. By providing friendly one-on-one technical assistance and by educating citizens at O&M workshops, residents of the Gibbons Creek Watershed are more likely to:
    - ~ Remember what they learned,
    - ~ Maintain their OSSs (for financial, environmental, and public health reasons),
    - ~ Understand the impact that failing OSSs have on the watershed and on public health,
    - ~ Know the signs of a struggling or failing OSS and report failures to CCPH,
    - ~ Know the importance of keeping maintenance records on their OSS,
    - ~ Be more cognizant of how well their neighbors' OSSs are functioning,
    - ~ Be more frugal in their use of water,
    - ~ Be more aware of the negative impacts that some long-term medications can have on the health of their OSSs, and
    - ~ View CCPH as a useful resource and working partner (i.e. improved public relations).
  - ✓ By adding approximately 60 OSSs to the CCPH O&M database, more OSSs will be tracked for compliance, and fewer OSS failures should occur in the future.

What are the water quality benefits?

- Direct water quality benefits (i.e. outcomes that are expected to have an immediate positive impact on water quality):
  - ✓ No failing OSSs were identified, and none required correction. Hence, the water quality benefits of this project were more indirect than direct.
- Indirect water quality benefits (i.e. outcomes that are expected to have a positive impact on water quality over time):
  - ✓ Educating hundreds of watershed residents should have a lasting positive impact on the watershed, on public health, and on the attitudes of the populations living there. See "Significance of Outcomes" section above for details.
  - ✓ The addition of approximately 50 OSSs to the CCPH O&M database means 50 more OSSs will be tracked for compliance, hence many future OSS failures should be avoided.
  - ✓ The project helped bring more CCPH focus on the need for local enforcement regulations to help achieve greater O&M compliance. Increased compliance will ultimately translate into better watershed water quality.
  - ✓ The project increased the frequency and quality of CCPH interactions with the City of Washougal's sewer division; such collaborations should, over time, result in increased availability of municipal sewer services in areas of particular concern.

IV. Follow-Up

What remains to be done and how will it be accomplished?

No grant task remains to be done.

Will the project be continued with or without grant funding?
Some aspects of the project will be continued, all without grant funding:

- CCPH will continue to expand its O&M database for parcels within the Gibbons Creek Watershed, send O&M notification letters, and pursue compliance with O&M requirements. In addition, CCPH's O&M educational workshops will continue to be offered at least every other month to citizens throughout Clark County. Of these, at least one workshop per year will be held within or adjacent to the Gibbons Creek Watershed.
- A much-improved O&M tracking system has been implemented at CCPH over the last several months. This system will assure that more OSSs will be properly operated and maintained. In addition, recent changes to WAC 246-272A and the implementation of Clark County's new code for OSSs (CCC24.17) require that all OSSs be inspected either annually or every 3 years, depending on the OSS type. This requirement (and others) will enhance compliance with O&M requirements and, ultimately, decrease the number of failing OSSs in the county.
- The incidence of OSS failures and corrections will continue to be tracked.
- CCPH's Strategic Plan strongly emphasizes public education and outreach. This will result in easier public access to more user-friendly materials that address: proper OSS functioning and maintenance, how failing OSSs negatively impact the environment (including groundwater, surface water, watersheds) and public health, and more. The CCPH website will be vastly expanded and improved, OSS maintenance folders will be more widely available, etc.
- CCPH's Strategic Plan also addresses the need for more loan programs for low income owners of failing OSSs. This, ultimately, should result in the improvement of water quality in Clark County's watersheds since more failing OSSs will be reported and corrected.