

**PROPOSAL FOR IMPLEMENTATION OF THE
DRINKING WATER SOURCE PROTECTION PROGRAM**



Eugene Water & Electric Board
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Revision 2

INTRODUCTION

The Eugene Water & Electric Board (EWEB) was formed in 1911 to provide reliable and safe drinking water to the community of Eugene. Since this time, EWEB has come to rely on the McKenzie River watershed for power generation from its electric facilities at Carmen-Smith, Leaburg, and Walterville and as a sole source of drinking water for the City of Eugene. EWEB maintains an infrastructure in the McKenzie River watershed that consists of dams, canals, lakes, power generation facilities, tunnels, roads, buildings, electric transmission lines, dikes, fences, and transformer sub stations. EWEB also owns property in the watershed associated with its electric generation facilities as well as islands, riparian areas, and upland properties. In short, the McKenzie River is the lifeblood of EWEB and protection of this watershed is vital to EWEB and the community of Eugene.

In August 2000, EWEB completed a plan to protect the McKenzie River as the sole source of drinking water for the community of Eugene. This document proposes an approach to implementing the plan developed by EWEB to address the various threats to water quality and long-term viability of the McKenzie River as a drinking water source. The proposed source protection program is comprehensive in that it addresses all threats to the watershed from pollution runoff to spills to terrorist activities, as well as, fostering partnerships and education among the residents and stakeholders in the watershed.

The general approach for implementation of this program is for EWEB to accept a leadership role for protection of the McKenzie River by working with partners to develop protection plans and programs without expectations that partners initially contribute resources to implementation of these plans and programs. In this way, implementation of shared ideas and concepts can move forward and allow partners to realize the benefits of these programs before committing to contribute resources. This proposal attempts to identify outside funding opportunities available for implementing the various elements of the drinking water source protection program.

The overall concept of source protection is to have the ability to measure the balance between watershed health and human use over time and implement actions that maintain a healthy balance for production of exceptional water quality. This requires not only being aware of all the different human activities going on within the watershed, but also understanding the limits of what the river can handle and still maintain a healthy watershed with good water quality.

SUMMARY OF SOURCE PROTECTION PROGRAM

This proposal presents the details associated with implementation of the following elements or subprograms of a comprehensive source protection program:

- ? Comprehensive Monitoring;
- ? Disaster Preparedness and Response;
- ? Education and Research Assistance;
- ? Point Source Evaluation and Mitigation;
- ? Nonpoint Source Evaluation and Mitigation;
- ? Land Acquisition;
- ? Public Outreach and Information Sharing; and,
- ? Watershed Land Use Tracking and Management.

For each of these source protection elements or subprograms, the following details are discussed as part of this proposal: a) objectives and purpose; b) existing activities or programs; c) program description and scope; d) partnerships and EWEB's role and relationship with partners; e) estimated costs; f) potential funding sources and requirements/limitations of funding sources; and, g) implementation schedule.

The reader may notice that the level of detail provided in the discussion of the eight subprograms varies throughout this proposal. This variation reflects the idea that some of the subprograms are currently being implemented, others are in advanced planning stages and nearing implementation, and still others are targeted for development at some future date. EWEB has started implementation of various components of the Comprehensive Monitoring and Disaster Preparedness and Response Subprograms. These activities include:

- ? Completing the *Stormwater and Urban Runoff Monitoring Plan (October 2001)* for conducting storm event monitoring of City of Springfield storm sewer outfalls and storm water channels, Cedar Creek, Camp Creek, and Keizer Slough;
- ? Preparation for collecting storm event runoff samples associated with City of Springfield storm sewer outfalls and stormwater channels during an early winter storm event (following at least 72 hours of dry weather);
- ? Coordination of a regional spill response team for the McKenzie watershed;
- ? Participation and involvement in the Oregon Local Emergency Preparedness Committee to test and increase preparedness of local communities to respond to spills and other emergencies; and,
- ? Completing a Request for Proposals (RFP) for the design and implementation of a relational database to manage the large amounts of data associated with implementation of the source protection program.

1) Comprehensive Monitoring Subprogram

The *Drinking Water Source Protection Plan (2000)* sets as a priority the need to establish a comprehensive monitoring subprogram to evaluate water quality, biological health, and land use trends within the McKenzie watershed over time. The plan indicated that the focus of a source protection monitoring program should be the assessment of potential impacts from pollution or other degradation sources to the river. A risk assessment was conducted as part of the source protection plan, which identified and prioritized the various sources that threaten the health of the river. The greatest threats to the McKenzie River are from storm sewer discharges and urban runoff. Discharges from commercial and industrial facilities, roadside vegetation management, and agricultural activities were also listed as significant risks for contamination.

- a) **Objective:** The objective of a drinking water source protection monitoring subprogram is to provide comprehensive water quality and biological information to allow assessment of the watershed's health over time. This information will allow EWEB and others to identify potential problems or threats to the drinking water source early on and evaluate the relative success of restoration and other protection strategies to mitigate potential threats.
- b) **Scope:** The monitoring subprogram is discussed in detail in EWEB's *Lower McKenzie River Watershed, Drinking Water Source Protection Monitoring Program, Outline of Major Components (August 2001)*. The following is a summary of those components:
 - i) *Stormwater Water Quality Monitoring*, targets storm runoff from City of Springfield storm sewers and stormwater channels.
 - ii) *Urban Runoff Water Quality and Biological Monitoring*, assesses water quality and biological health of creek basins that drain urban areas or areas with increased development (i.e., Cedar Creek, Camp Creek, and Keizer Slough).
 - iii) *Lower McKenzie River Water Quality and Biological Monitoring*, focuses on lower portion of river to assess ability to handle pollution loadings from stormwater and urban runoff, and agricultural activities during storm events.
 - iv) *Shallow Groundwater Monitoring* focuses on septic areas, agricultural land uses, major tributary confluences, and areas of known groundwater contamination to better understand groundwater-surface water interaction and the contribution of groundwater pollution to the river.
 - v) *Air Quality Monitoring*, the purpose of air sampling is to determine the atmospheric contribution of pollutants to the watershed. This would include dry deposition and wet deposition (rain water samples).
 - vi) *Commercial and Industrial Facility Discharge Monitoring*, this involves identification of all water and air discharge permits and obtaining and reviewing monitoring reports required under the permits. It also involves active participation during issuance of new permits or renewal of existing permits to make sure the discharge requirements and monitoring parameters are appropriate.
 - vii) *Performance Monitoring*, this type of monitoring is associated with actual

conservation, restoration, or source protection projects.

- c) **Data Management:** A critical piece to a successful monitoring subprogram is data management, analysis, and reporting. Due to the long-term nature of a source protection monitoring subprogram there is potential for management of large data sets and being able to clearly identify trends associated with water quality and watershed health. An integral part of the protection program is the development and implementation of an information management tool to support the collection and management of data generated by EWEB and its partners in this effort.

A relational database will be developed to manage data collected as part of numerous field efforts associated with stormwater and urban runoff, shallow groundwater, river water quality parameters, bioassay and macro-invertebrate studies, stream flow, meteorological data, air monitoring and deposition, and industrial facility monitoring. This data will be incorporated into a centralized, SQL-compliant database (SQL Server). Additional data management modules will be added to this database as other subprograms are implemented over time. This database will then provide the means to manage, analyze, and report data in support of the source protection program.

In the future, this database would have the ability to interface with a GIS and with hydrologic simulation and pollution loading models to further support the source protection program. The combination of GIS and hydrologic simulation/load modeling would allow EWEB to evaluate the effectiveness of its source protection program and present meaningful data trends that describe the health of the McKenzie watershed over time. One long-term benefit of using the data in a GIS/hydrologic model format is that as monitoring data is collected and the model is calibrated and refined there should be a corresponding reduction in the amount of data necessary to monitor watershed health and identify potential water quality degradation sources.

- d) **Existing Monitoring Programs:** A number of monitoring programs currently exist in the McKenzie River watershed (Cedar Creek, Camp Creek, McKenzie River ambient monitoring, Keizer Slough, and EWEB intake). Macroinvertebrate and stream bioassessment surveys are planned for Cedar Creek and Camp Creek to directly support EWEB's source protection monitoring program. The data collected as part of these monitoring programs is critical to evaluation of the impacts to the McKenzie River from various sources of pollution and will be integrated with the data collected as part of EWEB's source protection monitoring subprogram. Since the existing monitoring programs are fixed interval sampling efforts (i.e., monthly), the results tend to provide a base level of contamination in the stream basins, storm sewer outfalls, and the McKenzie River and complements EWEB's storm event sampling program. The data from these monitoring programs will allow a comprehensive evaluation of annual pollution loading to the McKenzie River and the relative contribution from storm events versus base flow. This information will be very useful in developing source area mitigation strategies and ultimately designing treatment systems to reduce the amount of pollution entering the river.

- e) **Partnerships:** At this time, EWEB enjoys active partnerships with a number of agencies and organizations and has identified others in which partnerships could be developed as the source protection program is implemented. Current partners include:
- i) *McKenzie Watershed Council*, is involved in the Cedar Creek and Camp Creek monitoring programs, provides technical support, assists in working with stakeholders, has good networking abilities (able to provide EWEB with the right contacts), and helps by working with community members and property owners for access and to accept EWEB's monitoring subprogram.
 - ii) *Springfield School District*, teachers and students are implementing water quality sampling in Camp and Cedar Creeks on a monthly basis. Biology students and teachers are implementing macroinvertebrate and stream bioassessment surveys in Camp and Cedar Creeks twice a year. The WQ and biological monitoring is being conducted per EWEB's *Stormwater and Urban Runoff monitoring Plan (October 2001)* with attention to QA/QC requirements to increase data usability.
 - iii) *City of Springfield*, there is close coordination between EWEB and the City regarding storm sewer and stormwater channel monitoring. The City currently provides access, technical support, maps and GIS support, equipment, staff support, and possibly (in the future) financial support for EWEB's monitoring subprogram.
 - iv) *City of Eugene*, the City of Eugene has been valuable in providing technical support and guidance to storm event sampling (they conducted storm event sampling in Eugene from 1990-1996). They have assisted in equipment assessment, logistical support, and loaning of water quality monitoring equipment for storm event sampling. This has allowed EWEB to reduce up front costs for equipment purchases.
 - v) *US Geological Survey*, the USGS has been a valuable partner for technical support, installing a gauging station on Cedar Creek in October 2001, providing analytical services for pesticide analysis, and assistance with implementation of the storm event monitoring program (very interested in partnering for pesticide data). Because some of their services come at a cost, future partnering may be limited unless they can provide federal money to cover their expenses.
 - vi) *Oregon DEQ*, has provided technical support and is involved in doing the ambient monitoring on the McKenzie River. DEQ may be able to offer other assistance with regard to analytical services or possibly funding associated with source protection.
 - vii) *LRAPA*, installed precipitation measurement equipment in Springfield in October 2001 (at EWEB's request), which EWEB can access via telemetry to provide real time rain data that is critical to our storm event monitoring efforts.
 - viii) *Weyerhaeuser*, seems willing to provide access to their property along Cedar Creek and Keizer Slough for our monitoring activities.
 - ix) *ODOT*, will be providing access to their right-of-way property along the 52nd Street channel.

- f) **Estimated Costs:** Costs associated with implementation of the monitoring subprogram include staff time, equipment, analytical, consultant, and data management. The monitoring subprogram will be implemented in phases over time to reduce the financial impact. Full implementation of the subprogram may require a one-time expenditure (for equipment, USGS gauging station installation, and data management system design and set up) of approximately \$70,000 to \$90,000 over a period of two to three years. Annual costs for full implementation (including consultants, analytical costs, equipment and gauging station O & M, miscellaneous expenses) of the monitoring subprogram are estimated to be \$90,000 to \$120,000. However, the monitoring subprogram would not be fully implemented until 2003.
- g) **Funding Opportunities:** There are not a lot of grant or other funding mechanisms to pay for monitoring costs. At one time, EPA had a grant program for source protection monitoring, but it was cut under the new administration. It appears that some funding may be available through the partnerships discussed above, specifically, City of Springfield (stormwater program), McKenzie Watershed Council (possible OWEB or BPA funds), DEQ, USGS, and possibly future EPA programs.

2) ***Disaster Preparedness and Response Subprogram***

The *Drinking Water Source Protection Plan (2000)* sets as a priority the need to prevent spills of hazardous substances in the watershed and increase preparedness and response capabilities in the event that a spill does occur. Other potential disasters (forest fires, terrorism, and volcanic activity associated with South Sister) also threaten EWEB's drinking water source and should be addressed as part of a prevention and preparedness strategy.

- a) **Objective:** The objective of the disaster preparedness and response subprogram is to recognize and be prepared for events that may have a low likelihood of occurring, but if they happen may cause extensive problems for EWEB's drinking water source.
- b) **Scope:** Five categories of potential disasters that could have significant impact to the McKenzie River and EWEB's drinking water were identified and are summarized below:
 - i) *Hazardous Substance Spill.* Spills were identified in EWEB's Source Protection Plan as one of the highest threats to the McKenzie River. Potential spills involve a release of a hazardous material or petroleum product during movement along the river or within the watershed. To address this threat:
 - (1) EWEB is working with McKenzie Fire & Rescue to establish a Regional Spill Response Team that would be active within the McKenzie River watershed. A questionnaire was mailed to over 25 different agencies and organizations that have involvement in spill response activities in the McKenzie watershed. Approximately 60% have responded to the questionnaire indicating a desire to form a regional response team and coordinate equipment, training, and preparedness. The idea is that the members of the regional response team would become familiar with each other, train together, share equipment, and conduct spill exercises to better understand each other's roles and responsibilities.
 - (2) Evaluate the transportation of chemicals and hazardous substances in the watershed. This may include doing a corridor study to assess the amount of truck traffic associated with transport of chemicals, which would build on the ODOT study done in 1994-95. This information could then be used to support a request for restricting the transport of certain chemicals or hazardous substances.
 - (3) Continue to assess and reduce EWEB's hazardous material usage in the watershed. Also update and enhance, as needed, EWEB's hazardous material handling, storage, and spill response capabilities associated with its electric generation projects in the watershed.
 - (4) Work with DEQ, SUB, City of Springfield, and individual facilities that use, store, or generate hazardous substances to reduce usage of chemicals and generation of wastes, find alternatives to hazardous substances, and upgrade storage and security of these chemicals.

- ii) *Extremely Hazardous Substance (EHS) Facility and Community Response Preparedness.* EWEB is a member of the Local Emergency Planning Committee (LEPC), which is a statewide organization that evaluates and upgrades community preparedness to releases from EHS facilities. The concept behind the LEPC is to do a “paper” test of a facility with extremely hazardous substances and first responder spill response plans (evaluate each others plans to see how they compare and where they may not work together); then step back and look at how the first responders plans compare to community spill contingency plans (i.e., hospitals, public works, police, ambulance, etc.); and, lastly, evaluate how the community plans compare to county emergency management plans. The result would be a community assessment that recommends changes or points out areas of deficiencies. After this thorough evaluation, an actual spill exercise would be designed to focus on areas that were deficient or needed change to test if the fixes put in place actually work in a “real life” event. The EHS facilities in Springfield include: Borden Chemical, Dynea Corp, GW International, Norm Johnson Trucking, Qwest, Sierra Pine, Tru Serv, Verizon Wireless, and Weyerhaeuser.
- iii) *Anti-Terrorism Measure.* The focus of our actions would be directed at our intake since it is most vulnerable, then the covered reservoirs of finished water throughout the City of Eugene. A number of measures can be taken to reduce the threat of a terrorist attack on the City of Eugene water supplies. Feasibility of these actions and costs analysis will need to be conducted and weighed against likelihood of threat. These measures include:
- (1) Evaluate universe of potential chemical/biological compounds/mixtures that could be used to contaminate raw water;
 - (2) Purchase a buffer area along the river upstream of our intake and secure that area to prevent access via land to the river immediately upstream of our intake;
 - (3) Evaluate feasibility of installing eco-friendly instream structures to prevent access to the intake area from the river;
 - (4) Install surveillance cameras or other equipment in the intake and reservoir areas;
 - (5) Construct walls or other barriers along the roadway that runs adjacent to intake and along Hayden Bridge that is above and adjacent to our intake;
 - (6) Have a "canary" or sensitive aquatic organisms in a tank which raw water flows through to provide early warning of a toxic slug moving into treatment facility;
 - (7) Upgrade security fencing, as needed, around reservoirs and pump stations;
 - (8) Evaluate feasibility of a type of alarm system that activates if access to the actual reservoir structure is breached; and,
 - (9) Education of community, police, and city employees to raise awareness of these critical areas and to report suspicious activities
- iv) *Forest Fire Preparedness and Training.* Severe forest fires in a watershed can cause long-term problems to a drinking water source from ash runoff, high erosion rates, and charred debris buildup in rivers and streams. EWEB has a responsibility to actively assess and work with the USFS, BLM, and

other agencies to understand the fire threat in the watershed and adjacent watersheds, and offer support for prevention and preparedness to reduce the threat and respond if a fire breaks out. To accomplish this EWEB should consider:

- (1) Development of a small core group of trained fire fighters that are incorporated into the ranks of the USFS fire teams during fire season, as needed. The highest priority for this group would be to fight fires in the McKenzie River watershed or any adjacent watershed. Beyond that, this group could assist in out-of-area fires to maintain fire fighting abilities. This group could also be involved in fire prevention activities in the watershed when not actively fighting fires. It is anticipated that this core group would be involved in fire fighting, training, or fire prevention activities for approximately 1-2 months of the year.
 - (2) Actively participate in the evaluation of fire threats with the USFS and BLM and support their efforts in prevention of forest fires in the watershed and adjacent watersheds.
 - (3) Assess and upgrade EWEB's facilities and property in the watershed to comply with fire prevention measures. Train EWEB employees working in the watershed regarding fire prevention, response, and communication.
- v) *Natural Disasters*. This may include earthquakes or volcanic eruptions and extensive mud flows in the watershed. The only protection from a significant natural disaster of this magnitude is to have a backup water supply until the river can recover from the event. EWEB is actively pursuing establishment of well fields to act as emergency and backup to the McKenzie River source.
- c) **Partnerships:** EWEB has established a number of partnerships through implementation of the regional response team and its involvement in the LEPC. These active partners include: USFS, MWC, McKenzie Fire & Rescue, Springfield Fire and Life Safety, Eugene Fire and Rescue, Eugene Region 6 HazMat Team, BLM, Army COE, EPA, DEQ, FEMA, Oregon Emergency Management, Lane County Emergency Management, Lane County Public Works, Leaburg and McKenzie Fish Hatcheries, and State Fire Marshal's Office. Additional partnerships with commercial timber companies, Oregon Department of Forestry, ODOT, and others will be pursued as the source protection program is implemented.
- d) **Estimated Costs:** Potential costs to EWEB for implementation of these programs for disaster preparedness are hard to measure and may not accurately reflect costs incurred under the source protection program (e.g., installation of backup well field). The costs that can be attributed to these subprograms and are a part of source protection include staff time, spill equipment, training costs, and use of GIS to possibly manage information and conduct various spill analysis (i.e., river booming strategies, spill equipment storage locations, resource allocation, etc.). It is estimated that annual costs associated with spill response, community preparedness, and forest fire prevention may range from \$10,000 to \$50,000 depending on the level of commitment from EWEB. Costs associated with anti-terrorism and natural disaster events would likely not be part of the source protection budget.

- e) **Funding Opportunities:** A number of funding sources are available for spill response preparedness and training (EPA and FEMA), chemical transport corridor studies, anti-terrorism measures (FEMA, OEM, LEPC, and others), and fire prevention and training (FEMA, USFS, BLM, and others). EPA has earmarked up to \$40,000 to assist with the regional response team training efforts.

3) Education and Research Assistance Subprogram

- a) **Objective:** The objective of this subprogram is to encourage and promote education of students and research in issues related to watershed health and protection of the McKenzie River as a valuable resource.
- b) **Scope:** The benefits of supporting the education of elementary, middle, and high school level students in understanding the various water quality, biological, and cultural issues that surround the health and future of the McKenzie River are numerous and far reaching. EWEB benefits in the short-term by having students conduct water quality and biological monitoring to support the source protection program. The long-term benefits are that hopefully this curriculum helps educate the younger generation on the importance of these issues and promote a sense of stewardship among the youth. University research in the watershed will provide an excellent source of detailed data and information to better understand watershed functions, biological processes, and how to best apply restoration and mitigation strategies. The specific components of this subprogram may include:
 - i) *Springfield School District.* The Springfield School District is currently an integral part of EWEB's source protection program by conducting water quality, macroinvertebrate, and bioassessment survey work on Cedar Creek and Camp Creek. The water science, biology, and chemistry programs have come together to provide students a comprehensive educational experience regarding water quality, aquatic habitat, stream morphology, riparian functions, and laboratory analysis associated with the health of watersheds. The teachers have adopted EWEB's monitoring plan and QA/QC procedures to make sure the data can be used to model pollution loadings, conduct trend analysis, and identify problem areas. This further benefits the students as they become involved in how their work and data are applied to solve real life problems.
 - ii) *Research Assistance Program.* EWEB and its partner organizations should work with local universities (U of O, OSU, PSU, and LCC) to promote research and graduate work in the watershed. Ideally, it would be important to have appropriate watershed research projects use high school students for mentorship and cheap labor (tapping into the existing program discussed above). For this to be successful, EWEB and partner organizations (USFS, USGS, BLM, DEQ, Weyerhaeuser, Lane County, EPA, and others) would identify issues or problems in the watershed that graduate research could provide direct benefit, communicate with universities to find graduate or undergraduate programs that match the issues or problems, and offer research grant funding for universities to conduct research. For issues or problems that overlap with the work being done by the Springfield School District, the grants could have a condition under which research work should involve high school students.
- c) **Existing Education Programs:** As previously mentioned, Springfield School District has a strong program for educating high school students (and to a lesser degree elementary and middle school students) in evaluating and understanding

the complex issues that surround watershed health. Lane Community College has an advanced learning program that targets watershed issues, such as pesticide use and runoff, impacts of urban development, and water quality issues. Discussions with one of the teachers of this program indicate that source protection concepts are a natural fit and a meeting to discuss further collaboration is planned.

Additional investigation is necessary to explore the various graduate programs at the local universities to begin communication with these professors to promote research.

- d) **Partnerships:** EWEB currently has a solid partnership with the MWC and Springfield School District to promote and continue the water quality and biological monitoring efforts. This could be expanded once problem areas are identified in the creek basins to look at mitigation or treatment techniques and involve students in implementation of natural filtration systems (i.e., wetlands, bioswales, ect.). EWEB also has developed partnerships with USFS, DEQ, EPA, LCC, and the USGS and could explore cooperative efforts to fund and promote research in the McKenzie River watershed. Other partnerships would need to be established with University of Oregon, Oregon State University, Portland State University, USDA, Oregon Department of Agriculture, BLM, Oregon Department of Forestry, and Lane County.
- e) **Estimated Costs:** The annual costs associated with EWEB's source protection program support of Springfield School District are estimated to be \$1,000 to \$2,000. Costs associated with research grants would depend on the degree of partner involvement, university funding, and nature of the research. An estimate of \$5,000 to \$10,000 per year could be used for budget purposes.
- f) **Funding Opportunities:** There are a number of grant opportunities for education programs and research. Through effective partnerships EWEB, school districts, and universities could be effective in obtaining these grant funds which would alleviate the need for EWEB to actually contribute funds toward research projects. The following is a summary of known potential funding sources:
 - i) *Environmental Education Grants Program (US EPA).*
 - (1) Goal. To support environmental education projects that enhances the public's awareness, knowledge, and skills to make informed and responsible decisions that effect environmental quality.
 - (2) Funding. Grants issued by EPA's Region X office range from \$3,000 to \$25,000. Grants issued from EPA HQ's office range from \$35,000 to \$125,000. A total of \$2 to \$3 million is available, which is typically awarded to 15-20% of the applicants.
 - (3) Limitations. Grantees must provide non-Federal matching funds of at least 25% of the total project costs.
 - (4) Due Date. November 15, 2001.
 - ii) *Science to Achieve Results Program (US EPA).*
 - (1) Goal. To promote and advance environmental science through research that focuses on reduction of risks to human health and ecosystems. Research topics may include drinking water source protection, wetlands, restoration, stormwater management, and pollution prevention.

- (2) Funding. Grants issued by EPA range from \$3,500 to \$20,000 with the typical amount being \$10,000. A total of \$0.5 to \$1 million is available, which is typically awarded to 25-30% of the applicants.
- (3) Limitations. Grantees must provide non-Federal matching funds of four times federal grant amount (i.e., \$10,000 grant = \$40,000 non-Federal match).
- (4) Due Date. Late November 2001.
- iii) *Water Quality Special Research Grants Program (USDA)*.
 - (1) Goal. To provide watershed-based information that can be used to assess sources of water quality impairment; develop and/or recommend options for continued improvement of water quality; and, evaluate the relative costs and benefits associated with cleanup to all responsible sectors (e.g., farming, processing, urban runoff, etc.).
 - (2) Funding. Grants issued by USDA for amounts up to \$100,000 per year for four years. A total of \$12.4 million is available for funding 2001 projects.
 - (3) Limitations. Grantees may need to provide non-Federal matching funds of up to 50% of total project costs. Need to partner with a university or college.
 - (4) Due Date. March 2002.
- iv) *Sustainable Agriculture Research and Education (USDA)*.
 - (1) Goal. To facilitate and increase scientific investigation and education to reduce the use of chemical pesticides, fertilizers, and toxic materials associated with agricultural practices. This may include design and implementation of best management practices, education, pollution prevention measures, and partnerships among farmers, nonprofit organizations, agribusiness, and public and private research institutions.
 - (2) Funding. A total of approximately \$8.6 million is available as part of this program.
 - (3) Limitations. Need to partner with a university or college.
 - (4) Due Date. Not yet determined.
- v) Other funding mechanisms may exist and will be more thoroughly researched and discussed during implementation of the source protection program.

4) ***Point Source Evaluation and Mitigation Subprogram***

- a) **Objective:** The objective of the point source subprogram is to inventory, track, evaluate, and monitor point sources of potential pollution (i.e., industrial and commercial facilities) to understand these potential threats and work with regulatory agencies and facilities to reduce the potential threat to drinking water.
- b) **Scope:** The following is a summary of the various tasks and components associated with point source evaluation and mitigation:
 - i) *Inventory.* An inventory of all commercial and industrial facilities within the McKenzie River watershed above EWEB's intake has been completed. Over 120 facilities have been identified. These facilities will be located and the information housed in a GIS for spatial analysis and tracking.
 - ii) *Evaluation and Tracking.* All permits and potential threats (stormwater, NPDES, air permits, spills, hazardous material use and storage, etc.) posed by these point sources will be compiled and evaluated. Permit requirements and monitoring reports will be reviewed and tracked to identify potential problem areas. EWEB will get involved in the public review and comment period associated with the various permit renewals. This information will be tracked and evaluated using GIS to allow EWEB to identify high-risk facilities.
 - iii) *Mitigation.* Based on facility type, waste management practices, permit requirements, permit compliance reports, results from EWEB's monitoring subprogram, and other information, facilities or areas will be targeted for mitigation. Mitigation would consist of a number of different options:
 - (1) Increased monitoring downstream and upstream of targeted facility to better understand impacts from point sources;
 - (2) Work with individual facilities or areas with concentration of facilities and DEQ to reduce hazardous chemical use and storage;
 - (3) Work with individual facilities or areas with concentration of facilities to construct on-site and/or off-site treatment systems or buffers (e.g., wetlands, bioswale, retention pond, etc.)
 - (4) Work to enhance riparian areas in the vicinity of facilities to increase filtering capabilities and stream health. EWEB could organize a core group of employees that are interested in riparian restoration activities. This group would participate in these and other restoration projects in the watershed.
 - iv) *Education, Outreach, and Lobbying.* Provide education and outreach to the various facilities regarding the potential degradation to community water supplies that could result from poor waste management and handling practices. Provide alternatives to hazardous material use and offer assistance to change to eco-friendly practices. Educate facility owners on treatment options for stormwater runoff. Track potential regulations and encourage/influence laws and regulations that benefit protection of McKenzie River from facility pollution.
- c) **Partnerships:** EWEB currently enjoys active partnerships with some critical agencies that regulate sources of pollution (EPA, LRAPA, DEQ, and City of

Springfield). DEQ also offers a hazardous waste technical assistance program, which has been very successful in targeting geographic areas for providing assistance to facilities to reduce hazardous material use and wastes. In addition, EWEB is an active member of the Pollution Prevention Coalition (P2C), which consists of SUB, City of Eugene, City of Springfield, Lane County Solid Waste, LRAPA, Energy Outlet, and DEQ. The P2C could also be involved in targeting a geographic area to work with businesses and others to reduce, reuse, and recycle various waste streams. EWEB enjoys a good relationship with Weyerhaeuser, which is one of the closest large industrial facilities upstream of the Hayden Bridge intake. Another critical partner that would also benefit from this type of subprogram is SUB. Many of these facilities are in SUB's groundwater protection overlay and coordination and sharing of resources would make sense. A number of other partnerships would be pursued as the subprogram develops (Lane County, individual facilities, ect.).

- d) **Estimated Costs:** Costs for implementation of the point source evaluation and mitigation subprogram would mainly be associated with staff time and database/GIS design and use. Since staff time is already accounted for in the source protection budget and GIS is used with many of the other source protection programs, the costs are minimal for this subprogram. Additional costs associated with increased monitoring downstream of high priority facilities, design and implementation of BMPs, restoration, or other mitigation projects would depend on the level of cooperation with individual facilities and other partners. The following are estimates based on the assumption that facilities and partner organizations do not contribute a significant amount of funding to these efforts:
- i) Approximately \$5,000 to \$10,000 per year for additional staff time, and GIS/database related costs.
 - ii) Increased monitoring at high priority facilities may require \$10,000 to \$25,000 for analytical, equipment, and additional staff time.
 - iii) Design and implementation of mitigation projects could range from \$30,000 to \$150,000 depending on the scope and scale of the project. Ongoing O & M costs associated with these projects are assumed to be covered by individual facilities and/or partner organizations. If not, it is estimated that approximately 15% of total project costs would be needed for annual O & M activities and performance monitoring.
- e) **Funding Opportunities:** A number of grants, technical assistance, and other revolving loans exist to assist facilities and/or EWEB with evaluation and mitigation of point sources of pollution. The following is a summary of known funding sources associated with point source investigation and mitigation.
- i) *Flood Hazard Mitigation and Riverine Ecosystem Restoration Program (Army COE).*
 - (1) Goal. A watershed-based program that focuses on identifying sustainable solutions to flood-prone areas. Eligible projects should meet the dual purpose of flood hazard mitigation and riverine ecosystem restoration (wetlands, natural floodwater storage systems, stormwater BMPs, land acquisition, riparian restoration).

- (2) Funding. Grants issued by Army Corps of Engineers range from \$30,000 to \$30 million.
- (3) Limitations. Grantees must provide 50% non-Federal matching funds for investigation and studies and 35% matching funds for project implementation. The study area must be in a floodplain.
- (4) Due Date. Not yet determined.
- ii) *Water Quality Special Research Grants Program (USDA)*. See description under Education and Research Assistance Program.
- iii) *Transportation Equity Act for the 21st Century (TEA-21) Funding Programs (Federal Dept. of Transportation and ODOT)*.
 - (1) Goal. To use surface transportation program funds for environmental restoration and pollution abatement projects, including construction of stormwater treatment systems, acquisition of conservation easements, and wetland mitigation and restoration.
 - (2) Funding. Grants issued by DOT and ODOT that may be used for environmental projects is estimated at \$10 to \$14 million.
 - (3) Limitations. Grantees may need to provide non-Federal matching funds.
 - (4) Due Date. Not yet determined.
- iv) *Water Quality Cooperative Agreements (US EPA)*.
 - (1) Goal. To support the creation of unique and new approaches to meeting stormwater requirements. Among the efforts that are eligible for funding are research, investigations, experiments, training, surveys, environmental technology demonstrations, and studies related to the causes, effects, extent, and prevention of pollution.
 - (2) Funding. Total funds available for this program are \$19 million. A total of 170 projects were funded in 1998-1999 across the country.
 - (3) Limitations. Matching funds are encouraged.
 - (4) Due Date. Applications are accepted on an ongoing basis.
- v) The ultimate responsibility for mitigation of point sources of pollution rests with the individual facility and partially with regulatory agencies if existing permits do not effectively protect drinking water sources.

5) **Nonpoint Source Evaluation and Mitigation Subprogram**

- a) **Objective:** The objective of the nonpoint source subprogram is to inventory, track, evaluate, and monitor nonpoint sources of potential pollution (i.e., concentration of septic systems; agricultural activities; forest management activities, stormwater and urban runoff, and air pollution deposition) to understand these potential threats and work with regulatory agencies, land owners, and business groups to implement best management practices and reduce the potential threat to drinking water.
- b) **Scope:** The following is a summary of the various tasks and components associated with nonpoint source evaluation and mitigation:
 - i) *Inventory.* Inventory all potential nonpoint source areas of pollution within the McKenzie River watershed above EWEB's intake. The areas of nonpoint source pollution will be mapped and the information housed in a GIS for spatial analysis and tracking.
 - ii) *Evaluation and Tracking.* Attempt to evaluate and track activities associated with nonpoint pollution (pesticide use and application schedules, crop types and cycles, forest management activities, building permits with septic systems, inventory of existing septic systems, LRAPA air data, etc.). EWEB's source protection monitoring subprogram will provide excellent information of the actual impacts from these activities. This information will be tracked and evaluated using GIS to allow EWEB to identify high-risk areas.
 - iii) *Mitigation.* Based on the scope of the potential problem, type of nonpoint source, results from EWEB's monitoring subprogram, and other information, hot spot areas will be targeted for mitigation. Mitigation would consist of a number of different options, such as:
 - (1) Increased monitoring in impacted and/or high priority areas.
 - (2) Work with landowners and DEQ, ODF, ODA, Lane County to implement BMPs.
 - (3) Implement projects to enhance riparian functions in the vicinity of nonpoint source problem areas to increase filtering capabilities and stream health.
 - (4) Work with landowners and/or business associations to construct on-site and/or off-site treatment systems or buffers (e.g., wetlands, bioswale, retention pond, etc.).
 - (5) EWEB could organize a core group of employees that are interested in riparian restoration activities. This group would participate in these and other restoration projects in the watershed.
 - iv) *Education, Outreach, and Lobbying.* Provide education and outreach to the various business groups that represent the activities associated with nonpoint sources (agricultural industry, forestry industry, builder and developer associations, etc.) regarding the potential degradation to community water supplies that could result from poor practices and provide information and assistance for implementing BMPs. Educate landowners and business

organizations on reduction of and treatment options for stormwater runoff.

Track potential regulations and encourage/influence laws and regulations that benefit protection of McKenzie River from nonpoint sources of pollution.

- c) **Partnerships:** EWEB currently enjoys active partnerships with some critical agencies that regulate or are involved in oversight of nonpoint sources of pollution or large landowners in the watershed (EPA, USFS, BLM, MWC, Weyerhaeuser, and DEQ). Additional partnerships need to be developed with the Oregon Department of Agriculture, USDA, E. Lane Soil and Water Conservation District, NRCS, Oregon Department of Forestry, Lane County, and business associations.
- d) **Estimated Costs:** Costs for implementation of the nonpoint source evaluation and mitigation subprogram would mainly be associated with staff time and database/GIS design and use. Since staff time is already accounted for in the source protection budget and GIS is used with many of the other source protection subprograms, the costs are minimal for this subprogram. Additional costs associated with increased monitoring downstream of hot spot areas, design and implementation of BMPs, restoration, or other mitigation projects would depend on the level of cooperation with business associations, landowners, and other partners. The following are estimates based on the assumption that landowners and partner organizations do not contribute a significant amount of funding to these efforts:
 - i) Approximately \$5,000 to \$10,000 per year for additional staff time, and GIS/database related costs.
 - ii) Increased monitoring at hot spot areas may require \$10,000 to \$25,000 for analytical, equipment, and additional staff time.
 - iii) Design and implementation of mitigation projects could range from \$30,000 to \$150,000 depending on the scope and scale of the project. Ongoing O & M costs associated with these projects is assumed to be covered by landowners and/or partner organizations. If not, it is estimated that approximately 15% of total project costs would be needed for annual O & M activities and performance monitoring.
- e) **Funding Opportunities:** A number of grants, technical assistance, and other revolving loans exist to assist landowners, businesses, local governments, and/or EWEB with evaluation and mitigation of nonpoint sources of pollution. Responsibility for mitigation of nonpoint sources of pollution is not always clear making it difficult to “force” mitigation in order to effectively protect a drinking water source. Approaches for mitigation of nonpoint sources will likely be cooperative and voluntary actions among a number of partners. The following is a summary of known sources of funding.
 - i) *Flood Hazard Mitigation and Riverine Ecosystem Restoration Program (Army COE)*. See description under the Point Source Evaluation and Mitigation Subprogram.
 - ii) *Water Quality Special Research Grants Program (USDA)*. See description under Education and Research Assistance Subprogram.

- iii) *Transportation Equity Act for the 21st Century (TEA-21) Funding Programs (Federal Dept. of Transportation and ODOT)*. See description under Education and Research Assistance Subprogram.
- iv) *Water Quality Cooperative Agreements (US EPA)*. See description under the Point Source Evaluation and Mitigation Subprogram.
- v) *Sustainable Agriculture Research and Education (USDA)*. See description under Education and Research Assistance Subprogram.
- vi) *Science to Achieve Results (US EPA)*. See description under Education and Research Assistance Subprogram.
- vii) *Watershed Protection and Flood Prevention Program (USDA)*.
 - (1) Goal. To provide technical and financial assistance to projects related to watershed protection, flood prevention, water supply, water quality, erosion and sediment control, wetland creation and restoration, and fish and wildlife habitat enhancement.
 - (2) Funding. Total funds available for this program are \$99.4 million. Funding amounts vary, but typical projects entail \$3.5 to \$5 million in federal assistance.
 - (3) Limitations. Need to make a formal request to the Natural Resource Conservation Service (NRCS) for project funding under this program. Projects need to be approved by the NRCS and may require cost sharing. Projects are limited to watersheds containing less than 250,000 acres.
 - (4) Due Date. Applications are accepted on an ongoing basis.
- viii) *State Revolving Fund for Drinking Water (DEQ/EPA)*.
 - (1) Goal. To provide low interest loans for construction of drinking water facilities to maintain compliance with current and future standards and to further public health protection goals of the Safe Drinking Water Act and Oregon's Drinking Water Quality Act.
 - (2) Funding. Maximum per year loan amounts is \$100,000. Loans are provided on a first come first serve basis. Interest rates were 4.14% as of June 2001.
 - (3) Limitations. Loans are for planning, designing, and/or construction activities associated with a project. Submit a Letter of Intent to the Oregon Health Department.
 - (4) Due Date. Applications are accepted on an ongoing basis, and money is distributed until funding runs out for the year.
- ix) *Nonpoint Source Implementation Grants (319 Program) (DEQ/US EPA)*.
 - (1) Goal. To promote nonpoint source pollution reduction projects to protect drinking water sources and the general quality of water resources in a watershed. Types of projects typically funded include best management practices for animal waste, design and implementation of BMP systems for addressing nonpoint sources of pollution in watersheds, and basin-wide landowner education programs.
 - (2) Funding. Total funds available for this program are \$200 million. Oregon's share of this funding is \$2.5 million. Of this approximately \$1.2 million is available for grants. The maximum amount available for any one grant is \$150,000 per year.

- (3) Limitations. Application made to DEQ should demonstrate that the project supports State priorities. 319 funds typically support Total Maximum Daily Load (TMDL) process and target areas where TMDLs are being done. Applicants may be required to provide 40% matching funds of total project costs.
- (4) Due Date. October 29, 2001.
- x) *Clean Water Act State Revolving Loans (DEQ/US EPA)*.
 - (1) Goal. To provide low interest loans for high-priority water quality activities. Loans are available for water quality management and source protection activities including nonpoint source and urban runoff control, stormwater flow control and treatment, land acquisition for source protection treatment activities, and restoration or enhancement of riparian buffers, wetlands, and floodplains.
 - (2) Funding. The total amount available for the nation is approximately \$3 billion annually. Oregon's piece of this funding is \$35 million. Maximum per year loan amounts are approximately \$1.7 million. Loans are provided for planning activities (monitoring, investigation, evaluation of options, etc.) and construction of treatment systems. Interest rates for planning loans is currently 1.735% and for construction project loans is 3.47%. Pay back period for planning loans is 5 years from project implementation. Pay back period for construction loans is 5-20 years starting at 60 days after completion of the project.
 - (3) Limitations. Loans are made to government organizations only. Project work should address high priority concerns associated with CWA sections 319 and 320 and per Oregon DEQ water body priority list.
 - (4) Due Date. Applications are accepted from mid-December through February. Planning loans are almost always available. Construction loans are prioritized and typically have a long waiting list.
- xi) *Five-Star Restoration Program (US EPA)*.
 - (1) Goal. To support community-based wetland and riparian restoration projects. Support will be provided to projects that have a strong on-the-ground habitat restoration component that provides long-term ecological, education, and/or socioeconomic benefits to the people and their community.
 - (2) Funding. The total amount of funding available is \$500,000. The average amount of grant finds awarded to any single project is \$10,000.
 - (3) Limitations. Projects must involve contributions from multiple and diverse partners, including citizen volunteer organizations, youth groups, charitable foundations, corporations, private landowners, local conservation organizations, and federal, state, or local governments. Each project should involve at least five partners who contribute funding, land, technical assistance, work force support, or other in-kind services that are equivalent to the federal grant amount.
 - (4) Due Date. January/February 2002.

6) **Land Acquisition Subprogram**

- a) **Objective:** The objective of the land acquisition subprogram is to target critical properties in the McKenzie River watershed for purchase or conservation easement in order to protect the watershed over the long term as a high quality source of drinking water.
- b) **Scope:** The land acquisition subprogram will use the data and information compiled from the monitoring, point source, nonpoint source, and land use tracking and management subprograms to target areas that are threatened or degraded for protection or restoration, respectively. As these subprograms are implemented, hot spots of pollution, areas of high risk, and areas with zoning that is incompatible with protection strategies will be targeted for land acquisition. The McKenzie River Trust (MRT) is currently the main vehicle for land acquisition for source protection. EWEB could also work with others to encourage land acquisition (Nature Conservancy, Ducks Unlimited, etc.). However, once the scope of the potential properties that should be acquired is better understood, it may be necessary for EWEB to consider additional mechanisms for providing a continual flow of funds for acquiring property in the watershed.
- c) **Partnerships:** EWEB currently enjoys an active partnership with the MRT and will continue to meet on a regular basis to try and align MRT's goals for land acquisition with those of the source protection program. The McKenzie Watershed Council is another critical partner with whom EWEB currently has a good relationship. Additional partnerships need to be developed with other conservation organizations, Lane County, and the Oregon Watershed Enhancement Board.
- d) **Estimated Costs:** Costs for implementation of the land acquisition subprogram have already been allocated to the McKenzie River Trust. Additional funds should be considered to allow for long-term stability of a land acquisition subprogram, give EWEB more control over lands to be purchased, and provide needed funds to acquire land during market downturns (i.e., recessions). An example is a monthly fee on customer water bills for watershed protection. The potential costs of this subprogram will need to be further evaluated once there is a better understanding of the scope of lands needed for protection and restoration.
- e) **Funding Opportunities:** The MRT currently has funding to purchase land in the watershed for protection of the McKenzie River as a drinking water source. OWEB is also a source of funding for land acquisition that is important for protection or restoration of fish habitat. Other funding mechanisms include:
 - i) *Flood Hazard Mitigation and Riverine Ecosystem Restoration Program (Army COE)*. See description under the Point Source Evaluation and Mitigation Subprogram.
 - ii) *State Revolving Fund for Drinking Water (DEQ/EPA)*. See description under the Nonpoint Source Evaluation and Mitigation Subprogram.
 - iii) *Clean Water Act State Revolving Loans (DEQ/US EPA)*. See description under the Nonpoint Source Evaluation and Mitigation Subprogram.

iv) *Transportation Equity Act for the 21st Century (TEA-21) Funding Programs (Federal Dept. of Transportation and ODOT)*. See description under the Point Source Evaluation and Mitigation Subprogram.

7) **Public Outreach and Information Sharing Subprogram**

- a) **Objective:** The objective of the public outreach and information sharing subprogram is to widely disseminate data and information collected as part of the source protection program to EWEB water customers, McKenzie River watershed residents, and other stakeholders.
- b) **Scope:** The following is a summary of the various tasks and components associated with public outreach and information sharing:
 - i) *McKenzie Watershed Residents.* It is important to educate residents in the watershed about better stewardship (i.e., pesticide use, septic system maintenance, importance of riparian area, etc.) as well as provide information about EWEB's actions to protect the watershed as a drinking water source. The McKenzie Watershed Council is implementing a public outreach and education subprogram to watershed residents to engage landowners in restoration, protection, and monitoring activities. EWEB should support this effort and coordinate the dissemination of source protection information with the MWC.
 - ii) *EWEB Water Customers.* Periodic information about EWEB's source protection efforts should be provided to our customers as an insert in monthly bills. EWEB customers should be educated with regard to the objectives and scope of the source protection program so if future funding is needed for the program, customers will be aware of its purpose. Periodic updates on the progress of implementation would allow customers to see how their funds are being used for protection of the McKenzie watershed.
 - iii) *Springfield Businesses and Residents.* Areas within Springfield that are upstream of EWEB's intake should be targeted to provide information and data from EWEB's storm event monitoring program and educate businesses and residents about practices that could reduce pollution runoff into the stormwater system. Also provide education about the problems caused by increased impervious surface and alternatives to paving. This effort should be conducted with support and input from the City of Springfield and SUB.
 - iv) *Key Stakeholders.* To date, EWEB has provided draft documents to stakeholders for their review and feedback on the direction of the source protection program. Stakeholders will continue to be given opportunity to provide comments and feedback on source protection program implementation and review of draft documents. EWEB will provide data and information generated from implementation of the source protection program and in return EWEB will be seeking data and information from various stakeholders.
 - v) *Database and GIS Management.* The source protection program will be developing a database to manage the various data collected from its monitoring subprogram as well as other subprograms (Source and Nonpoint Source, Land Use Tracking, etc.). GIS will be used to manage spatial information and conduct various analyses to evaluate the relationships between geographic data over time. In addition, hydrologic models will be

used to further analyze the data to calculate pollution loadings, conduct hydrologic simulation scenarios and trend analysis. The database and data analysis results are being designed to eventually allow this information to be posted on EWEB's web site for dissemination to a wider audience.

- c) **Partnerships:** EWEB currently enjoys a close partnership with the McKenzie Watershed Council, which is involved in implementing a public outreach effort in the McKenzie watershed. EWEB will share its data and information with and, in turn, will need to obtain data, GIS coverages, and other information from the City of Springfield, MWC, University of Oregon (Inforgraphics), Lane Council of Governments, LRAPA, USGS, DEQ, Weyerhaeuser, USFS, BLM, SUB, Oregon Department of Agriculture, USDA, E. Lane Soil and Water Conservation District, NRCS, Lane County, and various business associations. EWEB already has active partnerships with the City of Springfield, MWC, USFS, LRAPA, USGS, DEQ, Weyerhaeuser, and SUB.
- d) **Estimated Costs:** Costs for implementation of the public outreach and information sharing would mainly be associated with staff time, production and mailing of fact sheets or other outreach materials, and database/GIS design and use. Since staff time is already accounted for in the source protection budget and GIS is used with many of the other source protection subprograms, the costs are minimal for this subprogram. It is estimated that approximately \$10,000 to \$15,000 per year for outreach materials production and mailing, and GIS and database related activities (web site design and production) could be attributed to the Public Outreach and Information Sharing Subprogram.
- e) **Funding Opportunities:** A number of grants exist for public education. In addition, working with the various partners will help reduce costs for implementation of this subprogram. The following is a summary of potential funding sources:
 - i) *Environmental Education Grants Program (US EPA)*. See description under Education and Research Assistance Subprogram.
 - ii) *Sustainable Agriculture Research and Education (USDA)*. See description under Education and Research Assistance Subprogram.
 - iii) *Watershed Protection and Flood Prevention Program (USDA)*. See description under Nonpoint Source Evaluation and Mitigation Subprogram.
 - iv) *Water Quality Cooperative Agreements (US EPA)*. See description under Education and Research Assistance Subprogram.
 - v) *Five Star Restoration Program (US EPA)*. See description under Nonpoint Source Evaluation and Mitigation Subprogram.
 - vi) *Nonpoint Source Implementation Grants (319 Program) (DEQ/US EPA)*. See description under Nonpoint Source Evaluation and Mitigation Subprogram.
 - vii) *Watershed Assistance Grants (US EPA)*.
 - (1) Goal. To provide financial assistance to nonprofit organizations or local governments in support of efforts for building local partnerships to protect and restore watersheds.
 - (2) Funding. The total funding available is \$600,000 with the maximum amount awarded to individual watershed partnerships being \$30,000.
 - (3) Limitations. Matching funds are encouraged but not required.

(4) Due Date. Anticipated to be June 2002.

8) ***Watershed Land Use Tracking and Management***

- a) **Objective:** The objectives of the land use tracking and management subprogram are to: gain a thorough understanding of current land use activities and zoning regulations in the watershed; develop a mechanism for tracking land use activities; and, become an active participant in shaping land use and zoning policy in the watershed to protect the McKenzie River as a drinking water source.
- b) **Scope:** The following is a summary of the various tasks and components associated with land use tracking and management:
 - i) *Assessment.* The first task is to conduct a comprehensive assessment of existing land use and zoning laws and regulations in the watershed. This information appears to exist as a data layer in the City of Springfield's GIS. For areas outside the urban growth boundary, Lane County and/or LCOG would be the source of information and may also have GIS coverages of this information. This assessment would also:
 - (1) Identify ways EWEB could automatically be notified of new building permits and zoning/land use change requests to the City and County.
 - (2) Identify future changes in zoning laws and/or land use that may positively or negatively impact source protection efforts. EWEB would request inclusion for receiving information regarding development of these changes.
 - (3) Evaluate existing laws and regulations and recommend areas where EWEB should focus efforts to change or influence the interpretation of these laws to be more protective of the watershed.
 - (4) Develop and maintain over time a list key people in City, County, and State government and industry representatives (developers, realtors, builders, etc.) to document the players associated with land use and zoning issues. EWEB would contact these key people as necessary regarding land use and zoning changes or to discuss the future direction of land use and zoning in the watershed to protect the McKenzie as a drinking water source.
 - ii) *Tracking.* Based on the information compiled as part of the assessment phase, EWEB would implement the tasks necessary to be automatically notified for new or expansion building permits, land use or zoning change requests, and law/regulation changes related to land use or zoning. Tracking mechanisms would be developed to manage this information and allow easy assessment of the priority for EWEB to become involved in a particular land use or zoning issue. This information will be managed in a database and tracked/evaluated using GIS to allow EWEB to identify high-risk areas to focus our efforts.
 - iii) *Management.* As the tracking and evaluation efforts identify high priority items or issues, EWEB will become proactive in working with partners and key players to influence the direction of land use and zoning activities to be protective of Eugene's drinking water. Another option for high priority areas that have incompatible zoning or land use is to target these areas for land

acquisition before they become an issue and the purchase price increases. The tools for influencing land use or zoning activities may include:

- (1) Education and outreach efforts to articulate the potential long-term impacts from these activities or in support of activities that set precedence for good stewardship.
 - (2) Providing detailed comments in support of or against these high priority issues.
 - (3) Building coalitions with other partners in the watershed that share similar concerns of or support for land use or zoning issues.
 - (4) Lobbying local or State government regarding potential changes to land use or zoning laws and regulations and the interpretation of these rules.
 - (5) Introducing or actively supporting the introduction of favorable land use or zoning ordinances to protect the McKenzie Watershed.
- c) **Partnerships:** EWEB needs to cultivate and build partnerships with the City of Springfield Planning Department, Lane County, LCOG, Oregon Department of Agriculture, Oregon Department of Forestry, Oregon Division of State Lands, industry groups (realtors, developers, builders, and suppliers), and landowners (large and small).
- d) **Estimated Costs:** Costs for implementation of the land use tracking and management subprogram would mainly be associated with staff time and database/GIS design and use. Some staff time is already accounted for in the source protection budget, however, additional staff time would be needed to implement this subprogram and effectively interact with government agencies and industry groups. GIS is used with many of the other source protection subprograms so the costs are minimal for this subprogram. Costs associated with land acquisition would be included under the Land Acquisition Subprogram. It is estimated that approximately \$10,000 to \$15,000 per year for additional staff time and GIS/database related costs could be attributed to the Watershed Land Use Tracking and Management Subprogram.
- e) **Funding Opportunities:** At this time, there does not appear to be other funds available for this subprogram except through sharing costs with successful partnerships.

PROPOSED SCHEDULE FOR IMPLEMENTATION

Table 1 summarizes the anticipated dates for implementation of the various components of the drinking water source protection program. The timelines shown in Table 1 reflect how long it would take to implement a subprogram task. The majority of these subprogram activities will be ongoing. The level of effort associated with these subprograms will increase or decrease as new information is collected and watershed priorities are adjusted. The reason for showing only the timeframe for implementation of a subprogram activity is because: 1) it highlights when a subprogram will start, which is also reflected in the source protection budget; and, 2) to illustrate the timing of ongoing activities associated with the numerous different tasks under each subprogram would make Table 1 very confusing. The ongoing nature of these subprogram activities is reflected in the cost estimate information.

For example, the timeline for implementation of monitoring Cedar Creek (Task #12, Table 1) is anticipated to be 42 days. Implementation would include writing the monitoring plan, preparing a health and safety plan, gaining access to properties for monitoring activities, purchasing necessary sampling equipment, bidding and selecting an analytical laboratory, coordinating with partner organizations, and numerous other logistical activities. Once the implementation tasks are completed, it is much less labor intensive the next time samples are collected along Cedar Creek. Table 1 does not reflect that monitoring Cedar Creek will be ongoing and occur five times a year for the next five years or so.

ESTIMATED BUDGET FOR IMPLEMENTATION

A range of estimated costs was provided in the discussions for each of the eight subprograms that make up the source protection program. Table 2 takes these cost estimates and overlays them with the schedule (Table 1) to show estimated costs over time for implementation of the source protection program. Table 3 summarizes these costs by subprogram for the next five years. These cost estimates include staff time, capital expenditures, analytical services, consultant services, information technology expenditures (i.e., data management, GIS, and modeling), and other costs associated with implementation of these subprograms.

The cost estimates provided in Tables 2 and 3 can be compared to the source protection program budget for 2002 and estimated budgets for future years. The level of funding that is above what EWEB has budgeted or plans to budget for the source protection program would need to be made up from other funding sources (grants, loans, partner contributions, etc.). The funding deficit for 2002 is approximately \$140,000.

The source protection subprograms that have the highest potential to obtain funding from grants or low interest loans are the Disaster Preparedness, Education and Research Assistance, Nonpoint Source Evaluation and Mitigation, and Public Outreach and Information Sharing. The budget for these four subprograms in 2002 is \$71,000. The subprograms that have the highest potential for partner contributions include Comprehensive Monitoring and Point Source Evaluation and Mitigation. The budget for these two subprograms is \$259,000.

**Table 3
Projection of Subprogram Costs from 2001 to 2005**

Source Protection Subprogram	2001 ¹	2002	2003	2004	2005	Subtotal
Comprehensive Monitoring	\$33,000	\$223,000	\$267,000	\$215,000	\$130,000	\$868,000
Disaster Preparedness	\$3,500	\$20,000	\$36,000	\$33,000	\$35,000	\$127,500
Education and Research Assistance	\$2,500	\$8,000	\$25,000	\$25,000	\$25,000	\$85,500
Point Source Evaluation and Mitigation	\$3,000	\$36,000	\$58,000	\$85,000	\$95,000	\$277,000
Nonpoint Source Evaluation and Mitigation	\$3,000	\$33,000	\$76,000	\$187,000	\$195,000	\$494,000
Land Acquisition ²	\$500	\$2,000	\$10,000	\$22,000	\$55,000	\$89,500
Public Outreach and Information Sharing	\$1,000	\$10,000	\$32,000	\$32,000	\$25,000	\$100,000
Land Use Tracking and Management	\$500	\$15,000	\$14,000	\$26,000	\$45,000	\$100,500
TOTAL ESTIMATED COSTS	\$47,000	\$347,000	\$518,000	\$625,000	\$605,000	\$2,142,000

¹ = 2001 costs is for the fourth quarter only.

² = Costs do not include actual acquisition of land.

Table 4 summarizes the source protection coordinator position's level of effort (LOE) to implement the source protection program over the next year. These hours are estimated

based on which subprograms will be implemented during 2002 and the type of work envisioned during implementation of these activities. As indicated in Table 4, almost 50% of the source protection coordinator's time will be involved in implementation of the monitoring subprogram. Another third of the time will be involved in starting the point and nonpoint source evaluation subprograms. These three subprograms are the backbone of the source protection program. As monitoring data is collected and evaluated it will likely highlight areas that appear to contribute the majority of pollution loads to the McKenzie River. The next step is to evaluate all the potential point and nonpoint sources of pollution located in the area highlighted by the monitoring data to locate hot spots that can be targeted for mitigation actions.

Table 4
Source Protection Coordinator Level of Effort (hours) in 2002

Source Protection Subprogram	4th Qtr 2001¹	1st Qtr 2002	2nd Qtr 2002	3rd Qtr 2002	4th Qtr 2002	Subtotal
Comprehensive Monitoring	280	270	250	150	150	1100
Disaster Preparedness	40	24	16	40	60	180
Education and Research Assistance	8	8	16	24	40	96
Point Source Evaluation and Mitigation	40	80	80	100	120	420
Nonpoint Source Evaluation and Mitigation	40	40	60	120	120	380
Land Acquisition	4	4	4	8	8	28
Public Outreach and Information Sharing	16	4	8	16	24	68
Land Use Tracking and Management	4	16	16	24	24	84
TOTAL ESTIMATED HOURS	432	446	450	482	546	2356